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ANALYSIS OF PASSENGER SATISFACTION SURVEY IN RIGA INTERNATIONAL AIRPORT

Inese Abolina, University of Latvia

Alisa Uzarina, University of Latvia

Abstract. The global aviation sector has never had a greater crisis than what it is experiencing during the COVID-19 pandemic. While passenger numbers are growing, COVID-19 remains a threat. This interdisciplinary study maps airport passenger services digitalization research referring to passenger satisfaction. The study tracks the influence of touchless airport services, as well as global pandemic COVID-19, focusing on the safety and encouragement of airport passengers. Study aims to identify a gap between the level of expectation and satisfaction of Riga International Airport (RIX) passengers. An empirical survey was conducted on passengers who have experience of using airport services prior to and during the COVID-19. In total, 1315 questionnaires were analysed by employing a SERVQUAL model. This study can be used to create policy recommendations in order to implement the safety measures and other types of airport services focusing on further improvement during and after COVID-19. Article concludes that COVID-19 changed passenger habits significantly, it left long lasting impact on confidence, and willingness to travel has been tempered by concerns over the risks of catching COVID-19. The lessons learned of COVID-19 require accelerating new processes with less face-to-face (F2F) contact enabling and encouraging all passengers, despite age, gender, education, race, disability or other personal qualities, the right having safe and user-friendly services.

Keywords: *passenger satisfaction; digital self-service processes; touchless airport.*

JEL code: L90, J28, F68

Introduction

Airport passenger satisfaction has become the subject of considerable academic attention (Ordieres-Meré et al., 2020; Straker & Wrigley, 2018; Zaharia et al., 2018; Halpern, 2017; Li et al., 2017; Little, 2015; Bogicevic et al., 2013; Jiménez & Suárez, 2012; Seyanon, 2012; Subha et al., 2012; Drennen, 2011; Park & Jung, 2011; Knox et al., 2008; Paternoster, 2008; Tseng et al., 2008; Fodness & Murray, 2007; Lee & Kim, 2003). As the market of tech-savvy consumers continues to grow (Straker et al., 2018), to-day's airport passengers are demanding specific functionalities and self-service digital solutions (IDEMIA, 2019) to simplify their airport experience. The consequences of COVID-19 require new interdisciplinary research on processes with less face to face (F2F) contact enabling and encouraging all passengers, despite age, gender, education, race, disability or other personal qualities, the right to safe and user-friendly services. COVID-19 global pandemic will significantly accelerate the transition to digital technology. The pandemic has made significant adjustments to passengers' behaviour and daily habits. For example, the need to maintain social distance and pay attention to cleanliness has emerged. Therefore, the use of digital technology not only brings benefits related to business process efficiency but is becoming widespread in combatting the spread of the new coronavirus.

The aim of this study is to identify a gap between the level of expectation and satisfaction of Riga International Airport (RIX) passengers. Research problem: decline in passenger numbers in Northern European air traffic hub – RIX airport due to COVID-19. Study puts forward two research questions: what is the difference between passenger expectations and received experience in RIX Airport, and which are the most important measures that should stay after the pandemic is over? In order to answer research questions and obtain the aim of the study, two tasks are accomplished: to conduct a survey between respondents – permanent residents of Latvia, who have travelled before and during global pandemic COVID-19 and to analyse survey data results to reveal passenger satisfaction with digitalisation of services at Riga International Airport during the global pandemic. The topicality of this study is a necessity for new solutions for adaption to changing circumstances due to COVID-19 to renew airport self-services and business development. Nevertheless, global pandemic COVID-19 significantly changed passenger habits, left long lasting impact on confidence and willingness to travel have been tempered by concerns over the risks of catching COVID-19, the novelty of this study is to establish innovative solutions for business development and adaptation to changing circumstances due to COVID-19 pandemic to renew airport services, to get a significant improvement in existing processes: body temperature screenings, check-in, baggage drop, security control, passport control and boarding. Authors measure and evaluate passenger satisfaction and technological possibilities using cross-sectional research design and mixed methodology. The quota sample for interviews, collected via WAPI methods, is drawn from the population of Latvia registered on the SKDS WebPanel. Research subject is RIX airport passengers. In this study passengers represent a sample size of 1,315 permanent residents of Latvia aged 18-75. The sample is directly proportional to the total population of Latvia in the target group in terms of age, sex, nationality, and place of residence. The obtained data are analysed in RStudio software environment for statistical calculation and the results are visualized with MS Power BI.

Literature Review

Digitalization transforms the ways businesses operate – organizations as airports are developing digital solutions to reach more efficient value creation (Kohtamäki et al., 2019). New digital initiatives at airports are becoming more and more common aimed to increase business and operations efficiency. Advanced technologies are essential for meeting the growing passengers demand by easing flow monitoring processes, improving customer engagement, contributing to collaborative decision making and automating processes (Zaharia et al., 2018). Demand for new digital solutions and market acceptance are one of the crucial factors that affect airports readiness for digital change. Thus, that is not surprising that COVID-19 pandemic accelerated the global airport investment in digital technologies. Digital transformation of airports, including introduction of biometrics and contactless and touchless solutions, is going to lead to the seamless travel and help airports to recover (Halpern et al., 2021). The aviation industry is transformed via Internet of Things, as it plays a vital role in ensuring increasing customer satisfaction and provides different solutions to problems related to safety, capacity, and compliance. Overall, technologies can be applied in airport areas in such processes as check-in, self-boarding, indoor navigation, identity identification, handling baggage, etc (Kovacicova et al., 2021). For instance, self-check-in kiosks are proved themselves to be able to deal with high demand and capacity problems at occupied airport terminals (Al Kheder, 2021). New technological solutions are being implemented mostly in busy and profitable airports. Some of them are adopting technologies for sustainable practices. In this way they meet social and legal requirements simultaneously satisfying passengers (Sreenath et al., 2021). Sustainable environmentally efficient aviation is closely related to introduction of smarter technologies. Implementation of environmentally friendly practices and reducing the environmental footprint of the industry can improve passengers' safety and experiences (Amankwah-Amoah, 2020).

Last two years were tough financially for the tourism and travel industry, including air travel. Travel restrictions spread out globally by end of March 2020 negatively impacting the number of global flights. Due to the fact that airlines were forced to introduce specific seating policies to maintain a distance between passengers, the number of travellers has also declined significantly (Gössling et al., 2020). Statistical data show the devastating impact of the COVID-19 pandemic on the landscape of European and global aviation. Many airports and airlines design innovating strategies in response to the crisis (Albers et al., 2020). Recent studies of passenger service and its innovation emphasize that

innovations can retain customers in changing conditions. For instance, physical distancing contributes to health and safety measures and keeping that in public spaces could be based on technical features (Heinonen et al., 2020). COVID-19 has accelerated the use of technologies in the aviation sector aimed to construct a more pandemic-resilient aviation system. This kind of system enables to reallocate existing resources and engage aviation stakeholders in more collaborative decision making. (Sun et al., 2021). Many researchers underline the dynamics of COVID-19 inspired innovations that not only respond to pandemic, but also improve organizational agility and market competitiveness. Now we can see the introduction of touchless technologies at airports that successfully minimize face-to-face contact. Although self-check-in and self-scanning of boarding passes have been available already prior to pandemics, more and more touchless processes have been introduced with an aim to curtail the spread of the virus (Amankwah-Amoah, 2021). Seamless passenger journey is needed to prevent the virus spread. That is the reason why some airports design AI-enabled self-driving trolleys. (Iwashokun et al., 2021). Until recently, the technique of condition-based maintenance was not fast enough developed at airports, although it significantly improves the baggage handling systems. New technologies enable to reduce the incidence of baggage handling failures (Koenig et al., 2019).

It should be noted that the safeguard measures introduced by airports are critical for air passengers wishing to travel during COVID. Empirical evidence of previous research suggests that passengers are concerned about the spread of the virus both on the ground and on board. That requires from airlines and airports to develop tailor-made travel services to satisfy passenger needs (Lin et al., 2021).

Given the fact that the quality of services is vital for the performance of organizations, including airports, SERVQUAL model or its modification are widely applied to evaluate travellers' satisfaction. The model allows to compare expectations and perceptions. There are five dimensions: tangibility; reliability; responsiveness; security; empathy (Fernández et al., 2021). All these dimensions constitute the perceived service quality that is closely connected with the passengers' satisfaction. According to previous studies, the most influential factors are usually tangibility and responsiveness (Nonthapot et al., 2020). Moreover, these two dimensions not only have direct influences on travellers' satisfaction, but also have indirect effects on passenger loyalty (Thi et al., 2020). It is possible to use an adapted SERVQUAL model, focusing more on convenience and ease of use in order to analyse passenger service experience at airports (Otieno et al., 2016). Ease of use and usefulness are important dimensions in adoption of such technologies as self-check-in kiosks (Lin et al., 2015). Several authors prefer to use an assurance dimension instead of security. Nevertheless, SERVQUAL principles allow airports to integrate service quality criteria and improve services and their image (Jeeradist, 2021).

Tangibility refers to the appearance of physical facilities, equipment (e.g., technologies) and personnel. Reliability represents accurate performance of the promised service. Responsiveness is generally defined as prompt service and willingness to assist passengers. Assurance means the ability to evoke trust and confidence. Finally, empathy is the provision of care and attention to travellers (Thi et al., 2020). Exploratory research of customer insights and satisfaction proves that introduction of new technology in operations increases the overall quality of services to customers (Nurmahdi, 2019).

Apart from quality dimensions, the SERVQUAL model is founded on five gaps allowing to measure the customer satisfaction. Gap 1 means the difference between client's expectation and management perception of client expectation, Gap 2 represents the gap between management or service provider perception and actual customer service quality specification, Gap 3 is the difference between service quality specification and actual service delivery, Gap 4 is the difference between the level of service promised and received, and Gap 5 is the difference between client's expected service and experienced service (Lee et al., 2016).

Research results and discussion

The study uses a questionnaire which was presented to the respondents – permanent residents of the Republic of Latvia. The questionnaire contains questions, from which some have seven-point scales. With regard to the focus of the research, the sample of evaluating passenger services at Riga International Airport (RIX) only included airport's passengers, and therefore were able to evaluate passenger services. The survey was conducted in cooperation with research centre *SKDS*, private and independent research company whose major field of activity includes public opinion research. *SKDS* is represented in the E.S.O.M.A.R. (European Society for Opinion and Market Research) and closely follows the ethical and methodological rules and standards for research institutes within opinion and marketing research. Since 2014 *SKDS* is a member of WIN (Worldwide Independent Network of Market Research and Opinion Poll).

The research used web assisted personal interviewing method (WAPI) – respondents were invited to complete the questionnaires online.

The sampling of the research was drawn from the population of Latvia registered on *SKDS* WebPanel. It was determined by total of 1315 respondents between age 18 and 75. Gender distribution of respondents are almost equal (52% females, 48% men). Most of respondents are Latvians and with higher education. The socio-demographic structure of the sample is shown in Table 1.

Table 1

Socio-demographic profile of respondents (n=1315)

Characteristics	Frequency	Percentage
Gender		
Male	635	48.3%
Female	680	51.7%
Age		
18 – 24	68	5.2%
25 – 34	191	14.5%
35 – 44	264	20.1%
45 – 54	285	21.7%
55 – 63	267	20.3%
64 – 75	240	18.3%
Nationality		
Latvian	776	59.0%
Russian	364	27.7%
Belorussian	39	3.0%
Ukrainian	33	2.5%
Polish	43	3.3%
Lithuanian	16	1.2%
Hebrew	10	0.8%
German	3	0.2%
Estonian	5	0.4%
Other	26	2.0%
Level of education		
Without education	1	0.1%
Primary education	32	2.4%
Secondary education	156	11.9%
Secondary vocational education	305	23.2%
Higher education	821	62.4%

Source: author's calculations based on survey results

Survey provides additional information on travel behaviour of respondents. The results are given in Table 2. Before the pandemic, most respondents (52%) used RIX services at least once in the last three years. However, after March 2020, the majority did not use RIX services at all (90% of all respondents or 71% of those who were flying previously).

Table 2

Travel behaviour of respondents (n=1315)

Description	Frequency	Percentage
Frequency of flying from/to Riga International Airport over the last 3 years till March 2020		
0 times	383	29.1%
1 – 2 times	319	24.3%
3 – 4 times	179	13.6%
5 – 10 times	120	9.1%
11 – 20 times	42	3.2%
More than 21 times	22	1.7%
Never used Riga International Airport at all	250	19.0%
Frequency of flying from/to Riga International Airport from March 2020 till now		
0 times	933	71.0%
Once	70	5.3%
Twice	38	2.9%
3 – 5 times	14	1.1%
More than 5 times	10	0.8%
Never used Riga International Airport at all	250	19.0%
Frequency of flying from/to other airports from March 2020 till now		
Tallin	8	0.6%
Vilnius	14	1.1%
Kaunas	6	0.5%
Riga	132	10.0%
Not using airports at all	1155	87.8%

Source: author's calculations based on survey results

Those respondents who have flown from RIX during COVID-19 pandemic (i.e. since March 2020) usually choose such destinations as Vienna, Amsterdam, Kiev, München and Brussels.

Based on the concept of the service quality for an airport that could be defined as a perceived level of service delivered to the airport user (Francis et al., 2003), one service quality gap from the SERVQUAL model with the aim to identify gap occurring between perceived and

expected service quality is included in the survey. The set of measurement items are related to getting to/from the airport; check-in and security; waiting for flight and boarding; epidemiological aspects. Passengers indicated their opinion by rating on a five-point scale.

Survey reflects that most RIX passengers rated their journey to the airport good (see Fig. 1). On average, the service received even exceed the expectations. However, given the fact that passengers get to airport on their own or using third-party services (e.g., taxi) that are not related to the airport's operations, this factor does not characterize the quality of the service at RIX. Nevertheless, flow management technologies can change the situation. For instance, airports can use real-time data to identify transport shortages and bottlenecks and let passengers know via apps when it is the best time to leave home.



Source: author's construction based on survey results

Fig. 1. Passengers' rating of the arrival experience at Riga International Airport

Further passengers' experience was investigated, at check-in counters and at the security checkpoint. Most respondents were more than satisfied with their experience of check-in, rating the registration waiting time as good. However, as Figure 2 shows, passengers spent more time waiting for their registration than they had expected. In order to improve airport passenger flow, it is possible to promote online check-ins or self-service kiosks.



Source: author's construction based on survey results

Fig. 2. Passengers' rating of the registration waiting time at Riga International Airport

Also, the attitude of security employees was measured. Only 3.7% of passengers were not satisfied with the way how they were treated at the security checkpoint. Almost 30% have rated the attitude of security staff as excellent and another 30% rated as good (see Fig. 3). Given the fact that modern technologies are ready to perform some tasks better than humans, passenger experience could be improved via automated screening lanes, biometrics technology and other emerging innovations aimed to cut airport queues.



Source: author's construction based on survey results

Fig. 3. Passengers' rating of the attitude of security staff at Riga International Airport

A similar result as for registration waiting time was shown when evaluating the flight waiting experience. Although most respondents rated it as good, their expectations were much higher (see Fig. 4). On the other hand, number of those who evaluated the flight waiting experience as excellent is twice higher than the number of passengers surveyed who had assumed it would be at such level. In order to increase customer satisfaction level waiting for the boarding, shopping and dining solutions might be offered. In addition, different entertainment activities might

be considered. Digital solutions can help as well. For instance, using the airport food-ordering apps, passengers could order and pay for snacks using their smartphones in case they are tired of running-through terminals.



Source: author's construction based on survey results

Fig. 4. Passengers' rating of the flight waiting experience at Riga International Airport

Boarding the plane was rated at relatively high level. Most respondents evaluated this process as good, and the significant part of the passengers found it very good or even excellent (see Fig.5.).



Source: author's construction based on survey results

Fig. 5. Passengers' rating of the boarding the plane at Riga International Airport

Safety measures at airports are important to tackle the spread of COVID-19, protect both passengers and employees and to build confidence among passengers to start travelling again. Hand disinfection stands for passengers are available at RIX. As Figure 6 shows, although for 27 visitors hand hygiene facilities were not relevant, most passengers have disinfected their hands and were more than satisfied with the service.



Source: author's construction based on survey results

Fig. 6. Passengers' rating of hand disinfection at Riga International Airport

Even not all airports are implementing thermal scanning to determine if travelers have fever prior to departure, RIX has equipment for measuring body temperature. From the Figure 7 it is apparent that 36% of passengers' body temperature was not checked. Overall, passengers' expectations about the body temperature check were higher than the actual received service. It is possible to conclude that RIX should implement more strict measures regarding temperature checks. RIX might deploy modern technologies as temperature and heat sensors or cameras that identify potentially ill patients from a remote position that is a vital part in protecting people.



Source: author's construction based on survey results

Fig. 7. Passengers' rating of body temperature measurement at Riga International Airport

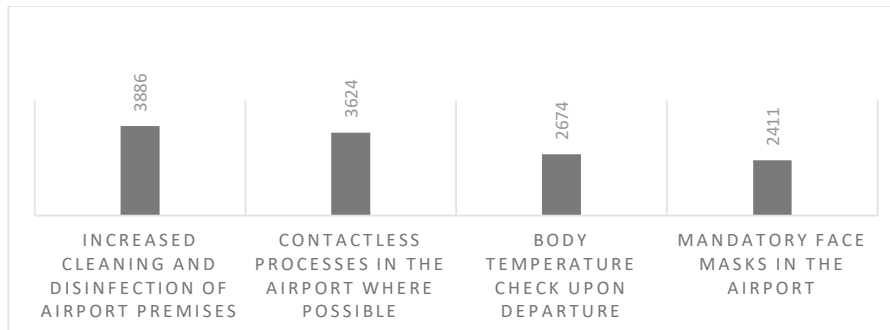
Self-service check-in kiosks are available at Riga International Airport. As they can be used by customers of only several airlines, there is no surprise that for 54% of respondents this option was not relevant (see Fig.8). For the rest of respondent's self-service check in kiosks were convenient in use.



Source: author's construction based on survey results

Fig. 8. Passengers' rating of self-service check in convenience at Riga International Airport

Airports are forced to prepare for the "new normal" business model and to adapt to the new passengers' needs and expectations. According to Figure 9, the most important factors that predict passengers' willingness to fly after COVID-19 pandemic are hygiene (increased cleaning and disinfection of airport premises), touchless travel (that is possible with the introduction of airport biometrics), airport body temperature screening and wearing a mask to reduce the risk of spreading the infection.



Source: author's construction based on survey results

Fig. 9. Most important measures that should stay after the pandemic is over

Passengers have concerns with their safety while traveling. Due to the fact that the most worrying aspect is waiting in line during registration, safety control, border control or boarding, airports should improve the existing passengers flow inside the terminal and adjust the processes to the new conditions of social distancing. The introduction of touchless technology could solve the problem of handing personal items to the airport staff or touching luggage after receiving it. It is also important to focus on cleanliness and hygiene, especially in the airport restrooms, waiting sectors and rest areas.

Conclusions, proposals, recommendations

1. Global pandemic COVID-19 has influenced passenger travel by air via RIX airport as from late February 2020. Latvia's border for international air passenger transport were closed for two months since March 17, 2020. The only exception was passenger transport by state aircraft – repatriation flights and some exceptionally allowed flights by the Minister of Transport. The very slow business and leisure air traffic recovery started on May 18, 2020, when first daily flights from RIX were operated by national carrier airBaltic to Frankfurt and Oslo.
2. Before global pandemic COVID-19, RIX handled 525 thousand passengers in January 2020 (7.8 million passengers in 2019). Passenger number decreased in February to 489 thousand, in March to 235 thousand. 3060 repatriation and special flights passengers were handled via RIX in April 2020. During May, when airBaltic resumed operations, 10 thousand passengers went to and from RIX. In May 2020, number of passengers declined to 98% comparing to May 2019. There was a slight passenger growth to 55 thousand in June 2020, which reached 92% of decline comparing to June 2019. The number of passengers at the airport has decreased sharply due to the additional measures introduced as a result of the COVID-19 pandemic.

3. Study reveals the level of expectations and satisfaction of RIX passengers. Most digital services which are established in RIX airport have been positively approved by passengers. In most cases received service have been rated better than passenger expectations before using RIX services.
4. Study acknowledges passenger satisfaction which might support business development and RIX adaptation to changing circumstances due to COVID-19 pandemic renewing airport services. Even though the use of a self-registration kiosk was not relevant for most respondents - in general, it is considered a convenient and user-friendly solution. Also, there is a demand for the recently introduced self-service baggage drop-off service. Passengers feel safer using hand disinfection facilities at the airport, but distance retention options do not meet passengers' expectations, although there is no tendency to complain about queues.
5. Study reveals the most important measures that should stay after the pandemic is over – hygiene (increased cleaning and disinfection of airport premises), touchless travel (that is possible with the introduction of airport biometrics), airport body temperature screening and wearing a mask to reduce the risk of spreading infections. State-of-the-art technology and well-organized processes would allow for contactless processes at the airport, which will remain important for most passengers in near future.
6. RIX is improving and should continuously develop existing processes: body temperature screenings, check-in, baggage drop, security control, passport control and boarding.
7. This analysis leads to a conclusion that all airport passengers have equal access to digital self-services and in general, passengers are rather satisfied with the processes at RIX, and their expectations are met. Still, there is a necessity to follow trends and innovations around the globe.

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REVIEW ARTICLE: STUDY OF TOUCHLESS AIRPORT FOCUSING ON AIRPORT PASSENGERS' SATISFACTION

Inese Abolina, University of Latvia
Alisa Uzarina, University of Latvia

Abstract. The global aviation sector is experiencing crisis during the COVID-19 global pandemic. This innovative interdisciplinary study maps airport passenger services digitalization literature review concerning passenger satisfaction. The study tracks the influence of touchless airport services, focusing on the safety and encouragement of airport passengers.

The review includes a general screening of more than 100 publications covering the period of 2016-2021, and a close reading of more than 20 selected publications, including literature cited and citations of each.

The study consolidates key constructs of passenger satisfaction, digital self-service processes in airports, passenger attraction policy and touchless airports.

Review article establishes discussion on previous research on the touchless airport, suggests ideas for further research and extends the literature on passenger satisfaction with touchless airports.

Keywords: *passenger satisfaction, digital self-service processes, passenger attraction policy, touchless airport.*

JEL code: L90, J28, F68

Introduction

This article brings together theoretical and empirical academic research on touchless airport sector innovation. COVID-19 global pandemic has affected air transport like never before. At the beginning of the pandemic no one could imagine that this would be the biggest crisis in aviation history. Airports all over the world were prompted to cut capacity due to the steep drop in aeroplane passenger numbers. World passenger flow fell by 60% in 2020, returning the industry to 2003 levels (ICAO, 2021). Revenues of airports have sharply declined to put their financial stability in an existential threat. The recovery of airports depends on their ability to adapt to the "next normal", including digital maturity and strategic orientation. To bring air transportation back to normal and overcome the crisis faced by the aviation industry, it is crucial to restoring confidence in the safety of air travel. Via a systematic literature review, more than 100 articles and books on touchless airport innovation, published between 2016 and 2021 are investigated. These studies are analysed based on the following themes: (1) the definitions of innovation, (2) innovation types, (3) goals of innovation, (4) antecedents of innovation and (5) outcomes of innovation. Based upon this analysis, an empirically based framework of potentially important antecedents and effects of touchless airport sector innovation is developed. Three research suggestions are put forward: (1) more variety in methods: moving from a qualitative dominance to using other methods, such as surveys, experiments, and multi-method approaches; (2) emphasize theory development and testing as studies are often theory-poor; and (3) conduct more cross-national and cross-sectoral studies, linking for instance different airport services digitalisation tools to the development and effects of touchless airport sector innovation.

COVID-19 has accelerated innovation processes, including digital development which brings various economic and non-material benefits. Customers in all industries are becoming more demanding willing to receive high-quality services enabled by digitalization. The aviation sector is also being forced to start work on its digital transformation to provide valuable experiences for airport visitors. Even when the travel restrictions are cancelled, passengers will still be concerned about their well-being. Thus, physical distancing measures will remain in place, giving a rise to a contact-free infrastructure. Quick but prudent actions are required to address current challenges, including new standards and technologies for airport and aircraft quarantine, a task that necessitates close communication and cooperation among relevant stakeholders such as international organizations, governments, airports, and airlines.

The article is based on systematically recapping the main novelties of the field of touchless airport solutions to identify ways to advance research in the field. First, the general trends concerning theoretical foundations have been mapped. Secondly, suggestions for further research have been provided.

The article seeks to answer:

1. What are the main research themes and basic theories in the field? Which definitions and case samples are used? How are these related, and how do the choices make to frame the knowledge about touchless airport development?
2. Which relevant research themes are still underexplored, and what are the implications of current findings for future studies on touchless airport development?

Literature Review

For structured review, a consequent method containing three main steps were used. In the first step, the main keywords in well-known databases like the Web of Science and Google Scholar were traced. Also, additional sources as reports of the international aviation organisations and articles of management and consultancy companies to make this article interdisciplinary, using sources from different fields, such as business, management, politics, law, aviation were identified. The initial search comprised more than 100 English-language resources.

In the second step, paper abstracts, summaries, and conclusions, thus narrowing the list to 50 items, which correspond to the research focus were explored.

In the final step, close look of more than 20 articles got acquainted. Articles have been published mostly in the last years, with some exceptions due to the high-quality content. They are categorized according to the main topic explored to compare the findings of relevant publications.

Review article discuss the studies identified by presenting the theoretical contributions made, ways of airport digitalisation, the results, and potential for future research.

The approach for the selection of review articles has certain implications. Firstly, there is a language limitation, as attention was paid only to English-language publications, because the aim is to look at the international perspective and aviation industry worldwide. In addition, English-language articles constitute a majority of the international research community. Nevertheless, it cannot be stated that publications made in other languages have only local focus and a lower level of trustworthiness.

In addition, review article concentrates mostly on the airport sector, while it is possible to find best practice examples from other stakeholders or the aviation industry sub-sectors (e.g., airlines) or other travel sectors (e.g., maritime travelling, railway travelling etc.). It can reveal more insights into how passengers adapt to the new technologies and how are they satisfied with the digital innovations.

Research results and discussion

Overall research trends and themes

The current research focuses on compiling and analysing scientific literature on digital transformation in the aviation industry - a creation of a contactless airport, digital self-service processes, reducing physical/face-to-face contact, but promoting passenger satisfaction, and thus, increasing passenger flow and loyalty.

Other countries' airports' experience prior and during COVID-19 was considered, e.g., use of the latest digital technologies; change of passenger habits and their adaptation (digital boarding passes etc.); biometric readability; a safe airport area for passengers and employees; baggage transfer and boarding automation, and other technology-dependent services.

By the date of this publication, the major air travel industry trends include, but are not limited to the utilization of state-of-the-art technology (robots as passengers assistants during the peak hours at airports), digital passenger solutions (while pursuing passenger-oriented approaches, airports are interested in how passengers adapt to various technologies helping them quickly navigate at the airport); paperless system (developing solutions to collect and store information with less paper); biometrics (face recognition technologies to strengthen the security, reduce the number of employees and faster the onboarding processes).

Theoretical core. Literature review

There is clear evidence that whole aviation industry is actively implementing countermeasures to prevent the spread of COVID-19. One of the main responses is digital transformation that helps to ensure safety and health of passengers (Drljača et al., 2020). More contactless and self-service processes is an essential measure put in place to ensure aviation safety during pandemics (Dube et al., 2021). Technology adoption has never been faster before the pandemics, as the "contact phobia" drives the demand for a touchless travel experience.

More early studies show that not only COVID-19 has accelerated the digital transformation of airports to ensure more safety. For instance, after 9/11 attacks in 2001 and Europe's worst terrorist attacks in Paris, more and more airports have started to strengthen their security screening procedures. Introduction of systems that automatically detect and classify hazardous substances thanks to biometric information, Big Data, and AI. With the view of making airports less crowded, a faster check-in process was needed, and the trend went towards introducing self-check-in kiosks. All these technological advancements not only contribute to safe fast-track, but also are not dependent on human error (Kim, and Park, 2019). Other research also points out that after 9/11 events passengers are forced to spend more time in airports due to longer security procedures. A range of technologies is being put in place to improve passengers' experience while spending time in queues (Bogicevic et al., 2017). The aviation industry is forced to implement new initiatives to deal with such threats as 9/11 attacks or COVID-19. Computer models are capable of tracking patterns of diseases spreading through the transportation network across airports (Dube et al., 2021).

This provides evidence that organisations need to innovate, especially in times of crisis. Innovations can be helpful to ensure responsible travel, like, seamless flow (making the experience of passenger touchless), sanitizing zones (to ensure a safe and healthy environment), real-time area occupancy monitoring (to measure how many people are in the area and to direct flows), autonomous passenger bridge (to lessen employees' exposure of viruses).

There exists a considerable body of literature on modern airports, their infrastructure, design, and facilities. In short, the literature strongly suggests that airports cannot be imagined without the use of various emerging technologies that allow implementation of multiple digital processes and functions (Halpern et al., 2021).

There are four types of industrial revolutions that can be applied in the airport sector (see Table 1). Sticking to the airport digital maturity model, four essential stages of the airport's digital transformation can be identified as indicated in the table below.

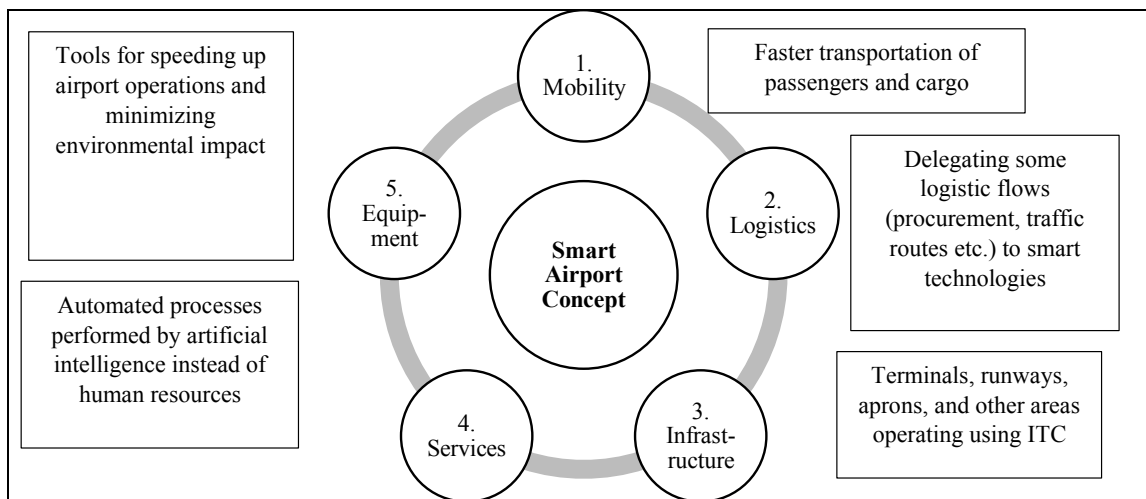
Table 1

The digital airport maturity model

Airport model	Stage	Description
Airport 1.0	Analogue	An airport that relies mostly on manual processes with staff playing main role in delivery of processes (Halpern et al., 2021).
Airport 2.0	Digitisation	An airport gradually shifting its strategies by introducing self-service and automating some key flow processing tasks (Halpern et al., 2021).
Airport 3.0	Digitalisation	An airport starts to use more extensively specific digital solutions aimed to optimize passenger flow and bring additional value to standard functions. Some systems are interconnected (Halpern et al., 2021).
Airport 4.0	Digital transformation	Fully connected and integrated airport with continuous use of data captured. This high level of digital transformation makes it possible to adapt to the real-time situation thanks to the live data (Halpern et al., 2021). Digital transformation includes mobile CRM, Cloud, Block-chain technologies, Big Data, Internet of Things and Robotics (Zaharia et al., 2018).

Source: author's created based on Halpern et al., 2021; Zaharia et al., 2018

Airport 4.0 can solve challenges that experience such major airports as London Heathrow, London Gatwick, Frankfurt, Düsseldorf, or Milano. Due to limited capacity, they are working hard to introduce new technologies (Zaharia and Pietreanu, 2018). Smart Airport concept, i.e., an airport that relies on the use of connected technologies, integrates various advances in several fields. Examples of the fields are illustrated below (see Figure 1).



Source: author's construction based on Drljača et al., 2020

Fig. 1. Smart airport concept

Various range of methods from digitisation to digital transformation can be applied in all scope of the airport processes and services, which is illustrated by the next examples presented in the table below. That proves that the infusion of digital technologies in the airport has impacted its numerous operations transforming business model.

Table 2

Examples of applications of digital solutions

Airport operations management	The introduction of an operations centre results in better collaboration among airport stakeholders and optimization of use of resources (Zaharia et al., 2018). For example, Changi Airport offers passengers a feedback system in order to ensure real-time data in a simple manner. Passenger opinions sheds light on customer behaviour and needs for airport management (Jaffer et al., 2014).
Flow monitoring and capacity management	Digital and interactive displays save time and minimize queues. Bluetooth and Wi-fi technologies permit to introduction of geo-localization and flow monitoring. Gathered data is being analysed, visualised, as well as AI can help to make decisions, in order to improve the overall efficiency (Zaharia et al., 2018). Bluetooth passenger tracking gathers data on passengers' movements enabling to identify the crowds and to manage flows and queues (Jaffer et al., 2014).
Baggage handling	Automatic baggage handlers in departure zone improves the capacity of terminal (Zaharia et al., 2018).
Security control	Automatic security control systems allow maximum use of terminal internal space and may increase by up to 30% of airports capacity (Zaharia et al., 2018).
Border control	Self-service boarding systems may reduce boarding time by half (Zaharia et al., 2018).
Predictive and preventive solutions making	Automated planning management and preventive actions can support in security matters, if analysing passenger name record and suspecting their identifications (Zaharia et al., 2018).
Biometrics	Technology can support in identity management, as well as to collect data on passengers with a purpose of development of personalized products and services (Drljača et al., 2020). Interest in biometrics at security screening is high. This can be explained by ability of technologies to scan passengers while they are moving, so they do not need to remove items (Halpern et al., 2021).
Flight rebooking	An opportunity to obtain new boarding pass in a timely manner via self-service channel (Drljača et al., 2020).
Self-boarding	Automated boarding gates enable self-scanning boarding pass to proceed the way towards airplane (Drljača et al., 2020).
Robots	Robotics may be helpful in operational roles, as well in providing on-the-spot assistance to passengers (Drljača et al., 2020).

Source: author's construction based on Zaharia et al., 2018; Jaffer et al., 2014; Halpern et al., 2021; Drljača et al., 2020

More and more airports are launching mobile apps to share information with passengers (Zaharia and Pietreanu, 2018). Airport mobile applications can provide data related to the flight, notify on changes in arrival or departure details and help to orientate in airport. Digital way finders are implemented in airports allowing passengers to find necessary amenities within a short walk (Straker and Wrigley, 2018). Various digital solutions are dealing with numerous passenger issues, helping them to navigate within the airport's premises, to find baggage, to receive destination information, etc. For instance, London's Heathrow Airport has designed a mobile application that simplifies the passenger journey throughout the airport. The application enables live flight updates, gives access to terminal maps, provides weather information and other functions. Copenhagen Airport's mobile app contains terminal maps, and even incorporated augmented reality (Jaffer and Timbrell, 2014).

One more example of digital transformation is AI-based chatbots who are actively used at München Airport, Incheon Airport, Amsterdam-Schiphol Airport, airports in Canada and others. The chatbots improve communication and administrative processes, providing individual answers to passengers' requests. Indeed, AI robots can be used in multiple airport functions, including logistics, transportation, catering, luggage carrying and other operations (Miskolezi et al., 2021).

It is possible to find more extreme applications of technologies in airports. Some pioneers collect and deliver baggage using drones, accept virtual currencies, sell 3D printed goods, etc (Halpern et al., 2021).

The examples mentioned perfectly match the scope of public sector innovation. There are different public sector innovation types relevant to this review. For instance, new technological solutions (robots, self-check-in kiosks etc.) are an example of technological process innovation, which focuses on the creation or use of new technologies, introduced in an organization to render services to users. Self-boarding services refer to process innovation – improvement of quality and efficiency of internal and external processes. Airport operations management advances are a sort of administrative process innovation – a creation of new management techniques and new working methods (De Vries et al., 2016).

Different studies and reports suggest that customers are often unsatisfied with their experience using AI-powered solutions. When AI-powered tools do not meet the expectations, the emotional skills of customers can play a significant role resulting in more tolerance of the frustrating services. Emotional intelligence is a moderator between service experience and customer engagement. Customers with a higher level of emotional intelligence may find the convenience the services still offer, even do not work properly. At the same time, customers with a low level of emotional intelligence may not possess strong needs for cooperation with real humans and may prefer machine-operated AI (Prentice and Nguyen, 2020). Some passengers may negatively value digital technologies deployed by airports due to social and ethical values. These people are usually concerned with dehumanisation and unemployment issues. Some may be concerned with privacy issues (Halpern et al., 2021).

The most commonly used method to explore passengers' perceived service quality and customer satisfaction is the SERVQUAL model. Airports, like other companies, own visions of their offers can differ from the actual perception of passengers. Similarly, the customer initial expectations of the services that are going to be delivered do not always correspond to the impression from the experience. The model has five quality dimensions for measuring the quality of services in the mind of the customer, namely, reliability, tangibility, responsiveness, empathy, and assurance (Njoroge and Iraki, 2017). Some authors have modified the SERVQUAL dimensions, for example, adding convenience, ease of use and fulfilment (see Table 3). Such dimensions as responsiveness and empathy are excluded since they refer more to the services provided by dedicated personnel (Otieno and Govender, 2016).

Table 3

Dimensions for measuring the quality of technologies used in airports

Dimension	Meaning
Reliability	Digital solutions (e.g., check-in kiosks) work as expected, are always available and functional and do not provide any error.
Convenience	Digital solutions are easily accessible and are located at right places.
Ease of use	Level of effort required from users to achieve expected results.
Fulfilment	Technology's real compliance with initial promises and offerings.

Source: author's construction based on Otieno et al., 2016

SERVQUAL dimensions are mutually interconnected – for instance, there is a strong correlation between convenience perception and fulfilment performance, while both factors directly determine customer satisfaction. There is also a positive, but not so strong relationship between reliability and fulfilment. The ease of use significantly influences passengers' fulfilment perception. Ease of use is strongly connected to passenger adoption and willingness to use technologies, in order to not be too complicated, as simplified operations are preferred. Passengers expect a minimal level of effort to apply when dealing with self-services (Otieno and Govender, 2016).

SERVQUAL dimensions are similar to public sector innovation antecedents related to the innovation characteristics. Perceived ease-of-use of innovation, relative advantage, compatibility and trialability are some of characteristics that are positively correlated with adoption and diffusion of innovations (De Vries et al., 2016).

A recent review (Kim and Park, 2019) of the literature on this theme found that the satisfaction of passengers can be, as well, valued based on the Stimulus-Organism-Response model. The model suggests that individuals are surrounded by external environmental stimuli affecting their mood and therefore, consumption behaviour. Concerning the airport, stimuli can be characterised by functionality, enjoyment, security, customization, and convenience of the airport self-service technology. Organism means perceived value for the passenger. Whereas the response is the satisfaction with technologies, with the airport in general and further behavioural intention. The results imply that four main stimuli are affecting the perceived values (i.e., the passenger) – namely, functionality, enjoyment, customization, and convenience. That corresponds to the previously mentioned findings that those passengers who use technologies in their daily life and are not sceptical about them are more likely to use them efficiently, as well, in the airport. However, it was revealed that higher satisfaction with technologies at airport did not significantly impact the general satisfaction with the airport. The findings suggest that the smart airport environment is a critical service factor. Thus, airport facilities should be extended to offer a better and comfortable environment that would result in higher customer satisfaction (Kim and Park, 2019).

Assessment of passenger satisfaction can be extended further to explore its impact on their loyalty. Many scholars cited in this article have highlighted, when customers receive a positive experience provided by AI services, they tend to become more loyal toward the organisation. The positive experience motivates passengers to establish more physical, mental, social, and emotional engagement with the airport (Prentice and Nguyen, 2020). Satisfaction feeling, based on the perception of service quality, influences loyalty and post-purchase behaviours. A study of passengers at Incheon International Airport confirms that overall airport service quality affects satisfaction and airport image formation. Passengers satisfied with the services are found to return to it and to recommend it to other passengers (Jin-Woo and Se-Yeon, 2011).

Thus, full adoption of innovative services can take time. For instance, new security identity verification processes based on face recognition technology are cost-effective and appreciated by passengers. Previously passengers were forced to spend around 16 seconds at fully manual counter, while after the introduction of the self-service verification gate, time was reduced to 7 seconds. Moreover, when passengers will become more experienced with use of technology, an average passing time will be shortened even more. However, not all the passengers might be satisfied as special passenger groups (e.g., on wheelchairs) are still not able to pass through gates. It will take a certain amount of time for people who are not easy to accept a new mode to develop new habits. Nevertheless, the identified bottlenecks are temporary and could be solved by passengers' behaviour adaptation and by additional improvements (Zhu and Wang, 2020).

Suggestions for further research

According to this review, the main research topics have been covered, although the number of papers in airport industry is constantly growing focusing on COVID-19 impact. Still further research needs to be elaborated.

More extent predictions on passengers' behaviour change after COVID-19 should be formed. Few studies focus on how passengers' adaptation processes will change after pandemics, and how will they re-evaluate role of digital technologies at airports. Moreover, there is a lack of studies focusing on how passenger satisfaction and loyalty has been changed during COVID-19 – passengers' actual impressions of airport services might be compared with prior situation. Studies addressing COVID-19 accelerated digital transformation at airports are mostly focusing on safety measures (e.g., temperature measuring, contactless tests, etc.), while not on other areas of security and core operations.

Conclusions, proposals, recommendations

1. Lessons learned during COVID-19 should be strengthened and the concept of a contactless airport should be developed. One of the key reasons why airports take efforts on digital transformation is a survival issue. Along with COVID-19, airports critically need to adapt quickly to external environmental pressures and changing customer demands and expectations. Digital technologies are integrated into all areas of airport operations – that is what digital transformation means.
2. Airports act as ambassadors of innovation, upgrading their technologies and processes and making them available to the large public. Airports that excel at innovation consider sustainable construction, Big Data, cyber security, operational excellence, and intelligent mobility while identifying and implementing technology needs. The future of airports goes hand in hand with innovation.
3. The results obtained from this review show trends of previous years research on airports around the world using digital technologies to please passengers and to guarantee a coherent, smooth, and paper-free passenger journey. Not only the number of passengers is constantly growing, so do their expectations for the entire experience. Passenger demand for efficiency, safety, health, and comfort remain strong.
4. There is a wide choice of innovations applicable to airport industry, namely biometric technology combined with artificial intelligence and Big Data, that transform the way people travel.
5. A non-contact boarding process involves full cycle of different processes starting from passengers arriving at airport until boarding an aircraft. Technologies create a seamless walk-through experience from a moment someone steps inside the airport. Passengers use their e-tickets, self-check-in kiosks, and automatic baggage handling kiosks. Thanks to AI and smart algorithms, they are provided with up-to-date and correct information at the right moment. More complex technologies such as biometrics are used in the onboard process, security screening, immigration procedures.
6. Automation has proved itself to be an effective safety tool. Airports make their terminals safer using special cameras, AI, and machine learning. Autonomous vehicles identify threatening human factors.
7. During COVID-19, there is a significant increase in online shopping and this tendency, most probably, will remain. By using internet and apps, customers can connect to on-demand services. At airports, passengers can receive services on request whether it is a luggage or food delivery. Airport food delivery services deliver food anywhere in airport. Although food delivery services are not new, COVID-19 forced them to be adopted in many new ways.
8. From these examples, it is clear that the current trend is towards touchless services and interfaces. To reduce spread of COVID-19, there has been much more focus on developing the processes and services integrating multiple innovations into devices. Studies demonstrate that contactless travel will become a norm and will develop even further. Check-in areas will be replaced by authentication processes taking place remotely and even before passengers arrive at airport. Queues on demand are likely to pick up speed. Drones will be able to deliver small cargo.
9. Technologies are applied not only to delight customers but also to improve management processes inside organisations. Business intelligence and data analytics platforms help airport managers make faster, more informed decisions, gain practical insights, and carry out advanced data analysis. Big Data analytics leads to augmented data management, outlining inefficiencies in core airport functions. Regularly collecting data and analysing it, leads to exploring new opportunities and optimize performance. Predictive modelling is a prime tool to avoid risks in decision making, for instance, being aware of changes in schedules, passenger or cargo flow, status of flights, can help to identify bottlenecks, redesign terminals, and improve passenger experience.
10. Digital solutions are part of airports' sustainable strategy. Thus, they may seem attractive to passengers who are becoming more concerned about environmental issues. For instance, by replacing traditionally powered vehicles with electric ones, it is possible to decrease use of energy when transporting passengers, baggage, and cargo. Automated processes, such as document digitization, digital document management and business process automation contribute to the reduction of paper usage.
11. The introduction of digital innovations in airports might be rational and provide business value. They should not be implemented just for a tendency's sake. Digitalization should enhance efficiency and productivity, creating a valuable return on investment. The most important is not to forget about end-user needs. Even if digital technologies are aesthetically attractive, they will not lead to increased passenger satisfaction if they are difficult to use. Passengers are usually in a hurry, and under stressful conditions, they are looking for simplicity and user-friendliness.
12. Digital ecosystem at airports should be prepared to overcome personal security issues, i.e., data privacy and sovereignty, reliable data-sharing platform, compliance with GDPR. That will enhance passenger trust.
13. It is remaining unclear to which degree passengers' demands are going to change together with prevalence of COVID-19. Digitally native generation Z (known as zoomers) and generation Alpha (a demographic cohort succeeding Generation Z) children will soon become future passengers. They will reconsider physical space and have more flexibility in work-life balance, posing challenges to business travel segment. Nonetheless, it might be concluded that new passenger generation will be concerned about their well-being, and they should be assured that they can travel safely when they need it. A safe and efficient environment will boost passenger satisfaction.
14. Overall, the results demonstrate a strong effect on traveller-focused airport technology. Significant improvements to existing processes are needed to renew passenger flow during and after COVID-19. Review article findings provide a strong basis for ongoing PASSDIGI research, proving that innovative technologies offer a better airport experience and may foster business development also at Riga International Airport.

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WORK-LIFE BALANCE IN THE CONTEXT OF REMOTE WORK

Inese Abolina, University of Latvia
Andzela Veselova, University of Latvia

Abstract. Work-life balance has become an increasingly common problem for both employers and employees in most companies around the world. Work-life balance mainly concerns the ability of employees to prioritize their work and daily life, social life, health, family, etc. Work-life balance (WLB) is largely linked to issues of employee productivity, performance, and job satisfaction.

COVID-19 global pandemic has caused a sudden change in the way many organizations operate. The number of remote workers with little or no experience of remote work increased rapidly. Remote work would not be possible in most cases unless it became a necessity due to COVID-19 global pandemic. Many employees have common problems with working remotely, such as loneliness, lack of motivation and difficulty separating work and private life.

The aim of this study is to set up conclusions and provide recommendations based on theoretical knowledge about work-life balance, in the context of remote work. Study puts forward several tasks: 1) analysis of theoretical aspects of WLB; 2) survey on employees' views on work-life balance in the context of remote work; 3) conclusions and recommendations. Methods used: 1) literature review, 2) questionnaire.

Study concludes that work-life balance should include a sense of harmony between work and private life, the absence of conflicts between them. When working overtime, people cannot do their job equally well at work and spend a quality time with family. This means a lack of balance between work and private life which needs to be regulated.

Keywords: *approaches, employees, remote work, work-life balance.*

JEL code: J28, J81, M54

Introduction

Remote work is closely linked with work-life balance. Amidst of the busy work environment in 21st century, and with the rise of dual career families, work-life imbalance has become common. This has become a burning issue in the society where the significance of work-life balance feature has been renewed. As the world is turning into a knowledge-based environment, employees are well aware on many aspects of work which lead them to expect better organizational strategies to promote work-life balance.

The work-life balance has shown that work-life initiatives positively affect employees' integration attempts and overall well-being, when different variables, beyond structural support, are considered. For previous generations, certain working hours may have played the most important role in people's lives, but today the understanding of the relationship between working time and private life has changed. Working hours from nine in the morning to five in the evening has lost the relevance.

Remote work is the practice of working outside of the traditional office, both in a temporal (time) and a spatial (location) sense (Olson, 1983). Previous research has separated the practice into two distinct definitions: working from home and working from anywhere.

As the social and technological environments and trends are changing, so does the way of working. Today employees of different organizations have more freedom and flexibility than ever to work from anywhere else than the "traditional" office. What we mean with traditional office is an office where people mainly work on their computers, but still are together in the same place. It is mainly about those working on the computer on their own, such as banking, insurance, and employees with different administrative responsibilities in the organization. People want to achieve a cheaper, faster, and greener way of working. Remote work is one of the flexibilities. In this study, we define it as "performing work at a location other than one's primary office" (Jensen et al., 2018). It is important to keep in mind that remote work not always have to be implemented because of a crisis like COVID-19, it can just be a "natural" way of working in some organizations, even in "normal" times, where no external crisis forces them to do so. When working remotely, employees often tend to work harder, and manage the long working hours better. Another important issue is the balance of work life and private life. Studies show that people who work remotely experience less conflicts related to the work-family balance, even though it can be hard to ignore and not get affected of things or stressful situations at home that occur when you are "at work" (Jensen et al., 2018).

Remote work increases on a global scale and the questions of how to make remote work be efficient, and how to effectively make a transition to remote work, are becoming more and more popular. Both managers and employees are in an unprecedented situation which requires overarching change to the structure of the modern office and the idea of modern office work.

Literature Review

Finding the right work-life balance is a challenge for all employees. The core idea of work-life balance is the time a person spends at work. It is believed that long working hours can damage a person's health, endanger safety, and increase stress (Beal, Weiss, Barros, MacDermid, 2005).

Research over the past decades advanced considerably in understanding the relation between work and family domains and the influence of various work-life balance on it (Eby, Casper, Lockwood, Bordeaux, Brinley, 2005).

As remote working can be defined as working from elsewhere than in the employer's premises, due to that, employers should generally be savvy with modern technologies to communicate and work with each other. Remote working requires the employer to provide to their employees at least computers, mobile phones, an access to a work email account as well as other necessary platforms such as videoconferencing technology (Viktorovich, Rozentsvaig, Bakhteeva, Soshnikova, Sherpaev, 2020).

Work-life balance is increasingly challenging in the modern context and the challenge arises from the fact that it is very difficult to strike the balance between work and other domains of life. In addition to being a challenge to individuals, the WLB as a concept has been taken up by the organizations and human resource departments across the world, in lieu of which many policies and strategies have been formulated to alleviate the conflict between the domains of work and life. On the theoretical front, various theories on remote working have been propounded since the 1970s.

Before the 1970s, 'work' and 'family' were perceived as mutually exclusive domains, but Kanter (1977) emphasized the fundamental interconnectedness of the two by highlighting how work affects the family and vice versa. Along the same lines, Pleck (1995) defined what he termed as spillover as a phenomenon where work role affects the family role and contrariwise. He further states, in the same study, that women experience spillover from family to work whereas men experience it from work to family.

Work-life balance (WLB) is defined by Kirchmeyer (2000) as the achievement of fulfilling experiences in the different aspects of life that require various resources, like energy, time and commitment and these resources are spread across all the domains. Work-life balance term incorporates other roles like community, social, religious and leisure roles taken up by an individual. At the same time there's no cohesive,

agreed-upon definition of work–life balance in the literature (Kalliath, Brough, 2008). However, the common understanding is that there are at least two domains in life: work and personal. Both domains require attention and investment, but not at the sacrifice of each other.

Kalliath and Brough (2008) provide the following set of statements that synthesize the various definitions of WLB provided in the literature:

1. People perform different roles in their life, including a work role and a personal life role, and the demands of one role can carry over to the demands of another.
2. People should be able to commit equal amounts of time and energy to all roles.
3. People should feel satisfied with their own performance in various life domains and should function optimally in these domains. Their performance and function across life domains should not clash.
4. The roles that people perform in their life and the importance they assign to these roles change. Therefore, satisfaction with WLB depends on which roles people have prioritized now and whether their expectations are met.
5. WLB is achieved when there is little conflict between individuals' work and personal roles.
6. WLB is considered to be the degree of autonomy that people have over the demands of various roles and their ability to meet these demands.

Work-life balance concept is widespread in the management literature it has grabbed the attention of numerous scholars. Due to this, the term has been defined differently and definitions on this concept appear to be endless. Table shows definitions of WLB.

Table 1

Definitions of Work-Life Balance

Author	Definition
Kirchmayer, 2000	"Achieving satisfying experiences in all life domains and to do so requires personal resources such as energy, time, and commitment to be well distributed across domains."
Clark, 2000	"Satisfaction and good functioning at work and at home with a minimum of role conflict."
Hill, Hawkins, Ferris, Weitzman, 2001	"The degree to which an individual is able to simultaneously balance the temporal, emotional and behavioral demands of both paid work and family responsibilities."
Crooker, Smith&Tabak, 2002	"The stability characterized by the balancing of an individual's life complexity and dynamism with environmental and personal resources such as family, community, employer, profession, geography, information, economics, personality, or values."
Greenblatt, 2002	"The absence of unacceptable levels of conflict between work and non-work demands."
Lockwood, 2003	"Work/life balance from the employee viewpoint: the dilemma of managing work obligations and personal-family responsibilities." & "Work-life balance from the employer viewpoint: the challenge creating a supportive company culture where employees can focus on their jobs while at work."
Greenhaus, Collins&Shaw, 2003	"The extent to which an individual is equally engaged in—and equally satisfied with—his or her work role and family role."
Visser&Williams, 2006	"Having sufficient control and autonomy over where, when and how you work to fulfill your responsibilities within and outside paid work."
Fleetwood, 2007	"Work–life balance is about people having a measure of control over when, where and how they work."
Kalliath&Brough, 2008	"The individual perception that work and non-work activities are compatible and promote growth in accordance with an individual's current life priorities."
Voydanoff, 2008	"The global assessment that work and family resources are sufficient to meet work and family demands such that participation is effective in both domains."
Vanitha, 2011	"The perfect coordination of individual as a brand of employee at workplace with respect to their attitude towards work, working condition and at positive focus towards their personal life generally connoted as work life balance."
Smith,Smith&Brower, 2011	"People spending sufficient time at their jobs while also spending adequate time on other pursuits, such as family, hobbies, and community involvement."
Nwagbara&Akanji, 2012	"The interface of work and family and the consequences of these two variables on commitment to work, job satisfaction, family roles and social related themes that find resonance in the nature of this interface."
Purohit, 2013	"Term used to describe those practices at workplace that acknowledge and aim to support the needs of employees in achieving a balance between the demands of their family (life) and work lives."
Westwood&Cazier, 2016	"Balancing or dividing time between what you are engaged in at work and what you would like to be doing outside of work."
Abdulrahman&Ali, 2018	"A wide concept which includes appropriate equilibrium between career and aspiration on one hand, compared with pleasure, vacation, and family life on the other."
Kelliher, Richardson&Boiarintseva, 2019	"The relationship between work and non-work aspects of individuals' lives, where achieving a satisfactory work-life balance is normally understood as restricting one side (usually work), to have more time for the other."

Source: author's created based on literature analysis

The desired outcome for WLB is where people feel satisfied and have the necessary resources to function optimally in multiple domains. Many studies focus on work-life policies and their effects on employees (Grover, Crooker, 1995; O'Driscoll et al., 2003; Richman, Civian, Shannon, Hill, Brennan, 2008; Scandura, Lankau, 1997). Research has shown that practices promoting work-life balance help attracting and employing women, reduce employee stress, burnout, and work-family conflict (O'Driscoll et al., 2004). Moreover, the adoption of work-family policy bundles has been associated with a number of productivity indicators such as increased market value (Church, 2015); productivity (Konrad & Mangel, 2000); organizational citizenship behavior (Lambert, 2000); and perceived organizational performance (Perry-Smith, Bloom, 2000). A lot of variable need to be taken into account to encourage a work-life sensitive mindset in the organization.

Achieving WLB benefits both work and personal lives (Chimote, Srivastava, 2013; Lockwood, 2003). These benefits include:

- Happier people who have high job satisfaction and more time for their personal life are less likely to develop illnesses and stress-related conditions.
- People have more time available to run personal errands, such as servicing cars, and address personal issues, such as going to the doctor. As a result, people are less likely to use work hours on non-work-related issues, use fewer sick days for personal errands, and can also look after themselves through regular medical checkups.
- People who have more time for their personal life report high job satisfaction and, as a result, are less likely to resign. They are also more motivated at work and more productive.

Remote work is directly linked to productivity growth (Bloom et al., 2013, Choudhury et al., 2020), with the evidence of income growth (Choudhury et al., 2020). However, remote work also has its downsides, such as feelings of loneliness and isolation (Bloom et al., 2013, Choudhury, Foroughi, Larson, 2020, Grant et al., 2013, Perry, Hunter, Rubino, 2018). Remote work also serves to integrate work and leisure, breaking down the boundaries between the two. It is perceived both positively and negatively, where increased socialization at home is seen as positive by those who have families. Where the boundaries disappear, increased stress and inability to "leave" at the end of the working day occur (Grant, Wallace, Spurgeon, 2013). Some people who work remotely lack socialization, while others find that socialization take place in their families. Remote work also eliminates the need to commute, thus reducing the stress and loss of well-being that occurs during the daily journey, as well as reducing the carbon emissions that would otherwise be caused by a commuter (Bloom, Perry-Smith, 2013, Chatterjee, Chatterjee, Malathesh, Mukherjee, 2020, Choudhury, Foroughi, Larson, 2020). Unlike working remotely in the past, in a COVID-19 global pandemic, people need to do their job remotely because there are no other options.

A study by Grant, Guille, Sen, 2013 explores the effects of remote work on work-life balance, job effectiveness and well-being. The study finds several pros and cons of remote work, and again the aspect of loneliness comes up as a con. Although some interviewees find that integrating work and non-working life and improved social life at home to be a pro, some find that the blurring of the boundaries between work and non-work to be stressful and they also find it hard to truly leave work when the day ends. This was exasperated by late emails and a working culture that values overtime and round the clock availability (Grant, Wallace, Spurgeon, 2013). The maintenance of social relationships at work are also found to be more difficult and while some interviewees missed coming into the office, at least on occasion, others found their social company in their spouses or families (Grant, Wallace, Spurgeon 2013).

In the past, work-life balance was considered in the context of three models: segmentation, compensation, side effect (Greenhaus, Collins, Shaw, 2003). According to the segmentation model, the areas of work and private life are independent and do not affect each other. In the framework of compensation model, the relationship between work and private life is such, that dissatisfaction or failure in one area can be offset by satisfaction and success in another. The spillover model indicates the existence of a general effect (positive or negative) of one sphere on another. Later, two more models emerged: the instrumental model, which assumes that one area contributes to success in another, and the conflict model, which determines the inevitability of conflicts between work and personal life.

Based on these models, scholars have developed definitions of different categories of work-life balance, which can be broadly divided into two approaches: general and component (Fleetwood, 2007).

The classification of work-life balance is usually distinguished from a general (subjective) assessment and a structural approach to test the balance. According to the first approach, a person independently evaluates their life situation, the relationship they have between work and personal (family) responsibilities. This is called the perceived balance. Milkie, M. A., Peltola, P. (1999) study uses the question: "How well do you balance paid work with family life?". Saltztein, Ting, Saltzstein (2002) emphasizes the assessment of satisfaction with balance: "Is the balance between work or main activity and family life satisfactory or unsatisfactory?". Hill et al. (2001) questions to assess: "How easy or difficult is it to balance your work demands with your personal and family life?" (Smith, Smith, Brower, 2011). The subjective approach is considered to be somewhat limited as it measures the perception of balance rather than the balance itself.

The structural approach considers balance to be a complex, multi-element construct. For example, the three-component method presented by Richman, Civian, Shannon, Hill (2008), measures work-life balance (Wibawa, Takahashi, 2021). The semantic approach is proposed by Purohit (2013), which provides the subjective value of work and life measurement, satisfaction, and the idea of the ideal relationship, which is determined, *inter alia*, by social norms (Voydanoff, 2005).

The advantage of the component approach over the general work-life balance approach is that different measures of work-life balance can be used, which affect different aspects of the work-life balance and thus form an overall assessment of how good a person is performing the duties at work and in the family (Greenhaus, Collins, Shaw, 2003).

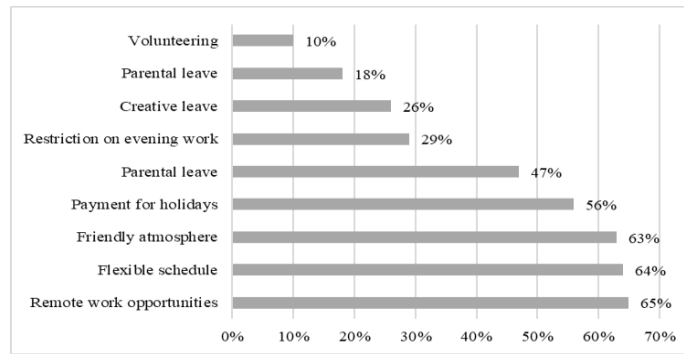
This study conceptualizes work-life balance, life as a person's perception of how balanced life roles is. By using a perceptual approach that considers work-life balance as a holistic concept, unique to each person and dependent on their life values, priorities, and goals.

Work-life balance is assessed subjectively. In this study authors question: "Are you personally satisfied with the opportunity to combine work and family responsibilities?" Possible answers were "satisfied" and "rather satisfied" correspond to satisfaction. Those who answered, "not satisfied" and "rather dissatisfied" correspond to dissatisfaction, and those who answered "I cannot say whether it satisfies me or not" correspond to a neutral position.

Currently, due to the increase of remote work, employees are paying more attention to work-life balance. This is not surprising. In a world where employees care about their career and develop it, work-life balance is becoming a new cult that replaces training and development programs and career advancement that they had in the past. At the same time, the set of factors that are important for maintaining optimal balance varies upon on age.

Research results and discussion

Within the framework of this study, authors conducted a survey in which 538 respondents participated in Latvia, representing various fields – education, marketing, information technology (IT), finance. The survey took place from September 15 to October 20, 2021. The distribution of the questionnaire took place both in person and via web. The aim of the survey was to find out the respondents' opinion about their work-life balance and how these answers change with age. We questioned people dividing them into several groups: generation Baby Boomers who were born in 1945 to 1960, generation X who were born in the period from 1961 to 1980, generation Millennials or generation Y who were born in 1981 to 1996, generation Z or Digital Children who were born in 1997 to 2012. Time intervals determining the distribution of generations were obtained from Nora Milotay, European Parliamentary Research Service briefing paper (2020) and based on Strauss–Howe generational theory (2000). This study identifies factors that respondents believe in contributing to an optimal work-life balance. The questionnaire gave a possibility to choose several answers. All respondents had a significant opportunity to work remotely (65%) or on a flexible schedule (64%). The results are summarized in Figure 1.



Source: author's calculations based on survey results

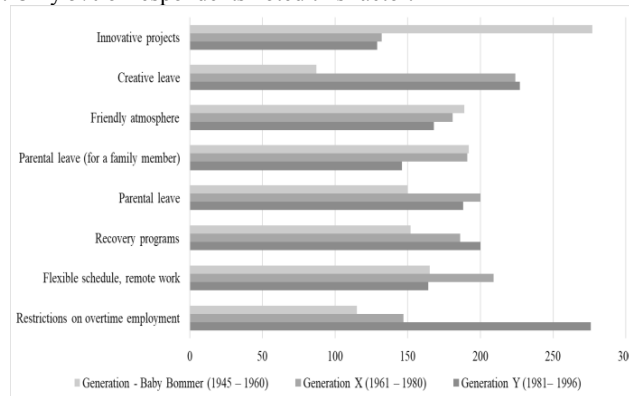
Fig. 1. Factors contributing to work-life balance

Next importance is the friendly atmosphere in the team (63% of respondents paid attention to this factor). 47% rated parental leave as a factor in helping to balance work and private life.

It is important for a quarter (26%) of professionals to use creative leave to develop their projects.

Less popular are the opportunity to work on innovative projects, improve workplace infrastructure, such as working near a kitchen or snack bar, and wellness programs (paid fitness, corporate psychological training on meditation, or stress management).

The company's social activities seem to be less important to employees: environmentally friendly technologies, the opportunity to participate in volunteer and sponsorship projects. Only 5% of respondents noted this factor.



Source: author's calculations based on survey results

Fig. 2. Factors contributing to work-life balance depending upon age

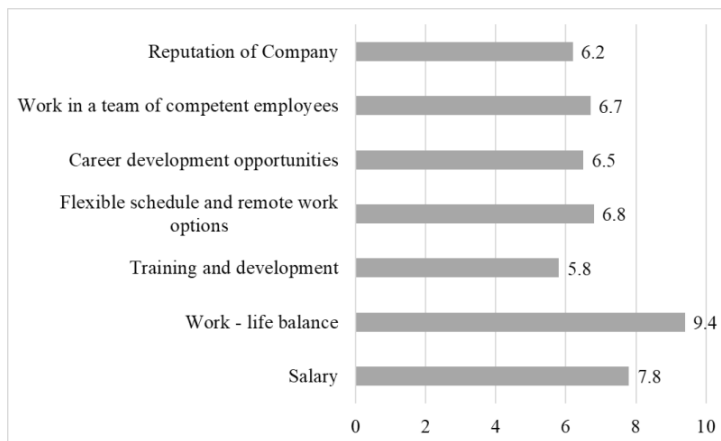
Important factors supporting a positive work-life balance vary slightly depending upon age of the respondents. Generation X values parental leave higher than Baby Boomers. This might be due to the fact that Generation X now has young children, while the Baby Boomer has grown up children.

In addition, the older generation appreciates a friendlier atmosphere more than others. The most likely reason is that Baby Boomers grew up in a culture of collectivism, while Generation X was influenced by a more individualistic culture.

At first glance, it seems surprising that the older generation underestimates the employer's wellness programs, such as sports clubs, fitness club subscriptions, meditation, and stress management training. However, the fashion of such offers became relatively recent, some members of the older generation started a career without them and possibly, do not see the need for it.

In addition, it is worth noting that Baby Boomers welcomes innovative projects compared to Generation Y, despite the perception that older generations are afraid of innovation. However, on the one hand, this trend might be due to the fact that the older generation wants to keep up with modern technologies and remain in the labor market. On the other hand, working on innovative projects reduces the time spent on routine activities. This can have a positive effect on work-life balance.

As a part of this study, authors asked the respondents to evaluate the factors that makes the organization an attractive employer and facilitate decision-making about the specific task. It was possible to choose several answers. Responses were rated on a 10-point scale, where 1 meant "no effect at all" and 10 meant a "very strong effect". The arithmetic mean values are summarized in Figure 3, characterizing answers to this question.



Source: author’s calculations based on survey results

Fig. 3. Factors making organization an attractive employer or facilitates a decision to hire

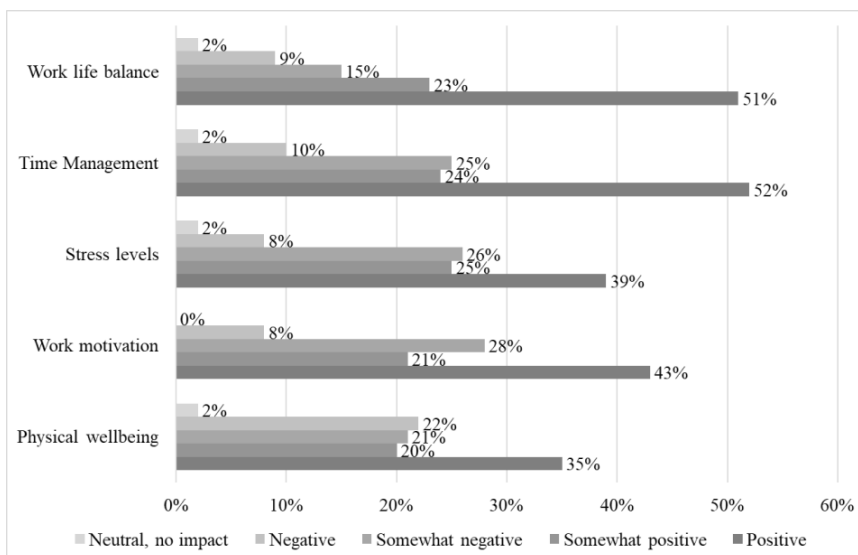
One of the most popular factors influencing employment decisions is work-life balance, which could be based on a flexible work schedule. Employees are increasingly expecting employers to give them the freedom to manage their work schedules and allow them to work from home from time to time. The availability of these and other options, such as additional paid or unpaid leave, can influence the decision to choose a particular job.

To ensure flexibility, employers will need to be more open about employees' access to technologies and work-related files outside the office. Increased use of PCs, tablets, smartphones, teleconferencing formats, and cloud applications such as Gmail, GoogleDocs, Dropbox, and Office 365 may be appropriate solutions.

Although employees are interested in more flexibility in how they organize their workday and space, they are concerned that this could lead to their work taking up their personal time, such as on weekends or holidays.

Employers can help them find a balance by increasing the use of technology and virtual interaction tools, while preventing employees from working overtime. Encouraging talented employees to take a leave is an obvious solution to this situation, although the real test for the organization will be a ban on sending business correspondence outside working hours. Not every employee can be proud that their employer protects their personal space.

Finally, companies should be prepared to support their employees and respect their privacy. For example, employers can cover the cost of caring for a child, elderly or sick relative, pay for a visit to a fitness club and provide training on burnout prevention and stress management. Also, employees were asked on how they consider remote work impact on their work-life balance, stress level, work motivation, time management, physical wellbeing. The most common answer was that remote work positively impacts on their work-life balance and work motivation (see Fig. 4.).



Source: author’s calculations based on survey results

Fig. 4. Remote work impact on employees

Almost 75 % of employees responded that remote work impacted positively or somewhat positively on their time management. However, 8 % of respondents answered that remote work impacts negatively or somewhat negatively on their stress levels. 22 % of employees responded that remote work impacts negatively on their physical wellbeing.

Despite the fact that wages and flexible working hours are still the most important factors in choosing an employer, the growing popularity of work-life balance is one of the global trends in the market that is influencing the selection of a current employer and is likely to be so for the next 3-5 years.

Conclusions, recommendations

1. Remote work opportunities have been used already for decades. However, thanks to the development of ICT, it has become more popular and easier to organize. Remote work is particularly relevant in the context of global pandemic COVID-19.
 2. In March 2020, remote work became rapidly 'the new normal' due to COVID-19 outbreak. Luckily, companies all around the world were already used to working remotely, however, some public services such as hospitality and food supply should be executed face-to-face. It also depends on the development level of economies, how rapidly societies can adapt to remote work, especially when it refers to majority of people at the same time.
 3. All in all, global pandemic COVID-19 has driven companies around the world to get more familiar with remote work than ever before and it has possibly proven that it is not as challenging or inefficient as people believed. Without knowing when restrictions will be laid off, it might happen that employees around the world will work remotely to some extent for quite a while and become more and more used to it. This forces organizations to design and implement continuously better practices and policies for remote work to make it as efficient and convenient as possible, which can be considered as a positive consequence during challenging times.
 4. Friendly atmosphere in a team helps to balance work and private life, whereas company's social activities, like participation in volunteer and sponsorship projects, currently, seem to be less important to employees.
 5. The older generation underestimates the employer's wellness programs, such as sports clubs, fitness club subscriptions, meditation, and stress management training.
 6. Baby Boomers welcomes innovative projects compared to Generation Y, despite the perception that older generations are afraid of innovation.
 7. One of the most popular factors influencing employment decisions is work-life balance, which could be based on a flexible work schedule. Employees are increasingly expecting employers to give them freedom to manage their work schedules and allow them to work from home from time to time. The availability of these and other options, such as additional paid or unpaid leave, can influence the decision to choose a particular job.
- To ensure flexibility, employers will need to be more open about employees' access to technologies and work-related files outside the office. Increased use of PCs, tablets, smartphones, teleconferencing formats, and cloud applications such as Gmail, GoogleDocs, Dropbox, and Office 365 might be appropriate solutions.
8. Encouraging talented employees to take the leave is an obvious solution to this situation.
 9. Challenge for organizations will be a ban on sending business correspondence outside working hours.
 10. Companies should be prepared to support their employees and respect their privacy. (Cover the cost of caring for a child, elderly or sick relative, pay for a visit to a fitness club and provide training on burnout prevention and stress management.)
 11. Both from the theoretical and empirical approach, study concludes that remote work positively impacts people work-life balance and work motivation. Despite the fact that wages and flexible working hours are still the most important factors in choosing an employer, the growing popularity of work-life balance is one of the global trends in the market that is influencing the selection of a current employer and is likely to be so for the next 3-5 years.

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CHALLENGES OF HEALTHCARE GOVERNANCE IN PANDEMIC PERIOD

Diana Araja, Riga Stradins University

Abstract. Healthcare systems face challenges posed by internal and external factors, including economic crises or pandemic outbreaks. In the current COVID-19 pandemic situation, the particular attention is focused on financing of the impact mitigation activities, strengthening the emergency medicine, healthcare human and technical resources. At the same time, it becomes noticeably that the proposed solutions and significant financial resources are not sufficient or appropriate to resolved potential and existing challenges. Consequently, the question arises as to whether there are any hidden obstructions in the healthcare system itself that hinder its operation. Therefore, the aim of this research was to identify areas in which the in-depth research would contribute the performance of healthcare systems, alongside the allocation of funding. To achieve the goal of the study, the systematic literature review was conducted to identify the views of scientists on healthcare systems operation in the COVID-19 spread period. The results of the performed literature review indicated a number of obstructions and potentials of the healthcare systems. Dominant attention is dedicated to shift from the hierarchical structural governance principles to the people-centred approach, towards collaborative, inclusive and participative practices of engagement and involvement of healthcare professionals and patients, moving from fragmentation to adaptive self-organisation, creating well-integrated, equitable and prosperous societies, by redesign health policy thinking and respect the principles of democracy and human rights. Further theoretical research could strengthen the practical implementation of more sustainable and inclusive healthcare systems.

Keywords: *healthcare system, policy, governance, COVID-19 pandemic, literature review.*

JEL code: I18

Introduction

The health status of the population and its interrelationship with economic development was recognised as significant even before the COVID-19 pandemic. The World Bank's World Development Report 1993: Investing in Health was focused on health, as a substantial factor influencing the economic development (World Bank, 1993). Subsequently, many documents adopted by the international organisations confirmed this commitment. 12 December 2012, the United Nations General Assembly endorsed the resolution on Global Health and Foreign Policy promoting synergy between foreign policy and global health and urging countries to accelerate progress toward Universal Health Coverage – the concept anticipated that all individuals and communities receive the health services they need without suffering financial hardship (United Nations, 2012). All United Nations Member States anticipate to achieve Universal Health Coverage by 2030, as part of the Sustainable Development Goals (United Nations, 2015). Financial resources should be used to extend coverage to those individuals who previously were not covered, to services that previously were not covered or to reduce the direct payments needed for each service. These dimensions of coverage reflect a set of policy choices about benefits and their rationing that are among the critical decisions facing countries in their reform of healthcare systems towards universal coverage. It is indicated, that choices need to be made about proceeding along each of the three dimensions, in many combinations, in a way that best fits their objectives as well as the financial, organisational and political contexts (World Health Organization, 2017).

The necessity to reimagine the healthcare governance was also emphasised in the context of emergency situations. The International Health Regulations (2005) is a legally binding international instrument to help countries work together to save lives and minimize the impact on livelihoods by events that cause the international spread of diseases (World Health Organization, 2005). Even before the global financial crisis began in 2008, the World Health Organization (WHO) had state, that in June 2007, when the revised International Health Regulations enter into force, the world will also have the necessary global framework to prevent, detect, assess and provide a coordinated response to events that may constitute a public health emergency of international concern (World Health Organization, 2007). In the following years, the WHO continued to call for disaster preparedness and the strengthening of healthcare systems. The WHO and its partners established the WHO Thematic Platform for Health Emergency and Disaster Risk Management Research Network (HEALTH EDRM RN) in 2016 to respond to the increasing burden of recent health emergencies and disasters (Nomura *et al*, 2021).

One of the most recent documents is the WHO position paper 'Building health systems resilience for universal health coverage and health security during the COVID-19 pandemic' that provides a rationale and recommendations for building resilience and seeking integration between promoting Universal Health Coverage and ensuring health security by the following means (World Health Organization, 2021):

- recovery and transformation of national health systems through investment in the essential public health functions and the foundations of the health system, with a focus on the primary health care and the incorporation of health security;
- all-hazards emergency risk management, to ensure and accelerate sustainable implementation of the International Health Regulations (2005);
- whole-of-government approach to ensure community engagement and whole-of-society involvement.

Considering the global healthcare systems planning documents and reflecting on real events, a question arose as to the reasons for the discrepancy in the theoretical models and practical performance of healthcare systems. The greatest emphasis in the last two years has been on strengthening healthcare systems by attracting more investment and spending budgets. However, it has been assumed that an increase in funding, without proper control over its use, is not a panacea for improving the functioning of healthcare systems. Within the limits of this study, it is not intended to study the efficiency of the resources spending in pandemic period, but to pay attention to probable hidden factors that potentially cause the system downtime. Therefore, the aim of the study is to identify areas in which it would be worthwhile to conduct in-depth research for the development of health systems, alongside the allocation of massive funding. To achieve the aim of the study, a systematic literature review method is used to identify the views of scientists on healthcare systems performance in the COVID-19 spread period. The main research question is following – according to scientists, has the pandemic revealed new inferences of healthcare governance, which could boost the performance of healthcare systems? It is acknowledged that the crisis situation better highlights the shortcomings and potentials for improvement of the systems performance. The results of the literature review are revised in the section 'Research results and discussion'.

Literature Review

The systematic literature review is conducted to achieve the aim of the study. A search was performed in the database Medline (via PubMed) and other scientific medical literature sources, for articles published from 1st January 2020 to 30th November 2021. Search key terms included ('health care') OR ('healthcare') AND ('system') OR ('governance') OR ('organisation') AND ('policy') OR ('concept') AND ('COVID-19') OR ('coronavirus') OR ('SARS-COV-2'). The flow diagram of the selection process, performed by PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses), is demonstrated at Figure 1.

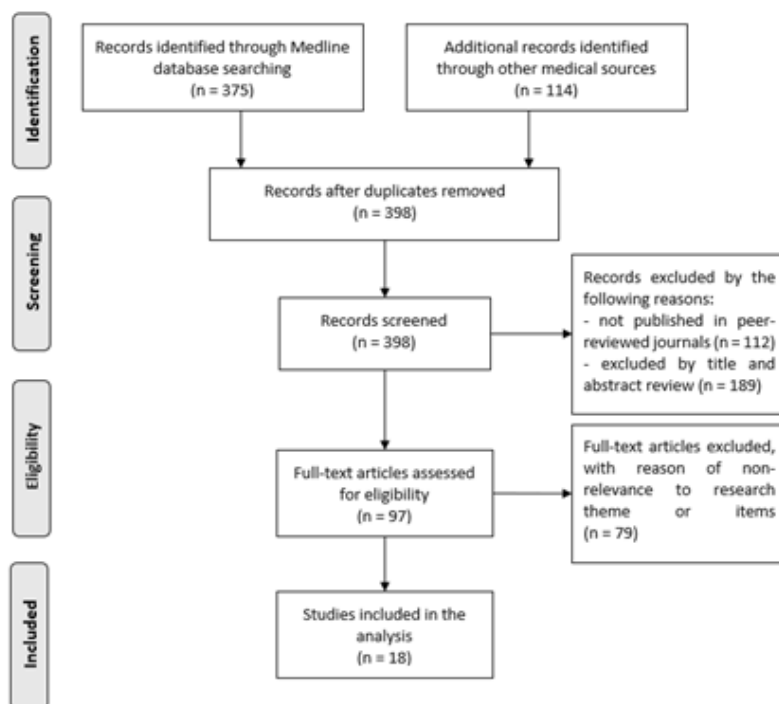


Fig. 1. Flow diagram of the selection process of scientific articles for systematic literature review

The obtained articles discussed a combination of key issues and concepts, including COVID-19 response, global health security, Universal Health Coverage, as well as governance and strengthening of healthcare system, literature on political and social implication of different healthcare policy agendas. The articles that focused exclusively on disaster medicine and financial amount allocated to healthcare are excluded to ensure contextual relevance to the research aim. The results of the systematic literature review are collected at the Table 1.

Table 1

Results of the systematic literature review

Authors, year of publication	Research objective	Research methodology / methods / approach	The main findings
Hølge-Hazelton, B., <i>et al.</i> (2021)	In order to provide guidance and prepare ward managers for future crisis situations similar to the COVID-19 pandemic, the aim of this study was to reflect and learn how person-centred nursing leadership may be strengthened in such situations.	A qualitative directed content analysis was chosen. The theoretical perspective was person-centred leadership. Thirteen ward managers from a Danish university hospital were included and interviewed using telephone interviews three months after the first national COVID-19 case was confirmed.	Traditional organizational cultures that are <u>hierarchical and controlling</u> needs to be <u>challenged and reoriented towards collaborative, inclusive and participative practices of engagement and involvement</u> . <u>Leadership development must be an established and integrated component of organizations, so that ward managers are able to sustain person-centred</u> ways of being and doing in times of crisis.
Sturmberg, J.P., <i>et al.</i> (2020)	Discussion the interdependencies among domains: the disease, risks and survival, and economic security – and their emergent dynamics and emphasise the need for a robust distributed health system and for transparent communication as the basis for trust in the system.	Literature analysis and discussion.	COVID-19 has brought upon us the opportunity to <u>redesign health policy thinking</u> . Authors’ viewpoint elaborates <u>how systems and complexity thinking strategies can help to achieve change through reframing traditional ways of thinking and doing in order to stimulate new possibilities through critical debate</u> . In doing so, we can rise to the challenge of <u>moving from fragmentation to adaptive self-organisation, creating well-integrated, equitable and prosperous societies resilient to sudden unexpected perturbations of any kind</u> .
Lal, A., <i>et al.</i> (2021)	This Health Policy paper compares three types of health systems in their response to the ongoing COVID-19 pandemic and synthesises four essential recommendations (ie, integration, financing, resilience, and equity) to reimagine governance,	Authors searched PubMed and Google Scholar for articles published between Jan 1, 2015, and July 31, 2020, with specific search terms. Further articles were identified through a snowballing technique.	<u>A reimagined framework for global health that prioritises health-system integration across UHC (Universal Health Coverage) and GHS (Global Health System) domains, innovative and unified health financing, cross-sector resilience indicators, and equity as a core value offers a necessary path ahead</u> . To rebuild a more sustainable future after COVID-19, <u>embedding the core capacities of</u>

	policies, and investments for better health towards a more sustainable future.		<u>GHS into holistic, publicly financed UHC systems is the clear next step forward.</u>
Topp, S.M. (2020)	Since the watershed moment of the 2014 Ebola epidemic in West Africa and again in the midst of the current COVID-19 crisis, the concept of health system resilience has been a recurring theme in global health discussions. Yet, as the authors of one of several recent reviews observed, the concept of health systems resilience remains 'highly confusing' and 'still polysemic'. In this editorial, author, from the perspective of a health policy and systems researcher, draws out and reflects on some of these tensions, and makes some suggestions about how we might achieve greater clarity.	Editorial. Literature analysis, discussion and comments.	<u>Resilience in health systems should not be seen as an apolitical outcome, synonymous with a strong health systems or improved population health. What promotes the ability of a health system to be resilient must be assessed in the context of the interests and intentions of health system actors and the ways in which they mobilise and channel their power. Not to do so risks allowing some abstract conception of 'health system resilience' to, intentionally or unintentionally, displace attention and efforts away from the sorts of reforms necessary to address and improve long-standing health inequities, particularly, in current COVID-19 context.</u>
Bigdeli, M., <i>et al.</i> (2020)	This paper presents a framework to help understand health systems governance; examine what we know about this important health system function, and what has been less explored, leaving an important gap in our health system knowledge and practice.	Editorial. Literature analysis, discussion and comments. In this paper, authors understand 'governance' as 'ensuring that strategic policy frameworks exist and are combined with effective oversight, coalition building, regulation, attention to system-design and accountability'. The framework proposed is an adaptation of the governance triangle put forward in the World Development Report 2004, further adapted by Brinkerhoff and Bossert in 2008.	<u>Health systems processes must move from a top-down to inclusive policy, planning and implementation processes, increasingly adopting a people-centred approach. Democratic rights, human rights, equity and ethics values have become prominent in national policy debates.</u> In response to this call, twenty-first century health systems need to be participatory, inclusive and pluralist, following Whole of Society and Whole of Government principles. People's voice is a core driver of health systems' performance towards UHC. <u>In such a context, governance arrangements are changing and rely more on inclusion, participation and co-production.</u>
Petiwala, A., <i>et al.</i> (2021)	This study addresses a gap in the literature with a systematic scoping review of research on health-oriented cross-sector collaboration and community voice.	Literature review. By scanning key academic journals, searching three academic databases, and obtaining documents from across our professional networks, authors identified 36 documents that address community voice in health collaboratives.	This review provides a characterization and conceptualization of community voice in health-oriented collaborations that provides a new theoretical basis for future research. <u>Passive and active community voice strategies can be studied in more detail for their expected impact on health outcomes and disparities. Increased attention to active community voice and the resources it requires can help practitioners achieve improved health outcomes and researchers understand the pathways to health improvement through collaboration.</u>
Vainieri, M., <i>et al.</i> (2020)	Authors identify existing and emerging challenges that are pushing Performance Management Systems (PMS) to evolve. In doing this, authors summarize the key studies of performance management, public health and resilience literature. This paper critically reflects and highlights uncovered areas to be further studied.	Editorial. Literature analysis, discussion and comments. In particular, authors base the analysis on (i) the established and well-known performance management frameworks in healthcare; (ii) the seminal paper on the paradigm shift from standardized medicine to population and personalized medicine; (iii) the new definition of value in healthcare, recently revised by the EU Expert panel group; (iv)	Health systems face challenges which are inherent to care demand and supply evolution (i.e., demographic change, new technologies) or are the results of unexpected occurrence originating outside the health system, such as economic shocks or epidemic outbreaks. Both <u>challenges often require a paradigm shift in governance and organization, financing and resource allocation, accountability frameworks, as well as public health system responses.</u> Based on key reviews and seminal papers, the article presents three <u>emerging challenges for PMS in healthcare: i) the inclusion of the population approach; ii) the measurement and</u>

		the sustainability and resilience framework.	<u>consideration of the multi-facets concepts of value; iii) the importance of resilience and sustainability.</u>
Anderson, J.E., <i>et al.</i> (2020)	This cross-country comparative study aims to add knowledge of how resilience is enabled in diverse healthcare systems by examining adaptive capacity in hospital teams in six countries. The study identifies how team, organisational and national healthcare system factors support or hinder the ability of teams to adapt to variability and change.	The study will employ a multiple comparative case study design of teams nested within hospitals, in turn embedded within six countries: Australia, Japan, the Netherlands, Norway, Switzerland and the UK. The design will be based on the Adaptive Teams Framework placing adaptive teams at the centre of the healthcare system with layers of environmental, organisational and system level factors shaping adaptive capacity.	Findings from this study are anticipated to provide insights to inform <u>the design of Resilient Health Care (RHC) systems by considering how macro-level and meso-level structures support adaptive capacity at the micro-level, and to develop guidance for organisations and policymakers.</u>
Frick, N.R.J., <i>et al.</i> (2021)	In this study, authors aim to increase the understanding of how digital transformation drives virtual collaboration among clinicians in hospitals in times of crisis, such as the COVID-19 pandemic.	Authors present the lessons learned from an exploratory case study in which they observed the introduction of an information technology (IT) system for enhancing collaboration among clinicians in a German hospital. The results are based on 16 semi-structured interviews with physicians from various departments and disciplines; the interviews were generalized to better understand and interpret the meaning of the statements.	<u>Digital transformation is being driven by the COVID-19 pandemic. However, the rapid introduction of IT-enabled collaboration reveals grievances concerning the digital dissemination of medical information along the patient treatment path. To avoid being caught unprepared by future crises, digital transformation must be further driven to ensure collaboration, and the diagnostic and therapeutic process must be opened to disruptive strategies.</u>
Thomson, S. (2020)	Author emphasizes, that there are not one, but two, pandemics on a joint rampage: COVID-19 and an authoritarian deployment of emergency powers to combat COVID-19. As governments scramble to contain the far-reaching health and economic costs inflicted by the evolving pandemic, political leaders worldwide are increasingly turning to excessive and disproportionate emergency containment measures that spell grave dangers for civil rights and liberties.	Editorial. Literature analysis, discussion and comments.	<u>Democratic accountability and the rule of law cannot be completely suspended in any public health emergency. As humanity grapples with COVID-19, the way to combat one pandemic is not to create another, a pandemic of authoritarian rule. This is as true of democracies as it is of semi-authoritarian states and dictatorships. Yet it is a legal and moral imperative that public health emergencies do not result in decisions that systemically regress hard-won advances in liberal democracy over the past century.</u>
Kholsa, R., <i>et al.</i> (2020)	Article is dedicated to the Global health and human rights for a post-pandemic world. As authors mentioned, in the words of Jonathan Mann, time is now for us to come together as “equal partners in the belief that the world can change”.	Editorial. Literature analysis, discussion and comments.	’We go back to our original question: are we ready to imagine a new world? To answer yes, we must first fathom the courage to ‘shed the baggage’, the prejudices of the past and reimagine a narrative which <u>puts our collective health and human rights at the centre.</u> Through this essay, authors hope to initiate a discussion that can help us build back for the better.’
Jarvis, T., <i>et al.</i> (2020)	The objectives of this study were to define public health systems and assess differences between healthcare systems and public health systems within established health systems frameworks.	A critical interpretive synthesis was conducted. Databases searched included EBSCOhost, OVID, Scholars Portal, Web of Science, Cochrane Library and Health Systems Evidence. Data extraction, coding and analysis followed a best-fit framework	Public health systems are unique and vital entities within health systems. This review suggests that <u>establishing the scope of public health is crucial to understanding its role within the larger health system and adds to the discourse around the relationship between public health, healthcare and population health.</u> More broadly, this study addresses an important gap in understanding public health

		analysis method. Initial codes were based on a current leading health systems and policy classification scheme – health systems arrangements (governance, financial and delivery arrangements).	systems and provides conceptual and practical contributions as well as areas for future research.
Balqis-Ali, N.Z., <i>et al.</i> (2021)	This study aims to explore public perspective on health systems' response towards COVID-19, and to identify gaps for health systems strengthening by leveraging on WHO health systems' building blocks.	A qualitative study was conducted using open-ended questions survey among public followed by in-depth interviews with key informants.	The study showed <u>the gaps were embedded among complex interactions between the health systems building blocks. Understanding the complexities in fostering whole-systems strengthening through a holistic measure in facing an outbreak was paramount. Applying systems thinking in addressing gaps could help addressing the complexity at a macro level, including consideration of how an action implicates other building blocks and approaching the governance effort in a more adaptive manner to develop resilient systems.</u>
Paul. E., <i>et al.</i> (2020)	The WHO declared the novel coronavirus disease 2019 (COVID-19) an 'emergency of international concern' on 30 January 2020 and a pandemic on 11 March. The pandemic has triggered unprecedented measures worldwide. Many countries have installed travel bans, confinement and lockdown policies. These responses have been adopted in an 'emergency' mode, and are largely reactionary, aimed at mitigating the spread of the disease while waiting for a specific cure and/or vaccine to be developed. Authors would like to express their concerns regarding four COVID-19-related issues, and advocate for a 'paradigm shift' – that is, a scientific revolution encompassing changes in the basic concepts and experimental practices of a scientific discipline – to prepare for future crises.	Commentary.	In summary, <u>the current crisis calls for a paradigm shift in public and global health policies.</u> 1) global health policies ... <u>should adopt a systems approach that can support a holistic picture of global disease burdens, risks and health conditions.</u> 2) ... shift in global health policymaking <u>from a reactionary paradigm to a systemic and preventive paradigm, with meaningful commitments to human health security.</u> 3) ... shift our focus from short-term curative policies, to <u>long-term preventive and promotional policies based on a holistic view of people's health,</u> which notably implies limiting environmental factors, reducing social health inequities, helping populations reduce their individual risk factors and augmenting their natural immunity. Lastly, <u>such holistic, preventive policies must be adapted to local contexts and implemented through strong local health systems able to have the 'cushion' capacity to respond to emergencies.</u>
Plagg, B., <i>et al.</i> (2021)	Authors focus on the challenges within primary health care and hospital organization, cooperation between primary and specialist care, and access to health care services.	Practical example. Lessons from Lombardy.	<u>Strengthening the primary health care sector with regard to human and technical resources and supporting the coordination between the different levels of health care providers help to avoid overcrowded hospitals, while protecting patients and health care workers during large-scale health emergencies. Overall, further in-depth analysis of structural determinants is needed in order to develop more-resilient and integrative health care systems.</u>
Lim, M.Y.H. and Lin, V. (2021)	Authors detected, that the health workforce governance has been proposed as key to improving health services delivery, yet few studies have examined the conceptualisation of health workforce governance in detail and exploration in literature remains limited.	A literature review using PubMed, Google Scholar and grey literature search was conducted to map out the current conceptualisation of health workforce governance. Authors identified all published literature relating to governance in health workforce since 2000 and analysed them on two fronts:	Authors propose <u>an improved conceptualisation in the form of a stakeholder-driven network governance model with the national government as a strong steward against vested stakeholder interests.</u> Further research is needed to explore and develop on <u>the conceptual thinking behind health workforce governance.</u>

		the broad definition of governance, and the operationalisation of broad definition into key dimensions of governance.	
Hasan, H.F. (2021)	The objective of this study is to identify the various response of health systems in Arab Countries to COVID- 19, and highlight the legal and health challenges faced during the pandemic. The study identified both gaps and good practices that may be utilized in order to guide the efforts in response to COVID-19 and the recovery efforts once the pandemic is over.	In order to identify which countries are excelling at detection, containment, and treatment stages, several indicators were selected for each stage. To be able to understand the legal and health challenges of response to the COVID-19 pandemic, an analysis of the health systems, the resources in terms of quality and access, health workforce, and finance was conducted. Secondary data published by the Global Burden of Disease Study, and the Global Change Data Lab of the University of Oxford was used to study identified gaps and good practices to guide the responses to COVID-19 and recovery efforts once the pandemic is over.	In Arab counties, the standard response to COVID-19 was enforced by new health laws, which consist of a combination of the traditional disease control measures (testing, contact-tracing, social distancing), population-based physical distancing (including stay-at-home orders, school and business closures, and social gathering bans), travel limits (including travel bans, and border closures), and economic support measures. <u>Acceptable healthcare quality and access, sufficient health workforce, and sufficient funds are the most imperative needs in the health system in Arab counties to provide a sustainable response to the COVID-19 pandemic.</u>
Simões, J., <i>et al.</i> (2020)	Article aim was to discuss the response of Germany, Spain, France, Italy, Portugal and the United Kingdom during the first months of the COVID-19 epidemic in 2020, considering the political organisation of the country and its health system model.	Authors analysed public health measures implemented to contain or mitigate the pandemic, as well as those related to governance, resources and reorganisation of services, financing mechanisms, response of the health system itself and health outcomes. To measure the burden of COVID-19, authors used several indicators. The adoption of measures, to contain and mitigate epidemic varied in degree and time of adoption.	<u>All countries reorganised their governance structure and the provision of care, despite the differences in political models and health systems</u> (ranging from a more unitary and centralised political organisational model – France and Portugal; to a decentralised matrix – Germany, Spain, Italy and the United Kingdom). <u>Rather than the differences in political models and health systems, the explanation for the success in tackling the epidemic seems to lay in other social determinants of health.</u>

The systematic literature review has indicated different types of publications dedicated to the research theme – original articles, literature reviews, as well as editorials and commentaries, which were also accordingly reviewed.

Research results and discussion

Research results demonstrate the scientists' main findings on the obstructions revealed during the pandemic and emerging directions for performance of the healthcare systems:

- Traditional organizational cultures that are hierarchical and controlling needs to be challenged and reoriented towards collaborative, inclusive and participative practices of engagement and involvement. Health systems processes must move from a top-down to integrative policy, planning and implementation processes, increasingly adopting a people-centred approach.
- COVID-19 has brought upon us the opportunity to redesign health policy thinking and doing in order to stimulate new possibilities through critical debate, moving from fragmentation to adaptive self-organisation, creating well-integrated, equitable and prosperous societies resilient to sudden unexpected perturbations of any kind.
- Reimagined framework for global health that prioritises health-system integration across Universal Health Coverage and Global Health System holistic domains, innovative and unified health financing, cross-sector resilience indicators, and equity as a core value offers a necessary path ahead.
- Resilience in health systems should not be seen as an apolitical outcome, synonymous with a strong health systems or improved population health. The Resilient Health Care systems should be assessed by considering how macro-level and meso-level structures support adaptive capacity at the micro-level.
- Leadership development must be an established and integrated component of organizations. The gaps were embedded among complex interactions between the health systems building blocks. Understanding the complexities in fostering whole-systems strengthening through a holistic measure and applying systems thinking are crucial.
- Democratic rights, human rights, equity and ethics values have become prominent in national policy debates. In such a context, governance arrangements are changing and rely more on inclusion, participation and co-production. Increased attention to active community voice and the resources it requires can help practitioners achieve improved health outcomes and researchers understand the pathways to health improvement through collaboration.

- Democratic accountability and the rule of law cannot be completely suspended in any public health emergency. As humanity grapples with COVID-19, the way to combat one pandemic is not to create another, a pandemic of authoritarian rule. Reimagining a narrative should put the collective health and human rights at the centre.
- Establishing the scope of public health is crucial to understanding its role within the larger health system and adds to the discourse around the relationship between public health, healthcare and population health. Holistic, preventive policies must be adapted to local contexts and implemented through strong local health systems able to have the capacity to respond to emergencies.

The lessons learned from the literature review are comprehensive, strong and logical. However, the discussion can be induced by the following questions: in what way, by whom and what means such grandiose systemic changes could be implemented. One of the most vivid proposals is to review the hierarchical structure of healthcare and the current top-down decision-making system, transforming it into a people-centred system. In circumstances of the current hierarchical system the patient is not located at the centre of the system, but at the bottom of the pyramid. Therefore, the previously mentioned point that the healthcare is becoming increasingly politicized, could be assumed as an actual, and global changes in the healthcare system could be difficultly enforced without a change in the overall governance structure.

Conclusions, proposals, recommendations

1. Healthcare systems face challenges posed by internal and external factors, including economic crises or pandemic outbreaks. In the current COVID-19 pandemic situation, the particular attention is focused on financing of the impact mitigation activities, strengthening the emergency medicine, healthcare human and technical resources.
2. At the same time, it becomes noticeably that the proposed solutions and significant financial resources are not sufficient or appropriate to resolved potential and existing challenges. Consequently, the question arises as to whether there are any hidden obstructions in the healthcare system itself that hinder its operation.
3. Results of the performed literature review indicated a number of obstructions and potentials of the healthcare systems. Dominant attention is dedicated to shift from the hierarchical structural governance principles to the people-centred approach, towards collaborative, inclusive and participative practices of engagement and involvement of healthcare professionals and patients, moving from fragmentation to adaptive self-organisation, creating well-integrated, equitable and prosperous societies, by redesign health policy thinking and respect the principles of democracy and human rights.
4. Further theoretical research could be dedicated to the investigation of structural determinants, processes, involved stakeholders and their interaction, roles and responsibilities needed in order to develop more-resilient and integrative health care systems.
5. It should be noted that theoretical research has the highest value when its findings are applied in practice.

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FIRM CAPABILITIES AS EXPORT PERFORMANCE DRIVERS: LITERATURE ANALYSIS

Anda Batraga, University of Latvia
Ieva Puke, University of Latvia
Jelena Salkovska, University of Latvia

Abstract. Problem statement. According to Resource Based Theory, firms develop unique capabilities to overcome export barriers and gain competitive advantage. However firms cannot develop all capabilities simultaneously, they need to prioritize which capabilities to invest in. As capability research evolves, synthesis of previous research on capability effects on performance is needed.

The research objective is to systematically analyze latest empirical research on export performance drivers focusing on firm capabilities. The study will provide analysis of capability factor types, effects and performance indicators; it is a source of effective overview for practitioners and academics.

The research method: this paper reviews, categorizes and analyzes more than 30 empirical studies on export performance determinants that were published during years 2010-2019 and included firm capabilities as main independent variables.

The research results. Capabilities with direct effect on export performance are: 1) marketing, 2) innovation 3) networking, 4) knowledge related, 5) technological capabilities. Marketing capabilities are the most frequently used factors and studies present great variety of marketing capability types. The studies with innovation and networking capabilities found mostly positive effect on export performance. Networking capabilities are new group of capabilities acknowledged by researchers in the last decade.

Conclusions: research models are becoming more complex - they involve multiple factors, measure indirect effects, use moderating and mediating factors. This complexity arises from variety of research contexts and it encumbers generalizability of results. Export performance research models are becoming less a source of certain answers, instead they offer directions where to look for explanations.

Keywords: *export performance, firm capabilities, literature review.*

JEL code: M31, M16

Introduction

According to Resource Based Theory, firms develop unique resources and capabilities to overcome export barriers and gain competitive advantage. However, firms cannot develop all capabilities simultaneously, they need to prioritize which capabilities to invest in. As capability research and theory evolves, synthesis of previous research on capability effects on performance is needed. This study uses capability perspective to analyze export performance drivers, as capabilities are controllable and resourceful factors for firms to overcome export barriers and improve their performance.

The research objective is to systematically analyze latest empirical research on export performance drivers focusing on firm capabilities. The study provides analysis of capability factor types, effects and performance indicators.

The research method: this paper reviews, categorizes and analyzes 31 empirical studies on export performance determinants that were published during years 2010-2019 and included firm capabilities as main independent variables with direct effect on export performance. Authors categorized all capabilities, their effects on export performance, and other factors in the models (moderators, mediators, antecedents). Studies were selected through Scopus database, and accessed using Emerald eJournals Premier, JSTOR, SAGE Journals Online, ScienceDirect, Springer Link Contemporary Journals. The query in Scopus included keywords 'export AND performance' and it initially yielded 322 results from published articles in Economics and Business categories in English and Russian. Sorting by the newest, 28 articles were selected, and sorting by 'the highest citation', 26 articles were selected and analyzed altogether 54 studies. The chosen studies used a quantitative approach to measure export performance as dependent variable and determinants as independent variables. The export performance indicators used in the studies were categorized according to export performance determinant types (external, internal: firm characteristic, firm capabilities, strategy). Afterwards, studies that included firm capabilities, were selected for this research.

The study reveals 5 types of capabilities that researchers chose to study export performance determinants. It is a source of effective overview of the indicators and effects of firm level controllable factors that can be used for 1) practitioners as the support for decision making regarding capabilities development within the firm, 2) academics as a source for factor types for their research models and summary of previous findings and latest research trends.

This study brings unique contribution by synthesizing empirical research of firm capabilities as export performance drivers, as these are controllable and resourceful factors for firms to overcome export barriers and improve their performance. As capability literature evolves, this study offers synthesis of the current application of capabilities as independent factors by academics, highlighting the fragmented and diverse approaches. The study provides detailed analysis of each capability type and distinguishes among positive, negative, neutral or other type of effect found by researchers. As there are no other literature reviews that would focus solely on firm capabilities as export determinants, it is considered a novel contribution to the theoretical field of export determinants that aims to explain why some firms succeed better than others and achieve higher export results.

Literature review

Previous literature review studies have approached export performance determinants from wider perspective, analyzing both internal and external factors (Zou, Stan, 1998; Sousa et al, 2008; Beleska-Spasova, 2014; Chen et al, 2016) or all firm level factors (Nazar, Saleem, 2009). The research dynamics over the years show that internal environment factors attract more research attention, as these factors can be controlled by the firm and therefore such studies add more value to academics and businesses. The export determinant factor types evolve along with the theory development, therefore during last 10 years researchers have increasingly studied firm capabilities as factors in export performance research models. The development of Resource based view has shifted research interest from resources to the process of resource application and it's result. Initially Resource based view considered capabilities to be one of the firm resource types J.Barney (1991), but further development of the theory encouraged to separate capabilities from resources, to better understand the value creation in the firm (Teece, Pisano, and Shuen, 1997). The value of resources is revealed only in combination with capabilities. Firms need capabilities to use the available resources according to market conditions to improve the business results (Teece, Pisano, and Shuen, 1997). Comparing to literature review studies before 2010 (Zou, Stan, 1998, Sousa et al, 2008), latest studies (Chen et al, 2016, Beleska Spasova, 2014) have identified extensive development of the role of marketing, networking, knowledge and innovation capabilities on export performance. It can be explained firstly, by further advancement of Resource based view in the form of Knowledge based view, that considers knowledge to be just as important resource in modern economics as capital in industrial economics (Grant, 2002). Secondly by development of networking theory that has gained particular recognition in the context of export and internationalization of firms. Young firms use networks to compensate their limited resources, create

export business opportunities and achieve growth in export markets (Coviello, Munro, 1997; Coviello, 2006; Oviatt, McDougall, 2005; Gabrielsson, Gabrielsson, 2013). With the help of networks companies learn faster, gain more experience and expand internationally (Johanson, Vahlne, 2009; Jones, Coviello, 2005). Thirdly, innovation capabilities are necessary to create value proposition in the export market, to differentiate offers and create sustainable competitive advantage, particularly if the firm operates in a dynamic market with high competitive intensity (Boso et al, 2013).

Previous literature review studies provide overall effective understanding of export success determinants, and highlight the trends that evolve during the covered research period. However, the wide scope of determinants does not allow to go into detailed analysis of each factor and therefore conclusions of firm level factor effects are not revealed. Given the increasing research interest of firm capabilities as export determinants, authors have identified an opportunity for new, more focused literature review. This study goes into depth and focuses solely on empirical research of capabilities as firm internal factors and analyses the found effects on export performance. With this research authors further develop field of export determinant scientific research. This study reveals the real effects of capabilities on export performance, and provides bases for further discussions about the role of capabilities in export context.

Research findings and results

1. Summary of empirical studies of capabilities

Authors identified and analyzed 31 research studies. 29 of them acquired data through postal, internet, telephone surveys or face-to face interviews and in 2 papers data was acquired through external data base. The average number of respondents was 234, with minimum 85 respondents for a study in Spain and maximum 783 respondents for a study in Finland. Most of the studies were performed in Europe, mainly in EU-15 countries (Spain, Greece, Portugal, Sweden, Netherlands, Italy, Austria, Germany) and UK (Table 1), which shows underrepresentation of Central and Eastern Europe countries in export performance studies, although export is critical for the development of small and open economies.

Table 1

Territorial split of export performance determinants research studies (2010-2019)

Africa	4
Asia	6
Australia	1
BRIC	1
Europe (including EU, UK, Balkans)	19
South America	2

Source: author's based on empirical research analysis

To analyze the most significant capabilities as export performance determinants, authors categorized them and synthesized how often the factor was used in studies and what kind of effect was found on export performance – positive, negative, no effect of other type of effect (Table 2).

Table 2

Review on capability factors and effects on export performance in research studies (2010-2019)

Firm level factors	Number of factor appearances	Positive effect	Negative effect	No effect	U-type or inverse effect
Innovation capabilities	15	12	1	2	
Knowledge based capabilities	9	5	1	1	2
Marketing capabilities	26	17	2	7	
Networking capabilities	12	10		2	
Technological capabilities	4	4			

Source: author's synthesis based on D'Angelo et al, 2013; Assadinia et al, 2019; Azar and Ciabuschi, 2017; Bloemer et al, 2013; Boso et al, 2013; Cadogan et al, 2012; Chung et al, 2019; Di Fatta et al, 2019; Eid et al, 2019; Ferreras-Méndez et al, 2019; Gregory et al, 2019; Haddoud et al, 2019; Hofer et al., 2019; Hughes et al, 2010; Kaleka, 2012; Katsikea et al, 2019; Krammer et al, 2018; Kuivalainen et al, 2013; Monteiro et al, 2019; Mostafiz et al, 2019; Oura et al, 2015; Pham et al, 2017; Pypier et al., 2019; Ramon-Jeronimo et al, 2019; Rua, 2018; Silva et al, 2017; Sousa et al, 2010; Theoharakis et al, 2019; Wang et al, 2013; Zhao et al, 2018

The results (Table 2) show that most frequent capability factors used in research models are marketing, innovation and networking capabilities. Although these factors have proved to have mostly positive effect on performance, marketing capabilities show the largest frequency of results with no effect or negative effect on export performance. This could be a signal that marketing capability factor dimensions used in the research were not relevant enough for the environmental factors that exporters encounter (Puke, 2020). Each firm has a unique set of capabilities and they should be developed according to the external and internal environment factors.

2. Marketing capabilities as export performance determinants

Marketing capabilities are significant market mechanisms that firms use to apply market knowledge and create superior economic benefits (Evers, 2012, p.49). Marketing capabilities complement one other and each can be an individual source of competitive advantage. The results of studies with marketing capability effects on export performance (Table 3) show great fragmentation of factor dimensions and observed effects. Some authors view marketing capability as a higher order factor with multiple dimensions (e.g. Haddoud et al, 2019, Pham et al, 2017), while other focus on single specific marketing capability dimensions (e.g. Assadinia et al, 2019, Kaleka, 2012). Many studies involve strategic marketing capability dimensions as marketing planning, segmentation, targeting, marketing mix related specialized capabilities as pricing, distribution, selling, communication, and some focus on specific to international environment marketing capabilities like cultural sensitivity (Bloemer et al 2013), market responsiveness (Boso et al, 2019), export flexibility (Cadogan et al, 2012). Significantly, along with firm's own marketing capabilities, we notice the role of distributors' capabilities. Theoharakis et al, 2019 propose that it is not enough to analyze only exporting firm's capabilities and researchers should include also distributors capabilities. In their study authors found that the effect of exporters own marketing planning capabilities was smaller if distributors marketing capabilities were low. Export performance indicators cover mostly financial and market results.

Table 3

Marketing capabilities: factor dimensions and effects on export performance

Marketing capabilities	Effect	Export performance indicators	Other factors in the research model	Source
Aftersales support	No effect	Financial, market, strategic		Pham et al, 2017
Communication capability	Positive	Financial, market, strategic		Pham et al, 2017
Cultural sensitivity	Positive	Export intensity, financial, management satisfaction		Bloemer et al, 2013
E-commerce marketing capability	Positive	Strategic	Distribution efficiency; Communication efficiency	Gregory et al, 2019
Export market intelligence	Positive	Financial, market, strategic		Pham et al, 2017
Export market intelligence generation and dissemination	No effect	Financial, number of new markets		Katsikea et al, 2019
Export market planning	Positive	Financial		Theoharakis et al, 2019
	Positive	Financial	Distributors market orientation; Distributors' marketing implementation capability	
	No effect	Financial	Distributors' marketing implementation capability	
Export marketing programme planning	Positive	Financial	Psychic distance strengthens the effect	Assadina et al, 2019
Export customers segmentation, prioritizing and targeting, export relationship objectives and selling models	Positive	Financial, market		Katsikea et al, 2019
Export pricing	Positive	Financial, market, strategic		Pham et al, 2017
Export pricing coordination	Positive	Financial, market	High market turbulence strengthens the effect	Hofer et al., 2019
Export distribution	No effect	Financial, market, strategic		Pham et al, 2017
Export decision making flexibility	No effect	Sales, market share		Cadogan et al, 2012
Export coordination flexibility	No effect	Sales, market share		Cadogan et al, 2012
International opportunity identification	Positive	Non-financial results		Mostafiz et al, 2019
	Negative	Financial results		
Market responsiveness	Positive	Sales, market share	Product innovation, dysfunctional competition	Boso et al, 2019
	Negative	Sales, market share	Product innovation	
Product development	No effect	Market share, profitability, income from new products		Kaleka, 2012
Salary of the ordinary sales person	Positive	Export intensity		Zhao et al, 2018
Strategic brand management	Positive	Financial, market	International marketing capability as antecedent	Pyper et al , 2019
Use of social media	Positive	Sales, profit, market share	Understanding customers views and preferences, brand awareness, competitors knowledge, quality of business contacts	Eid et al, 2019

Source: authors

3. Innovation capabilities as export performance determinants

Innovation capabilities are the next most frequently studied capabilities in export performance research (Table 4). They are necessary to create the value propositions in international markets, to differentiate products and services and create sustainable competitive advantage. However, during internationalizing innovation capability might not be the primary success determinant, it depends on the market specific factors.

Table 4

Innovation capabilities: factor dimensions and effects on export performance

Innovation capability	Effect	Export performance indicators	Other factors in the research model	Source
Innovation	Positive	Export intensity, financial, management satisfaction		Bloemer et al, 2013
Innovation	Positive	Profitability		Rua, 2018
Innovation	Positive	Financial	Competition intensity	Boso et al, 2013
	Positive	Financial	Consumer dynamism	
	Positive	Financial	Channel networking capability	
Innovation	Positive	Financial	Organic firm structure	Boso et al, 2013
Innovation ambidexterity	Positive	Efficiency, effectivity, adaptation		Hughes et al, 2010
Innovation extensiveness	Positive	Financial, strategic		Azar and Ciabuschi, 2017
Innovation radicality	No effect	Financial, strategic		
Innovation capacity	Positive	Financial, strategic, management satisfaction		Oura et al, 2015
Market innovation	Negative	Strategic		Silva et al, 2017
Market innovation	No effect	Financial		
Organizational innovation	Positive	Financial, strategic		Azar and Ciabuschi, 2017
Product innovation	Positive	Regional and global export intensity		D'Angelo et al, 2013
Technological innovation	Positive	Financial, strategic		Silva et al, 2017

Source: authors

Oura et al (2015) found that international experience creates larger positive effect than innovation capability, at least in emergent market. Boso et al (2013) concluded that innovation capabilities are more useful in dynamic markets with intensive competition, and firms that operate in more static markets with less competition will not gain advantage from innovation capabilities to the same extent. On the other hand, Silva et al (2017) found the opposite effect for technological innovation capability – it showed stronger effect on performance in less competitive markets, because other players were technologically weaker. They also found that market innovations have negative impact on short term export performance, because market innovation means introduction of new product concept and export partners need longer time to understand and appreciate new product advantages. They need to shift their mindset and behavior to accept the new product and therefore the positive effect would be visible only in longer term.

4. Networking capabilities as export performance determinants

Only in the last decade of research academics have started to address networking or relational capabilities as determinants for export success. Networking capabilities are considered to be firm level capabilities, but undeniably they are connected to individual abilities to create and maintain relationships. For example, Sousa et al (2010) proved that managers who are more open to change will achieve better export performance than conservative managers. Furthermore, if export market has high psychic distance, there will be even higher impact of open-minded managers, because they are more open to learning process and invest more effort. Networking is essential capability not only in export markets but also domestically – network of like-minded firms in the domestic market can be resourceful and contribute to export performance (Haddoud et al, 2019). Networking capability research proves that ability to engage customers and exploit partners resources is essential source of export success (Table 5).

Networking capabilities: factor dimensions and effects on export performance

Networking capabilities	Effect	Export performance indicators	Other factors in the research model	Source
Ability to leverage foreign-distributor capabilities	Positive	Financial, Strategic		Chung et al, 2019
Calculative commitment	Positive	Export intensity, financial, managerial satisfaction		Bloemer et al, 2013
Customer responsiveness	Positive	Financial, Strategic		Sousa et al, 2010
Customer relationship building capability	Positive	Financial, Strategic, management satisfaction		Ramon-Jeronimo et al, 2019
Customer relationship capability	No effect	Market share, profitability, income from new products		Kaleka, 2012
Relational capability	Positive	Financial, market, strategic		Pham et al, 2017
Relational capability	Positive	Profitability		Rua, 2018
Relational capability	Positive	Strategic, management satisfaction	Dynamic capabilities	Monteiro et al, 2019
Relational capability	Positive	Financial, market, management satisfaction		Haddoud et al, 2019
SMEs' relationships quality with foreign buyers	Positive	Financial, market, managerial satisfaction		Haddoud et al, 2019
SMEs' relationships quality with local buyers	No effect			
Social (informal) control on the foreign intermediary relationship	Positive	Financial, Strategic, management satisfaction		Ramon-Jeronimo et al, 2019

Source: authors

5. Knowledge related capabilities as export performance determinants

The use of knowledge related factors show increasing interest from researchers driven not only by Resource based theory (Kaleka, 2012, Rua, 2018, Monteiro et al, 2019, Assadinia et al, 2019), but also knowledge management theory (Di Fatta et al, 2019) and Organizational learning theory (Ferreras-Mendez et al, 2019). These studies contribute to understanding of how knowledge and learning related factors are connected to export performance. Part of the studies find that there is no direct effect or it is unlinear (Table 6). For example, export learning orientation showed paradoxal findings, as it did not have direct positive impact on performance, and only showed positive effect through marketing programme planning (Assadinia et al, 2019). Learning orientation shows firms' attitude, but it only fosters real results through action – in this case marketing planning is the action that effectively translates export learning into fruitful results.

Table 6

Knowledge related factors: factor dimensions and effects on export performance

Knowledge related factors	Effect	Export performance indicators	Other factors in the research model	Source
Export knowledge	Positive	Sales, market share		Di Fatta et al, 2019
Informational resources	Positive	Strategic, managerial satisfaction	Dynamic capabilities	Monteiro et al, 2019
Industrial and non-industrial knowledge searching strategies	Positive	Financial	Absorptive capacity	Ferreras-Méndez et al, 2019
Informational resources	Positive	Profitability		Rua, 2018
Informational capability	U-shaped	Profitability		Kaleka, 2012
Informational capability	U-shaped	Adaptation (income from new products)		
Informational capability	Negative	Market share, profitability, adaptability	More experienced based resources	
Export learning orientation	No effect	Financial	Psychic distance	Assadinia et al, 2019
Export learning orientation	Positive	Financial	Marketing programme planning; Psychic distance	

Source: authors

Kaleka (2012) found that informational capability has U-shaped effect on performance, which means that small investments in knowledge and contacts are of limited value, but substantial increase would bring significant performance improvement. The synthesized results show that knowledge related factors bring positive effect mostly together with additional explanatory factors, and that firms should consider which activities would help speedily plant the gained knowledge and information into fruitful soil.

Technological capabilities as export performance determinants

Although technological capability was considered to be an inside-out capability (Day, 1994), authors have started to study external technology acquisition capability as export performance determinant. Krammer et al (2018) find positive effect on export intensity which confirms the value of external technological capabilities to produce goods of sufficient quality to compete in international markets. Also, Wang et al (2013) prove that external technology acquisitions positively influence Chinese firms' export performance. Chung et al (2019) find that technological capability is related more strongly to strategic export performance for SMEs exporting own-brand products than those exporting under original equipment manufacturer contract.

Table 7

Technological capabilities factor dimensions and effects on export performance

Technological capabilities	Effect	Export performance indicators	Other factors in the research model	Source
Technological capability	Positive	Financial, strategic		Chung et al, 2019
Access to external technologies through licensing	Positive	Export intensity	Political instability and informal competition	Krammer et al, 2018
RandD intensity	Positive	Export intensity, export volume		Wang et al, 2013
External technology acquisition	Positive	Export intensity, export volume		

Source: authors

Conclusions, proposals, recommendations

- Key capabilities with direct effect on export performance that researchers study the most are: 1) marketing, 2) innovation and 3) networking capabilities. Marketing capabilities are the most frequently used factors and studies present great variety of marketing capability types. Not all marketing capabilities are equally essential to firms, and all capabilities cannot be developed or transformed successfully at the same time. Therefore, firms should carefully choose which capabilities to prioritize according to environmental factors. Likewise, researchers should choose the marketing capability set according to the research context. The studies with innovation and networking capabilities found mostly positive effect on export performance.
- Studies on knowledge-based capabilities presented controversial results, which mean that scientific understanding of how these capabilities unfold in the firm and how they improve performance in various contexts is still to be developed. Networking and knowledge-based factors are known as key capabilities for growth of young internationalizing firms in the latest research (e.g. Jiang et al, 2020), so we can expect future increase of these factors in export performance determinant studies.
- The results of this paper implicate that export performance research models are becoming more complex: they involve multiple factors, measure indirect effects, use moderating and mediating factors. This complexity arises from variety of research contexts, such as the target market specifics – competitive intensity, psychic distance, institutional distance, technological or market turbulence, or firm specific factors, for example the maturity and size of firms. Moderating factors represent the conditions that validate or invalidate the measured relationships. Moderating factors explain why a significant effect in one research context turn out to be insignificant in another (Yeoh and Jeong, 1995, Chen, Sousa, He, 2016). The complex research models encumber generalizability of the study results. Export performance research is becoming less a source of the certain answers, instead it offers the directions where to search for the explanations. The capability factors and indicators are very fragmented, especially marketing capabilities. This highlights the need for further capability classification and theory development.
- Implications for theory: this study advances the theoretical discussion of export determinants. The results indicate that significant progress has been made to explore the effects of various capabilities, the complexity of models has increased, and specific export performance indicators have been considered.
- Suggestions for further research: the same approach with in-depth focus on single aspect of export performance determinants could be repeated, for example covering strategy or managerial aspects as internal factors. Another direction would be appealing to marketing scientists: to further explore and find pattern in specific marketing capabilities that match specific external environment contexts.
- Contribution to research: this study highlights the latest trends in capability and export determinants research, revealing capability types, export determinant indicators, other factors in the research model. Study provides effective overview of research models used and is helpful resource in development of new research models.
- Contribution to practice: managers need to choose among specific firm capabilities to invest in. This study provides synthesis and analysis of the positive, negative and neutral and other type of effects found using specific capability types. The study also details out specific export performance indicators, and managers can choose capabilities according to their key performance indicators, that depend on firm lifecycle or strategic objectives.
- Contribution to society: access to the review of capabilities as export performance determinants improve the development of exporting companies and education of management and entrepreneurship.
- Limitations: this study does not analyze individual level factors, strategy or strategic orientations nor external factors as export performance determinants. There might be papers that are not included in the review due to the following reasons: paper covered single industry exporters, paper explored export results within firms from single region of a country, due to low paper citation results, due to limited access of scientific databases.

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IN-DEMAND SKILLS AND COMPETENCES FOR EMPLOYEES IN SPA AND WELLNESS SECTOR

Kristine Berzina, University of Latvia
Ilze Medne, University of Latvia
Gunta Uspele, Latvian Health Tourism Cluster

Abstract. Spa and Wellness tourism over the last decades has grown rapidly caused by globalisation, aging of the population, changes in lifestyle and challenges in medical systems. Problem statement stems from the fact that the fast industry development requires corresponding workforce provision and workforce education. Industry practitioners indicate dissatisfaction with skills and knowledge that studying provides, thus higher education establishments and industry professionals need to cooperate in curricula and training development. Both hard skills and soft skills are fundamental for Spa and Wellness curricula, also actual requirements for digital competences as well as sustainability perspective must be taken into account. The aim of the research is to identify currently demanded skills and competences for the Spa and Wellness industry employees. Both quantitative and qualitative research methods have been chosen to analyse the situation in seven European countries - Latvia, Slovenia, France, Italy, Serbia, Greece and Bulgaria. Main results and findings of the paper indicate knowledge, skills and competences that need to be included in Spa and Wellness curricula based on the perspective of two stakeholders Spa and Wellness Employers, as well as Vocational Education and Training providers. Recommendations consist of a set of study courses that comprise the most demanded skills, knowledge and competences.

Key words: *tourism, Spa, Wellness, skills, competences.*

JEL code: M31, L83

Introduction

Over the last decades, Spa and Wellness tourism increase rate on global scale was higher than that of overall tourism industry (Suttikun, Jung Chang., Bicksler, 2018; Thal, Smith, George, 2021). That way Spa and Wellness tourism has become important part of the tourism industry and relevant sector in world economy (Silvestri, Aquilani, Ruggieri, 2017). Globalisation processes, aging of population, changes in lifestyle, as well as challenges in medical systems are the main growth drivers of the Spa and Wellness industry (Global Spa Summit, 2010; Ting, Changyu, Changtai, Kexin, Zhiping, Linjun, 2021). Such an increase in consumer demand also creates a need for high quality workforce along with challenges in workforce education in Spa and Wellness industry (Global Internship Program Committee, 2016).

Industry professionals outline that one of the issues in workforce education and development is Spa and Wellness is manager knowledge of latest trends, probably also because many Spa and Wellness managers come from a therapeutic background and not a business background (Global Spa Summit, 2010). Consequently, Spa and Wellness manager training programs on trends, business development and marketing are important for successful education implementation. Some industry practitioners outline dissatisfaction with the preparedness of the graduates (Gruzdev, Kuznetsova, Tarkhanova, Kazakova, 2018). Therefore, common efforts in curricula development and cooperation between higher education establishments and industry professionals is crucial for ensuring the quality of training.

Literature Review

1. Spa and Wellness sector

Spa and Wellness as terms are frequently used in modern world, still both have ancient roots. Initially Spa meant health resorts near a mineral spring, nowadays Spa can be defined as an entity devoted to enhance overall wellbeing through a variety of professional services that encourage the renewal of mind, body and spirit (Georgiev, Trifonova, Vasileva, 2010, International Spa Association, 2004).

Wellness concept was already used in religious and medical movements in the 19th century (Global Spa Summit, 2010), which nowadays has turned into Wellness tourism as travel associated with the pursuit of maintaining or enhancing one's personal wellbeing (Global Wellness Institute). It designs experiences and services supporting health and wellness for consumers (Lehto, 2019; Brandão, Liberato, Teixeira, Liberato, 2021) into the industry with an annual growth rate more than double that for the tourism industry overall, thus boosting economic growth and job creation (Nel-lo Andreu, Font-Barnet, Espasa Roca, 2021).

2. Skills and competences of Spa and Wellness sector employees

Competencies encompasses the knowledge, skills, and abilities that constitute a job description (Cecil, Krohn, 2012) and that are important in the area of expertise. Lifelong learning requires continuous professional skill development through accessing the most recent knowledge and large data bases of health-related industry specialties (Georgescu, Necsoi, 2013). In 2018, The European Council recommended the key competences for lifelong learning, which included literacy competence, multilingual competence, mathematical competence and competence in science, technology and engineering, digital competence, personal, social and learning to learn competence, citizenship competence, entrepreneurship competence, cultural awareness and expression competence (European Commission, Directorate-General for Education, Youth, Sport and Culture, 2019).

Fundamentally, tourism curriculum is based not only on hard skills, but also soft skills for tourism management. Soft skills comprise personal characteristics that would facilitate effective interaction and cooperation between employee and client, employee and employee, as well as with other stakeholders involved (Gruzdev, Kuznetsova, Tarkhanova, Kazakova, 2018). Increasing industry internationalisation demands cultural competences and communication skills (Thal, Smith, George, 2021), even the ability to communicate in two till three foreign languages (Kasalis, Brēķis, Jēkabsons, Purmalis, 2013a).

The integration of sustainable development principles in higher education curricula can prepare students to become more creative and innovative solvers of complex social and biological problem (Wilson, von der Heidt, 2013). Changes in society values towards sustainability (Kasalis, Brēķis, Jēkabsons, Purmalis, 2013a) require a shift towards environmentally conscious Spa and Wellness products (Avison Young, 2019).

All tourism sectors are highly affected by advances in digital technology that also influence consumer behaviour, therefore economists consider digital competence as a significant drive for entrepreneurship (Morellato, 2014). Digital competence is crucial not only for effective communication, but also for accessing strategically relevant knowledge and resources through digital cooperation (Morellato, 2014). In the future, skill requirements will relate to digital skills, sustainability, communication, public relations, need for labour flexibility and mobility to operate in international markets (Kasalis, Brēķis, Jēkabsons, Purmalis, 2013b).

In the competency-based curricula design approach, it is crucial to connect course content with industry requirements that are developing and changing (Cecil, Krohn, 2012), therefore curricula development is a task of both stakeholders - Spa and Wellness Employers as well as Vocational Education and Training providers.

3. Research aim, tasks and methods

The aim of this research was to identify currently demanded skills and competences for the Spa and Wellness industry employees. To achieve the aim of this research, the following tasks were set:

- (1) identify skills, competences and qualifications that are needed at the workplace for the Spa and Wellness sector from the perspective of employers and to highlight gaps in the Spa and Wellness industry staff skills and competencies,
- (2) identify skills, competences and qualifications that are needed at the workplace for the Spa and Wellness sector from the perspective of Vocational Education and Training (further in text VET) providers,
- (3) develop recommendations to promote professional and high-quality staff development by designing and implementing development of VET curriculum for corresponding needs of labour market.

Both quantitative and qualitative research methods have been chosen to analyse the situation in seven countries: Latvia, Slovenia, France, Italy, Serbia, Greece and Bulgaria.

In the 1st stage, as part of quantitative research two surveys were conducted to identify perspective of both industry stakeholders - Spa and Wellness employers and VET providers. As the result of quantitative research, conclusions were developed about the possible lack of skills and competences among employees from the Spa and Wellness employers' professional perspective, as well as from the VET provider point of view.

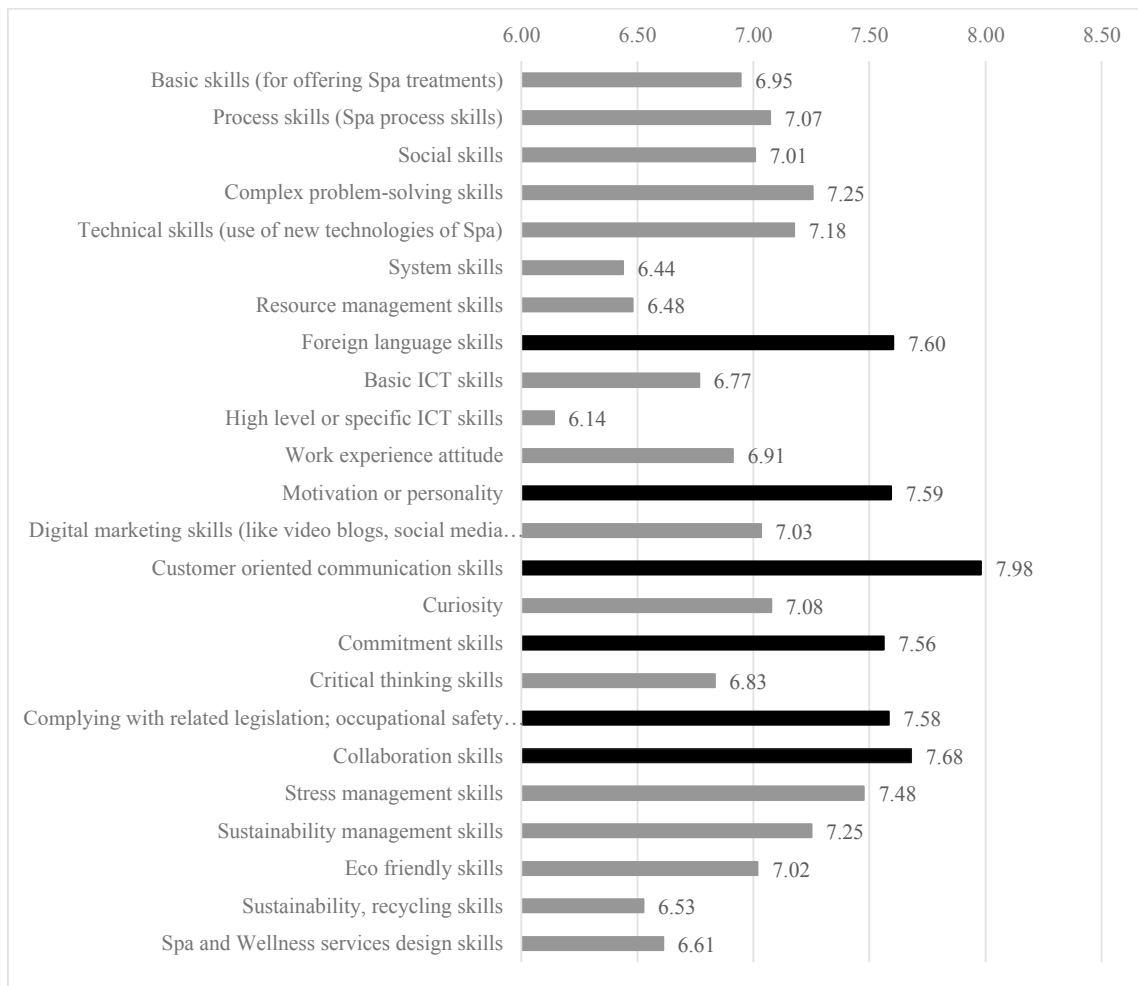
As the 2nd stage qualitative research method focus group discussion was chosen to gather opinions of experts about the required skills for employees working in the Spa and Wellness industry. Seeking for experience-rich participants, who represent a variety of sectors and interests, an important goal in these focus groups is participant selection (Cecil, Krohn, 2012). In 2021, the research team hosted focus groups for Spa and Wellness industry professionals. The team of researchers developed a standardized, in-depth, open-ended focus group interview questions accompanied with an interview guide for all countries. As the conclusion the demanded skills and competences were nominated.

4. Spa and Wellness employer and Vocational education and training (VET) provider survey result analyses

Spa and Wellness employer survey was filled by 150 companies from all seven chosen European countries: Bulgaria, France, Greece, Italy, Latvia, Serbia, Slovenia. The majority of Spa and Wellness employer survey respondents were from private SPA and Wellness centers (41%) and private Spa, Spa and Wellness hotels (30%). From the company size perspective, survey respondents covered companies of different sizes - 11% enterprises employing 1 to 4 employees, 21% enterprises employing 5 to 9 employees, majority or 36% represented small enterprises with 10 to 49 employees, 18% middle size enterprises with 50 to 249 employees, and 15% large enterprises with more than 250 employees. Survey was filled by supervisors of establishments (11%), managers of establishments (37%), operators of establishments (9%) and owners of establishments (14%) and other positions like department managers, sales managers, etc.

Further analysis will include Spa and Wellness employer survey result analyses related to knowledge and skills crucial for the development of their sector.

The skills that experienced the largest increase of requirements were customer-oriented communication skills – 7.98 points (in 10-point scale from 1-no increase to 10-largest increase), followed by collaboration skills (7,68), knowledge of foreign language (7,60), employee motivation or personality (7,59), complying with related legislation, occupational safety and health, fire protection and hygiene regulations (7,58), commitment skills (7,56). (Fig. 1)

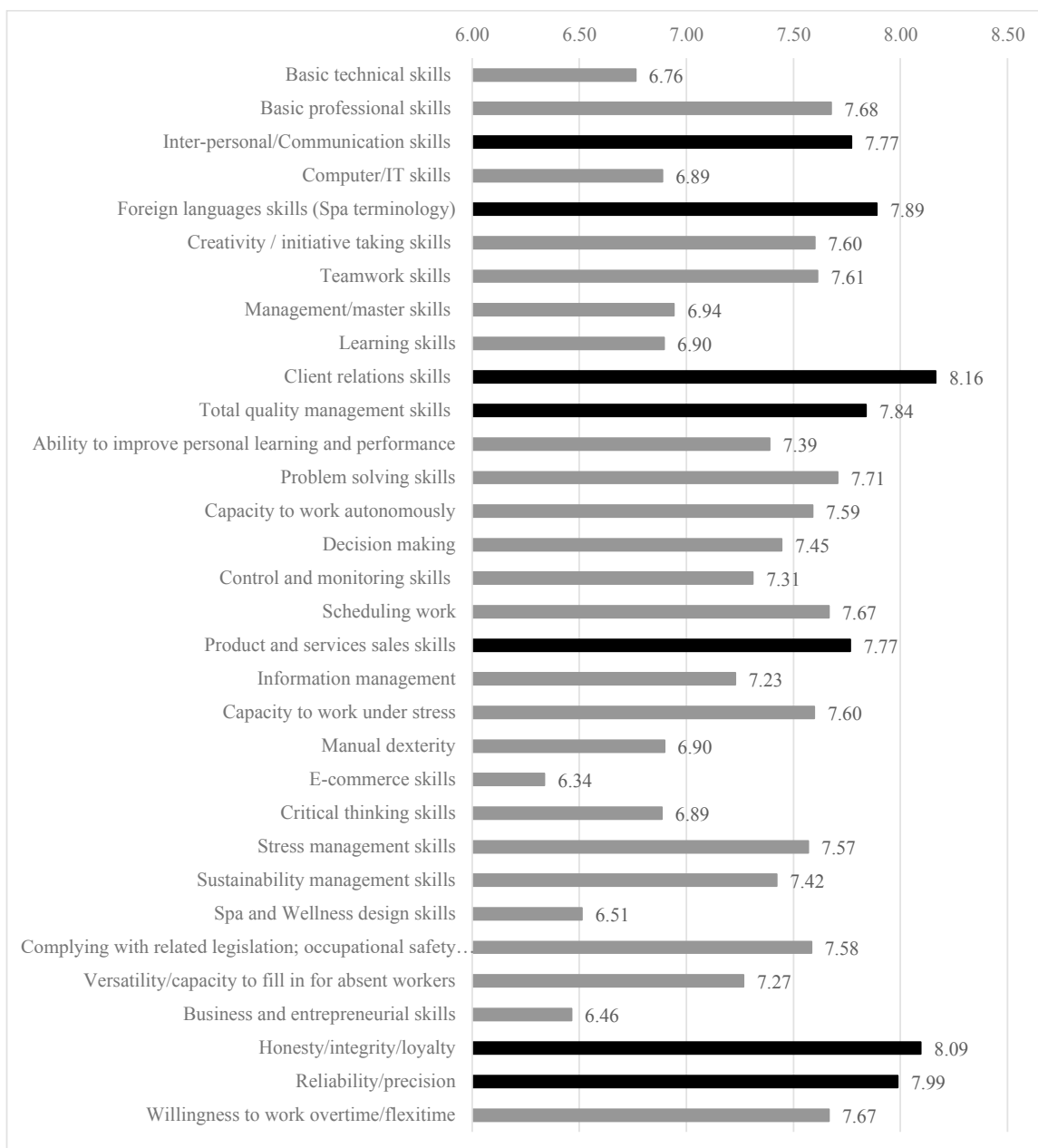


Source: author's construction based on the results of the survey

Fig. 1. Skills with the highest increase in requirements identified by Spa and Wellness Employers, n=150 (on a scale from 1-no increase to 10-largest increase)

Customer oriented communication skills were mentioned in the list of TOP 6 skills with highest increase in requirements for Bulgaria, Greece, Italy, Latvia, Serbia and Slovenia. Collaboration skills were mentioned in the list of TOP 6 skills with highest increase in requirements for France, Greece, Italy, Latvia, and Slovenia. Knowledge of foreign language was mentioned in the list of TOP 6 skills with highest increase in requirements for Bulgaria and Serbia, Slovenia. Employee motivation or personality was mentioned in the list of TOP 6 skills with highest increase in requirements for Bulgaria, France, Italy and Serbia. Complying with related legislation, occupational safety and health, fire protection and hygiene regulations were mentioned in the list of TOP 6 skills with highest increase in requirements for Bulgaria and Greece. Commitment skills were mentioned in the list of TOP 6 skills with highest increase in requirements for Bulgaria, France, Latvia and Slovenia.

Spa and Wellness employers using a 10-point scale (1-not requested, 10-most requested) identified the most in-demand skills for occupations in serious lack of personnel – client relation skills (8,16), closely followed by honesty, integrity and loyalty (8,09). Reliability and precision (7,99), foreign language knowledge for Spa terminology (7,89), Total Quality Management (7,84), inter-personal and communication skills, product and service sales skills (7,77) were also mentioned as in-demand skills. (Fig.2)



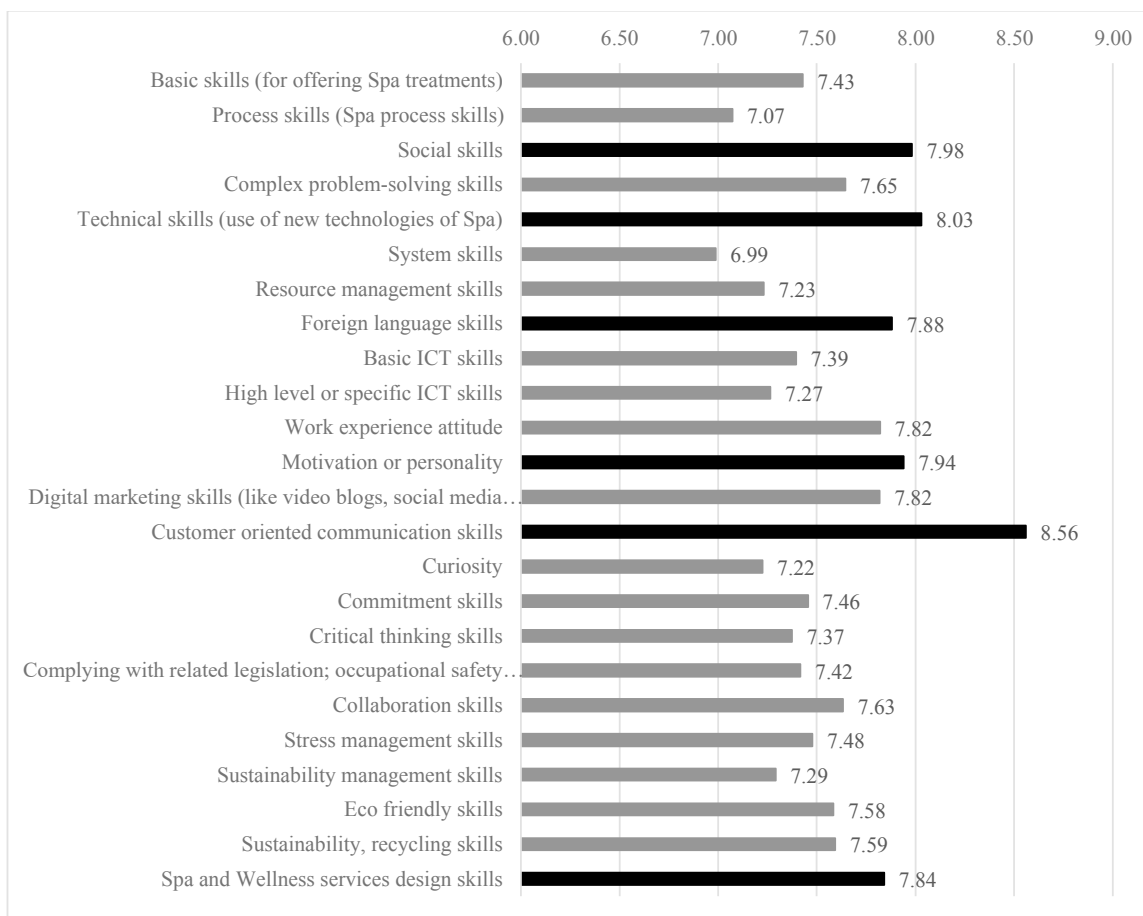
Source: author's construction based on the results of the survey

Fig. 2. The most in-demand skills in professions, where there is a serious shortage of staff in the establishment identified by Spa and Wellness employers, n=150 (on a scale from 1-not requested to 10-most requested)

Client relation skills were mentioned in the list of TOP 6 most in-demand skills in serious lack of personnel by Spa and Wellness employers from France, Greece, Italy, Latvia and Slovenia. Honesty, integrity and loyalty were mentioned in the list of TOP 6 most in-demand skills in serious lack of personnel by Spa and Wellness employers from France, Greece, Italy and Serbia. Reliability and precision were mentioned in the list of TOP 6 most in-demand skills in serious lack of personnel by Spa and Wellness employers from Bulgaria, Latvia and Serbia. Foreign language knowledge for Spa terminology was mentioned in the list of TOP 6 most in-demand skills in serious lack of personnel by Spa and Wellness employers from Greece, Italy, and Serbia. Total Quality Management was mentioned in the list of TOP 6 most in-demand skills in serious lack of personnel by Spa and Wellness employers from Greece and Slovenia. Inter-personal and communication skills were mentioned in the list of TOP 6 most in-demand skills in serious lack of personnel by Spa and Wellness employers from Italy and Latvia. Product and service sales skills were mentioned in the list of TOP 6 most in-demand skills in serious lack of personnel by Spa and Wellness employers from Latvia and Serbia.

Vocational education and training (VET) provider survey was filled by 165 institutions from all seven chosen European countries: Bulgaria, France, Greece, Italy, Latvia, Serbia, Slovenia. Of those 39% were private VET institutions, 57% were public VET institutions and 4% were Public Private Partnerships. From the company size perspective, survey respondents covered different size organisations - 5% organisations employing 1 to 4 employees, 15% organisations with 5 to 9 employees, 27% represented small organisations with 10 to 49 employees, one half or 50% middle size organisations with 50 to 249 employees, and 2% large organisations with more than 250 employees. VET institutions that filled the survey started to offer training programmes in the Spa and Wellness during different periods. 30% of institutions offer such training programmes only recently during the last 1 to 5 years, 28% of institutions offer training programmes during the last 6 to 10 years, 29% of institutions offer training programmes already during the last 11 to 20 years and 13% of institutions are providing such programs for more than 20 years.

When marking the increase in the skill requirements using a 10-point scale (1-no increase, 10-largest increase), VET providers outlined largest increase for customer oriented communication skills (8,56) and technical skills, like, use of new technologies of Spa (8,03). Social skills (7,98), employee motivation or personality (7,94), knowledge of foreign language (7,88), Spa and Wellness services design skills (7,84) also were marked as having an increase in the skill requirements. (Fig.3)



Source: author's construction based on the results of the survey

Fig. 3. Skills with the highest increase in requirements identified by VET providers, n=165 (on a scale from 1-no increase to 10-largest increase)

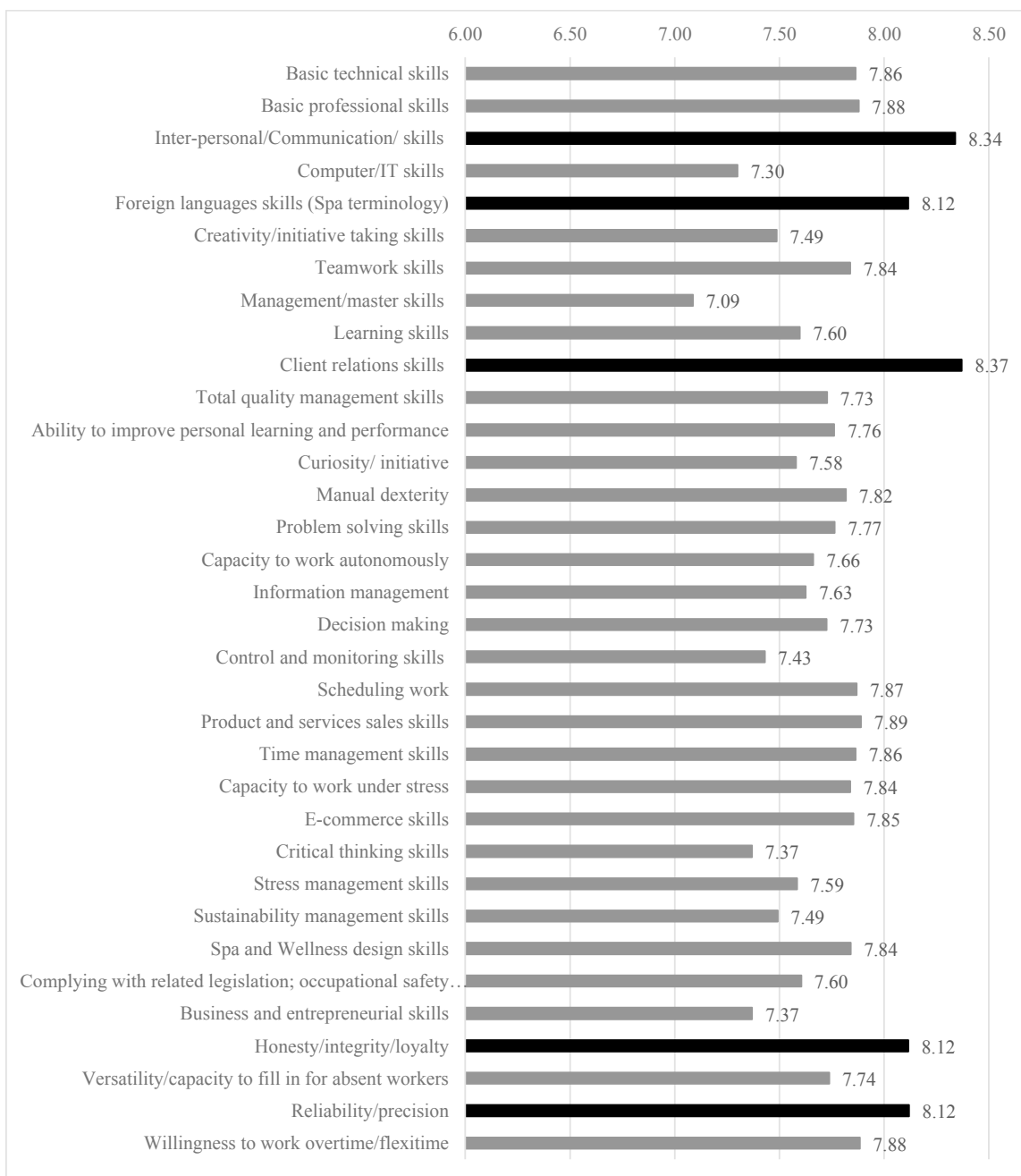
Customer oriented communication skills were mentioned in the list of TOP 6 skills with highest increase in requirements for Bulgaria, France, Greece, Italy, Latvia and Slovenia. Technical skills like use of new technologies of Spa were mentioned in the list of TOP 6 skills with highest increase in requirements for Greece, Italy and Serbia. Social skills were mentioned in the list of TOP 6 skills with highest increase in requirements for Bulgaria, Italy, Latvia and Slovenia. Employee motivation or personality was mentioned in the list of TOP 6 skills with highest increase in requirements for France and Italy. Knowledge of foreign language was mentioned in the list of TOP 6 skills with highest increase in requirements for Bulgaria, France, Serbia and Slovenia.

The most in-demand skills for occupations in serious lack of personnel, VET providers using a 10-point scale (1-not requested, 10-most requested) mentioned client relation skills (8,37), closely followed by inter-personal and communication skills (8,34). Foreign language knowledge for Spa terminology, honesty, integrity, loyalty, reliability and precision – all were marked with 8,12 points. Product and service sales skills were marked with 7,89. (Fig.4)

Client relation skills were mentioned in the list of TOP 6 most in-demand skills in serious lack of personnel by VET providers from Italy, Latvia and Slovenia. Inter-personal and communication skills were mentioned in the list of TOP 6 most in-demand skills in serious lack of personnel by VET providers from France, Italy and Latvia. Foreign language knowledge for Spa terminology was mentioned in the list of TOP 6 most in-demand skills in serious lack of personnel by VET providers from Bulgaria, France, Italy, Latvia and Serbia. Honesty, integrity and loyalty were mentioned in the list of TOP 6 most in-demand skills in serious lack of personnel by VET providers from Slovenia. Reliability and precision were mentioned in the list of TOP 6 most in-demand skills in serious lack of personnel by VET providers from Italy, Latvia, Serbia and Slovenia. Product and service sales skills were mentioned in the list of TOP 6 most in-demand skills in serious lack of personnel by VET providers from Greece and Italy.

Comparing survey results of Spa and Wellness employer opinion with that of VET providers, the TOP in-demand skills are quite similar for both stakeholders. Client relation skills, inter-personal and communication skills, foreign language knowledge for Spa terminology, honesty, integrity, loyalty, reliability and precision, product and service sales skills – all were mentioned by both stakeholders. Spa and Wellness employers also additionally mentioned Total Quality Management.

When speaking about the increase in the skill requirements, both Spa and Wellness employers and VET providers had the same opinion that customer-oriented communication skills, knowledge of foreign language and employee motivation or personality will have the largest increase. Spa and Wellness employers also mentioned a large increase in collaboration skills and complying with related legislation, occupational safety and health, fire protection and hygiene regulations and commitment skills. However, VET providers outlined also technical skills, like, the use of new technologies of Spa, social skills and Spa and Wellness services design skills.



Source: author's construction based on the results of the survey

Fig. 4. The most in-demand skills in the case of occupation, in which respondents experienced a serious lack of personnel identified by VET providers, n=165 (on a scale from 1-not requested to 10-most requested)

In the importance of knowledge, both stakeholders Spa and Wellness employers and VET providers as the most important knowledge emphasized knowledge about the Spa and Wellness services and products, knowledge of foreign languages, knowledge about time management, knowledge of Spa and Wellness services design, knowledge about the psychology of sales and marketing. Spa and Wellness employers also highlighted the importance of knowledge about the work organisation. However, VET providers mentioned importance of the knowledge about related legislation, occupational safety and health, fire protection and hygiene regulations.

When speaking about the lack of skills that have the highest negative impact, both Spa and Wellness employers and VET providers had the same opinion that customer handling skills, technical, practical or job-specific skills, oral communication skills, problem solving skills and team working skills would have the most negative impact. Spa and Wellness employers also mentioned management skills. However, VET providers also outlined knowledge of foreign language.

When evaluating the difficulty to find skilled labour to fill vacancies, both Spa and Wellness employers and VET providers had the same opinion about job categories with the highest difficulty - highly qualified specialists like medical staff, skilled workers as Spa specialists, sales and marketing specialists, heads and representatives of authority and all levels of authority and managers. Spa and Wellness employers also mentioned average qualification specialists like technicians, masters, average accountants, sale persons, cashiers, etc.

5. Spa and Wellness employer focus group result analyses

Due to the pandemic situation, focus groups in all seven countries were organised online. In all 7 European countries – Bulgaria, France, Greece, Italy, Latvia, Serbia and Slovenia in the time period from May 1 to 31 2021, one day meeting was organised. All focus group participants

were introduced with the survey results in order to collect answers from stakeholders in partner countries with respect to adequacy and comprehensiveness of the results. All together in seven focus groups more than 70 Spa and Wellness industry companies participated.

The most important skills and key competences in Spa and Wellness establishments that were mentioned by most focus group company representatives were teamwork, knowledge of foreign languages and communication skills. Teamwork as an important skills and key competence at Spa and Wellness establishments was mentioned by Bulgaria, France, Greece, Latvia and Serbia. Foreign language as an important knowledge at Spa and Wellness establishments was mentioned by Bulgaria, France, Latvia, Serbia and Slovenia. Communication as an important skill and key competence at Spa and Wellness establishments was mentioned by Greece, Latvia, Serbia and Slovenia.

As skills for specific positions, where Spa and Wellness establishments face most difficulties, when looking for suitable employees with the relevant knowledge and skills, Spa and wellness company representatives outlined foreign languages, teamwork, inter-personal and communication skills, as well as willingness to work overtime and flexible time. Knowledge of foreign languages was mentioned by Bulgaria, Greece, Latvia and Serbia. Teamwork was mentioned by Bulgaria, France, Greece, Latvia and Serbia. Inter-personal/communication skills were mentioned by France, Latvia and Serbia. Willingness to work overtime and flexible time at Spa and Wellness establishments was mentioned by Bulgaria, Latvia and Serbia.

Most focus group participants as the most important types of knowledge for Spa and Wellness establishments listed knowledge about the Spa and Wellness services and products, knowledge of foreign languages, knowledge about the tourism services and products, also leadership and employee motivation, as well as knowledge of psychology of sales and marketing. Knowledge about the Spa and Wellness services and products was mentioned by Bulgaria, Greece, Latvia and Serbia. Knowledge of foreign languages was mentioned by Bulgaria, Greece, Latvia and Serbia, Slovenia. Knowledge about the tourism services and products was mentioned by Bulgaria, Greece, and Latvia. Knowledge about leadership and employee motivation was mentioned by Bulgaria, France and Serbia. Knowledge psychology of sales and marketing was mentioned by Bulgaria, Latvia and Serbia.

When asked about the lack of skills that have the greatest negative impact on the Spa and Wellness establishment, company representatives in focus groups highlighted oral communication skills, customer-handling skills, team-working skills, knowledge of foreign language, also technical, practical or job-specific skills and management skills. Negative impact on establishments in case of lack of oral communication skills was mentioned by Bulgaria, France, Greece, Latvia and Serbia. Negative impact on establishments in case of lack of customer-handling skills was mentioned again by Bulgaria, France, Greece, Latvia and Serbia. Negative impact on establishments in case of lack of team-working skills was mentioned by Greece, Latvia and Serbia. Negative impact on establishments in case of lack of knowledge of foreign language was mentioned by Greece, Latvia and Serbia. Negative impact on establishments in case of lack of management skills was mentioned by Bulgaria, France and Greece. Negative impact on establishments in case of lack of technical, practical or job-specific skills was mentioned by Bulgaria, France, Greece and Latvia.

As the skills that have a key-role for the sector, Spa and Wellness company representatives outlined skills in client and public relations as well as need for multiple and poliqualfication specialists. Client and public relations skills were mentioned by focus group participants of France, Greece, Latvia and Serbia. Need for multiple and poliqualfication specialists was mentioned by focus group participants of France, Latvia and Serbia.

The skills that were considered to be the most important for improving performance of Spa and Wellness establishments were client oriented communication skill and basic professional knowledge in the field of wellness or tourism. Client oriented communication skill was mentioned by focus group participants of Italy, Latvia, Serbia and Slovenia. Basic professional knowledge in the field of wellness or tourism was mentioned by focus group participants of Bulgaria, France and Serbia.

Regarding professional skills and competences that Spa and Wellness establishment representatives foresee as needed in the future for industry, focus group participants outlined digital competences and computer skills in Latvia, Serbia and Slovenia.

Conclusions, proposals, recommendations

1. In the Wellness and Spa sector customer-oriented service is extremely important and accordingly, these skills need to be improved. Related issues include customer-oriented service, devising complex products, correct communication, how to sell, how to serve customers, how hospitable we are, and whether the customer will return and become a regular client. These are extremely important issues. Skills enabling employees to serve customers with the requisite level of quality and hospitality are an important precondition for businesses in the Spa and Wellness sector to operate successfully. Therefore, the shortage of these skills needs to be rectified.
2. In the Spa and wellness sector, one of the most important skills is the skill of communication. In this regard, one can draw parallels with the connection of various skills including digital communication skills, verbal communication and presentation skills. Multicultural communication skills are inevitably becoming more relevant, especially considering the growth in the flow of foreign tourists into the European Union from Asian countries, Arab states with their religious and cultural characteristics.
3. Foreign language skills are vital and especially so in the Spa and wellness sector. Improved foreign language skills are required in the use of Spa and wellness terminology, medical terms, as well as overall improvement of foreign language skills including English and other languages, including the languages of Asian countries with a view of the future.
4. The era of digital economy dictates its own rules, and high quality and complicated digital knowledge and skills will be increasingly in demand. It should also be noted that the use of various digital IT solutions and tools in various fields is ever increasing including marketing, sales, communication with customers, meeting hosting, teamwork and many others.
5. The surveys of Spa and Wellness industry employers and VET providers indicated the following main demanded skills and competences: client relation skills, inter-personal and customer-oriented communication skills, foreign language knowledge for Spa terminology, product and service design and sales skills (knowledge about the Spa and Wellness services and products, knowledge of Spa and Wellness services design, knowledge about the psychology of sales and marketing), customer handling skills, problem solving and team working skills.
6. The Spa and Wellness industry focus group participants highlighted the following skills and competences: teamwork skills, foreign language knowledge, communication skills, knowledge about the Spa and Wellness as well as tourism services and products, knowledge of psychology of sales and marketing, knowledge of leadership and motivation of employees, customer-handling skills, management skills, client and public relations skills, digital competences and computer skills.
7. Based on the survey and focus group analyses, the following Spa and Wellness sector establishment skills were indicated as most important: Knowledge of foreign language for professional Spa and Wellness terminology (English language), Communication and customer service skills (including written and spoken communication, interpersonal communication, and customer communication as well as customer handling skills, client relation skills), Problem solving skills, Teamwork (including collaboration skills), Digital competences (including computer skills).

8. Based on the research results, it is recommended to create and implement the following curricula for the development and improvement of professional competences: (1) Customer oriented communication, service and problem-solving skills, (2) Design of Spa and Wellness products and professional English terminology for Spa and Wellness, (3) Digital marketing skills for Spa and Wellness products and services, (4) Digital skill (and other digital needs of Spa and Wellness sector). Considering the urgency of environmental problems, as well as the EU guidelines, it is necessary to create a curriculum for the development of sustainability competences: (5) Sustainable development (eco recycling, sustainability management, eco-friendly enterprise development, climate issues).

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PUSH AND PULL FACTORS ANALYSIS OF THE DIGITALIZATION OF THE SMES TO ENHANCE THE SUSTAINABILITY – CASE OF LATVIA, UKRAINE AND ROMANIA

Kristine Berzina, University of Latvia
Adriana Tiron-Tudor, Babes-Bolyai University Cluj-Napoca
Baiba Savrina, University of Latvia
Maksym Kolisnyk, Kharkiv National University of Radioelectronics
Signe Martisune, University of Latvia
Santa Sproge-Rimsa, University of Latvia
Janis Supe, University of Latvia

Abstract. Digitalization is inseparable from the sustainable development. We have witnessed that multinational enterprises and governmental structures in last decades are digitalizing their daily processes in order to optimize resources, to increase the competitiveness, to reach clients and suppliers in more flexible and effective way. To ensure effective digitalization process these institutions spent enormous amount of financial resources and time. At the same time in Latvia, Ukraine and Romania the SMEs make up the largest part of the whole economy, it is important to encourage them to digitalize their business processes, but the question remains – do SMEs have resources and willingness to digitalize? The aim of the paper is analysis of the push and pull factors for SMEs to digitalize their business processes and the findings will be used for creation a model of digital sustainability maturity for SME's in CEEC. Based on the conducted interviews with owners/employees of different SMEs in Latvia, Ukraine and Romania it can be concluded that in order to sustain or increase the competitive advantage the SMEs are in favour of the digitalization but at the same time there are many obstacles as well, for example limited financial resources, lack of the appropriate IT infrastructure. Main finding of the research is that despite the benefits of the digitalization, SMEs have a great problem to adopt and adjust their activities to the digital format therefore collaboration with governmental structures to encourage SMEs to digitalize is crucial factor for companies to increase their competitive advantage in a long term.

Keywords: *SMEs, digitalisation, sustainability, CEEC.*

JEL code: O33, O44, O52

Introduction

Nowadays, international organizations have drawn the main lines of sustainable development. Such an interest in sustainability due to the limited resources and climate change under the conditions when more and more new economic agents are appearing and getting involved in the distribution and consumption of those resources, is orienting the enterprises, governments and individuals to re-think their position and is expecting a change of behaviour. One of the ways in which the enterprises are adjusting to the changing environment is through the digitalization. Digitalisation is a key factor in increasing the competitiveness of companies in the 21st century. It allows a company to internationalize and expand faster than ever before. The Covid-19 pandemic has also affected and facilitated rapid digitalisation in areas of business where digitization was low, as day-to-day business processes did not require the use of digital tools. Although it can be argued that the digitalisation process is ongoing as a result of the pandemic, the question remains whether SME's are digitizing their business processes in a high-quality and efficient way in order to increase their long-term competitiveness. This paper is part of an international study which aims to create a model of digital sustainability maturity for SMEs in CEEC therefore the main goal of this article is to determine the degree of digitalisation of SMEs and to analyse the factors that have contributed to the digitalisation process based on conducted interviews of SMEs in Latvia, Ukraine and Romania. One of the obstacles is certainly that SMEs have limited resources to carry out the digitalisation process in a smart and high-quality way. At the same time, the digitization of governmental structures is also important, as public services are becoming more digitized, SMEs also need to adapt their business processes to interact with public administrations. Therefore, it can be concluded that the digitization process in SMEs is pushed based on demand from the external environment.

Theoretical framework for the research of SMEs digital sustainability

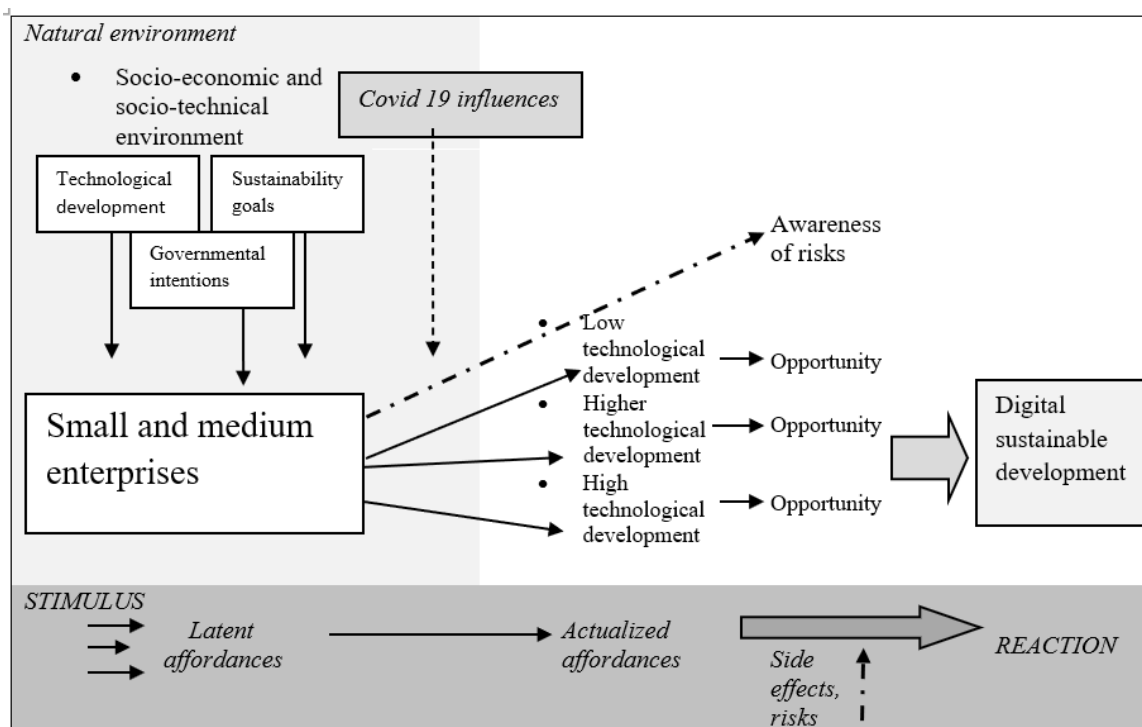
Sustainability aspects were studied previously by one of the teams (Babes-Bolyai University from Romania) of the current international research consortium, during which it was stipulated that sustainability can be mainly understood in 3 axes: 1) social corporate responsibility as the creation of a socially beneficial environment; 2) environmental protection and environmental responsibility; 3) management aspects such as transparency or corporative culture. Different authors are switching their interest to those aspects in recent publications (for example, Marinescu, 2020, Lemke & Bastini, 2020, De Lucia, Paziienza & Bartlett, 2020, Mukherjee & Wood, 2021, Vrabcovă & Urbancovă, 2021). In this context, digitalization is appearing as one of elements of sustainable development (for example, George, Merrill, Schillebeeckx, 2020 or a monograph Osburg, Lohrmann (ed.), 2017). At the same time, digitalization in nowadays world should be considered and accepted as a sociotechnical phenomenon reaching diverse areas of use. Such researchers as C.Legner, T.Eymann and others (Legner et al., 2017) are recognizing that digitalization in its appearance is the use of digital technologies and media in individual, organizational and societal contexts.

If we are considering that digital sustainability concept, which will be studied in the frame of the current research made by the authors of this paper, is proposing different challenging changes on the level of enterprises – then we can use the conception of affordances as a fix. In the case of original conception of J.Gibson (Gibson, 1979) the attitude of animal vis à vis the environment is studied, analysis of the affordances proposed by the environment to the animal and its choice of activity in interaction with natural world. This conception of psychology, developed in behavioural studies of humans, can be used in current study. Latent affordances in this conception are appearing as the action possibilities; the human is actualizing them and is aware of the desired main effect (corresponding to his goal) and side effects or risks to achieve it. H.Gimpel and F.Schmied (Gimpel, Schmied, 2019) are analysing side effects of digitalization and how they are changing attitudes, norms, behaviour. Those authors are mentioning the digitalization on different technical levels. Low technical level is allowing, for example, the storage of digital data; at a higher yet technical level encryption and big data handling is possible; at an even higher sociotechnical level affordance of transaction costs, automated decision and actions are appearing and rapid diffusion, innovations are possible. Such digitalization levels based grouping of affordances can correspond to the grouping of small and medium enterprises in the current study made by the authors of this paper.

Some authors, for example, I.Chong and R. Proctor (Chong, Proctor, 2020) insist that the use of affordances conception is purely the attitude vis à vis natural environment, that means in the frame of environmental psychology, and that the concept is not applicable in the case of humans working with emerging technologies. Despite the mentioned opinion, the authors of this paper consider the applicability of the affordance theory approach to their study because 1) the authors are not representing psychology as a field of science and are doing a psychological study; 2) the affordance concept is behavioural study that is corresponding to the current research; 3) the current research focuses on small and medium

enterprises – the decision making, strategy building and attitude formation in SMEs are different from large companies and are fully dependent on human – the owner of the enterprise; 4) the study area is related to changes proposed to the small and medium enterprises by the changing environment – not only technological but environment in general, for example – influenced by pandemic situation; 5) the frame of the current research is digital sustainability which includes environmental issues; 6) the main aim of authors of the current research is the creation of a model of maturity of digital sustainability for small and medium enterprises and this is corresponding to the concept of affordance in which not only the beneficial side but the risks proposed by the environment to the human are analysed.

For this reason, the authors of this paper are proposing the following scheme as theoretical framework for the current research.



Source: author's construction

Fig. 1. Theoretical framework for the research of small and medium enterprises digital sustainability based on affordance concept approach

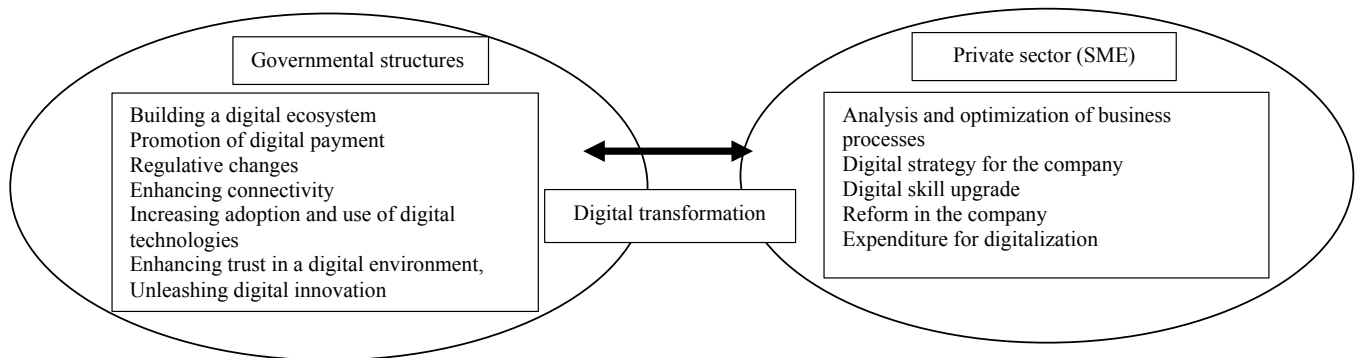
A need for the collaboration between the governmental structures and private sector to enhance digital transformation

To ensure the competitive advantage companies should improve business performance and it could be done through prism of digital transformation. Pandemic of Covid-19 has raised an essential question, especially for SMEs – are they ready to have such fundamental changes in their daily business processes. There are no doubts about the willingness but the question is about the readiness and capabilities.

The analysis of SMEs shows that there are two types of the companies, 1) company which was highly digitalized from the near of company's foundation; 2) company which did not digitalize its processes because of the delivered economic activity or because of the lack of the resources (including financial and human). It is important to state that one of the main challenges for the digital transformation is that it is an ongoing process with no deadline, it involves business process restructuring which should result in automatization and standardization.

It is important to state that digital transformation should be a needs-based process. Therefore, the collaboration between the customer/citizen, company (industry) and the government plays the key role to ensure sustainability of the digital transformation and prosperity from the economic activities (Berman, 2012). Despite the fact that in the last 40 years there have been reforms in the market with the goal of reducing costs, minimizing superfluous business activities to ensure long-lasting competitive advantage, and the fact that digital technologies have changed customer, business processes have introduced new business models and activities, for example a born-global type of the enterprise and companies whose business activities are based on the product development for digitalization process, it can be concluded that the digital technologies can be seen as a driving force behind the development and growth of the SMEs.

One of the main obstacles for the SMEs to digitalize their business process is the lack of daily business process analysis, because of the time, financial resources and human capabilities, to actually transform the process to the digital environment. And that is opposite to large businesses where the innovations are developed based on internal capabilities which allows them to have capabilities to ensure smooth digital transformation (Almeida, 2021). Authors suggest that SMEs have a potential to create and develop innovations based on closer relationships with the customers, suppliers and partner-network relationships. Therefore, government has the role of the creation of an attractive business environment whose goal would be to encourage SMEs development and to ensure networking process (Davydova, 2020) for example the creation of a cluster system. Cooperation between SMEs and government could be seen as a push factor of the overall digitalization of the country. Figure 2 shows the main drivers of the digitalization.



Source: author's construction based on Chen, 2021; Dobrolyubova, 2019; Gomes, 2017; OECD, 2021, conducted interviews

Fig. 2. Model of the collaboration between governmental structures and private sector to enhance digital transformation for SMEs

In the model of the collaboration between private sector and government (institutions, agencies, public sector enterprises), the push factor for digital transformation in the private sector, especially for SMEs, is the digitalization process in the public institutions and public sector in general because of communication and ties in between different economic agents in entire economy. One of main reasons is that the governmental structures are using and demanding that the communication between the sectors takes place in the digital format. In this way, to encourage SMEs, digitalization must be created and implemented in the company.

SMEs digitalisation in Latvia, Romania and Ukraine

By analysing digitalization tendencies across EU Member States, three different groups can be clustered (European Commission, 2021c.). The first cluster with low levels of SME digitalisation comprises Bulgaria, Greece, Hungary, Italy, Latvia, Poland, Romania and Slovakia. The second cluster with average levels of SME digitalisation comprises Austria, Cyprus, Czech Republic, Germany, Estonia, Spain, France, Hungary, Lithuania, Luxembourg, Portugal and Slovenia. The third cluster with highest levels of SME digitalisation comprises Belgium, Denmark, Finland, Ireland, Malta, Netherland and Sweden.

Table 1

Percentage of SMEs with usage of different digital technologies in Latvia and Romania, compared to the highest level in the EU-27 in 2018

	E-commerce (2019)	Cloud computing services	3D printing	Industrial, service robots	Big data
Latvia	13.2%	14.0%	01.3%		07.2%
Romania	11.6%	09.7%	01.9%	02.2%	10.7%
The highest level in EU-27	32.1% Sweden	64.5% Finland	06.3% Finland	10.4% Spain	23.7% Malta

Source: author's construction based on Eurostat ICT usage in enterprises, data excludes the financial sector

The usage of different digital tools by EU SMEs is increasing, SMEs are selling online via their own company websites or applications as well as via e-commerce marketplace websites or applications, the most commonly used advanced digital tools by the EU SMEs are cloud computing, like data storage and on remote servers hosted on the internet. At the same time, to have more precise information for analysis, it is necessary to see the division of SMEs by economic sectors to analyse their possibilities in digitalization.

In Latvia and Romania, like elsewhere in Europe, SMEs make up a large part of the economy and play an important role in generating gross domestic product and employment. According to the information provided by the European Commission's Small Business Act Factsheet 2021, SMEs in Latvia represent 99.8 % of companies in the economy and employ 78.7 % of employees, generating 72 % of total value added (European Commission, 2021a). In Romania, SMEs represent 99.7% of companies in the economy and employ 66.1 % of employees, generating 55.9 % of total value added. (European Commission, 2021b). See Table 2.

Table 2

General SMEs data comparison Latvia, Romania and EU27 in 2020

	Enterprises		Employees		Value added	
	Number	Share %	Number	Share %	billion EUR	Share %
EU27	22 526 457	99.8	83 397 941	65.2	3 338	53.0
Latvia	108 531	99.8	501 915	78.7	9.3	72.0
Romania	519 203	99.7	2 690 245	66.1	44.4	55.9

Source: author's creation based on EU Annual Report on SMEs 2020/2021

In order to get a detailed overview of the SMEs situation, differences between data provided by the European Commission and data collected by national statistical bureaus were focused upon. The reason for the differences between these two sets of data is the following. The data used by the European Commission in the annual SMEs performance review, which is one of the main tools to monitor and assess member state's progress in implementing the SMEs strategy and the Small Business Act (SBA) are produced by DIW Econ, German consulting company – part of the consortium of the same four companies that prepare the reports of the above-mentioned review for the European Commission under yearly contracts since 2018.

DIW Econ uses figures from the Structural Business Statistics Database of Eurostat and their data cover the “non-financial business economy”, which includes industry, construction, trade, and services (NACE Rev. 2 sections B to J, L, M and N), but not enterprises in agriculture, forestry and fisheries and the largely non-market service sectors such as education and health. As explained in the annual SME performance review reports, the advantage of using Eurostat data is that the statistics are harmonised and comparable across countries, but the disadvantage is that for some countries the data are different from those published by national authorities.

In case of Latvia, according to the data provided by the National Bureau of Statistics there is considerable SMEs activity in sectors of agriculture, forestry and fisheries, as well as arts, entertainment and recreation (NACE Rev. 2 sections A, K, P to S) are not included in the annual SME performance review of the European Commission. See Table 3.

Table 3

Number of micro, small, medium enterprises and number of employees in Latvia by type of main activity (2020)

NACE Rev. 2 sections		Number of enterprises			Number of employees		
		Micro	Small	Medium	Micro	Small	Medium
A	Agriculture, Forestry and Fishing	24 918	541	51	33 514	10 469	4 725
B	Mining and Quarrying	292	49	11	563	1 225	914
C	Manufacturing	9 205	1 344	382	19 693	31 003	39 722
D	Electricity, Gas, Steam and Air Conditioning Supply	386	93	19	974	1 740	1 562
E	Water Supply; Sewerage, Waste Management and Remediation Activities	215	81	23	617	1 946	2 540
F	Construction	10 008	1 353	153	23 627	27 711	14 520
G	Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	22 836	2 042	273	49 011	36 938	25 715
H	Transportation and Storage	6 969	899	144	14 623	18 225	15 540
I	Accommodation and Food Service Activities	3 367	745	39	9 235	14 363	5 177
J	Information and Communication	7 268	360	66	12 195	7 383	6 972
K	Financial and Insurance Activities	2 232	99	38	2 999	2 207	4 752
L	Real Estate Activities	12 680	340	35	18 344	5 440	3 833
M	Professional, Scientific and Technical Activities	19 595	507	38	32 037	9 421	3 754
N	Administrative and Support Service Activities	7 032	418	103	13 375	9 537	12 387
O	Public Administration and Defence; Compulsory Social Security	20	1	...	52	10	...
P	Education	4 025	177	15	5 398	3 901	1 990
Q	Human Health and Social Work Activities	5 637	269	20	9 682	6 069	2 700
R	Arts, Entertainment and Recreation	5 808	83	14	7 397	1 785	1 948
S	Other Service Activities	17 859	112	6	21 294	2 018	815
	Not specified	347	302
	Total:	160 699	9 513	1 430	274 932	191 391	149 566

Source: author's creation based on data prepared by the National Bureau of Statistics of Latvia

The comparison of the data provided by the European Commission review with the data from the National Bureau of Statistics of Latvia for shows that there were 63 111 more SMEs in Latvia in 2020 and the number of employees was higher by 113 974 (this is an important difference for a country with less than 2 million of inhabitants).

In the case of Romania, the national data for 2020 was not available for the time of preparation of this study. However, the analysis of the data provided by National Institute of Statistics of Romania for the year 2019 show that the overall number of SMEs would be higher than data included in the annual SME performance review of the European Commission. Sections A, K and O of NACE Rev. 2 are not included in the National Institute of Romania data sets, but sections P, Q, R and S representing activities in education, human health and social work, arts, entertainment and recreation, as well as other service activities showed considerable number of SMEs amounting to 53 701 enterprises.

Active SMEs in Romania by type of main activity (2019)

NACE Rev. 2 sections		Number of enterprises
B	Mining and Quarrying	976
C	Manufacturing	53 060
D	Electricity, Gas, Steam and Air Conditioning Supply	1 039
E	Water Supply; Sewerage, Waste Management and Remediation Activities	2 978
F	Construction	59 455
G	Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	170 061
H	Transportation and Storage	54 129
I	Accommodation and Food Service Activities	27 587
J	Information and Communication	26 683
L	Real Estate Activities	18 667
M	Professional, Scientific and Technical Activities	69 454
N	Administrative and Support Service Activities	23 755
P	Education	7 178
Q	Human Health and Social Work Activities	18 565
R	Arts, Entertainment and Recreation	11 123
S	Other Service Activities	16 835
Total:		561 545

Source: author's creation based on data from Romanian Statistical Yearbook 2019, excluding Nace Rev. 2 sections A, K, O not included in the Yearbook databases

By analysing Ukraine's economy, other sources of information had to be used because Ukraine is not an EU member. SMEs are representing an important part of Ukraine's economy, because 99.98% of all companies are SMEs. They employ more than 80% of the whole labour force and generate 65% of total sales. SMEs are also contributing to almost 30% of domestic exports (OECD, 2020). It can be concluded from these data that SMEs are important for the overall development of the Ukrainian economy.

To emphasize this role, the Cabinet of Ministers of Ukraine adopted SME Development Strategy, outlining six strategic directions in 2017 (OECD, 2020, B). It is common understanding that digitalization is an important aspect in the development of different companies nowadays, considering the effects of globalization and raising competition in the markets. One of the six strategic directions set out in the Ukrainian SME Development Strategy is promoting SME competitiveness and innovation, which is directly linked to digitalization issues.

In the last years, the results of the digitalization processes in Ukraine are mixed. On the ICT adoption pillar of the Global Competitiveness Index 2019 Ukraine ranks 78th from 141 economies (World Economic Forum, 2019). In Global Innovation Index 2021 Ukraine is ranked number 49 from 132 countries. At the same time, Ukraine is evaluated as one of top three innovation economies in lower middle-income group of countries (Dutta et al., 2021). Evaluating digitalization of SMEs in Ukraine in 2020, Shevtsova et al. have come to conclusion that Ukraine is moving towards a digital economy, but is showing mixed results. On the one hand, there are some successes (in telecommunications, computers, information services exports), on the other hand, the economy demonstrates low indexes of digital infrastructure development and ICT use. Ukrainian SMEs are gradually introducing digital technologies in various business areas. Most of managers understand the importance and prospects of ICT and are ready to enhance application. However, negative impact of general economic factors, primarily the lack of funds, and high capital intensity of digital projects, hinder the SMEs digitalization in Ukraine. Another obstacle is insufficiency of staff's digital skills (staff of most Ukrainian SMEs (64.9%) has computer skills at the middle level, however, staff of 17.5% firms demonstrates low-level computer skills). Also, comparison of statistical data from selected EU countries and Ukraine has shown that the level of employment in the ICT sector in Ukraine is 2 times less than the EU average (Shevtsova et al., 2020).

It is also important to note that only 3.9% of Ukrainian enterprises in 2018 spent on R&D, but the share of the IT industry amounted to 4% of GDP (Kendiukhov O. et al., 2020). The low number of IT companies (meaning also lower intellectual IT capacity) and R&D expenses is one of the reasons why there are problems in the digitalization of SMEs in Ukraine. According to analysis by Strutynska et al., the main barrier to the effective use of Big Data, Business Intelligence and Artificial Intelligence for SMEs is the low level, or lack of understanding of the essence of these concepts and the possibilities of using appropriate technologies to optimize business processes and business models of the organization (Strutynska I. et al., 2019). All these factors contribute to the situation where there is still large space for improvements in the digitalization of SMEs in Ukraine.

Digitalization strategies and implementation process in Ukraine, Latvia and Romania - in-depth interview results

After analysing existing digitalization strategies in all 3 studied countries, it was found that digitalization strategies indicate that to encourage private sector to move forward to digitalization of the business processes, government should provide direct support. One of the support directions of Ukraine, Latvia and Romania is to invest in R&D for ICT and in the human capital. Authors agree with the chosen principle in general but at the same time point out that innovations supported by the government are developed mainly in the cooperation with scientific institutions or MNEs, therefore it is crucially important to format flexible, effective, efficient and affordable innovation commercialization for SMEs, otherwise the innovation could lose its topicality. Another common trend in the digitalization strategies is a need for highly skilled employees. Authors can conclude that each country in the last decade has adopted their education system in line with the future digital transformation but there is a lack of digital skills among the employees who are now the economically active part of society. At the same time, it is another pull factor for the digitalization – business owners and employees have a lack of vision and understanding of the benefits and

implementation of the digital transformation of the business processes. Therefore, one of the key factors to encourage the digitalization in the private sector is to ensure life-learning programmes in the field of IT.

The Table 5 compares digitalization strategies of Ukraine, Latvia and Romania. It can be stated that there are several common trends, for example, the emphasis of the digitalization is through the public sector digitalization (e-government). At the same time, one of the top priorities is to enhance the trust in digital environment, therefore the security and data protection are important. In the digital era, citizens more frequently are targets of cyberattacks and this is seen as one of the pull factors of the digitalization processes.

Table 5

Comparison of the digital trends in Ukraine, Latvia and Romania

Digital trends of Ukraine	Digital trends in Latvia	Digital trends in Romania
e-Government	Digitalized public administration (digital services for the citizens)	e-Government
Access to the internet	Access to the internet	Access to the internet
Secure digital transformation	Trust in digital environment	Cyber security
- Digital platforms used as source of value creation; - development of e-commerce	Development of digital single market	Cooperation between public and private entities
- Development and use of products based on artificial intelligence; - creation of “digital” industries and businesses	ICT research and innovation	Innovations in the area of ICT
Use of human resources	ICT education and skills	ICT skill training programmes

Source: created using Yanovska, 2019, OECD, 2021, Ministry of Communication and Information Society of Romania, 2014., Ministry for Development of Economy and Trade of Ukraine, 2019

Authors conclude that the common trends in the digitalization in Ukraine, Latvia and Romania show that the digitalization processes are enhanced by the digitalization of the public sector and it is a push factor for SMEs to adopt their business activities in line of introducing the new digital solutions.

With the future aim to create a model of digital sustainability maturity for SMEs in CEEC, in the frame of this research in-depth interviews were conducted to find out about the state of SMEs in Ukraine, Latvia and Romania. The interviews took place in person or online from end of October to beginning of November 2021. The authors interviewed representatives of SMEs – 12 in Latvia, 10 in Romania, 10 in Ukraine. The SMEs interviewed were from different sectors – IT, consulting, direct sales and marketing, agriculture and farming, beauty industry, financial services, transport and logistics, accounting, education, retail, construction, production etc. The number of employees varied from 1 to 240, the annual turnover – from 50 000 EUR to almost 5 million EUR. 10 of Latvian, 6 of Ukrainian and 3 of Romanian companies had at least some share of e-commerce in total sales. The interview template consisted of 15 questions in main thematic blocks – digital technology use, social and environmental responsibility aspects, problematic aspects of implementation and digital sustainability understanding.

It was concluded from the interviews that SMEs do not use a lot of advanced computer-based technology in their daily work. The most popular technologies used at the SMEs interviewed were smart devices (e.g. smartphones – all companies), cloud computing solutions (10 companies in Latvia, 7 in Ukraine and 5 in Romania), high speed infrastructure (9 companies in Ukraine, 8 in Romania and 5 in Latvia) and big data analytics (6 companies in Ukraine, 5 in Latvia and 1 in Romania). Only 2 SMEs interviewed from Latvia and 2 from Ukraine use artificial intelligence, and only 1 company in Romania use robotics. None of the companies interviewed use blockchain technologies.

Regarding buying existing software or creating their own software, 9 of SMEs interviewed in Latvia, 8 in Ukraine and 7 in Romania buy already existing software and adapt it to their needs. 3 SMEs in Romania, 2 in Latvia and 1 in Ukraine use both solutions. It was emphasized by the companies that 1) it is too expensive for regular SMEs to develop their own software and 2) it is due to the size of market, especially in the case of Latvia.

The companies interviewed have named the following factors as the main motivators for the company to move towards digitalization: overall digitalization in the world, competition (digitalization processes of competitors), pandemic situation (it was not possible to sell products on-site), changes in consumer behaviour and better satisfaction of consumer needs, improving efficiency of the work and productivity. The companies have also named such factors as the possibility to find new customers, new regulations by government (requirements to use digital solutions) and employee motivation.

On the other hand, the main obstacles for the digitalization of the SMEs, based on the answers of the companies interviewed, are limited financial resources, distrust of people in digital technologies (it is difficult to prove the effectiveness of digitalization, employees are often reluctant to new digital solutions) and lack of knowledge and human resources to invent these new technologies. The leading factors and obstacles for the digitalization are very similar in all three countries. The same result is appearing based on analysis of Digitalization strategies in Ukraine, Latvia and Romania – all of them are facing common barriers for digital transformation in SMEs, for example: 1) lack of digital knowledge for the employees; 2) high costs for the digitalization, incl. tools and equipment; 3) lack of investment in R&D; 4) lack of direct support from the government.

As mentioned previously, Covid-19 pandemic has been one of the leading factors towards digitalization. In all three countries the impact of the pandemics to the operations of SMEs interviewed was very similar – the business strategies of the companies had to be changed significantly (activities of the companies had to be digitalized), in almost all of the companies remote work was introduced and the pandemic pushed the companies to look for new markets. Some companies suspended their activity during the pandemic while for some companies there were no changes in their activities. Many companies in all three countries said during the interviews that the digitalization processes introduced because of the pandemics have actually increased the efficiency of the work and the income of the companies, but it is important to mention that it was possible only for companies working in such sectors where digitalization was possible (e.g. it was not possible in health and beauty sector).

The SMEs have met also different challenges during the pandemics. The main challenges regarding digitalization were improving knowledge and digital skills of the personnel, finding the right digital tools, organizing the remote work, complying with data protection regulations. About half of the companies in all countries concluded that they did not face any specific challenges regarding digitalization during the pandemic.

Next, the companies were asked about sustainable development issues. It was concluded that corporate social responsibility is included in the company's strategy at 7 of interviewed SMEs in Latvia, 7 in Ukraine and 5 in Romania; environmental issues are included in the company's strategy at 9 SMEs in Ukraine, 6 in Latvia and 4 in Romania; proper corporate governance is included in the company's strategy at 5 SMEs in each of the three countries. It is interesting to emphasize that 8 SMEs in Ukraine and Romania and only 3 in Latvia said that inclusion of these topics have positively impacted financial performance of the company. Companies from Latvia have concluded that it has had more impact on

making better relationships with clients. The SMEs are also not using all marketing possibilities, because information about social and environmental responsibility is included in the publicly available information (mostly websites) of 7 interviewed SMEs in Ukraine, 6 in Latvia and 5 in Romania.

The main leading factors for sustainability of the SMEs, according to the interviews, are personal responsibility and ideology, government requirements, requirements of employees and clients as well as innovation factors. The main obstacles for a sustainable development of the company are very similar to the ones regarding digitalization – limited financial resources, lack of qualified staff, uncertainty and changes in government regulations as well as unfair competition. It is interesting that the most common factor named in Latvian SMEs is the lack of qualified human resources, but in Ukraine and Romania – limited financial resources and unfair competition.

Regarding the impact of digitalization to sustainable development of the company, about half of the SMEs interviewed in all 3 countries acknowledge that they have not thought about the relationship between these two issues –how digitalization could help to support digital sustainable development of the company. Several companies conclude that digitalization allows them to manage all the processes more effectively, has improved financial performance of the company, has increased employment and is an integral part of digital sustainable development of the company.

All 10 SMEs interviewed in Ukraine, 10 of 12 SMEs interviewed in Latvia and 8 of 10 SMEs interviewed in Romania acknowledge that they intend to apply both digitalization and sustainable development approaches to improve their competitiveness. At the same time, some companies noted that they have to do more research about how they could do it in practice, as these are quite new concepts for the SMEs. Yet the SMEs interviewed acknowledged that they have still a lot to do in order to achieve digital sustainable development goals, as one of the representatives mentioned in the interview, it is “a dream possibly achievable in future”. SMEs interviewed in Latvia evaluate their digital sustainable development higher than the ones in Ukraine and Romania.

Conclusions

1. After the analysis of the relationship existing between governmental structures and private sector in the business environment of all three studied countries pushing the SMEs towards digitalization, the authors of this article conclude that the theoretical approach based on affordances concept can be used.
2. The behaviour of the owners of SMEs determined by challenging impact factors stemming from business environment and environment in general reflects the awareness of opportunities and risks for development and digital sustainability in particular.
3. Covid-19 pandemic has been one of the leading factors towards digitalization and the business strategies were changed notably. As a part of SMEs in national economy is very important in all three analysed countries, in the area of the use of digital tools the situation is not so homogenous even if Latvia and Romania are included in the same cluster of countries with low level of digitalization.
4. Official Eurostat information is not taking in consideration microenterprises which are representing not only a considerable part of SME's themselves but an indispensable input for e-services like in case of Latvia. The interviewed SMEs are esteeming that personal responsibility and ideology, government requirements, requirements of employees, clients and innovation factors are key elements for sustainability, which allows to validate affordance based approach chosen by authors to the study. Finally, all SMEs interviewed in all three countries admit that a sustainable digital development is a permanent and irreversible process, which has a positive impact on the activities of the companies.

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FACTORS AFFECTING ENERGY COSTS: ANALYSIS OF THE FUTURE SCENARIOS

Olga Bogdanova, University of Latvia
Karlis Pīgens, University of Latvia

Abstract. Addressing the climate change issues, the European Commission has proposed accelerating the progress on meeting the EU's climate commitments by 2030. In order to achieve the ambitious climate neutrality targets taking the minimum possible energy costs for end-users, countries have to define an optimal set of respective policy measures. The scientific purpose of the paper is to analyze the existing global energy policy development scenarios moving towards climate neutrality, identifying the measures having an impact on energy costs. Within the research, a comprehensive analysis of the scientific and professional literature on energy sector development scenarios was conducted. The comparative method analyzing and comparing the legal frameworks between European continent countries, as well as the empirical method proceeding the gathered data, was applied. It was concluded that the global energy development scenarios are based on a range of different measures to achieve the green transformation. At the same time, the majority of the scenarios has the three basic pillars of climate neutrality: reducing energy demand by efficiency, electrification in end-use of energy, and decarbonisation of electricity generation. However, a range of other factors missing in many energy scenarios was identified. Based on the research, the authors provide the system of the factors affecting energy costs, which are relevant for modelling the possible scenarios for achieving sustainable goals of a country.

Keywords: *energy costs, energy resources, scenarios.*

JEL code: K32, O13, P18, Q47

Introduction

One of the EU energy policy objectives is to promote renewable energy sources. The growing use of the energy obtained from renewable energy sources is important precondition to reduce greenhouse gases and comply with the 2015 Paris Agreement on Climate Change, as well as with the EU Climate and energy policy framework for the period from 2020 to 2030. In 2018, the remastered Renewable Energy Directive together with the revised Energy Efficiency Directive and a new Governance regulation as a part of the package of Clean Energy in Europe for everyone was adopted (European Commission, 2017). It aims to provide new, comprehensive rules on energy regulation for the coming decade. In July 2021, the European Commission came with a new package "Prepared for target result 55%" (Fit for 55) initiative. On its way to achieve climate neutrality, European Commission as an intermediate step has offered to speed up the EU 2030 commitments to the climate progress, proposing to reduce emissions by at least 55% by 2030. The EU is currently working on the evaluation of its policies due to the ambitious goals in the climate, energy and transport areas set by 2030 and 2050 (European Commission, 2021).

The ambitious climate neutrality goals could be achieved by different set of energy policy measures, and countries need to make their optimal choice consequently minimizing energy costs for end users.

The aim of the research is to analyze the existing global energy policy development scenarios for achieving the climate neutrality, identifying policy measures and the related factors having an impact on energy costs.

Within the research the following tasks were fulfilled: the existing global energy policy scenarios and scientific studies on the factors affecting energy costs were identified; the common aspects and differences in the approaches of the energy policy scenarios were analyzed; the list of the factors reflected in the recent energy policy scenarios and having an impact on energy costs were identified.

For the research, the authors have used generally accepted quantitative and qualitative methods of economic science, inter alia grouping, comparative analysis, synthesis, inductive, deductive, logically constructive. The information was also gathered as a result of professional discussions and polls devoted to the issues of energy costs and sustainable transition.

The informative basis of the research is works and investigations of foreign and Latvian scientists, materials published by the government administration and related institutions (the Ministry of Economics, Public Utility Commission of Latvia, Transmission system operators, NordPool Power exchange, and other) as well as data from other electronic databases, published scientific works and investigations, publications in mass media and specialized editions, as well as materials and experience gathered from international scientific conferences and seminars.

As a result of the research the global energy development scenarios were evaluated. Based on in-depth analysis of governmental documents, scientific and professional literature the similarities and specific peculiarities in the approaches of the scenarios aiming at climate neutrality were identified, as well as factors related to the green transmission and affecting energy costs were indicated. The consequent recommendations relevant to the modelling of the possible scenarios for achieving sustainable goals of a country were developed.

Development scenarios and trends of energy industry

Climate neutrality targets and possible energy policy measures to achieve them is a broadly discussed topic in professional and scientific literature. Economists are applying different approaches and develop policy measures justified scenarios how to reach the climate commitment. One of the most important challenges for economies is to indicate the approach ensuring the green transition in the most cost-efficient way. Within the research the factors being important for the energy policy, as well as having an impact on energy costs have been studied.

United States National Broker Organization (The Applied Energy Partners, 2016) has compiled the following main factors affecting the daily energy price: *delivery (energy from nuclear power, coal, gas, oil and renewable sources has rapid response to demand; as a result, prices range every hour), demand (demand for heating, cooling, light and processes varies according to activity in economics, technology and efficiency measures), gas storage (there is an energy "warehouse", could be reflected as the difference between supply and demand of energy sources), weather forecast (the main factor affecting immediate market prices and short-term energy market agreements; whether the forecasts become reality is less important for long-term prices), power generating equipment developments (cessation of nuclear energy old equipment, due to repeated licensing, transfer of coal factories), transportation of energy, global factors (despite the changes in the volume of shale gas, production of global oil supply can affect the local energy costs), import and export (global oil and gas prices determine the relative profits that suppliers can obtain by selling fuel locally or abroad), regulation (legal framework can quickly and significantly change both supply and demand costs), financial speculation (similarly like the majority of other market goods, energy prices can be significantly affected by financial speculation, which is the least transparent factor).*

The set of energy costs affecting factors mentioned above actually reflects the most common reasons mentioned by analysts for energy price fluctuation. Prices of natural gas on the European stock exchanges, Germany's Trading Hub Europe (THE), the Netherlands Title Transfer Facility (TTF) and Belgium's Zeebrugge Trading Point (ZTP), have risen sharply since the middle of 2020, when they were at record lows. In October 2021, the average monthly price on stock exchanges reached an unprecedented level of around 90 EUR/MWh, which is 6.5 times higher compared to October 2020. According to the Public Utilities Commissions data, there are several reasons for this. Mostly European countries, like Latvia, are importers of natural gas. Stockpiles in European natural gas storage following the cold winter of 2020./2021 were

significantly lower, while demand, along with a recovery in economic activity following the crisis caused by Covid-19, increased globally (particularly in China and the Asian region). Also, the reason is the reduced supply of natural gas on the global market, in line with the OPEC + oil importing group's agreement on limits on oil extraction volumes. The impact was also on record low oil and natural gas prices in 2020. As a result, there was no investment in the development of U.S shale-oil wells (Public Utilities Commission of Latvia, 2021).

The trend in electricity prices is observed throughout Europe and is based on the factors that have determined price increases: high gas and CO₂ emission allowances prices have increased further (+253% in gas prices and +115% in CO₂ prices comparing year 2021 to 2020), and electricity consumption has increased as air temperatures fall. In turn, the increase in consumption means that more electricity had to be produced with fossil energy sources, since electricity producers using renewable energy sources were unable to cope with the increasing demand for electricity over that period. Thus, as electricity consumption increased, electricity prices on the stock exchange were increasingly charged by electricity producers using fossil energy sources, which, in view of high gas and CO₂ emissions quota prices, have become more expensive. In total, 47% of electricity produced in the Baltic according to ENTSO-E (the European Association of Transmission System Operators for Electricity) was produced from fossil resources in November 2021 (JSC "Augstsprieguma tīkls", 2021).

World Energy Report has a horizontal approach reflecting the power related costs according to market system participants. The report summarizes the retail electricity cost components, without wholesale electricity prices, highlighting system control costs (balancing and response costs), transmission and distribution system costs (network infrastructure capital costs, operational and maintenance costs, network loss costs), delivery costs (meters, invoices and debt collection costs, other commercial costs), as well as taxes and equivalent payments (value added tax, renewable energy subsidies, other taxes and subsidies).

The International Energy Agency describes the energy sector functionality model, demonstrating the main elements of the energy input and output factors system. The international and national policy instruments related to the elements highlighted in the figure consequently affect the costs of energy users.

The model reflects the factors of external influence where it is possible to define assumptions (input data): fuel prices and CO₂ prices, specific policies, technologies, and socio-economic influential factors. These factors have an impact on an energy system, which combines various system participants from energy supply and demand sides. The prices of the specific energy products and services are formed as a balance between demand and supply, resulting in transactions between market participants. The results of the relevant energy system transactions are reflected in the system output data, creating energy flows (such as cross-border trade), CO₂ emissions and investments. These factors could be divided according to the possibilities to influence them: the EU and the national policy decisions and market impact decisions. As it was already mentioned, certain components of energy costs can be influenced by energy policy instruments. The global analytical organizations have assessed which policy instruments would be able to achieve the ambitious climate targets. Along with the new climate neutrality course, world countries review their policies on energy production and consumption by setting specific objectives and introducing relevant instruments. For example, the International Renewable Energy Agency (IRENA) has highlighted sectors with the highest impact on carbon reduction targets in its World Energy Transition review in 2021.

According to IRENA forecasts, a wider use of renewable energy sources in electricity generation, as well as direct use of renewable energy and biomass in heat production is able to provide the largest (25%) performance in achieving the CO₂ reduction target - a total of 36.9 giga tons of CO₂. Such a strong contribution can also be provided by energy efficiency (25%), which includes measures that reduce energy demand and increase efficiency. Structural changes (e.g., metal production relocation) and circular economic practice are the part of energy efficiency. Electrification (20%) includes the direct use of "clean" energy in transport and heating equipment. Hydrogen and its derivatives (10%), which includes synthetic fuels and raw materials, is highlighted as the next perspective direction. carbon capture and storage (CCS) includes carbon collection and storage from fossil fuels and other sources, mainly in industry. Bioenergy with carbon capture and storage (BECCS) and other carbon restriction measures include bioenergy together with CCS electricity and heat in production and industry.

Similarly, IRENA study identifies measures that have the highest contribution to improving energy intensity.

The categories listed in the IRENA study determine the total set of the measures. "Renewable Energy caused increase in efficiency" refers to the energy intensification improvements, that are achieved through the introduction of renewable energy technologies in the energy sector (wind generation, solar PV, etc.) and direct end-use equipment (solar thermal energy, transition from traditional bioenergy use to modern, renewable resources, etc.). "Technical Efficiency Measures" includes efficiency measures used in industry, buildings, and transport sectors (e.g., improvement of buildings, more efficient devices, motors, etc.). "Electrification" means electrification of heat and transport equipment, for example, using heat pumps and electrical vehicles. Accordingly, it can be concluded that IRENA sees the highest potential in increasing energy intensity through electrification, as well as technical efficiency measures used in industry, buildings, and transport sectors (e.g., rising energy efficiency in buildings, more efficient devices, motors, etc.).

The International Energy Agency predicts that in 2070 the primary energy end consumption will remain stable, despite the economic growth (3% per annum and GDP 2.5 times) and the population growth (9.9 bln. population in 2050). The main reason for that is energy efficiency, as well as electrification of the energy end consumption. At the same time, experts of the International Energy Agency also recognize that considerable investments are needed to implement successful transformation - on average 4-8 times higher than now. Significant increase of energy generation is projected based on solar and wind generation technologies, reaching 50-100 TW of installed power capacity (International Energy Agency, 2020).

The opinion of researchers on the 'green course' impact on the economy is not unambiguous. In the United States analytical data center Heritage Foundation (hereafter – HF Center) in its "green transformation" evaluation forecasts is sceptical about the positive impact of the "green" course on the economy. HF Center predicts that increasing requirements for carbon reduction at some point will be not that effective against higher fiscal policy instruments and the CO₂ reduction targeted tax implementation. Researchers conclude that, gradually increasing taxes, the added value of emission reduction shrinks. In the HF Center simulations as a result of \$ 35 carbon tax CO₂ emissions decrease by 44% by 2050, 100 US dollar carbon tax caused reduction is 53%, \$ 200 causes a 56% reduction, but \$ 300 taxes show 58% reduction in 2010. If a carbon tax exceeds \$ 300 (as a result of 2050 CO₂ falls by a little more than 50%), the model ceases to function, and thus the CO₂ decrease of 58% compared to the 2010 level is the largest level, that is possible to model.

In addition, researchers' simulation reveals that in the case of introducing 300 US dollar big carbon tax by 2040 it will have a significant negative impact in the United States: total average job lack of more than 1.1 million, maximum employment deficit of more than 5.2 million jobs, total loss of income for more than \$ 165,000 for the family of four, people, total loss of gross domestic product by more than 15 trillion US dollars, increase in household electricity expenditure by 30% (Dayaratna K.D., Loris N.D., 2019).

At the same time, there are other, significantly more ambitious global energy policy scenarios. For example, researchers of the project "The Rethink X Project" believe that the goals of climate neutrality can be achieved much faster than it is usually considered, and just using the existing technologies. Researchers conclude that the overall global emissions can be reduced by more than 90% by 2035, providing reduction of direct consequences of the three main sectors (energy, food, transport) and increasing the recovery of forests as a compensatory mechanism for eliminating the effects of climate.

Researchers consider that the most global GHG by 2021 (56.7%) are related to the use of energy by burning fossil fuels and releasing CO₂. Emissions from the food sector, mainly methane (CH₄) and nitrogen oxide (N₂O) account for 18% of global emissions. The transport sector involves a smaller part - 16.2%, while the road transport sub-sector is the largest permanent source of emissions - 11.9%. Other sources outside these three sectors account for 8.4% of global emissions, the largest source is concrete production with 3%. Scientists believe that 2.7 billion hectares of land could be made free without using cattle no longer for the food needs. Using this land for natural (and free) passive reforestation by 2030 in each year could reimburse almost 10% and by 2035 up to 20% of global emissions.

Food (livestock) transformation will contribute to accurate fermentation economy and cell agriculture, which will compete with all types of animal products. It is concluded that the fermentation will be able to provide in economically justified way a protein production that is 5 times cheaper than the usual animal protein by 2030 and 10 times cheaper until 2035. The accuracy with which it is possible to produce protein means that the following foods will be more qualitative and safer, as well as available much wider than the animal products that they replace (Arbib J., Dorr A, Seba T., 2021).

Markets can and must take the dominant role in reducing emissions. The Rethink project analysis shows that 42% of emissions can be prevented by technologies that are ready for immediate use, and another 45% of emissions can be eliminated with existing technologies, which require only a small additional improvement to become competitive and start operating by 2025. Since well-functioning markets optimize resource redistribution and reward efficiency, it is possible to use their economic benefits and save trillions of dollars, which would otherwise be lost because of the wrong investment in older technologies, while reducing the social and environmental costs of historical industries. The research believes that the Government's main role must be a well-functioning market provision, removing barriers for the following technologies: solar, wind and battery technologies, electrical transport and autonomous transport, transportation as a service, accurate fermentation, and cell farming (Arbib J., Dorr A, Seba T., 2021).

The European Commission has elaborated several energy development scenarios for the Green Course objectives by 2030, depending on the various priority policy instruments. Considering that the energy sector is responsible for a little more than 75% of emissions, the European Commission sees the use of renewable energy and energy efficiency as the largest GHG reduction promoters (European Commission, 2020). The European Commission scenario, reaching about 50% of GHG objectives (including the EU internal aviation and navigation fields), reaches 35% of the renewable energy share and 34.5% of the final energy savings, as well as 37% of primary energy savings. Scenarios that reach 55% GHG goals (including the EU internal aviation and navigation) count for a renewable energy share of 37.5% to 39%, final energy savings from 36% to 36.5% and primary energy savings from 39% to 40%. Slightly fewer ambitions are needed for so called MIXNon-CO₂ variant that provides greater emission reduction in areas that are not directly related to CO₂. In the European Commission's assessment of power generation, household sector and services are able to provide a higher reduction in GHG emissions.

When assessing the necessary investments in achieving the objectives of each of the marked scenarios, the European Commission considers that implementation of the additional baseline scenario by 2030, on the supply side investments requires from 10.5 to 31.8 billion EUR (depending on the scenario selected), as well as on the demand side from 38.3 to £ 90.2 billion (depending on the chosen scenario). The largest investment is expected in the household sector, and it varies from 15.4 to 61.4 billion by 2030 (depending on the chosen scenario).

Table 1

Annual Investment Comparison

Additional annual investment compared to BSL for all policy scenarios and MIX-nonCO₂ variant (2021-2030 and 2031-2050, billion euros 2015)

EU27	MIX-50		REG		MIX		MIX-nonCO ₂		CPRICE		ALLBNK	
	Average 2021-2030	Average 2031-2050	Average 2021-2030	Average 2031-2050	Average 2021-2030	Average 2031-2050	Average 2021-2030	Average 2031-2050	Average 2021-2030	Average 2031-2050	Average 2021-2030	Average 2031-2050
Investments in power grid	2.2	33.3	6.9	32.2	7.7	30.2	6.5	31.1	7.8	31.7	9.6	29.6
Investments in power plants	6.0	68.0	13.6	59.0	14.4	62.1	11.9	63.3	13.5	65.6	17.5	59.0
Investments in boilers	1.4	-0.4	1.9	-0.8	1.8	-0.7	1.6	-0.7	2.1	-0.4	2.6	-0.6
Investments in new fuels production and distribution	0.9	27.1	1.6	24.1	1.3	26.1	1.2	25.8	1.2	27.7	2.0	25.3
Total supply side investments	10.5	128.0	24.0	114.6	25.2	117.6	21.3	119.4	24.5	124.6	31.8	113.3
Industrial sector investments	2.5	4.7	2.5	6.0	3.4	4.4	3.3	4.3	3.6	3.4	5.0	4.8
Residential sector investments	15.4	19.6	61.4	55.2	38.8	37.2	38.0	37.6	21.1	16.6	41.9	39.0
Tertiary sector investments	10.2	24.5	14.1	20.5	14.5	23.8	14.1	24.2	16.1	28.1	19.6	29.1
Transport sector investments	10.2	29.4	12.3	38.8	11.3	31.2	11.5	31.4	-2.5	33.3	9.8	29.0
Total demand side investments	38.3	78.2	90.2	120.5	68.0	96.6	67.0	97.5	38.4	81.4	76.4	101.9
Total demand side investments excl. transport	28.0	48.8	78.0	81.7	56.7	65.4	55.5	66.1	40.9	48.0	66.6	72.9
Total energy system investments	48.8	206.2	114.2	235.0	93.2	214.2	88.3	216.9	62.9	206.0	108.2	215.2
Total energy system investments excl. transport	38.5	176.8	102.0	196.3	81.8	183.0	76.7	185.5	65.4	172.6	98.3	186.2

Source: PRIMES model

Source: European Commission, 2020

The European Commission's scenarios include the following measures:

- BSL (base scenario) reflects existing GHG, renewable energy and energy efficiency EU objectives by 2030;
- REG - regulation-based scenario ensures reduction of a GHG by about 55%. It provides for high energy efficiency, ambitious growth of renewable energy and transport policy, while maintaining the EU ETS working area constant. REG does not provide additional measures for carbon prices and is mainly based on other policies;
- CPRICE - a carbon price-based scenario, which provides a reduction of greenhouse gases by about 55%. It foresees a carbon price strengthening and further expansion through EU ETS or other carbon pricing tools, transport and building industries, in connection with low transport policy, at the same time without enhancing energy efficiency, renewable energy policy;
- MIX, subject to REG and CPRICE combined approach, providing approximately 55% of GHG reduction, both expanding carbon pricing and moderately increasing policy scope, but to a lesser extent than REG;
- MIX-50, raise an ambitious scenario that achieves at least 50% of GHG reduction similar to the MIX, as it combines both carbon price expansion, increased ambitions of both energy and transport policy objectives, but to a lesser extent than the MIX;
- ALLBNK, the most ambitious GHG emission reduction scenario based on the MIX and it further strengthens the fuel powers in aviation and maritime sectors, responding to the extended GHG reduction area, that covers all aviation and navigation;
- MIX-NonCO₂ scenario deals with a higher contribution of CO₂ emissions to the GHG reduction target, which means greater reduction in emissions, that are not CO₂ emissions, and lower CO₂ reduction compared to MIX, mainly in the energy power system.

According to the European Commission's assessment, the most expensive scenario, which requires the largest investment compared to the baseline scenario, reaching 55% of GHG reduction by 2030, is a REG scenario (114.2 billion), while the cheapest - CPRICE scenario (62.9 billion EUR). The MIX-50 scenario provides only above 50% of GHG emission reduction by 2030, but its costs are lower - EUR 48.8 billion. World Energy Council's (WEC) experts have evaluated the most popular energy development scenarios developed by various global organizations, dividing them according to the ideological approach to three groups:

- *Plausible scenarios* – are the scenarios where usually in addition to technical and economic aspects, social and political elements are also reviewed in detail. They describe new and alternative energy future opportunities, creating links to the factors that no system participant can directly control and influence.
- *Reporting scenarios (Outlooks)* are usually focused on technically economical elements. The purpose of this evidence-based forecast is to create a baseline that can be used to evaluate additional and / or new policy options and benefits. Outlooks are also commonly referred to as conditional forecasts, basic scenarios, or policy scenarios.
- *Normative scenarios* are aimed at achieving a specific objective, consistent with global vision, such as avoiding catastrophic climate change or achievement of overall development. These target-based ways are designed using back-time frame and collect information on detailed technology and policy travel and guidelines.

Table 2 shows the distribution of the world's best-known energy development scenarios according to the approach group of their classification.

Table 2

Breakdown of energy development scenarios according to their approach groups

Plausible scenarios	Outlooks	Normative scenarios
WEC (2016) World Energy Scenarios (2060): Modern Jazz, Unfinished Symphony, Hard Rock	EIA (2017) International Energy Outlook (2040): Reference	Shell (2013) New Lens Scenarios (2100): Sky
Shell (2013) New Lens Scenarios (2100): Mountain, Ocean	IEA (2017) World Energy Outlook (2040): Current policies, new policies	Statoil (2017) Energy Perspectives (2050): Renewal
Statoil (2017) Energy Perspectives (2050): Reform, Rivalry	IEEJ (2018) Outlook (2050): Reference	Enerdata (2018) Global Energy Scenarios to 2040: Ener Green
IEEJ (2018) Outlook (2050): Advanced Technology	BP (2018) Energy Outlook (2040): Evolving Transition	IRENA (2017) Perspective for energy transition: 66% chance <2'
Enerdata (2018) Global Energy Scenarios to 2040: Ener Brown	CEPSA (2017) Energy Outlook 2030: Reference	IPCC (2018) Global Warming of 1.5°C: P1, P2, P3, P4
	ExxonMobil (2018) Outlook for Energy: A View to 2040: Reference	
	Enerdata (2018) Global Energy Scenarios to 2040: Ener Blue	
	DNV GL (2018) Energy Transition Outlook: Reference	

Source: author's construction on the basis of World Energy Council data

In addition, WEC experts have also assessed the following scenarios that could not be unambiguously classified according to the abovementioned approaches: APEC (2016) Energy Demand and Supply Outlook (2040), EC (2016) EU Reference Scenario (2050), National Grid (2017) Future Energy Scenarios (2050), BDI (2018) Climate Paths for Germany (2050), BNEF (2017) New Energy Outlook, IPCC (2000) Emissions Scenarios, McKinsey (2018) Global Energy Perspective.

It must be admitted, that after 2019 individual organizations came out with the renewed scenarios (for example, IRENA, the International Energy Agency, the European Commission), while the overall approach in them in principle remained unchanged.

Energy development scenarios according to the approach groups

When assessing the assumptions of energy demand defined in these scenarios, WEC experts concluded that they differ significantly. Energy demand trends are higher in outlooks, but are lower and marked with greater differences in normative scenarios. Increase in electricity generation in all scenarios is marked in principle as an inevitable future. Acceleration of electrification also plays a big role here.

The vision of energy structure varies more in the 2040 scenarios. They reflect the increased role of renewable energy sources in the future. At the same time, between plausible and outlook scenarios, the total share of fossil fuel energy resources is predominantly lower than 70% (compared to today's 80%). The share of RES mainly increases on the expense of coal reduction. Also, there is no doubt about the growth of sun and wind energy power. Normative scenarios predict a faster growth of renewable energy sources than outlook scenarios.

The future of coal is under the question mark, while described in the scenarios total share of global oil and gas consumption does not lose position compared to the current level. Most of the plausible scenarios and outlook scenarios forecast a rapid increase in gas, compensating oil reduction. Even if the majority of the world forecasts anticipate a sharp increase in gas consumption, normative scenarios indicate a relatively early maximum gas consumption level - before 2040, later proceeding with the slowdown. Oil demand for outlook scenarios and plausible scenarios is stable, while its share of the energy portfolio is less and varies more in different normative scenarios. It is also assumed that the demand for nuclear energy will grow in all global scenarios.

All the reviewed by WEC strategies for reducing emissions have three main pillars: (1) Reducing energy demand by increasing efficiency, (2) electrification of final consumption and (3) decarbonisation of electricity generation. At the same time, WEC experts have identified several aspects that have less focus or are not reflected in the energy development scenarios at all.

There is a lack of a deeper analysis of the costs, that are related to the renewable energy use acceleration and digitalization in most of the energy policy scenarios. It is concluded that the assumptions about the correlation between the energy transition and digital productivity are linear and positive - accelerated digitalization contributes to the faster use of renewable energy sources and reduction of future costs. However, renewable energy provision is not the only factor related to the costs as such.

Energy policy development scenarios often lack attention to the energy unrelated resource risks, Energy Return on Investment is not described, namely, the ratio between the amount of energy used and supplied from a particular energy resource versus the amount of energy used for obtaining this energy resource (such as lithium battery sourcing / recycling). Similarly, costs of entire energy system stability are usually not included in the scenarios. In addition, often scenarios do not focus on cyber security risks, system user interface complexity, as well as potential interference in digital solutions on the consumer side.

According to the WEC researchers, the great potential, which is not identified in the world scenarios, is financial innovation to eliminate a lack of investments. The transition to green energy can be accelerated, with the ability of the financing availability measures to cover the social, environmental, and overall costs of the system, which are difficult to identify, and which are currently not reflected in the discussions on carbon price. Despite the "green" funding and progress towards investments in new energy companies, significant shortcomings in energy infrastructure investments still remain, which can cause problems in the future. For example, it makes a significant difference if a new hydrogen solution will make it possible to re-use the existing infrastructure or they are to increase the risk of low-use intensity of infrastructure in return (World Energy Council, 2019).

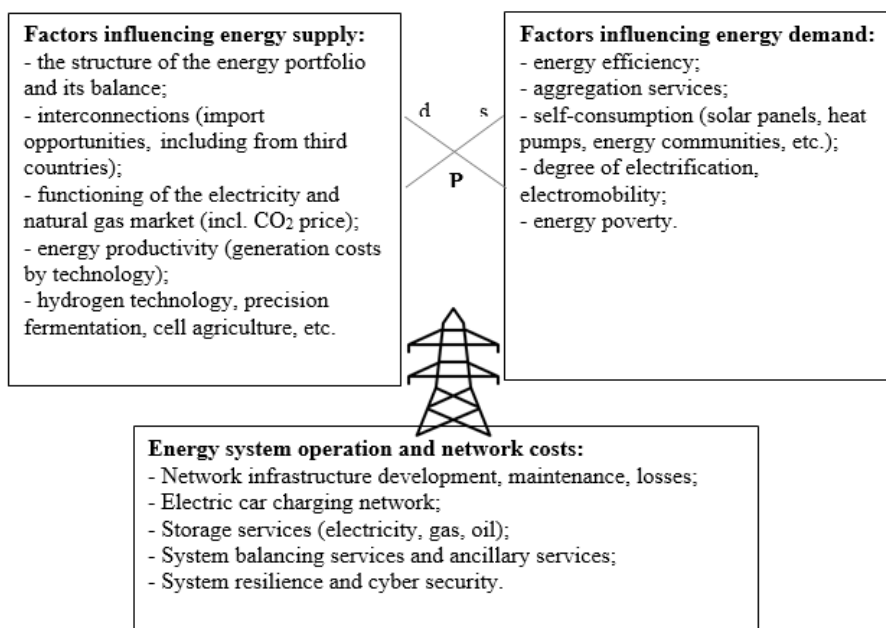
Research results and discussion

According to the World Energy Council (WEC) Energy Trilemma Index 2021, Latvia has ranked the 20th out of 128 countries, up to two places compared to the 2020 index. Latvia has strong positions with regards to the "safety" dimension – Latvia occupies the fourth out of 128 places in the global WEC rating. In turn, the value of the Latvian Energy trilemma index "affordability" dimension is the lowest among the Baltic countries, occupying the 44th place in the ranking. Looking deeper into the "affordability" indicator, the component "Physical availability (Access) of energy" in Latvia is among one of the best in the world. "Quality of energy access" indicator has a proportionally lower impact and shows households electricity consumption in relation to the population, thus reflecting the number of electrical devices that are used by citizens, linking it to the quality of life. However, the main challenge of Latvia is related to the "energy costs".

With regard to the "sustainability" dimension, Latvia is ranked the 34th. In general, it should be noted that Latvia has one of the greenest economies in the EU. At the same time, other countries in the world currently are putting a great emphasis on achieving their sustainability goals, moving up in the relative rating. In the period between 2013 and 2017, Latvia was mentioned as one of the five world leaders with the best achievements in low carbon power generation growth. In Energy Trilemma index report 2020, energy productivity, decarbonisation, and emissions, as well as pollution indicators are marked with a slight relatively negative trend. This trend indicates the fact that it is also important for Latvia to pay a sufficient attention to solving the sustainability issues (World Energy Council, Wyman O., 2021).

According to the assessment of the WEC Energy trilemma index, the biggest challenge of Latvia is to ensure the energy balanced policy minimizing energy costs. Looking forward the sustainable policy solutions, economic impact assessment and cost benefit analysis should be considered as important preconditions for projects development.

As a result of the analysis of the global energy scenarios, the energy policy measures moving forward climate neutrality, and the corresponding factors affecting energy costs of energy consumers, the generally applied in the scenarios, as well as more specific energy related factors were identified. Figure 1 reflects a system combining the factors important for sustainable energy policy development, which are related to energy costs. The assessment of the factors reflected in Figure 5 is not detailed (the factors are systemized applying the grouping method) and is not exhaustive, and further research is needed to continue expanding it. A set of the factors influencing energy costs consists of the three basic groups: factors affecting energy demand, factors affecting energy supply and costs of the energy system and grid.



Source: author's construction

Fig. 1. Factors influencing energy costs

Figure 1 shows the main factors influencing energy costs. At the same time, the Figure 7 does not include the weather factor, which has a significant impact on both supply (wind strength, water level, solar energy intensity, which is essential for energy generation) and demand (outdoor temperature and heat or cooling demand), as this factor cannot be affected by energy policy instruments. Also, digitization is not emphasized in the figure separately, as its added value is reflected in each of the factors separately (cost drivers).

Demand-side and supply-side measures have a direct impact on the achievement of the green course objectives, reflecting the respective costs for end-users. However, the costs of the energy system and network infrastructure should react and be adjusted according to the factors of demand and supply. The system adjustments are necessary to ensure the security of energy supply at an appropriate level in response to the policy instruments influencing demand and supply.

Moreover, it is important to identify the parties involved in the implementation of the measures to apply the targeted policy measures in specific sectors. There is a great potential for the development of climate neutrality plans at the municipality level, considering local peculiarities, opportunities, and potential of each location. For example, in Italy, the Italian Energy Community Forum was established in autumn 2021 to promote the development of local level sustainability plans and facilitate cooperation on similar initiatives with other countries. Latvia also has an opportunity to use a good practice of other countries as a benchmark.

In order to achieve sustainability goals, countries need to identify an optimal set of measures, considering their current situation, strengths and weaknesses, and opportunities that have not yet been fully exploited. At the same time, moving towards climate neutrality, a healthy balance of the energy trilemma must be ensured without compromising security of energy supply and ensuring energy availability providing the lowest possible energy costs, thus contributing to the competitiveness of a country.

Conclusions, proposals, recommendations

As a result of the research, the following main conclusions, proposals, and recommendations were formulated.

1. The Renewable Energy Directive, the Energy Efficiency Directive and the Governance Regulation are strong tools for achieving the objectives of 2030 and 2050 EU climate neutrality. These legal acts determine directions of the action, while ambitious climate goals can be achieved by different sets of measures. The EU Member States must make the optimal choice of the policy measures, appropriately minimizing energy costs for end users.
2. Identification of the parties involved in implementation and application of targeted policies in specific sectors is also important. Development of climate neutrality plans at municipality level have particularly high perspectives, considering local characteristics, opportunities, and potential.
3. Global energy development scenarios illustrate a range of various measures to achieve green transition. However, the three basic pillars may be highlighted as key measures in the majority of all the scenarios, namely: (1) Reducing energy demand by increasing efficiency, (2) End-consuming electrification and (3) decarbonisation of electricity generation.
4. According to the assessment of the European Commission, electricity production, household sector and services are able to provide the highest reduction of greenhouse gas emissions from all the reviewed sectors.
5. Evaluating the necessary investments in achieving the relevant objectives in each of the scenarios marked by the European Commission, the additional baseline scenario will require investments on the supply side from 10.5 to 31.8 billion EUR (depending on the selected scenario), as well as on the demand side from 38,3 EUR to 90.2 billion (depending on the chosen scenario). The largest investments are expected in the household sector, and they vary from 15.4 to 61.4 billion by 2030 (depending on the chosen scenario).
6. The global energy development scenarios often are missing an energy unrelated resource risk analysis, "the energy efficiency of energy production counting the energy invested to generate the respective energy unit" (for example, ignoring the energy invested in production of lithium batteries) is not calculated, the power system resilience and operational costs are being ignored, as well as sufficient attention to the cyber security risks is not ensured. Similarly, the most energy scenarios do not analyze the risks associated with disturbances in digital solutions, that are related to sustainable energy. Reviewed global scenarios do not identify potential of financial innovation, which could reduce the lack of investment.
7. According to the World Energy Council Energy trilemma assessment, Latvia's biggest challenge for energy balanced policy is energy costs - this indicator of Latvia is the worst among the Baltic States. Promoting new energy policy initiatives, it is essential to assess the impact of projects on energy costs. At the same time, a sustainable policy indicator tends to decrease in the overall global rating, and more attention should be paid in searching for cost-effective sustainable solutions.
8. When modeling the impact of individual measures on costs of energy users, it is necessary to consider not only the direct impact costs of the relevant measure, but also consider the related other costs associated with the measure. The reflected in the article system of the sustainable energy policy factors having impact on energy costs is recommended for the modelling of the national sustainable energy policy scenarios, determining their respective economic impact on energy users.

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COOPERATION WITH EMPLOYERS AND STUDENTS IN REALISATION OF WORK-BASED LEARNING

*Ilze Brante, University of Latvia, Ogre Technical School
Biruta Sloka, University of Latvia*

Abstract. Competitive labour force is important tool for competitive production of different goods in the situation of rapid changes in technologies and modern industrial production where the most recent achievements in technologies and work organisation changes often. This is one of the important reasons to organise good co-operation of vocational education institutions with employers and with other stakeholders. In many countries very efficient is work-based learning which is realised also in Latvia. Motivation of employers is one of the important aspects for successful organisation of work-based learning. Aim of the research is to investigate approaches on employers involvement into work-based learning and determine most efficient tools for employers involvement into work-based learning. Tasks of research: 1) compare different approaches and practice in employer's involvement in work-based learning in different countries; 2) investigate student involved in work-based learning evaluations on employers involvement challenges. Research methods used in research: scientific literature analysis; analysis of normative regulation and interviews of employers and students; analysis of content of study programs. Research findings: different countries have different approaches and experience in work-based learning and Latvia has reached certain results by involvement of employers in work-based learning by good co-operation with public administrators, with respective industry expert's council boards and with municipality representatives.

Keywords: *employer's needs, competitive employees, practical skills.*

JEL code: J21; J24; J28

Introduction

Competitive labour force is important tool for competitive production of different goods in the situation of rapid changes in technologies and modern industrial production where the most recent achievements in technologies and work organisation changes often. This is one of the important reasons to organise good co-operation of vocational education institutions with employers and with other stakeholders. In many countries very efficient is work-based learning which is realised also in Latvia. Motivation of employers is one of the important aspects for successful organisation of work-based learning. Aim of the research is to investigate approaches on employers involvement into work-based learning and determine most efficient tools for employers involvement into work-based learning. Tasks of research: 1) compare different approaches and practice in employer's involvement in work-based learning in different countries; 2) investigate student involved in work-based learning evaluations on employer's involvement challenges. Research methods used in the research: scientific literature analysis; analysis of normative regulation and interviews of employers and students; analysis of content of study programs. Main criteria for this research is to analyse co-operation of vocational education institutions with employers for better investigation of needs of employers and use the opportunity of company ability on real praxis at work especially in companies with high level of technology use at the company.

In today's globalized world of rapid technological change and societal change, changing national demands, changing labor supply and demand, creating new professions to enter the labor market, workers in the sector need to continuously improve their skills, with the European Union there is youth employment, high quality professional qualification and a job is provided after its acquisition, vocational education is undergoing changes.

The main task of vocational education is to prepare specialists who meet the requirements of the labor market, focus on lifelong learning and are competitive in the industry. Vocational education policy makers and implementers are always concerned with the question: How to stimulate young people's interest in vocational education? How to create interest in young people in their chosen profession? How to ensure that vocational education meets the requirements of employers?

Analyzing the experience of several European countries in vocational education, especially the dual vocational education system of the Federal Republic of Germany and the Republic of Austria, vocational education policy makers and implementers have concluded that on-the-job training and dual qualifications contribute most to employers. The compliance of the demand for labor with the requirements of employers can be ensured by involving employers in the process of vocational education, establishing cooperation between all participants involved in vocational education: teachers, employers, entrepreneurs, representatives of professional organizations and local governments.

The Latvian Employers' Confederation (hereinafter - LDDK) has also made such a conclusion, acknowledging that "We have been hearing for several decades that entrepreneurs are not satisfied with the skills of vocational school students / graduates. Thus, LDDK has gathered the opinions of several sectors on how to improve the quality of vocational education - entrepreneurs are involved in the development of programs, participate in the conduct of examinations and assessment. The next logical step is for employers to take part in the learning process in their companies, teaching students the professional skills needed in today's fast-changing economy". In Latvia, the transition to closer co-operation between vocational education institutions and industry companies has been taking place since 2013.

Literature Review

Researchers world-wide are investigating different approaches in most efficient ways of educating of competitive employees and especially in situation of rapid changes in technologies in production. Several countries have already long-term experience in realisation of dual education and work-based learning. Australia has evaluated several approaches and has remarkable experience (Baker, et al., 2017; Ciptono, et al, 2021) which could be interesting also for other countries. Pedagogy aspects are on academic researchers agenda (Goller, et al, 2021; Siebert, et al., 2009; Sauli, et al, 2021) with valuable conclusions which could be useful for practical consideration for adaption some aspects in work-based learning also in other countries. Researchers have stated important question "Can work-based learning programmes help companies to become learning organisations? (Ions, Minton, 2012) with several suggestions for possible practical use in work-based learning also in other countries (Hamdani, Suherman, 2021; Detgen, et al, 2021) with suggestions for innovative solutions. Good achievements are also for research investigations on company involvement in work-based learning (Overton, Lemanski, 2016; Brante, Sloka, 2021-b). Work-based learning organisation results are discussed also in other research (Brante, Sloka, 2021-c; Toole, 2011; Guillermo, et al, 2021) with stress also to social media as key tools for the future of work-based learning. Creative and innovative approaches for work-based learning is on researchers agenda and with practical applicable suggestions (Scott, 2020; Brante, Sloka, 2021-a) for work-based learning practical applications. A tie between educational institution and industry is on great importance as from those successful relations depend many practically realized activities (Ismail, et al, 2021) as from them many practical solutions are influenced. Individual experience in work-based learning has also significant influence (Thurgate, 2021; Faller, et al, 2020) as well as changes in professional world (Herbert, et al., 2021), needs for digital skills and technologies

and digital marketing knowledge (Buffardi, 2021), experience in several countries (Pietrafesa, et al, 2021) has influence on education outcomes and results.

Research results and discussion

The first stage in the introduction of dual education in Latvian vocational education was the decision of Latvian vocational education policy makers to move to the dual vocational education system. The Ministry of Education and Science, the Ministry of Economics, the Ministry of Welfare and subordinate institutions, the State Education Content Center, the State Education Quality Service, the State Education Development Agency, the State Employment Agency, vocational education institutions, social partners (Latvian Employers' Confederation, Latvian Free trade unions), municipalities, sectoral professional organizations (sectoral federations, associations, unions) and entrepreneurs to meet about the opportunities and benefits of dual vocational training. In addition, the experience of dual education in the Federal Republic of Germany was introduced and analyzed, several seminars for the exchange of experience between teachers and entrepreneurs of vocational education institutions took place in Germany, and the experience of dual education was explored.

Several Latvian vocational education institutions (Jelgava Technical School, Jelgava Crafts Secondary School, Ogre Technical School, Olaine College of Mechanics and Technology, Vocational Education Competence Center "Riga State Technical School", Valmiera Technical School, Ventspils Technical School) are starting negotiations from the academic year 2013/2014. The pilot project will start on September 1. As a result of the meetings and discussions, it is concluded that it is not possible to take over the dual education system of the Federal Republic of Germany in Latvia directly, but it is possible to introduce elements of dual education in cooperation with companies in the sector. It is discussed how the dual form of education will be introduced in the Latvian vocational education system. Dual education? Professional education realisation close to practice? Learning based on the student's work environment? Taking into account the features of the Latvian labor market, it is decided that it is not possible to directly adopt the German form of dual education in Latvia. It is decided that the form of study close to practice in Latvia will be work-based learning. What is work-based learning? It is the involvement of the entrepreneur in the vocational education process, when the entrepreneur and the vocational education institution agree on what part of the curriculum can be implemented in the company. The overarching goal of WBL is to bring the vocational education system closer to the current needs of the labor market. The WBL pilot project was launched by a number of vocational education institutions, addressing and involving companies in the implementation of WBL. Several conditions are required to provide WBL:

1. The first and foremost condition is the industry's interest in participating in WBL.
2. This is followed by close cooperation between the vocational education institution and the company:
 - 2.1. updating the vocational education program, including regular internships in the company, starting from the 1st year to the 4th year, balancing the theoretical and practical training that the student must acquire within four years;
 - 2.2. when compiling the schedule for the implementation of the theory and practice, the practice in the branch company is organized not by days, but by weeks or by months;
3. before starting the internship in the company, the representatives of the companies of the sector meet with the newly admitted students of the vocational education institution, finding out their motivation to study in the chosen profession;
4. the head of the internship from the vocational education institution getting to know the company where the WBL will be implemented;
 - 4.1. creating suitable workplaces in the company for each student with all the necessary equipment;
 - 4.2. concluding a six-party cooperation agreement, involving and informing the parents of the students about WBL, if the students are minors. The cooperation agreement is signed by: vocational education institution, company, student, practice manager from the vocational education institution, practice manager from the company, parents. The responsibility of all actors involved in WBL is strengthened.
 - 4.3. preparing theoretical lectures on study topics for the company's specialists, based on an educational program that has been agreed with the vocational education institution. The company provides 20% of theoretical training and 80% of practical training for WBL students in the company. During WBL, students simultaneously improve their theoretical and practical knowledge, as well as gain valuable experience in a real production company, collaborating with industry professionals.
 - 4.4. establishing an assessment system in the company in order to determine the level of students' theoretical knowledge and practical skills after WBL in the company.
5. performing an ex-post evaluation at the end of each WBL practice. The following participate in the evaluation of WBL practice: the administration of the vocational education institution, the practice manager from the vocational education institution, the practice manager from the company and the students themselves. The WBL practice report clearly shows the most typical student mistakes in the tests. Discussions are held with students on topics important to the employer: attitude towards work, responsibility, accuracy, quality of work, etc. issues that will affect students as they enter the labor market.
- 5.1. summarizing the results of the WBL practice evaluation, the next WBL practice is improved.

In order to ensure the introduction of WBL training, to expand the range of vocational education institutions and entrepreneurs involved in WBL, various publicity events are organized during the implementation of the pilot project: → conferences where pilot schools, companies, students involved in WBL practice share their experience in implementing WBL; → Experiences of pilot schools and companies in the implementation of WBL in publications in the press and other media. → experience exchange seminars for participants in vocational education and training in companies that have started to implement WBL; → experience exchange seminars in vocational education institutions that have started to implement WBL; → competition: • the best company, WBL implementer; • the most active vocational education institution, WBL implementer; • The best practice manager in the company.

Based on the experience gathered by the pilot schools in the implementation of WBL, regulations No. 1 are being developed and approved by the Cabinet of Ministers of the Republic of Latvia on 15 July 2016. 484 "Procedures for Organizing and Implementing Work-Based Learning". Regulatory documents in the country set requirements for the introduction and implementation of WBL. The vocational education institution organizes and implements a WBL for a student who implements an individual WBL plan with an entrepreneur in accordance with a licensed vocational education program, after the acquisition of which the second, third or fourth level professional qualification of the Latvian Qualifications Framework is obtained:

→ licensed vocational education program; → individual study plan. The licensed educational program includes a plan for the implementation of the educational program, which determines the amount of the educational program implemented within the WBL in the company - at least 25 percent of the total amount of the educational program in vocational or vocational secondary education programs after obtaining basic education. For example, the professional secondary education program Electronics with the professional qualification of an electronics technician.

Table 1

Professional secondary education program *Electronics* with professional qualification electronics technician, duration of studies 4 years

Academic year	Number of hours per academic year	WBL not less than 25% of the total number
1. course/year	1440 hours	4 weeks 136 hours
2. course/year	1440 hours	6 weeks, 192 hours
3. course/year	1368 hours	8 weeks, 240 hours
4. course/year	1520 hours	24 weeks, 960 hours
Total:	5768 hours	1528 hours (26,5%)

Source: author's construction based on normative regulation

Table 2

Professional secondary education program *Electronics* with professional qualification electronics technician, duration of studies 4 years

Course	Name of the practice	Amount of WBL
1. course/year	Soldering	4 weeks
2. course/year	Measurement and assembly	6 weeks
3. course/year	Electronic	8 weeks
4. course/year	Qualifications	24 weeks

Source: author's construction based on normative regulation

Thus, in order to ensure the implementation of WBL, a vocational education institution needs to issue to each student: 1. an individual plan to cover a certain number of WBL lessons per school year; 2. training agreement on the implementation of the individual plan. The contract is signed by: 2.1. Vocational education institution; 2.2. a representative of the company; 2.3. the student or his or her legal representative, if the student is a minor. 3. a contract for the insurance of the student against accidents during the implementation of the individual plan; 4. agreement on the student's civil liability insurance during the implementation of the individual plan.

At the national level, requirements are set for a vocational education institution, a company, as well as the rights and obligations of a student involved in WBL when implementing WBL. The experience of pilot schools in implementing WBL training for students in cooperation with industry companies is a prerequisite for setting requirements, developing rules and procedures for the provision of WBL. In order to ensure the implementation of WBL, all participants involved in vocational education work closely together: a vocational education institution, a student who acquires a specific professional qualification and a company. It is the responsibility of each WBL participant to achieve the result. Vocational education institution - a student who acquires a specific professional qualification - a company that provides WBL.

Production plant of the company JSC "HansaMatrix" in Ogre

JSC "HansaMatrix" is a fast-growing high-tech company that develops new industrial products and systems, industrializes and provides full production services, data network equipment, Internet of Things, industrial systems and other high value-added market segments. JSC "HansaMatrix" applied to Ogre Technical School on its own initiative, in 2013 it immediately participated in the organization of WBL in close cooperation with Ogre Technical School. The company also promotes WBL in the public space by participating in seminars, meetings of industry professional organizations, the annual exhibition "School", hosting guests from different countries and demonstrating WBL experience directly in the company. The company's experience is mentioned in the media both on Latvian television and on local, national and international news portals.

Involving WBL JSC «HansaMatrix» set several important goals: → Opportunity as an employer to influence the content of vocational education, adapting it to the real requirements of the labor market. → Students acquire skills relevant to the labor market, which provide them with good prospects in the labor market in the future. → To provide students with a motivating and interesting learning environment. → To create an opportunity for the company to invest in the professional development of its future employees. → Reduce employee training time and costs. When starting the implementation of WBL, the company AS «HansaMatrix» performed several activities in the implementation of WBL: → The company created suitable workplaces for each student with all the necessary equipment. → Training materials and equipment are identical to those used in production processes. → Cooperation agreement is signed publicly: company, vocational education institution, student. → During the internship, students simultaneously improve their theoretical and practical knowledge, as well as gain valuable experience in a real electronics manufacturing factory, actively cooperating with industry professionals.

The WBL implemented by JSC "HansaMatrix" is divided into two major stages: 1. preparation or teaching; 2. working in production groups with real products. Students learn both theoretically and practically by implementing WBL. Performance is assessed throughout the internship and through periodic tests, which are evaluated in the same way as for employees of the company. This assessment, in cooperation with the vocational education institution, is converted into an assessment score. After each WBL internship, the head of the company arrives at the technical school to analyze the mistakes made with students and teachers, their causes and potential impact on the company's entire production and cooperation with customers.

JSC «HansaMatrix», in implementing WBL, closely cooperates with Ogre Technical School. At the end of each WBL study period, the results of the student test are presented to the technical school administration, teachers and the students themselves. Each student has prepared a report on the progress of WBL internship in the form of a presentation in accordance with the developed internship evaluation criteria (information about the internship place, significance of the internship place in the Latvian economy, tasks performed, acquired skills, abilities, conclusions, planned tasks for the next internship). Information on WBL's achievements is provided by: → the practice manager from the company provides a description of the student; → The supervisor of the internship from the vocational education institution provides a description of the student. → common conclusions and tasks for the next WBL practice.

WBL reports clearly show the most typical student errors in tests. Discussions are held with students on topics important to the employer: attitude towards work, responsibility, accuracy, quality of work, etc. issues that will affect students when they enter the labor market. JSC «HansaMatrix» implements a continuous cycle of internal practice improvement after each WBL practice, based on the assessment provided by students and internally identified problems from the practice managers.

Based on the student survey, information on the evaluation of WBL training in the company from the point of view of students of professional qualification of electronics technician has been compiled: → Opportunity to present yourself in the labor market. → Make sure of your skills. →

High level training and advice from qualified professionals. → Ability to understand the essence and nuances of the position. → Cooperation with other industry representatives. → Gain insight into the latest technologies. → Develop team and solo skills. → 5S methodology (LEAN). → Ability to handle modern and professional equipment and learn their functionality. → Expand your horizons. → Get acquainted with the engineers of leading companies. → Develop yourself as a person.

During the implementation of WBL practice, the students of JSC «HansaMatrix» have already concluded an employment contract in the third year. After graduating from Ogre Technical School, a part of students continue their work in JSC «HansaMatrix» or another company in the field of electronics. As the profession of electronics technician is related to the continuous improvement of knowledge and is a high-tech profession, the engineers of JSC «HansaMatrix» direct graduates to continue their studies in one of the Latvian higher education institutions. The cooperation of Ogre Technical School with JSC «HansaMatrix» in the implementation of WBL proves that as a result of cooperation students achieve high results in professional competitions. Awarded places and gold and silver medals in the professional skills competitions «SkillsLatvia».

Latvian vocational education institutions in cooperation with companies in the sector have proved that the implementation of vocational education in the form of WBL ensures the compliance of vocational education with the requirements of employers. The implementation of vocational education in the form of WBL is gaining more and more support in the Member States of the European Union. Countries that are not members of the European Union also want to introduce the implementation of vocational education in the form of WBL. Examples of Latvian good practice in WBL implementation and implementation have been noticed by the European Training Foundation (ETF) and asked to transfer Latvian examples of good practice in WBL implementation to seven VET institutions in six countries: Albania, Armenia, Belarus, Kazakhstan, Moldova and In northern Macedonia. Four vocational education institutions in Latvia (Vocational Education Competence Center “Riga State Technical School”, Vocational Education Competence Center “Liepāja State Technical School”, Daugavpils Construction Technical School, Ogre Technical School) have started co-operation with seven vocational education institutions in six countries. Four Latvian Vocational Schools

Four Latvian Vocational Schools created a Questionnaire, conducted a survey and organize Video Interviews on the Implementation of WBL in Seven Vocational Education Institutions of the European Education Foundation Network from Six Countries Albania, Armenia, Belarus, Kazakhstan, Moldova, Northern Macedonia (Hospitality and Tourism School of Tirana, Albania; Vayots Dzor Regional State College, Armenia; The branch “College of Modern Technologies in Mechanical Engineering and Car Service” (a structural subdivision of the Educational Institution “Republican Institute of Professional Education”), Belarus; APEC PetroTechnic High College Limited Liability Partnership, Kazakhstan; Nur-Sultan Polytechnic College, IT Competence Center, Kazakhstan, Kiro Burnaz Secondary Vocational School, Kumanovo, Northern Macedonia, Center for Excellence in Construction, Moldova) which for all VET institutions have in common, what is different in the implementation of WBL, what VET institutions can learn from each other, what examples of good practice can be taken from each other and what examples of good practice can be transferred by Latvian VET institutions to the European Training Foundation network national vocational training institutions.

The aim of the survey is to identify the problems of WBL implementation in order to develop guidelines / recommendations for quality WBL implementation in vocational education institutions. Countries that have implemented vocational education programs in the Soviet system continue this tradition of vocational education. This means that during the studies the theory alternates with practical studies in the training workshops of the vocational education institution and at the end of the study program, i. e. in the 4th academic year, the qualification practice is implemented in a branch company. This could be called a practice-oriented learning process. Such experience is in vocational education institutions in Belarus, Moldova and Kazakhstan. All vocational education institutions included in the survey are strong vocational education institutions with modern and up-to-date technological requirements, focused on development and continuous improvement, the learning process is implemented in close cooperation with entrepreneurs, developing and updating vocational education programs necessary and relevant to the labor market, responds quickly to the demand of the labor market, uses and implements the latest technological advances in the learning process, participates in the implementation of adult education. Each vocational education institution included in the survey has examples of good practice to share with other vocational education institutions in order to improve the quality of vocational education.

The vocational education institutions surveyed have completed the dual education system of the Federal Republic of Germany. Taking into account the characteristics of the labor market in each country, it has been concluded that it is not possible to directly adopt the German form of dual education, therefore, vocational education close to practice is implemented as student work-based learning (hereinafter - student WBL training). All vocational education institutions involved in the survey: 1. wishes to improve the WBL learning process in its educational institution and to implement WBL in all educational programs and professional qualifications implemented in a vocational education institution. 2. Are convinced that in the implementation of WBL training: 2.1. co-operation between the vocational education institution and the enterprise will be strengthened; 2.2. there is a stricter quality control of education; 2.3. professional education meets the requirements of employers; 2.4. employers become co-responsible for the implementation of the learning process; 2.5. the prestige of vocational education is increasing. 3. recognizes that the experience of other countries is very useful for the development of WBL in vocational education institutions. 4. are open to dialogue, willing to cooperate.

Cooperation with the European Training Foundation's vocational training institutions in six countries continues. In order to develop qualitative guidelines / recommendations for the implementation of WBL in seven vocational education institutions of six countries, the European Education Foundation organizes visits of vocational education experts from Latvian vocational education institutions to these countries, ministries of education, ministries of labor and industry. Representatives of seven vocational education institutions from six countries visited Latvia to meet with employees of the Ministry of Education and Science responsible for vocational education, to get acquainted with Latvian Vocational Education Competence Center “Riga State Technical School”, Vocational Education Competence Center “Liepāja State Technical School”, Daugavpils Construction Technical School, Ogre Technical School cooperation with industry companies in the implementation of WBL. Companies have informed that more and more important is becoming co-operation of companies and vocational education in practical training of students as at the workplace students get real experience, develop practical skills and obtain self-confidence and management of the companies can evaluate student attitude, skills knowledge and consider on acceptance of student for permanent further work at the respective company. The implementation of the vocational education and training process in the form of WBLs contributes the most to the compliance of vocational education and training with the requirements of employers and is gaining more and more support both in the Member States of the European Union and abroad. Recommendations for the introduction of the WBL form of education in the vocational education system need to be developed not only in Latvia, but also internationally.

Conclusions, proposals, recommendations

1. Work-based learning is one of the most efficient ways of education competitive labour force in many countries with different approaches in organisation and realisation of this process;
2. Latvia has already experience of work-based learning realisation in vocational education and good experience of involvement of companies, municipalities and branch expert councils;
3. More and more important is becoming co-operation of companies and vocational education in practical training of students as at the workplace students get real experience, develop practical skills and obtain self-confidence and management of the companies can evaluate student attitude, skills knowledge and consider on acceptance of student for permanent further work at the respective company;
4. Biggest challenge for successful realisation of work-based learning is reasonable motivation of employees as their interest is in receiving qualified employees and also long-term co-operation with vocational education schools for retraining the teaching staff to have updated knowledge and skills and being able to be qualified also in situation of fast changes in technologies development.

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BIM AS A TOOL FOR INCREASING PRODUCTIVITY OF CONSTRUCTION INDUSTRY

Līga Braslina, University of Latvia
Martins Danusevics, University of Latvia

Abstract. The implementation of Building information models (BIM) in Latvia is in an early stage. There is a certain proportion of contractors who have started to implement these models, while at national level the requirements for implementation are still under development. This circumstance limits the amount of information available to assess the effectiveness of BIM. Thus, the authors are sharing the results of analysis performed to assess the effectiveness of BIM and what are the expected benefits from implementing it in the industry and how that might link to increased productivity in the construction industry in Latvia.

Keywords: *BIM, construction, savings, efficiency, productivity.*

JEL code: L74

Introduction

Latvia is a country with a declining population and limited access to resources that makes it more difficult for any industry to develop based on natural growth of the economy. Also, the construction industry is looking at decreasing availability of workforce. Due to this consideration a logical tool for growth of the industry is increased productivity. The key idea of this research is to look at a methodological approach for assessing benefits of BIM as a tool for increasing productivity of the construction industry. Authors explore the current literature about BIM and it's implementation on construction industry around the world, describe the methodology for assessment of benefits of BIM and share the main conclusions achieved based on research that involved construction companies. This type of research is a novelty in Latvia and has never been done before since BIM has been implemented only during the research procedure. Outside of Latvia similar known research of comparable depth has been implemented only in United Kingdom.

Literature Review

The paper is looking into the effect of Building Information Models (BIM) on construction productivity. Hence it is of essence to define BIM as such. There is still some ambiguity in regards of a definition and research has been done to identify the actual scope of definitions (Latiffi et al., 2014). The definition often used by the industry is based on the approach of NBS, an Ltd providing information about industry classification and BIM. It states that BIM is a process for creating and managing information on a construction project throughout its whole life cycle. As part of this process, a coordinated digital description of every aspect of the built asset is developed, using a set of appropriate technology ("What is BIM?," n.d.). On a certain level there is still a belief in the industry that BIM is often understood as the use of software programs, rather than broader incorporation of procedures (Hjelseth, 2017).

Several studies have been done globally on accessing the benefits of BIM for the construction industry. The main benefits overlap in most studies including increase of productivity and efficiency, savings in time and cost associated with design change, eliminated clashes in design, improved communication amongst stakeholders and better overview during construction process. Such research has been done in Malaysia (Al-Ashmori et al., 2020), Croatia (Kralj, 2018), People's Republic of China (Yuqi and Jiajia, 2018) France (Tranchant et al., 2017), United Kingdom (Dakhil et al., 2019), Egypt (Marzouk et al., 2021), Pakistan (Masood et al., 2014) and Australia (Ahankoob et al., 2019). A significant benefit in the future is the influence on sustainability. The effectiveness of BIM here can be still only be guessed, but scientific discussion is optimistic and supposes that there is a significant impact on sustainability by integrating ERP and BIM together (Hewavitharana and Perera, 2020). Sustainability goals can also be achieved by the use of BIM throughout the building life cycle and hence reducing the overall material and energy waste (Mohammed, 2019). Sustainability goals can also be achieved by incorporating green building principles in the industry. BIM has also been identified as a important force in achieving it. Even a Green BIM index has been developed for these purposes (Maskil-Leitan et al., 2020). The use of BIM is also enabling integrated design, construction and maintenance towards Net Zero Energy buildings (Maltese et al., 2017). An effect on return on investment (ROI) has been studied under assumption of it being improved as the result of introduction of BIM, but research hasn't been conclusive in this area (Kim et al., 2021).

In most cases of previous research there is an overlapping case of two main conclusions. Firstly, the low maturity of construction industries around the world in regards of BIM maturity. Secondly, the high potential and gains from implementing BIM. Industrial BIM experience has been identified as a significant factor in the realisation of potential BIM benefits (Ahankoob et al., 2019). At the same time, it has been identified that the industry by itself will not be a driving force behind the integration of BIM into the industry. Thus a driving force has to be within the public sector. The public client has to be a driver of change and force the industry to implement BIM through the public procurement (Lindblad, 2019). It has been suggested that contractual arrangement for use of BIM in public projects results in improved productivity, better coordination, and reduced error, and rework. (Porwal and Hewage, 2013). On a private level if the contractors are not motivated by the public tender, they might be persuaded with the subjective benefit evaluation for immature BIM enabled stakeholders (Yang and Chou, 2019).

From a productivity perspective implantation of BIM is seen as a tool to raise the design and construction output per employee. One of the approaches is by increasing the level of automation. It can be achieved by usage of different automation tools that create documentation, search for errors and collusions and perform other automated tasks (Yajima, 2016). Another approach to increased productivity lies in the design process. A significant amount of time is allocated to changes in design based on feedback from the client. The use of BIM provides a tool to improve communication, add extra flexibility in the design process and perspective for more efficient workflow (Shourangiz et al., 2011).

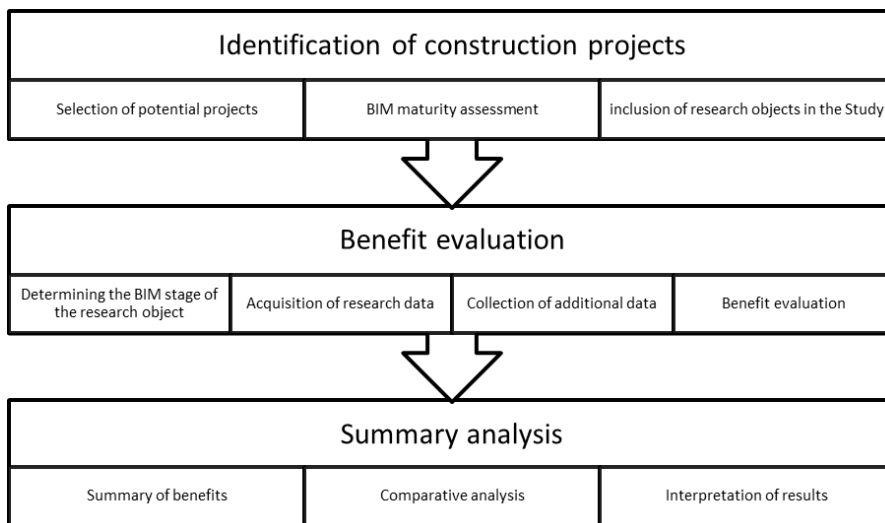
Research results and discussion

The authors participated in research of several Latvian construction projects with the purpose of identifying the characteristics of these projects from the point of view of BIM maturity and to estimate the financial and time savings attributable to use of BIM. Ten construction projects were selected for the research based on the criteria of BIM being used in design and other phases. The BIM maturity of Latvian construction market is quite low and hence the number of projects analysed can be considered comparatively high and covers most of projects done in Latvia in BIM at the time of research.

Research methodology

The research involved development and practical approbation of an approach for measurement of BIM benefits created by the authors and influenced by the "BIM Level 2 Benefits Measurement Methodology" developed by PriceWaterhouseCoopers in 2018 used as a benchmark. Authors adapted the methodology for use in Latvian market.

The identification of construction projects involved selections of projects with a BIM environment implemented in accordance with the EN ISO 19650 standard. Projects were either completed in design stage, in construction stage or stage of operation. The maturity assessment was based on BIM project coordination template involving various criteria that characterise their type and degree of BIM utilisation (Fig. 1). Twelve projects were identified corresponding with the criteria of having BIM involved in design phase. The experts from these projects were invited for an in-depth interview based on a premade template of potential benefits and evaluated the economic and time savings in different categories.



Source: author’s construction

Fig. 1. Schematic sequence representation of BIM benefit measurement methodology

The proposed categories include interviews and questionnaires of experts, whose task is to identify the benefits of using this classification. Each subcategory indicates how each benefit could be achieved - the BIM functionality and what the benefits are (Table 1). The purpose of such an approach is not only to break down the benefits by type, but also to facilitate the work of experts and increase the likelihood that benefits would be identified that would have been omitted in the case of open questions without classification. Benefit identification identifies benefits in different units of measurement depending on the category. The benefits identified are monetized using the average costs available to the experts associated with the benefits, or the averages of these monetized figures are publicly available.

It was essential to adhere to classification categories to avoid double counting of potential benefits. When obtaining information from experts, it is important to control the empirical information and assessments provided to avoid including one benefit in different benefit categories or subcategories.

Table 1

BIM benefit measurement categories and subcategories

Benefit category	Benefit subcategory	Number of types of benefits	Method of obtaining information
Time saving	Time savings before design	2	Empirical, evaluative
	Time saving in design	8	Empirical, evaluative
	Time savings in construction and procurement	8	Empirical, evaluative
	Time savings when fulfilling information requests (construction and procurement)	2	Empirical, evaluative
	Time savings in project handover	3	Empirical, evaluative
	Time savings in response to accidents	1	Empirical, evaluative
Material savings	Material savings in construction and procurement	4	Empirical, evaluative
	Environmental benefits from material consumption reduction	4	Empirical, evaluative
Reduction of various costs	Reduction of costs from the reduction of the number of collisions or problem areas	2	Empirical, evaluative
	Reduction of costs from less need to make changes to the project	3	Empirical, evaluative
	Reduction of management costs	4	Evaluative
	Reduction of maintenance costs	2	Evaluative
	Reduction of costs during renovation	3	Evaluative
	Reduction of costs by liquidation of an asset	2	Evaluative
Labor protection benefits	Reduction of costs in litigation	4	Evaluative
	Labor protection improvements in construction	3	Evaluative, extrapolated
Risk reduction	Improvements in labor protection in maintenance and liquidation	3	Evaluative, extrapolated
	Reduced project risk reserves (CAPEX)	3	Empirical, evaluative
Improved asset use	Increased certainty in OPEX estimates	1	Empirical, evaluative
	Improved asset use	1	Evaluative
	Improved asset quality for end users	1	Evaluative
Improved reputation		1	Evaluative

Source: author’s construction based on “BIM Level 2 Benefits Measurement Methodology” by PriceWaterhouseCoopers

As a result of analysis of the projects based on the methodology and criteria it was determined that the most commonly used BIM element in the considered projects is the common data environment, modelling of construction project parts and collision control. Most of the research projects that use BIM and were surveyed use the level of complexity of the LOD 300 project, using a representation of model elements, using true dimensions and locations. The highest degree of overall maturity among the projects surveyed is on average in the use of the Common data environment, the use of virtual design reports and the use of the BIM implementation plan.

Identified savings due to use of BIM

One part of efficiency indicators was time savings and the most significant time savings from the use of BIM are in the design phase and in the construction and procurement phase. For projects of different scales, the savings from BIM can be measured in monetary terms in the range of 10 thousand to 100 thousand euros. At the design stage, the benefits are of the utmost importance in the use of the Common data environment system, in construction works, the reduction of the number of construction errors is especially important.

Another aspect of efficiency was the materials saving and here no significant effects were detected. The implementation of BIM didn't provided for meaningful material savings. One of the arguments for these effect has been the use of BIM for procurement of materials leading to no waste in previous – design stage.

From the point of view of reducing number of collisions BIM benefits in automatic identification of collisions or problem areas. The average number of collisions avoided in different projects varies from 200 to 3000 collisions, which significantly shortens the construction time and generates significant monetary savings. Unfortunately, the monetary benefit couldn't be assess due to no clear cost assessment for an average collusion.

The research didn't identified significant benefits from the BIM construction project to reduce financial risks. To a large extent, no significant reserves are created to prevent risks, as well as there are no changes in the amount of reserves.

Overall effect on construction project costs

The detailed analysis of overall savings was summarised differentiated by project sizes (Table 2). The assumption in this case was that the proportion of economic effects might be more significant for larger projects due to increased scale of savings and more sophisticated methods applied.

Table 2

Overview of time and monetary savings from BIM relative to budget

Project size	Average time savings in man-hours	Average time savings in euros	Monetary estimate of time saved in proportion to the overall project design budget
Large projects	13 526 to 18 823	434 832 to 710 724	13-79%
Medium projects	165 to 1672	4950 to 83 570	3-16%
Small projects	~48	2400 to 39 000	2-10%

Source: author's calculation based on expert survey in Latvia, 2020

The results indicate a significant reduction of design time for large project with the best case indicating a 79% saving in proportion to overall project design budget. The savings in the best case could be evaluated at 710.7 thousand euros. The main source of savings was attributed to up to half a year reduction of overall project time. Thus, the savings reduced to fixed costs of maintaining a construction site and personnel costs. More effective planning of deliveries for the construction site played a significant role. Extensive use of BIM allowed the construction companies to shift significant part of pre-production outside the construction site and deliver ready-made construction units just in time for assembly. That reduced unnecessary downtime on the site. This corresponds with theoretical research showing prefabrication as essential part of BIM implementation in the construction industry (Bonenberg et al., 2019).

Another significant benefit of using BIM was the reduction of collusions. These are cases when a collusion between different systems (electric, heating, network, plumbing etc.) is detected during the construction process. Automated BIM systems prevent such events by undergoing automated collusion detection. As a result in some cases 100's of such cases could be prevented per project. That reduces the extra cost for fixing the resulting issues and for delay of overall project timeline. Authors also compared the influence of BIM maturity amongst construction projects and the overall savings identified in the research. The BIM maturity was divided in overall maturity and technical maturity. The maturity was measured on a 5-point scale. It was determined that on average 1-point improvement of overall maturity leads to 6.8% savings for design and 1.4% savings for construction costs on average. At the same time a 1-point increase of technical maturity leads to 4.1% savings on design and 3.3% savings on construction on average. For the projects considered in the research the overall maturity of BIM is overall higher than the technical maturity of BIM. Authors believe it to be logical that overall maturity has better influence on design savings and technical maturity of construction savings due to corresponding context. Overall, BIM maturity is based on design procedures, use of common data environment, document control, EIR and BEP systems that correspond to better design procedures. At the same time technical BIM maturity depends on digitalisation of drawings, use of 3D, 4D and 5D construction dimensions, visualisations and other procedures that have a positive impact on the construction site processes.

Conclusions, proposals, recommendations

1. The authors can conclude that the introduction of BIM in the processes of construction industry can have essential influence on time savings leading to increased efficiency of the industry and higher productivity. At the same time there are no essential gains in materials savings. An interesting comparison with other countries is a much lower benefit in material savings – in Latvian case those were almost non-existent, while prevalent in other countries. Authors explain this phenomenon with already good cost-cutting procedures implemented. Nevertheless the time saving effects for workforce and project life-cycle can be applied universally.
2. It is proposed to significantly improve the BIM benefit assessment methodology developed in the Study by developing a directed and focused assessment approach algorithm for the BIM expert who provides assessment of the construction project. It is recommended to stick to the evaluation blocks of the existing Research in-depth interview questionnaire, but initially the expert is asked to evaluate the total benefit of the stage from the use of BIM, and then to evaluate the contribution of BIM components in the overall evaluation as a percentage. The study showed that such an approach is most productive in a particular study, as it focuses the expert's focus on saving time and costs at a particular stage, avoiding generalizations that are not subject to a monetary assessment of the benefits of BIM.
3. It is recommended to perform detailed evaluations of BIM benefits of publicly available research for public buildings, where there are no restrictions on commercial secrets for obtaining and further publishing the information necessary for the research. For the most accurate

BIM assessment, it is recommended to perform BIM assessment within a real time for projects that are planned to be launched by involving an observer of BIM benefits already in the order development phase.

4. It is recommended to further promote the wide availability of knowledge about BIM, the development of common standards and the promotion of a common understanding of them, as different levels of interpretation and understanding of BIM in industry were identified during the research.

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PUBLIC RECOGNITION OF THE SOCIAL ENTREPRENEURSHIP SECTOR IN LATVIA AND THE WAY FORWARD

Kristine Casno, University of Latvia
Biruta Sloka, University of Latvia

Abstract. In Latvia social entrepreneurship is relatively new, but highly potential. Especially over the last 5 years many incremental positive developments have resulted in 193 social enterprises with the official status as of September 30, 2021, the overall competitiveness of the sector remains relatively low as social enterprises struggle with digital skills, sales and marketing. Many are fighting to make ends meet with limited budgets and high degree of uncertainty, especially under the circumstances of the Covid-19 pandemic. Research findings from 2019 reveal average or below average information levels within Latvian society and confirm the significant positive role awareness and information about the social entrepreneurship sector within society plays in generating sales in the social economy sector. The purpose of the research is to provide the newest and in-depth data on the degree of public recognition and awareness of the social entrepreneurship sector in order to determine potential directions for improvement with practical implications for social enterprises as well as public authorities. Research methods are analysis of previously conducted research and survey of 1026 respondents. Research results indicate a need to delineate the concept of a social enterprise by clearly distinguishing it from such organization types as a non-governmental organization or charity. Significant number of respondents possess a general idea of what social entrepreneurship is about and express willingness to support social economy by purchasing social enterprise products and services. Challenges remain in the need to increase awareness and reduce the presence of various misconceptions about social enterprises and social entrepreneurship.

Keywords: *public recognition, social entrepreneurship, social enterprise, Latvia.*

JEL code: O36; Z18; P46

Introduction

Social entrepreneurship has been widely recognized today within European Union and globally as a powerful solution to a wide range of the world's most pressing problems – starting from social inequality to climate change. In Latvia social entrepreneurship sector is relatively new, but highly potential. Especially over the last 5 years, many incremental positive developments have yielded 193 social enterprises with the official status as of September 30, 2021 (Register, 2021). The overall competitiveness of the sector remains relatively low as social enterprises struggle with digital skills, sales and marketing. Many are fighting to make ends meet with limited budgets and high degree of uncertainty, especially under the circumstances of the Covid-19 pandemic. At the same time, social enterprises are facing many expectations from the government and financial authorities in terms of performance, well-crafted business plans, duly filled out paperwork etc. In countries with such a small market as Latvia, for social entrepreneurship initiatives to flourish locally, be able to face competition from commercial enterprises and gather sufficient competency and resources for internationalization, there must be a relatively high degree of support and public awareness of the significant role sector plays within society. Society needs to have a very clear understanding of the concept of social entrepreneurship, free from any misconceptions and biases. Promotion of the sector, on behalf of public authorities, supporting organizations and social enterprises themselves, plays a critical role here. While role of marketing is invaluable for the development of social entrepreneurship sector, only comparatively recently both in Latvia as well as internationally researchers have started paying more attention to the marketing aspects specifically within the social entrepreneurship sector, providing valuable insights and recommendations for practitioners willing to promote the sector. In the light of the aforementioned, this research aims to explore the current state of public recognition of the social entrepreneurship sector in Latvia to provide recommendations for public authorities and social enterprises seeking to promote the sector and contribute to the growing body of research on marketing aspects in the social entrepreneurship context in Latvia. Research methods applied: analysis of scientific publications and analysis of survey on various aspects of public awareness of social entrepreneurship in Latvia, which was conducted by the Social Entrepreneurship Association of Latvia. Tasks of research: 1) to analyse previously conducted research; 2) to analyse survey data; 3) to provide recommendations based on research results. Survey results were analysed using such statistical analysis methods as analysis of descriptive statistics and cross-tabulations.

Literature Review

Social enterprises have been recognized as an effective solution for achieving sustainable development (Bartha, Bereczk, 2019; Blagoycheva, 2019; Littlewood, Holt, 2018), balancing out the failures of capitalism (Baglioni, 2017; Mansfield, Gregory, 2019; Brdulak et al 2019), solving various social and economic problems (Bandyopadhyay, Ray, 2019; Berbegal-Mirabend et al 2019) and driving innovations (Monroe-White, Zook 2018). Prodanov (2018) has specifically accentuated the role of social entrepreneurship in reducing social inequality and social stratification, provided authorities integrate social entrepreneurship in their agendas, "...social entrepreneurship must be embraced by the state and political parties that are able to put it in the center of their socio-economic policies" (Prodanov, 2018, p.136). The previously described significance and recognition of social enterprise and social economy is well summarized in the recent report *The State of Social Enterprise in Europe – European Social Enterprise Monitor 2020-2021*. The aforementioned report recognizes social entrepreneurs "... as key actors to build a society and economy where people and the planet are at the centre and to reach the United Nations Sustainable Development Goals (SDGs) by 2030" (Dupain et al 2021, p.12). Given the young age of the social entrepreneurship sector in Latvia, there is still a long way ahead before social enterprises in Latvia will reach the same level of recognition and support from the government as they enjoy in the developed countries. Nevertheless, with the help of financial grants and increased publicity, the number of social enterprises with official status is continuing to grow (Register, 2021).

Although, the development of the sector in Latvia is continuing, the overall competitiveness of the sector remains rather low (Dobeles, Pietere, 2015; Casno, Sloka, 2020). The Covid-19 pandemic also negatively affected the sector, although it also showed some signs of resilience as some social enterprises managed to adapt successfully especially with the help of digital technologies (Casno, Sloka, 2021 b). However, the digital skills of social enterprises (work integration social enterprises specifically) in the context of presence and activity in the digital environment vary significantly, indicating a need for improvement of skills (Casno, Sloka, 2021 a). Overall, public recognition and awareness of the sector is weak (Ūlande, Līcīte, 2018; Dobeles, Pietere, 2015), although preliminary research results from 2019 reveal average or below average information levels within Latvian society (Casno, Šķiltere, Sloka, 2020 a). Social enterprises struggle with marketing and sales (Lis et al, 2017; Līcīte, 2018) which prevent further expansion of operations regionally and internationally. While overall people appreciate the marketing content provided by social enterprises, marketing messages lack visibility and regularity (Casno, Šķiltere, Sloka, 2020 b) which potentially indicates lack of marketing skills as well as lack of financial resources for implementation of comprehensive integrated marketing campaigns. In Latvia social enterprises are also very often equalled with work integration enterprises (Ūlande, Līcīte, 2018) which indicates a

rather narrow understanding of the concept within society. Overall, improvement in public awareness is critical for development of the social entrepreneurship sector as research results confirm that, on average, the more informed consumers are, the more often they make purchases from social enterprises (Casno, Škiltēre, Sloka, 2020 a). Increased public awareness, resulting from more effective and strategically sophisticated informative and marketing campaigns on behalf of public authorities and social enterprises (provided they receive appropriate training), has the potential to not only contribute to the development of social economy but also stimulate interest and the efforts of social enterprises towards upscaling and internationalization (under the pre-condition of sufficient resources and management capacity), of which the latter, while yet underdeveloped as a research strand (Misbaudīn, Nabi, 2019), has also been an important topic on the agenda of researchers.

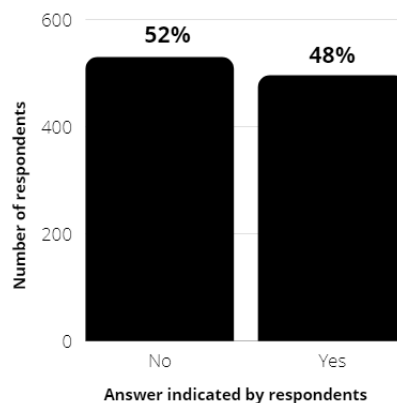
Internationalization is certainly not a prerogative only for commercial enterprises, however, the aforementioned, compared to social enterprises, may exploit certain privileges in terms of easier access to capital, better skills and capacities etc. especially in countries where social entrepreneurship is yet underdeveloped. Nevertheless, social enterprises, if possible, should explore opportunities to scale their impact internationally, especially when the domestic market is small, as it could not only provide additional revenue but also provide new market opportunities. Magoulios et al (2019) in the context of Greek social enterprises have highlighted enhanced viability and growth as positive effects of internationalization, “specifically related to strengthening their competitive position in the domestic and international markets, by raising capacity innovation, increasing sales, creating new jobs and acquiring a healthier financial position (Magoulios et al, 2019, p.239). Additionally, Weber et al (2015) have identified such benefits as economies of scale, opportunity to apply of ideas and practices learned from the foreign country in the domestic context, and opportunity to develop partnerships with either international non-governmental organizations or commercial enterprises seeking to establish cooperation both in the domestic as well as international context (Weber et al, 2015). Kusa (2016) have highlighted such dimensions of international social entrepreneurial activity as type of activity, scale of activity (global vs selected markets) and internationalization path (gradual expansion vs the so-called “born-globals”) (Kusa 2016). Overall, the extent to which social enterprises internationalize is determined by a combination of demand and supply side and contextual and institutional factors that determine the interplay between the aforementioned two (Spear, 2006 as cited in Kusa, 2016). Specifically in Europe, the degree of internationalization in the social economy sector can be explained with such factors as, “the development level of economic and social systems, the characteristics of the welfare systems, the role of the traditional third sector, and the nature of the underlying legal systems” (Borzaga and Defourny, 2001 as cited in Kusa, 2016, p. 83).

Weber et al (2015) have referred to transnational scaling rather than internationalization which may be a better fitting term for the context of social entrepreneurship as social entrepreneurs are primarily concerned with scaling social impact. Their analysis of social enterprises in 5 European countries (Germany, United Kingdom, France, Spain, Poland and Sweden), of which United Kingdom revealed the highest proportion of social enterprises who managed to scale internationally (i.e.22%), revealed obstacles associated with cultural and legal environment as well as geographical distance and shortage of human capital indicating a need for extremely careful planning and coordination for transnational scaling to succeed. A significant drawback identified was also shortage in financial resources incurred during internationalization (Weber et al 2015). Misbaudīn and Nabi (2019) have referred to the firm specific, context-specific and entrepreneur-specific factors as significant in identification of internationalization opportunity and its implementation (Misbaudīn, Nabi, 2019). In the context of the aforementioned Weber et al (2015) have recommended transnational scaling only once the model of operation of the social enterprise is tested for robustness and financial sustainability and has undergone national scaling successfully – i.e. when the social enterprise has reached considerable maturity. A success factor is scaling to countries which are geographically close or culturally similar and select a local partner /-s for scaling who already has considerable knowledge of the new environment and also access to a variety of networks (Weber et al, 2015). The role of utilization of networks in overcoming any barriers to internationalization was also accentuated by Misbaudīn, Nabi, 2019. Overall, exporting as a type of internationalization has been also identified as a viable option for social enterprises as they can continue to provide social impact locally rather than at a foreign country and export their products or services and generate revenue from sales abroad (Misbaudīn, Nabi, 2019). Magoulios et al (2019) have recommended social enterprises to engage in internationalization via a model of networked businesses and also suggested specifically indirect exports as another low cost and low risk option for internationalization (Magoulios et al, 2019). While public recognition per se will not be sufficient to induce social enterprises into internationalization, strategic efforts and support towards greater awareness will certainly be perceived as a significant sign of support from public authorities and government, thus building a solid foundation of a bridge towards internationalization.

Research results and discussion

Research results were obtained using online survey research method, which allows convenient and fast collection of data and contributes to efficiency of data analysis. Survey was conducted from the 7th to 14th of July, 2021 by Social Entrepreneurship Association of Latvia and yielded a total of 1026 responses from the target group defined as permanent residents of Latvia within the age group of 18-75. The obtained sample of responses had the following characteristics: in relation to gender: 47.2% males, 52.8% females; in relation to age group: 18-24 years (8.5%), 25-34 years (17.4%), 35-44 years (18.4%), 45-54 years (18.5%), 55-60 years (13.7%) and 61-75 years (23.5%); in relation to place of residence: Riga region (49.6%), Latgale (13.8%), Kurzeme (13.2%), Vidzeme (10.9%) and Zemgale (12.5%). In relation to occupation, majority of respondents (32.2%) were specialists or clerks (performers of mental work), followed by workers (performers of physical work) (17.6%), retired persons or recipients of disability pension (17.1%) and managers (with at least one subordinate) (12.8%). The occupations such as self-employed (5%), students (4.5%), housewives (4.5%), unemployed (5%) and farmers (0.8%) and were represented the least. More than half of respondents (58.6%) indicated Latvian language as the spoken language in their family, 39.6% indicated Russian but 1.8% indicated other language. Majority of respondents (22.5%) did not indicate their earnings (i.e. selected “Difficult to say”), but of those who did, (20.2%) indicated average monthly earnings after taxes per family member between 550-1000 EUR, followed by earnings between 300-399 EUR (16.3%) and earnings of 1001-1500 EUR (14.8%). Overall, with regards involvement in public activities (multiple answers were allowed), 33.72 % of respondents indicated that they actively follow changes in social policies in Latvia. However, a similar proportion (33.24%) indicated that they are not socially active. 19.88% of respondents indicated that they publicly express their opinions and proposals in the social policy context, 8.58% indicated that they are a member of a non-governmental organization, 8.19% indicated that they are a member of a socially active group, but 6.82 % indicated “Other”.

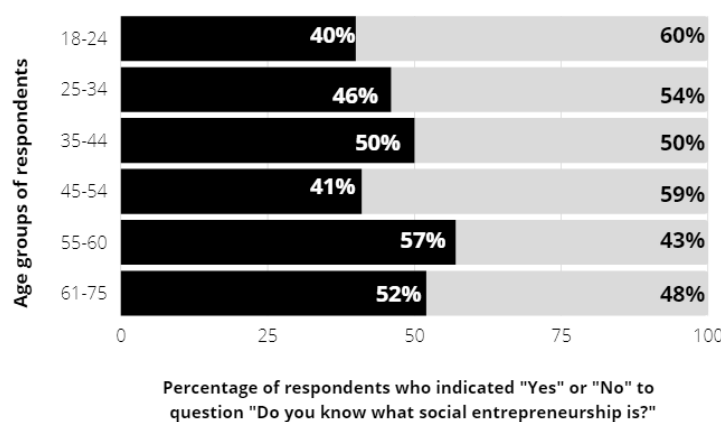
Overall, a little less than half of respondents indicated that they know what social entrepreneurship is, as reflected in Figure 1 below.



Source: author's construction based on survey data, n=1026

Fig. 1. Number of respondents by answer to the question “Do you know what social entrepreneurship is?”

Most often, females (50% compared to 46% males) and speakers of Latvian language (55% compared to 39% Russian speakers and 42% other language speakers) provided affirmative answers. With regards age groups, respondents of age groups above 55 were most often informed about what social entrepreneurship is, as reflected in Figure 2.



Source: author's construction based on survey data, n=1026

Fig. 2. Percentual distribution of respondents answers “Yes” or “No” to the question “Do you know what social entrepreneurship is?” by age groups

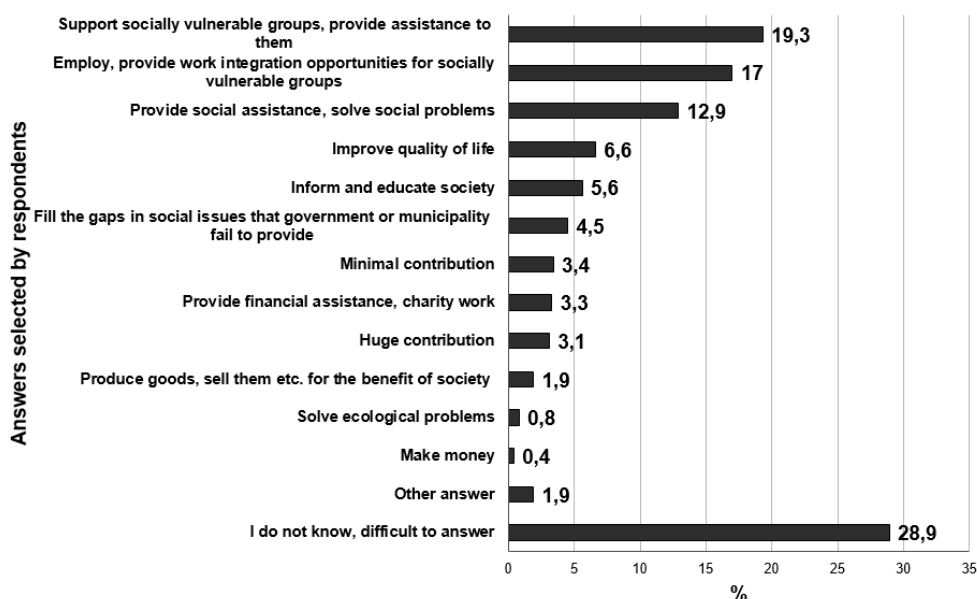
With regards place of residence, Latgale is the only region where respondents indicated affirmative answers above the 50% threshold – i.e. 53%. The distribution of affirmative answers by remaining regions is as follows – 46% in Riga, 50% in Vidzeme and Kurzeme and 48% in Zemgale. The highest proportions of affirmative answers – 67% and 62% were found among respondents who belonged to a socially active group and were a member of a nongovernmental organization respectively. 57% of respondents who were actively following changes in social policies also indicated that they knew what social entrepreneurship was. Overall, with regards the educational level and income, the higher the income and education level of respondents, the more often they provided affirmative answers to the question about the concept of social entrepreneurship. With regards the occupational profiles of respondents, only managers and housewives indicated affirmative answers above the 50% threshold – i.e. 58% and 54% respectively.

In order to obtain an in-depth view of the overall thoughts and viewpoints, respondents were asked to name the first associations that came to their minds when thinking about social entrepreneurship. Overall, only 16.2% of respondents associated social entrepreneurship with business, enterprise or production processes that are oriented towards people and society at large (i.e. creation of social value) which was also the most frequent association. 14.5% of respondents associated social entrepreneurship with disabled people, their employment and assistance to the disabled. While the aforementioned associations were most precise and appropriate for the context of social entrepreneurship in Latvia, the remaining associations only partially reflected what social entrepreneurship is about (e.g. social care and social care homes (12.8%), support for the socially vulnerable groups (10.7%), social assistance (9.9%), well-being of society (8.3%), responsibility for social issues (6.6%), promotion of education (2.9%), people (2.3%), work and employment (2.1%) or reflected misconceptions about the concept (non-governmental organizations (4.5%), influencers, internet and Facebook (2.1%), volunteer work (1.9%). While the misconceptions about social entrepreneurship constitute a relatively small proportion, nevertheless, the aforementioned results indicate for a need to emphasize the double-bottom line of social entrepreneurship in marketing materials and informational campaigns for the public.

The ambiguity and lack of clear boundaries of the concept of social entrepreneurship among respondents was further confirmed by the significant variety in organizational types that respondents indicated as social enterprises. Respondents most often indicated social care centers and shelters (4.9%), non-governmental organization “Red Cross” (3.5%) and “Ziedot.lv” (3%), government social service (2.5%) as social enterprises, which reflects a strong image of a social enterprise as a form of non-governmental organization. Among social enterprises with official status that were recognized by respondents are “Otrā elpa” (2.4%) and animal shelter “Ulubele” (1.7%). Several other social enterprises were recognized but significantly less often (e.g. “Mammām un Tētiem” (0.7%), “Sonido”(0.5%), “Visi Var”(0.5%), “Hopp” (0.5%), “Lude” (0.4%), “RB Cafē”(0.4%), “Dabas Zirgi” (0.3%), “Tuvu” (0.3%) and “Svaigi.lv” (0.2%). However, respondents also recognized several *de facto* social enterprises which operate as non-governmental organizations but also perform some functions of a social enterprise e.g. “Red cross” (3.5%) and “Latvian Samaritan Association” (2.3%) both of which have a long history of operation in Latvia. The aforementioned image of a social enterprise as a non-governmental organization is partially correct as many *de-facto* social enterprises exist which operate under the form

of a non-governmental organization, association or foundation, however, for purposes of effectiveness and clarity of communication, information campaigns may benefit from a stronger orientation and focus on business aspects of the social enterprise.

In order to evaluate the degree of understanding of the concept of social entrepreneurship, respondents were asked to indicate what kind of contribution or value social enterprises provide to the well-being of society. While the largest proportion of respondents indicated that they do not know/difficult to answer (28.9%), overall, results revealed a rather good understanding of the social value provided by social entrepreneurship, as reflected in Figure 3 below.

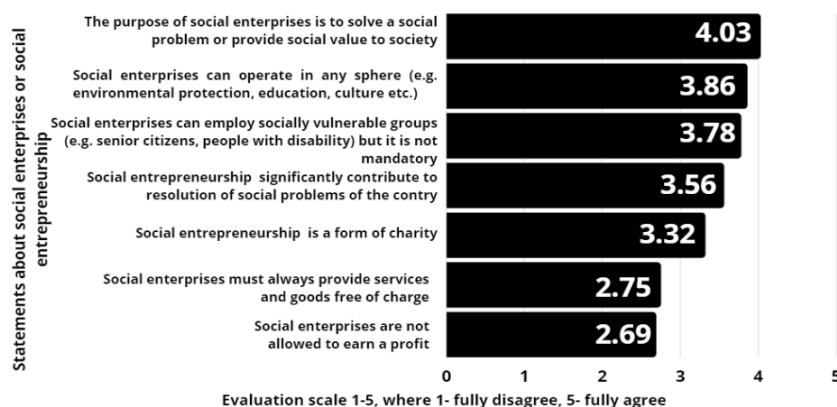


Source: author’s construction based on survey data, n=1026

Fig. 3. Distribution (share in %) of answers indicated by respondents to the question “What kind of contribution or value social enterprises provide to the well-being of society?”

Taking into account that answers were provided to respondents, and previously 52% of respondents indicated that they did not know what social entrepreneurship was, roughly 20% of respondents may have selected their answer by guessing. Nevertheless, a significant proportion of respondents indicated correct statements. While 17% of respondents correctly identified the value of a social enterprise in work integration, only 1.9% identified the associated value of production of goods and services for the well-being of society. A strong association of social enterprises as mainly engaged in social service provision remains. For promotion of correct and clear image of social entrepreneurship within society, the role of social enterprises as profitable businesses with a social mission should be emphasized.

Another means of establishing the actual knowledge and any potential misconceptions about social enterprises among respondents was a question where respondents were asked to indicate their level agreement to various statements about social enterprises and social entrepreneurship. All correct statements were evaluated by respondents on average with an indicator above 3.5 suggesting moderate agreement or, in the case of the statement about social enterprise purpose being providing solutions to social problems or providing social value, even 4.03, suggesting agreement, as reflected in Figure 4.



Source: author’s construction based on survey data, n=1026, evaluation scale 1-5, where 1- fully disagree, 5- fully agree

Fig. 4. Arithmetic mean indicators of degree of agreement to statements about social enterprises or social entrepreneurship among respondents

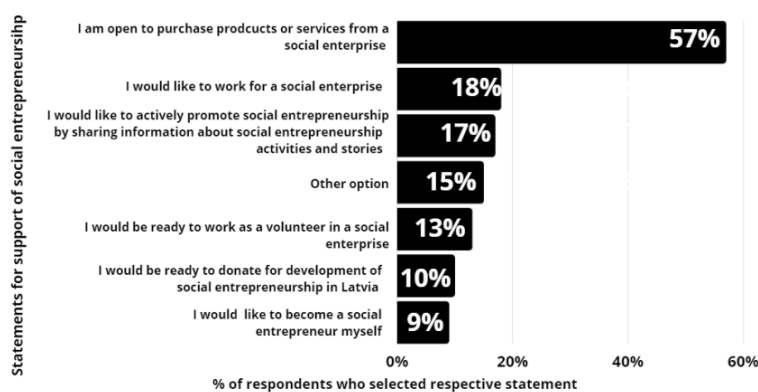
It is evident that the remaining statements that were not true also received a relatively high degree of agreement, especially the statement about social entrepreneurship as a form of charity, which may reflect inherent opinions within society and suggests a need to particularly address this misconception in informational campaigns. The remaining two misconceptions, evaluated on average with an indicator of a little below 3, while indicate a certain degree of doubts about the statements, also suggest that respondents were not fully convinced of the statements being

incorrect thus indicating a need to clarify them in any information dissemination activities. Analysis of the aforementioned data by gender, age group, place of residence and level of education do not reveal any significant deviations from the aggregate mean indicators. Among respondents from Latgale region there is highest agreement (i.e. average mean indicator) to the statement that the purpose of social enterprises is to solve a social problem or provide social value to society (i.e. 4.15), followed by respondents from Zemgale (4.09) and Riga region (4.06). The aforementioned statement has also received the highest agreement among respondents of age groups 61-75 (4.22), 55-60 (4.11) and also among respondents with higher education (4.13). No other statements have reached the threshold of indicator of value 4, neither by gender, place of residence or age group, nor have they, in case of misconceptions, reached a threshold of below 2.4.

In order to evaluate the effectiveness of previous information dissemination efforts, respondents were asked to indicate whether they have noticed information about social entrepreneurship in public space, media or social networks. Research results, taking into consideration the relatively young age of the sector and the fact that it can be assumed that respondents may have not had any previous purchasing experience from social enterprises, indicate solid but still relatively low visibility of social entrepreneurship – only 23% of respondents provided an affirmative answer (20% were males, 25% were females), which indicates room for improvement. The proportion of affirmative answers was higher for speakers of Latvian language (29% compared to 13% for Russian language speakers and 16% for other language speakers), allowing to conclude that Latvian language possibly dominates in promotional materials about social entrepreneurship. It was also evident that respondents who live in the countryside indicated that they have noticed information about social entrepreneurship significantly more often than respondents living in the cities, which may reflect effectiveness of the regional information campaigns organized by Social Entrepreneurship Association of Latvia. Similarly as in the case with the question about the meaning of social entrepreneurship, respondents who were members of a non-governmental organization, an active social group or actively followed developments in social politics in the country indicated affirmative answers to the question if they had noticed information about social entrepreneurship more often (31%, 29% and 30% of affirmative answers respectively). The same applies for respondents with a higher income level – e.g. respondents with an income level of 1001-1500 EUR provided 28% of affirmative answers, while respondents with an income level of more than 1501 EUR provided even 42% of affirmative answers to the question. What requires further explanation and attention is the fact that while only 23% of respondents had noticed information about social entrepreneurship in public, space, media or social networks, the proportion of respondents who indicated that they knew the meaning of social entrepreneurship, was even slightly more than two times higher (i.e. 48%). The aforementioned gap may indicate that respondents may have erroneously indicated understanding of the concept of social entrepreneurship. However, more importantly it may also indicate insufficient and inefficient selection of information channels suggesting a need for integrated marketing communications or possibly a need to change the communicated content (also in terms of language availability).

To identify the proportion of respondents who have been actively engaged with the topic of social entrepreneurship, respondents were asked to indicate whether they have been searching for information about social entrepreneurship. Of only 231 respondents who answered the question, only 17% provided an affirmative answer, indicating that they have searched for information and have also found what they were looking for and another 4% indicated that they have searched for information but were not able to find what they were looking for. 68% of respondents had never searched for information but 10% indicated that they have never searched for information and social entrepreneurship has never been of interest to them. Lastly, 1% indicated “Other” providing a comment. Overall, women, respondents of age group 55-60, respondents from Riga region and respondents whose spoken language in the family is other than Latvian or Russian and also respondents with the occupational profile of a manager tend to be most often engaged with the concept of social entrepreneurship (i.e. have searched for information and managed to find it) which possibly indicates greater appeal of the concept of social entrepreneurship among those groups, suggesting a need to potentially enhance the informative focus in this direction to stimulate creation of new social enterprises.

Potential engagement with social entrepreneurship sector was also revealed by answers to the question where respondents were asked to indicate how they would be ready to support social entrepreneurship. More than half of respondents indicated their readiness to purchase products and services from social enterprises, as reflected in Figure 5, which suggests an overall positive attitude and high engagement level towards social enterprises.



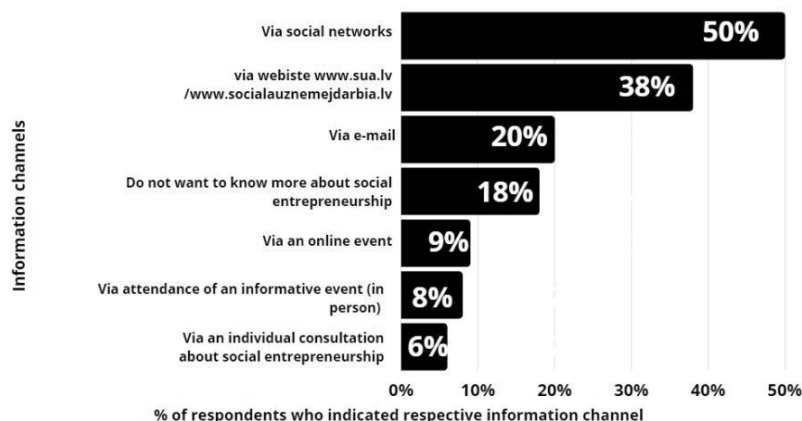
Source: author's construction based on survey data, n=1026 (multiple answers allowed)

Fig. 5. Distribution (share in %) of answers to the question “How would you personally be ready to support social entrepreneurship?”

Among the different age groups, the greatest proportion of respondents who indicated willingness to purchase products or services from social enterprises belonged to the age group of 35-44 (66%). Among respondents of age groups 18-24 and 55-60 respondents more often (22% in each group) indicated their willingness to work for a social enterprise. Respondents of age group of 35-44 more often indicated willingness to become a social entrepreneur (13%), but respondents of age group 61-75% more often indicated willingness to work as a volunteer for a social enterprise (18%). With regards willingness to donate for the cause of development of social entrepreneurship, among the various age groups particularly respondents of age group 18-24 indicated interest most often (14%). Respondents of age group 25-34 more often, compared to other groups, indicated willingness to promote social entrepreneurship by sharing information about activities and various stories (24%). In terms of language spoken in the family, speakers language other than Latvian or Russian where particularly interested in purchasing social enterprise products and services (63%), followed by speakers of Latvian language (60%) and Russian language (52%). The aforementioned

results suggest a strong support among respondents with regards purchasing from social economy, while other means of engagement have received significantly less support. Nevertheless, positive trends are observed suggesting a positive influence on social economy in the future.

To obtain an insight with regards the preferred communication channels of respondents, respondents were asked to indicate the preferred means for receipt of information about social entrepreneurship. Social networks as an information channel received the highest preference from respondents, as reflected in Figure 6.



Source: author's construction based on survey data, n=1026, multiple answers allowed

Fig. 6. Distribution (share in %) of answers to the question "How would you like to receive information about social entrepreneurship?"

The above results, in accordance with previous research, confirm a need to pay particular attention to social networks as a significant communication channel for both social enterprises as well as public authorities seeking to promote the social economy sector. Website and e-mail communication (particularly preferred by speakers of language other than Latvian or Russian – 42%) have also been preferred by a significant number of respondents, indicating a need to invest in those information channels. Overall, respondents favor in person engagement for informative purposes significantly less. Among the different age groups, respondents of age 18-22 significantly more often than other age groups indicate preference for social networks as an information channel (64%).

Conclusions, proposals, recommendations

1. Social entrepreneurship is a valuable and effective solution against a variety of social, economic and environmental problems.
2. For social enterprises to realize their full potential, public awareness and recognition of the sector is crucial, especially in countries with small markets, such as Latvia.
3. While the social entrepreneurship sector has experienced significant developments over the course of the past 10 years, currently only half of population know what social entrepreneurship is.
4. Taking into account the young age of the sector and given the size of the market, public awareness and recognition remain to be improved. Previous research from 2019 indicated an average information level of 5.06 about social entrepreneurship among respondents, majority of whom had previously purchased social enterprise products and services (scale 1-10, where 1 – not informed at all, 10 – fully informed).
5. Only a little more than 20% of society notice information about social entrepreneurship in the public space and media, indicating for a need to apply focused integrated marketing campaigns for better results and possibly also to change the communicated content (also in terms of language availability).
6. Rather often social enterprises are associated with non-governmental organizations or charities, mainly engaged in service provision rather than generation of social value via economic /business activity.
7. For promotion of correct and clear image of social entrepreneurship within society, the role of social enterprises as profit-seeking businesses with a social mission (i.e. double bottom line) should be emphasized, clearly distinguishing them from non-governmental organizations or charities.
8. There is a need to pay particular attention to such communication channels as social networks, website and e-mail as they are most preferred among respondents respectively as more than half of society express their support towards social economy indicating their willingness to purchase products or services from social enterprises which indicates a positive influence and potential further growth of the social economy sector in the future.

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IMPROVING TASK MANAGEMENT THROUGH SHARED LEADERSHIP IN ORGANISATIONS

Laila Cekule, University of Latvia
Andrejs Cekuls, University of Latvia

Abstract. The internal environment of organizations is often constrained by inflexible rules and routine, hierarchical decision-making, and risk-averse managers. Researchers recognize the team as an alternative way of leadership. Much work in organisations today is structured around teams. In recent years, leadership researchers have emphasized a team-level phenomenon, where leadership is carried out by the team, rather than exclusively by those at the top or by those in formal leadership positions. The world of technology is also moving rapidly towards interconnected technologies and interactions. Scientific research shows that common leadership practices improve leadership skills and abilities. The aim of this study is to assess the performance benefits of shared leadership and to explore factors that could contribute to its development and decision-making. The paper discusses literature review as a methodology of the research. It is important that organizations provide resources to team members in implementing shared leadership. These resources can include information and rewards that facilitate engagement in shared leadership. The study revealed key aspects in the context of the topic that provide a different perspective on shared leadership practices. Overall, shared leadership showed the strongest relationship to team effectiveness and organizational performance.

Keywords: *strategic decision making, shared leadership, internal environment.*

JEL code: M10

Introduction

Business management is rapidly changing from old, authoritarian models to more open methods, as many organisations have been influenced by social media and newer web technologies and thus have begun facilitating the sharing of information. Current leadership theory and studies have centred on the attributes, behaviours, and relationships of a single leader. Intrapreneurs within large organizations are limited in their entrepreneurial endeavours by inflexible rules and routines, hierarchical decision making, and risk-averse leaders (Neessen, et al., 2019).

As today's workplaces have become increasingly knowledge intensive, often depending on collaboration among multiple specialized contributors, theories of leadership are shifting away from their single-minded focus on the personal attributes required of leaders at the top. Shared leadership refers to an emergent, collective team process where leadership is distributed among and stems from team members, rather than a single designated leader (Wu Q., et al., 2021).

A shared leadership represents a fundamental shift away from the notion of a single, appointed leader, to the idea that team members mutually influence each other and collectively share leadership roles, responsibilities, and functions. Nowadays, researchers increasingly recognize the team as an alternative way of leadership (Wang J., et al., 2021; D'Innocenzo L., et al., 2021) and notice the organizations that are structured around the teams (Burton C.M., et al., 2019; Tamunomiebi M.C., Uhuru G.P., 2018).

In the scientific literature teams are defined as a collection of individuals who are interdependent in their tasks, who share responsibility for outcomes, who see themselves and who are seen by others as an intact social entity embedded in one or more larger social systems (Cohen S.G., Bailey D.E., 1997). To achieve goals, organisations have invested significant funds to develop the creative abilities of their members because they are the main actors who substantially plan and perform innovation (Wang J., et al., 2021). Shared leadership models propose that success in knowledge-based environments, where complex problem solving is required, depends less on the heroic actions of a few individuals at the top and more on interdependent, coordinative leadership practices distributed throughout an organization. It is largely influenced by the culture of the organization (Singh S.K., et al., 2019).

Literature Review

In recent years, leadership researchers have emphasized a team-level phenomenon, where leadership is carried out by the team as a whole, rather than exclusively by those at the top or by those in formal leadership positions (Pearce C.L., et al., 2014). Many modern organizations make explicit use of teams because teamwork allows professionals to combine their unique individual expertise to perform complex tasks (Wang J., et al., 2021; D'Innocenzo L., et al. 2021; Wu Q., et al., 2021)

By definition, shared leadership is described as a dynamic, interactive influence process among individuals in groups for which the objective is to lead one another to the achievement of group or organizational goals or both (Pearce, C.L., et al., 2004). There are several definitions of shared leadership. Shared leadership describes how team members influence each other and share responsibility for tasks, rather than the notion that a team is led by a particular leader. Shared leadership occurs when a group of individuals lead each other to achieve successful results (Carson J.B., 2007). A most recent description captures the essence of how leaders and followers work together on task or project. Shared leadership occurs when two or more members engage in the leadership of the team in an effort to influence and direct fellow members to maximize team effectiveness (Bergman J.Z., et al., 2012).

Theories of shared leadership propose that leadership is a process that can be shared among team members, and that this behaviour is beneficial to team performance. Shared leadership in teams is believed to be beneficial for team effectiveness (Sinha R., et al., 2021). Interventions to encourage shared leadership are most effective when organizations are utilizing teams to achieve organizational objectives (Carson J.B., et al., 2007). Organizations can use the principles of shared leadership in teams with or without a specific formal leader, but the theory of shared leadership differs from the generally accepted leadership of leadership that divides people into leaders and followers. Traditionally, a leader is responsible for developing strategy, assigning roles, evaluating performance, and motivating followers. Such a leader maintains his position by strengthening his authority or, for example, by using personality traits such as charisma. In this situation, the leader is the driving force for change, while the followers are responsible for the outcome. He can also be a transformative leader who inspires with vision and example, or a change leader who rewards those who successfully accept the set behavior and does not accept it if he resists it. Many industrial-era leadership models draw a neat line between leaders and followers. While these models differ in important respects, they all define leadership as a unidirectional, top-down influencing process.

Analyzing management approaches, scientists concluded that members of an organization typically save their individual efforts to achieve their goals, but if they are given an informal leadership role, they will begin to use their individual skills to help achieve overall goals (Bandura, 1997; Pearce C.L. et al., 2014; 22. Vandewaerde M., et al. 2011; Wang J., et al., 2021; D'Innocenzo L., et al. 2021; Wu Q., et al., 2021). Researchers do not deny vertical leadership structures but believe that shared leadership can improve internal processes within a team (Carson J.B., et al., 2007). Shared leadership works best when teams have a cohesive environment, well-defined goals, and strong inter-team social support. It is best if these elements are put in place before initiatives that promote shared leadership are put in place.

The more flexible the management model of the organization, the better the position of the organization to successfully cope with various challenges. The use of a shared leadership model stimulates a common sense of purpose, a desire to combine knowledge and creativity. When it comes to mergers, restructuring, expansion and day-to-day business management, for example, nothing is more important than knowledge

and experience. In terms of shared leadership, the study revealed, that those teams who shared leadership gained leverage through harnessing the diverse knowledge, skills and ability of each team member (Chiu C.-Y., et al., 2016). The study showed that one of the preconditions for the effectiveness of shared leadership was formal leaders who did not show their power and privileges in influencing the decision, thus ensuring effective teamwork. Shared leadership is based on three dimensions: (1) a common goal; (2) social support and (3) total contribution (Carson et al., 2007). The purpose of social support is to show encouragement to each team member by recognizing the individual contribution of each team member. Most research on shared leadership has revealed the positive aspects of this form of leadership in terms of individual and team performance. On the other hand, although shared leadership practices are defined in research as highly effective, each management approach has its weaknesses. The team power literature suggests that frequent influence interactions among multiple leaders can form an arena in which members fight over their power turfs, thereby triggering conflict (Sinha R., et al., 2021).

Because decision-making is a shared process, groups may take time to make decisions compared to traditional management decision-making. Researchers found shared leadership could slow decisions down (Miles S.A., Watkins M. D., 2007). Fausing et al. (2013) and Mehra et al. (2006) failed to find a link between shared leadership and positive impact, but Boies et al. (2011) found that shared leadership negatively affects team effectiveness. It takes more time for team members to communicate, and building relationships is a long process. Another study has shown that the effectiveness of shared leadership can be affected by gender diversity in a team (D'Innocenzo L., et al. 2021). The study showed a negative association between gender diversity and shared leadership. It is important that organizations consider the composition of their teams and also deal with gender bias and judgments. However, research has also shown that conflicting tasks can have a positive effect on team innovation. Shared leadership scholars have suggested that the benefits of having multiple informal leaders in teams may not manifest until members can effectively negotiate influence in the leadership claiming and granting interactions without conflicts (DeRue D.S., 2011). It is in shared leadership teams that task conflicts can stimulate innovation.

In shared leadership, it is important that organizations already have a solid foundation in place for shared leadership: (1) structural support to implement shared leadership within the organization; (2) mutual support of team members; (3) incentives; (4) availability of information. Shared leadership is often beneficial because team members are more likely to follow the person with the best knowledge and skills than just the vertical influence of traditional leadership (Ramthun & Matkin, 2012).

Research results and discussion

In recent years, researchers and practitioners have advocated the benefits of shared leadership to enhance team effectiveness, but it is important to understand the criteria for shared leadership to achieve result effectiveness. Members who trust a team strengthen their bond with other participants, who then influence the team to take actions as a single unit to achieve their goals. Among the dominant values of organization, cooperation, helpfulness and availability for team work should be included. Further trust is more likely when the goals or objectives for the organization or team are clearly articulated and accepted (Cekuls A., 2015).

However, failure to develop trust in the team affects team cohesion and excludes participants from productive discussions, ultimately leading to project delays or even failure (Lencioni, 2002). As a result of the research, the criteria mentioned in relation to the advantages of shared leadership are summarized to identify their impact on task management (see Table 1).

Table 1

Criteria for shared leadership

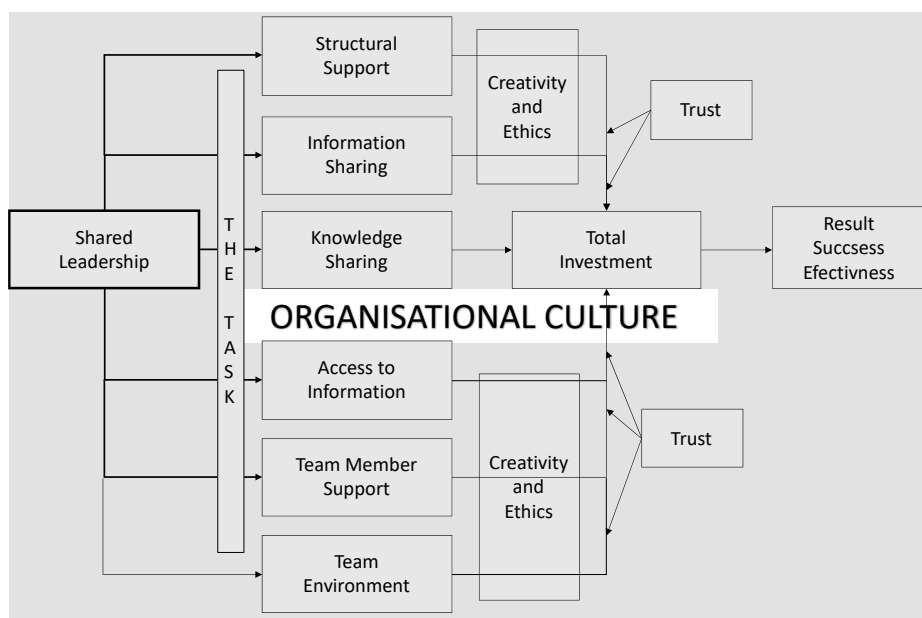
Author	Criteria
Wang, J., Kim, H.-R., Kim, B.-J. (2021)	Shared leadership functions as a critical intermediating mechanism to explain the influence of ethical leadership on team-level creativity
D'Innocenzo, L., Kukenberger, M., Farro, A.C., Griffith, J.A. (2021)	The influence of team members' mean level personality to account for compositional effects.
Wu, Q., Cormican, K., Sampaio, S. (2021)	Shared leadership refers to an emergent, collective team process where leadership is distributed among and stems from team members, rather than a single designated leader.
Singh, S. K., Del Giudice, M., Tarba, S. Y., and De Bernardi, P. (2019).	Culture, innovation capability, and firm performance
Sinha, R., Chiu, C.-Y., Srinivas, S.B. (2021)	Shared leadership in teams is believed to be beneficial for team effectiveness.
Tu, Y., Lu, X., Choi, J.N.; Guo, W. (2019)	Ethical leadership and team-level creativity.
Lee, Y., Mazzei, A., Kim, J.-N. (2018); Santos-Vijande, M.L.; López-Sánchez, J.Á. (2016); Rudd, J. (2014)	To achieve goals, organisations have invested significant funds to develop the creative abilities of their members because they are the main actors who substantially plan and perform innovation.
Avolio et al. (2009)	Shared control is a dynamic and time-varying design
Carson, J. B., Tesluk, P. E., & Marrone, J. A., (2007); Wu Q., Cormican K., Sampaio S., (2021)	Shared leadership is influenced by the team environment.
Hans & Gupta (2018).	Shared leadership is affected by the task
Singh, S. K., Del Giudice, M., Tarba, S. Y., and De Bernardi, P. (2019), Carson, J. B., Tesluk, P. E., Marrone, J. A., (2007)	Widespread and used in several types of teams, such as senior management teams.
Zhou (2016)	Widely used and used in business teams.
Pearce & Sims (2002)	Widespread and used in change management teams.
Hoch & Dulebohn (2013)	The team must have the same level of understanding as the official leader and be able to participate in decision-making.
Carson R.C. (2019); Brown, M.E., Treviño, L.K., Harrison, D.A., (2005)	Interpersonal harmony from reduced relationship conflict is most likely when dominance behaviours are met with contrasting sub- missive behaviours.

Greer L.L., de Jong, Schouten, & Dannals (2018); Greer L.L., Van Bunderen, & Yu (2017)	There is increased ambiguity around influence boundaries, which increases competition, interpersonal friction, and relationship conflict.
Tamunomiebi, M. C., Uhuru, G. P., (2018)	Much work in organisations today is structured around teams.
Carson, J. B., Tesluk, P. E., & Marrone, J. A., (2007); Pearce C.L., et al. (2014)	Decision-making power in general, not just for senior or formal management positions
Carson, J. B., Tesluk, P. E., & Marrone, J. A., (2007); Gu, Chen, Huang, Liu, & Huang (2018);	Shared leadership can bring about positive team outcomes through enhancing members' sense of autonomy, and commitment, in the decision-making process, the richness of intragroup information exchange and the collective pride in accomplishments.
Avolio et al. (2009); Carson, J. B., Tesluk, P. E., & Marrone, J. A., (2007); Wu Q., Cormican K., Sampaio S., (2021); Hans and Gupta (2018)	Shared leadership is a dynamic and time-changing design influenced by the team environment and task.
Carson, J. B., Tesluk, P. E., & Marrone, J. A., (2007)	Shared leadership is facilitated by an overall team environment that consists of three dimensions: shared purpose, social support, and voice.
Wiewiora, Murphy, Trigunarysah & Brown (2014); DeOrtentiis, Summers, Ammeter, Douglas & Ferris (2013)	Research shows that trust is positively related to knowledge sharing, project effectiveness, creativity, team performance.
Kocolowski M.D. (2006)	Shared leadership will be an alternative.
Pearce C.L. (2004)	Evaluate talented leadership candidates.

Source: author's analysis based on the research

Research shows that the role of ethics in business processes is growing. An ethical aspect and a creative approach play an important role in ensuring shared leadership, which could have a positive effect on organizational results (Tu Y. et al., 2019). In addition, ethical leadership contributes to ensuring an equal relationship within the organization with an understanding of common goals, which strengthens the organizational platform on which management can withstand the changing external environment. In organizations where the principles of shared leadership are used, team leaders need to encourage and empower their employees to make responsible decisions. It is very important to create a foundation led by ethical leaders so that their followers feel loyal and involved. This will encourage employee involvement in decision-making. When team members take responsibility and perform a task according to a moral model and common goals, team performance can reach a peak. Multisource leadership highlights the importance of shared leadership as a “dynamic and interactive influence process” (Cox J.F. et. al., 2003) Members of the shared leadership team have to understand their group mission, how they and their colleagues work, how to make collective decisions and much more. It’s vital that the organisation supports them to work together as a team – and that means building trust and helping them to communicate properly and openly. The leadership team also needs to learn how to hold each other accountable.

Summarizing the results, the authors propose a visual impact scheme of the criteria, which reveals the impact of several important criteria for achieving the result under shared leadership (see Figure 1).



Source: author's analysis based on the research

Fig. 1. Influence of shared leadership criteria on the result

Shared leadership can bring positive team outcomes through the collective pride in accomplishments (Jackson, 2011). Working on ethical leadership is evidence that a shared leadership style improves the quality of employees' perceptions, attitudes, behaviors and group-level quality outcomes (Wang J., et al., 2021). Researchers have suggested that shared leadership will be an alternative solution for equally talented leadership candidates (Kocolowski M.D., 2010). Both ethical and shared leadership are priorities for human resource development.

Conclusions, proposals, recommendations

1. Based on a review of the literature, shared leadership can be operationally defined as a dynamic, collaborative process whereby influence is distributed amongst a plurality of networked individuals, often referred to as teams, for the purpose of achieving beneficial outcomes for the organization (Koccolowski M.D., 2010).
2. A review and evaluation of the scientific literature shows that reducing relationship conflict and maintaining the harmony of individuals is an important mechanism by which shared leadership can deliver the desired results. This means that it is useful to go beyond the perspective of functional leadership and respond to a problem with greater unpredictability of the outcome. When individuals feel that they have an impact on the organization and that they have some power and responsibility. They have a greater desire for success. Goals become more personal to them, and people naturally work harder at anything they are personally a major part of.
3. The importance of shared leadership is reinforced by the fact that shared leadership is more effective than traditional vertical management for team effectiveness. The definition of team effectiveness in research is usually different, but it is mostly defined as the degree to which teams meet the expectations of organizations, e.g., from a multidimensional perspective. Analysis of scientific sources shows that the theory of shared leadership is widespread and applied in several types of teams, such as senior management teams, business teams, consulting teams, and change management teams.
4. In shared leadership, it is important that organizations already have a solid foundation in place for shared leadership. Based on empirical research, it is important to identify several preconditions for shared leadership to develop as a successful solution. Shared leadership scholars have suggested that the benefits of having multiple informal leaders in teams may not manifest until members can effectively negotiate influence in the leadership avoiding interactions conflicts.
5. First and foremost, it needs structural support to implement shared leadership in the organization, and this includes (1) a supportive attitude towards the team, (2) motives and incentives, and (3) adequate and accessible outreach. Incentive issues in implementing shared leadership in an organization should ensure that individuals are rewarded for individual team performance and shared leadership that increases overall performance. In shared leadership, it is important that organizations provide resources to team members. These resources may include information and rewards that facilitate participation in shared leadership. In a shared leadership process, it is important that team members feel supported by their team members and that the team appreciates the individual contribution to the common goal. The information provided by the organizations should give team members an understanding of the goals of the team and the organization and the alignment of the team's tasks with the overall goals of the organization.
6. Secondly, honesty and transparency are an important condition to ensure that information is disseminated among team members so that the team has the same level of understanding as the official leader and can participate in decision-making. Interpersonal harmony is fostered by a reduced level of relationship conflict, which is likely to occur when dominant behaviors are confronted with contrasting elastic behaviors. Informative transparency and clarity reduce misunderstandings during management sharing, thus reducing relationship conflicts within teams. Employees must be allowed to take responsibility and manage their tasks and resources independently. Studies have shown that trust in the group was a key prerequisite for the effectiveness of shared leadership.
7. Thirdly, to effectively implement shared leadership, it is important that leaders appointed to official positions demonstrate farsighted and empowering leadership behaviors that increase team morale. Traditionally, managers are not always easy to share management with. The concept of shared leadership depicts management as a dynamic group process. It is multidirectional and does not depend on control from above. All participants can manage continuous organizational change, from idea to implementation. The shared leadership model can be used by individuals at all levels of the organization. However, it is important to review the progress of the team and decision-making from time to time, and to take corrective action if necessary.
8. In a shared leadership environment, leaders need to be able to communicate the overall vision of the organization and foster team self-management skills. In fact, it is an organizational culture that encourages employee initiative and the ability to take on shared leadership. Organizations need to create an organizational climate that supports active participation. Shared leadership is an effective way to increase team performance.

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ARTIFICIAL INTELLIGENCE IN THE PUBLIC SECTOR: MYSTICISM, POSSIBILITY, OR INEVITABILITY

Rasa Daugeliene, Kaunas University of Technology
Klaida Levinskiene, Kaunas University of Technology

Abstract. Problem statement of the paper: artificial intelligence – a phenomenon that changes the scope of social, economic and cultural dimensions of communities. Indisputable that it exists practical and scientific attempts to highlight the possibility of AI application in different spheres. However, a structured understanding of the content of AI is still missing. Specifically, article poses the following research questions: what is the scope of understanding of AI application in the public sector? what is the history of AI development? how AI can be applied in the public sector? This paper aims to highlight the features of mysticism, possibility and inevitability of artificial intelligence application in the public sector.

Main research methods used. Literature review is relied on to analyse modern approach to artificial intelligence in public sector as well as development of it in historical perspective. Topic modelling was attempted as one of the unsupervised learning methods. Finally, full texts of the selected publications were downloaded manually or in a semi-automated fashion and search of the phrases in full text documents was carried out. The analysis of the primary documents enabled to identify the amplitude of IoT use in the European Union and Lithuania.

Findings of the paper. The research highlighted that there is no single definition of artificial intelligence in either the practical or the scientific fields. AI is perceived differently by the public and private sectors, NGOs, academia, and independent AI enthusiasts. It is appropriate to carry out research considering the angle of approach and answer the following questions: how can different processes benefit from the use of AI? What could be the time savings in the public sector through AI use? It is essential to research the ethical issues related to the application of AI. Understanding of various newly emerging terms is necessary to assess the impact of AI. Despite the highly escalated efficiency and benefits of using AI, scientific reflections are emerging on the negative impact of the AI application and the need to explore its level and potential consequences. Public bodies are slower in adopting new technologies because they lack the necessary funding or face bureaucratic obstacles and are limited by legal regulations.

Keywords: *artificial intelligence, public sector, application.*

JEL code: O31, O35, O38, Z18

Introduction

Today's world is complicated due to financial crises and the COVID-19 pandemic, which shakes the global social, economic and psychological life—complicated and challenging due to emerging phenomena such as artificial intelligence (AI), big data, blockchains or the Internet of Things (IoT). As Kniahynyckyj said (Kniahynyckyj, 2017), “Artificial Intelligence (AI) continues to make its way into the world, influencing popular culture (think Steven Spielberg’s “A.I.”, or Disney’s “Big Hero 6”) and becoming a disruptor in a variety of industries. From customer service chatbots to extremely sophisticated autopilot driving machines, artificial intelligence is undoubtedly making an impact on everything around us”. Society wants to have a global digital network tailored to their needs. However, many understand this phenomenon in a relatively narrow sense. Relate only to the introduction of information technologies, resist digitalisation or acquire new dependencies. Artificial intelligence is an area of research and technology that can have a significant impact not only on business but also on public policies and services. In just a few years, it is expected that it will be possible to free up almost a third of civil servants’ time, allowing them to move from day-to-day tasks to high-value jobs. However, this area is still vague. Problem statement: artificial intelligence – a phenomenon that changes the scope of social, economic and cultural dimensions of communities. Indisputable that it exists practical and scientific attempts to highlight the possibility of AI application in different spheres. However, a structured understanding of the content of AI is still missing. Moreover, its application in the public sector is understood vaguely in society. The article attempts to answer several research questions (RQs) arising from the problem listed above. Specifically, the article poses the following research questions: What is the scope of understanding AI application in the public sector? What is the history of AI development? How can AI be applied in the public sector? This paper aims to highlight the features of mysticism, possibility and inevitability of artificial intelligence application in the public sector.

Main research methods used. The literature review is relied upon to analyse the modern approach towards artificial intelligence in the public sector and its development from a historical perspective. The first action was listing the search terms. They have been generated from research questions (RQs). As a query with a specific meaning of an RQ could not be generated, the keywords reflecting the essence of an RQ were selected. The query was generated using the Scopus search engine as Scopus is known to index more publications than Web of Science. Adding entries from Google Scholar later was considered as an option. Manually, by expert knowledge, the “golden standard” papers were selected and then keywords to be used for a search in Scopus or other engines were extracted. Topic modelling was attempted as one of the unsupervised learning methods to analyse abstracts of publications. Topic modelling and then supervised topic modelling were attempted, but the topics generated were too general, unrevealing. Finally, full texts of the selected publications were downloaded manually or in a semi-automated fashion, and a search of the phrases in full-text documents was carried out. The analysis of the primary documents enabled to identify the amplitude of IoT use in the European Union and Lithuania.

Findings of the paper. Research papers of Juayin et al. (2007), Damiano et al. (2019), Zeeshan, Saxena (2020), Tzuc et al. (2020), Flögge and Aberšek (2021), Nishant, Kennedy and Corbett (2020), Briscoe and Fairbanks (2020), Sharma, Yadav and Chopra (2020), Allam and Dhunny (2019) were analysed to systematise modern approach to artificial intelligence. The approach to the history of artificial intelligence development was based on the research work of Anyoha (2017). The analysis starts from the activities of Leonardo Da Vinci, Jacques de Vaucanson (1709–1782), Alan Turing (1912–1954), etc. Searches on the application of artificial intelligence in the public sector and possible perspectives were based on Berryhill et al. (2019), Aoki, 2020, Kuziemski and Misuraca (2020), Zhu et al. (2021), Robles Carrillo (2020), Luckey et al. (2020) scientific papers. The research highlighted that there is no single definition of artificial intelligence in either the practical or the scientific fields. AI is perceived differently by the public and private sectors, NGOs, academia, and independent AI enthusiasts. It is appropriate to carry out research considering the angle of approach and answer the following questions: How can different processes benefit from the use of AI? What could be the time savings in the public sector through AI use? It is essential to research the ethical issues related to the application of AI. Understanding of various newly emerging terms is necessary to assess the impact of AI. Despite the highly escalated efficiency and benefits of using AI, scientific reflections are emerging on the negative impact of the AI application and the need to explore its level and potential consequences. Public bodies are slower in adopting new technologies because they lack the necessary funding or face bureaucratic obstacles and are limited by legal regulations. There are no clear, unidirectional regulations that can improve the development of artificial intelligence and bring a clearer vision of its future application in the public sector.

1. Modern View to Artificial Intelligence

Recently, there has been much discussion about artificial intelligence (AI) applicability, emphasising hostility and favouritism towards it. However, scientists and practitioners are not able to reach a uniform definition. The following sub-section discusses the history of AI development, showing that research papers enable its evolution to be identified, depending on the year of publication. AI is analysed from a range of perspectives. Namely, from the telecommunications industry (Juayin et al., 2007), digital media (Damiano et al., 2019), digital marketing (Zeeshan, Saxena, 2020), and engineering (Tzuc et al., 2020). While the implementation of AI in computer technology or medicine (especially trauma surgery) seems to be a natural process, the use of AI for crisis forecasting, entrepreneurship, and modernisation of the public sector remains problematic. There are doubts about the security of the application of AI (ethical issues, etc.). There are fears about the possible dangers of AI, including non-transparent decision-making, discrimination based on gender or other factors, intrusion into private space, or use for criminal purposes. The relevant studies are still lacking. As a result, there are no explicit measures for the introduction of AI in the public sector. For example, in Lithuania, the issue of digitisation of cultural heritage is raised, with the possible solution by using artificial intelligence. It should be emphasised that this would involve not only engineering or informatics professionals but also those working in the field of culture. In the call for tenders for one of the projects based on public needs launched by the Research Council of Lithuania, it is stated that “the digitised content of cultural heritage becomes a resource of the Lithuanian cultural and creative industries, stimulating the economy and job creation, expanding the digital and single market, and increasing the supply of new and innovative online products and services”. Memory institutions are increasingly being discussed, which can digitise not only 2D objects, their representations but also 3D objects, reflecting their materiality, properties and shapes.

Artificial intelligence can be understood as the creation of technology and the copying of human qualities. For example, we are talking about the development of self-propelled machines, but we are not talking about the dangers that may arise. Also, computers to this day have reached a level that analyses user behaviour and creates opportunities to create even more advanced applications for humans. Artificial intelligence is widely used for investment, can help make thousands of transactions in one night, all thanks to algorithms (Martinez, 2019). AI is also actively used in disaster management (AIDR). In this process, three types of intelligence are distinguished - machine, human and combined. In the very field of disaster management, one can observe such a social area of artificial intelligence as social networks, through which information can walk and the response to disasters can be provided much faster (Imran et al., 2014).

The White House Report on Artificial Intelligence distinguishes four types of AI:

- Reactive machines are reactive AI systems that cannot form memories or use past experiences to inform current decisions. An excellent example of a reactive machine is Deep Blue, the chess-playing supercomputer by IBM that beat Gary Kasparov in the late 1990s.
- Limited memory is machines that can identify the past. Self-driving cars do this. For example, they can explore the speed or directions of other cars.
- Theory of mind is the machines of the future, more advanced, able not only to recognise the world but also other agents or entities in the world. In psychology, this is called the “theory of mind” – the understanding that people, objects, and other creatures in the world can have thoughts and emotions that affect their behaviour.
- Self-awareness is the final step of AI development, comprising systems that can form representations about themselves. It is, in a sense, an extension of the “theory of mind”. Consciousness is also called “self-awareness” for a reason (for example, “I want that thing” is different from the statement “I know I want that thing”).

The scientific literature distinguishes the critical dimensions for monitoring and analysing artificial intelligence:

- Mechanism: Exploring the AI components based on algorithms and environmental characteristics;
- Development: Monitoring the AI changes over time, focusing on keeping track of the changes that occur and exploring them;
- Function: Understanding how specific actions change and affect the functionality of AI as a whole;
- Evolution: AI factors are exposed and vulnerable to both history, evolution, and different contexts.

These dimensions show the different techniques to analyse and understand AI and the multitude of analyses required to clarify the differences between AI and humans (Flogie and Aberšek, 2021).

The perception of AI as a creator of a sustainable environment is observed, covering many different areas, coordinating them, and mitigating the risks they face. Although AI is seen as one of the main things that can improve the world and the sustainable environment, new fears emerge. In the past, there was not too much reflection on the possible adverse effects of AI use. Today, an apparent adverse effect is highlighted. Therefore, Nishant, Kennedy and Corbett (2020) raise a question about restricting the use of AI, which is rhetorical, for now (Nishant, Kennedy and Corbett, 2020).

The Lithuanian Artificial Intelligence Strategy (2019) states that “Artificial intelligence (AI) refers to systems that display intelligent behaviour by analysing their environment and taking actions – with some degree of autonomy – to achieve specific goals”. Attention should be paid to the statement “with some degree of autonomy”. It can be argued that this leads to security and privacy concerns for a large part of society. In one of his articles on fostering science education in 2018, Jonas Grigas singled out these societal attitudes by providing an example when, in 1954, a procedure was tested to merge all the computers in the universe into one massive network. According to the author, “this was the beginning of the computer era”. Since then, “rapid advances in artificial intelligence have made scientists, politicians, and ethics professionals apprehensive because conventional computer programs have gone beyond human comprehension”. (Will artificial interest outweigh human interest, 2018).

The expectations of the changes that artificial intelligence promise to bring to business and society — or in some cases threatens to bring — surpass the boldest dreams of any previous technological revolutions. It is claimed that AI can fully automate transport, take over hazardous work, and diagnose diseases faster and more accurately. However, AI can also lead to addictions. This is the topic of discussion by numerous scientists who highlight the impact of AI on human behaviour, especially in shopping. AI tools can be used quite widely in the face of various crises when residents become highly dependent on digital tools, networks and are physically constrained.

A national and international AI network is distinguished, which can be perceived from several perspectives. This means that AI is perceived differently by the public and private sectors, NGOs, academia, and independent AI enthusiasts. Hence, AI tools vary; therefore, it is appropriate to research the angle of approach. In each case, different AI components can be observed. For example, in the public sector, AI can create unique advantages that improve the welfare of society. The Lithuanian Artificial Intelligence Strategy suggests that AI models can be used to discover high-risk areas for crime in cities; smart chatbots can better serve citizens; intelligent virtual assistants can better serve citizens simplify and improve the quality of services provided to the public; internal government workflow can be optimised using intelligent systems. AI can also contribute to more efficient production, cheaper and more sustainable energy.

It should be noted that the European Commission is proposing a new public-private partnership to promote the development of AI competencies. They propose the merging of AI research centres of excellence. At least one digital innovation hub specialising in AI needs to be established in each Member State. With the support of the European Investment Fund, more funding is being provided for the development

and use of AI. AI is to be used to increase the efficiency of public procurement processes and provide support to public sector bodies to acquire AI systems. EU funding for AI research and innovation has increased to EUR 1.5 billion since 2019 (70% higher than before). However, it is not enough. More than 25% of all industrial and personal service robots are manufactured in Europe. Therefore, the objective is to attract more than EUR 20 billion of annual investment in AI in the EU over the next decade. Specific actions or measures are not identified, thus opening up new tasks for scientists.

Each state can take up AI assistance in its public sector to improve public service quality, increase public trust in government, and make the service supply processes more efficient. AI can also be used to create more accurate predictions resulting in more extensive experimentation with different policy options. AI is becoming more and more complex and can cover different areas of public administration (Flogie and Abersėk, 2021). Studies show that people are afraid of being replaced by technology. Students and pupils can do their analyses faster already because they do not need to read endless pages and systematise everything themselves. However, despite the ease of the learning process, it is essential to note that technology is not expected to replace scientists soon, as it has not yet reached the human mind's capacity (Briscoe and Fairbanks, 2020).

The scientific literature distinguishes the areas in which AI is heavily involved in the development of the public sector (Sharma, Yadav and Chopra, 2020):

- Health care, where thanks to AI, countries have reached a higher level of quality in the production of medicines, development and use of medical devices;
- Communications and technologies, which can help to establish new links, create and enhance data and its protection;
- Environmental sustainability, which encompasses all major biological processes (climate change, geopolitical issues, risk assessment), and AI can contribute to the measurement of impacts;
- Public policy and decision-making, while enabling citizens to take a pro-active part in politics through e-channels, vote and express their views;
- Transport, where opportunities for improving connectivity and infrastructure are developed;
- Economic and financial sectors, which thanks to AI, gained the opportunity to digitise numerous solutions, increase transparency and reduce fraud. Also, financial and strategic regulation has started to improve and develop;
- In other areas, IoT also brings benefits, which can be seen both in decision-making and in the growth of democracy.

As urbanisation increases, it becomes increasingly difficult for state leaders to predict the direction of movement and forecast the urban development potential. Urban governance can involve both financial and political transactions, which can be more easily managed with AI. AI is used in planning processes and can help identify energy sources targeted to reduce climate change. At the same time, the targeted use of AI can increase the efficiency of state management and national progress. Because of artificial intelligence and big data, the urban management process is now called intelligent cities (Allam and Dhunny, 2019).

2. History of Artificial Intelligence Development

The idea of inanimate objects coming to life as intelligent beings has been around for a long time. The ancient Greeks had myths about robots, and Chinese and Egyptian engineers built automatons. There are scientific articles that link AI to the **work of Leonardo Da Vinci**. **Although** lacking classical education, Leonardo Da Vinci is considered to have done more in life than any educated person. He did not know Latin, which was the primary language of art and science. He called himself "a man without letters". That is why subsequent scholars were curious about the ability of the eclectic genius to learn so quickly. There is only one answer: he used the learning process method, which is now used by modern AI systems.

When analysing AI ideas, we come across the names of inventors: Jacques de Vaucanson (1709–1782), a French inventor and artist. He was responsible for the development of innovative machines (moving mechanical equipment). He was the first to design an automatic loom and an all-metal lathe. Wolfgang von Kempelen (1734–1804), the inventor of chess-playing automation and the speaking machine. John McCarthy (1927–2011), an American computer scientist and supporter of cognitive science. Alan Turing (1912–1954), a British mathematician, computer scientist, logician, cryptanalyst, philosopher and theoretical biologist. Marvin Minsky (1927–2016), an American cognitive and computer scientist mainly concerned with AI research and a co-founder of the Massachusetts Institute of Technology's AI laboratory. Ray Kurzweil (1948), an American inventor and futurist. His research areas are optical character recognition, speech-to-text synthesis, speech recognition technologies, and electronic keyboard instruments. Geoffrey Hinton (1947), an English-Canadian cognitive psychologist and computer scientist who mainly was distinguished as a developer of artificial neural networks. This list could proceed with numerous famous names of people we call "parents" of artificial intelligence.

Rockwell Anyoha (2017) explains the history of AI by saying that in the first half of the 20th-century, science fiction introduced the concept of AI robots to the world. This is also reflected in the work of Lyman Frank Baum, the author of "Wizard of Oz", 1899), representing a heartless TinMan as a robot. Another representation is the humanoid robot, into which Maria was transformed in the science-fiction drama "Metropolis" (1927). In the 1950s, many scientists, mathematicians, and philosophers emerged became interested in AI. One of them was the aforementioned British polymath Alan Turing, who explored the mathematical possibilities of AI. He wondered: if people use the information and analyse causality to solve problems and make decisions, why cannot machines do the same? It was a logical scheme for his paper "Computing Machinery and Intelligence" (1950).

The period from 1938 to 1946 was the golden age of science fiction. However, some sources claim that the "golden age" of AI booming dates from 1957 to 1974. In 1950, Alan Turing considered the question "Can machines think?". Almost at the same time, in 1949, the first computer program, "Manchester Mark 1", was launched. And in 1955, the scholars at Carnegie Mellon University, Allen Newell, J. C. Shaw and Herbert A. Simon demonstrated the computer program, "Logic Theorist", for the very first time, which is commonly referred to as the first AI program. The beginnings of modern AI can be traced to classical philosophers' attempts to describe human thinking as a symbolic system. However, the field of AI was not formally founded until 1956, at a conference at Dartmouth College, in Hanover, New Hampshire, where the term "artificial intelligence" was coined. In 1963, the Defense Advanced Research Projects Agency (DARPA) funded AI. In 1965, Moore's Law was established. In 1970, Marvin Minsky claimed that within three to eight years, machines would be created that would be able to think like people. However, a period from 1974 to 1980 became known as the "AI winter". The field later revived in the 1980s when the British government started funding AI development again, partially to compete with efforts by the Japanese.

In 1980, Edward Feigenbaum presented expert systems. In 1982, Japan's fifth-generation computer project was presented. In 1986, scholars of the School of Computer Science at Carnegie Mellon University presented the first semi-autonomous vehicle, "Navlab". In 1997, the aforementioned chess computer "Deep Blue" (developed by IBM) defeated Gary Kasparov. In the same year, Dragon Systems introduced the first voice recognition program. However, it should be noted that the giant leap in the development of AI was 1985–1990.

3. Artificial Intelligence and its Application in the Public Sector

The analysis shows that the use of artificial intelligence is extensive in various areas. Sensitive and intelligent machines are already seen on the horizon. These can be intelligent assistants who can execute commands said by a human being. They can find addresses, send reminders, and adjust household appliances (thus creating a smart home). The AI can recommend the shopping list by analysing the historical data. Autopilots can work well in machines. AI is used in banks where unique systems track and remember where money is spent. After performing an unconventional action (in case of fraud), the bank contacts the customer.

Moreover, there are still many areas where AI performs functions, and users do not even think about it. Thanks to artificial intelligence, we have the opportunity to make observations: record the damage, classify and localise it, assess its condition and make predictions, which could provide an overall picture of future perspectives (Luckey *et al.*, 2020). Governments can use artificial intelligence to develop better policies and make better decisions, improve communication and engagement with citizens, and improve the speed and quality of public services. While the potential benefits of AI are significant, attaining them is not an easy task. Governments use artificial intelligence trails, similar to those used in the private sector. However, the public sector is complex, requiring innovative, non-routine, and challenging solutions. Public bodies are slowing down the adoption of new technologies because they lack the necessary funding or face bureaucratic obstacles. To ensure the citizens' quality of life in the digital age, the public sector must adapt to innovation, particularly AI initiatives. The Lithuanian Artificial Intelligence Strategy includes several strategic recommendations to increase the use of AI systems in the public sector. For example, "create a regulatory sandbox that will allow the use and testing of AI systems in the public sector for a limited period. This will allow the developers to test out their product in a live environment and allow the public sector to determine what solutions can be integrated". The establishment of a Lithuanian Artificial Intelligence Advisory Board is proposed. Governments in different countries fear that the introduction of restrictions and new regulations on artificial intelligence will reduce the ability to compete with other countries and may stifle innovation in the said country. Also, starting legal regulation of IoT is difficult due to legal aspects. However, at least minimal regulations could reduce the risks posed by IoT. To date, the main document that is considered the regulator of IoT is the general data protection regulation - it is used in both the public and private sectors (Butcher and Beridze, 2019).

A frequently asked question is why it is challenging to introduce AI in the public sector. First, the public sector is limited by legal regulations. Secondly, it focuses more on products and services than on how they are produced or consumed. It is suggested that the public sector monitor what is happening in the private sector in digitalisation and try to replicate the adapted actions. The drafting of the governmental AI strategy must be linked to several aspects or answers to the following questions: What is the current strategic situation of the organisations concerned and the challenges that could be addressed with the help of AI? What does the organisation want to achieve with AI? What actual actions need to be taken to achieve the objectives set?

4. Possible perspectives for Artificial Intelligence in the Public Sector

History shows that we need to be careful. The benefits of applying AI cannot be exaggerated in hoping that it is the panacea rather a tool for a positive change. Different voices in the AI world are already demanding moderation and awareness of the current limitations and challenges of deep learning. This is one of the promising areas for the development of modern intelligence. According to the latest report by MMC, a venture capital fund in London, 40% of European start-ups identify themselves as AI companies, although they do not actually apply the AI tools that are relevant to their activities.

The future of AI in the public sector seems blurred. This is also reiterated by scientists and international organisations in various reports. Compared to the application of AI in the economy or the private sector, the public sector is lagging behind. There is much less research into how emerging technologies can influence the actions of governments. However, it should be noted that some organisations have proposed theories. Such as the Public-Sector Leadership Theory presented by Montgomery Van Wart in 2003. "Gartner", a global research firm, proposed 30 technology profiles in 2020, which are expected to transform society and business processes using technology over a five to ten-year period. They referred to this as the Hype Cycle for Digital Government Technology. The focus here is on machine learning. However, it must be stated that the official documents also avoid the declaration of well-defined recipes. Predictions are relatively tedious. For example, "AI will play a significant role in ensuring democratic decisions by governments representing the voice of their people. In other words, AI has a lot of potential (both positive and negative), and it is the role of governments to make sure that all people are in a position to reap the full benefits and to mitigate risks and negative consequences on their behalf" (Berryhill *et al.*, 2019).

The most frequent statements are evident at first glance: Governments and public servants need to understand AI and how it may affect and impact the public sector. To make effective decisions, governments need to acquire innovative and experiential knowledge. Public organisations need to be interested in artificial intelligence and understand its impact on citizens. This means that civil servants are the first to be obliged to use artificial intelligence.

Researchers also argue that chatbots, which have become part of AI, can help the public sector. However, it is imperative to increase confidence in the technology. People believe more in the relationship with another person and their answers and tend to mistrust AI (or machines, as they understand it). Today, therefore, we can see that people are sceptical about virtual correspondence in the public sector, even though it would save citizens and staff time and public costs (Aoki, 2020). In the area of public security, various technologies have already been used in the past to ensure the security of states and citizens. Therefore, there is room for improvement in this field in terms of technology; however, in the public sector, the opportunities for crisis management using AI are visible as well. The COVID-19 crisis has demonstrated the need for intensive surveillance of the situation in difficult times, as well as innovations. Amid this crisis, applications were being developed to alert the population about the situation, as well as to monitor and report risks. AI allowed for greater control over the situation and risks (Kuziemski and Misuraca, 2020). Public health emergencies require establishing contacts between responsible authorities and different countries quickly and communicating information to the public. Information channels for the public, the different possibilities of providing information on risks are part of AI. Therefore, AI applications can be expected to continue in the future to prevent crises from developing (Zhu *et al.*, 2021). To make AI use more efficient and increase people's satisfaction with it, favourable conditions should be created. Today, there are no clear, unidirectional regulations that could improve the development of artificial intelligence and bring a clearer vision for the future. It should also be admitted that a more targeted definition of AI would help bring together the different dimensions of the process and thus better understand the very essence of AI (Robles Carrillo, 2020).

In conclusion, governments and civil servants must adopt new operating and decision-making methods in complex, uncertain and changing times. Many global leaders have AI application strategies in place, and they are treated as national priorities. AI can help by analysing unstructured information that would enable governments to broaden citizens' views of ongoing processes. It is about systematising the information that is provided on social networks. The most common examples are the Belgian, Swiss, Finnish, Canadian "bomb-in-a-box scenario"), US and British solutions. A virtual service portal was installed in Lausanne (Switzerland), where residents can check their bills online, find out their electricity consumption, and transfer other important personal information. "CitizenLab" was created in Belgium to provide

civil servants with services, helping them analyse citizens' actions and make more effective decisions. A public participation platform was developed, which uses machine learning algorithms. The platform can classify citizens' ideas, highlight topical problems, organise the main trends by theme, demography or area. The European Commission has developed Ethics guidelines for trustworthy AI. They emphasise, first and foremost, that members of the public must learn to trust technology. Only then will the applicability of artificial intelligence bring more benefits than confusion. A fundamental issue that often arises at the government level is that there is still no clear statement of the tangible benefits (even in monetary terms) to be gained through AI use in various processes. The research focuses on how much time can be saved from using AI in the public sector. According to Peter Viechnicki and William D. Eggers (2017), the world can save hundreds of millions of working hours and billions of dollars a year. Over five to seven years, it is possible to save as much as 30% of the working time of civil servants. However, these impacts are directly dependent on policy decisions and financial resources. Adequate support and investment are needed. Hence, there is undoubtedly room for research on these issues. The main task is to convince the government and civil servants of the benefits of AI.

Conclusions

1. There is no single definition of artificial intelligence in either the practical or the scientific fields. The understanding of AI directly depends on the area of application of AI and the position of the interpreting entity. AI is perceived differently by the public and private sectors, NGOs, academia, and independent AI enthusiasts. AI tools vary; therefore, it is appropriate to research the angle of approach. The analysis raises several questions that need to be answered. What benefits (even in monetary terms) can be gained through AI use in various processes? What could be the time savings in the public sector through AI use?
2. Research papers enable AI evolution to be identified, depending on the year of publication. The ethical dimensions of the use of AI are a significant source of debate and related questions. Their assessment, therefore, must be mandatory. This means that studies related to the ethical issues of the application of AI need to be developed more intensively. Increasingly, we are dealing with new concepts. To understand how AI impacts different life spheres public needs to understand terms such as algorithm, chatbots (or bots), cluster, cognitive science, machine learning, deep learning, image recognition (or computer vision), natural language processing (NLP), neural networks, semantic analysis, supervised learning, unsupervised learning, backward chaining, bias, big data, bounding box, data mining, Python, overfitting, weak AI, etc.
3. The main dimensions through which artificial intelligence should be observed and analysed are mechanism, development, function, and evolution. AI is classified as a creator of a sustainable environment. Despite the highly escalated efficiency and benefits of AI use, there is also a scientific reflection on the negative impact of AI application and the need to investigate its level and potential consequences. Attention is drawn to the fact that AI tools can be widely used in many crises and pandemics where populations are highly dependent on digital tools and networks.
4. Public bodies are slowing down the adoption of new technologies because they lack the necessary funding or face bureaucratic obstacles. They are limited by legal regulations. They focus more on products and services than on how they are produced or consumed. Today, there are no clear, unidirectional regulations that could improve the development of artificial intelligence and bring a clearer vision for the future.
5. In the public sector, AI models can be used to discover high-risk areas for crime in cities. AI can also contribute to more efficient production and energy that is cheaper and more sustainable. Smart chatbots can better serve people, while intelligent virtual assistants can simplify and improve the quality of services provided to the public. Internal government workflow can be optimised using intelligent systems. In health care, a higher level of quality in the production of medicines and medical devices can be reached. In the fields of communication and technology, transport, and financial management, the use of AI is quite widespread. Despite these facts, the future of AI in the public sector is uncertain. The COVID-19 crisis has demonstrated the need for intensive surveillance of the situation in difficult times, as well as innovations.

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MARKETING COMMUNICATION OF LATVIAN LARGE FOOD MANUFACTURING COMPANIES WITH CONSUMERS IN THE DIGITAL ENVIRONMENT IN THE CONTEXT OF SUSTAINABILITY

Maija Delle Cace, Riga Stradins University
Liene Kaibe, University of Latvia

Abstract: A company's success is closely linked to the increasing of efficiency compared to competitors by producing, supplying, communicating, and creating a higher customer value for the target market. In recent years, digital marketing has been widely used in marketing to achieve one's commercial objectives. At the same time, the focus on ethical and sustainable marketing has increased. Corporate sustainability has evolved from an idea to a reality driven by changes in public opinion.

Marketing communication can be affected by various factors, one of which is the media used in marketing. This study examines the use of media owned by large food companies in the digital environment in the context of sustainability. The objective of the research is to find out what forms of consumer reactions are caused by the communication initiated by companies in the company's owned media.

Objective of the study: To investigate the communication of large food manufacturing companies in Latvia with consumers in the company's owned media in the context of sustainability in digital environment.

Research methods: In order to achieve the objective of the study, a content analysis (audit) of brand owned media (corporate websites and social network accounts in Facebook and Instagram) of large food manufacturing companies has been performed.

Findings: The study provides recommendations to the managers and marketing specialists of large food manufacturing companies on the possibilities to improve the content of their messages and communication with consumers through brand owned media channels in order to improve consumer engagement and to inspire them to make more responsible and sustainable choices. Raising awareness of the importance of sustainability and the contribution of each individual can foster a shift in thinking from consumption to preservation, so that the great objective of a more sustainable world can become a reality.

Keywords: *digital marketing, company's owned media, sustainability, corporate websites, social media accounts.*

JEL code: M31

Introduction

In recent years, digital marketing has been increasingly used in marketing to achieve one's objectives. With the development of web platforms and the digitalisation of media, the possibilities for direct feedback are expanding and communication with interactivity acquires the features of two-way communication, which is an essential prerequisite for effective business communication with consumers in digital environment.

The concept of good corporate governance and sustainability means not only the processes that promote the efficiency of company's performance and a long-term growth of its value, but also the implementation of the company's policies in the fields of environmental protection, social responsibility, and sustainability. Although conceptually supported at national, political and social levels, sustainability also faces challenges in today's dynamic market environment. Consumers do not fully understand the importance of sustainability (Sánchez-Bravo et al., 2021) or express concerns about sustainability in general, but less in relation to specific food choices (Grunert, Hieke, Wills, 2014). The society may be aware of the need to take action to limit inefficient resource consumption, but at the same time it does not wish to give up the opportunity to choose the most suitable product at the lowest possible price, even though it may be at the expense of unsustainable resource management (Bormane, 2018). To reduce threats to the ecosystem, companies can not only reduce their own impacts, for example on the climate, but also make a positive contribution to society and promote participation of people in preserving the environment. This can be done through a two-way communication in company's digital media in the context of sustainability.

In scope of the study, large food manufacturing companies of Latvia have been analysed, as they form a significant part of national economy, make an essential contribution to the creation of gross domestic product and employment, as well as used to have sufficient financial resources to implement the intended ideas. According to the EC Regulation No. 651/2014, large companies include companies with more than 249 employees and/or an annual turnover exceeding EUR 50 million and an annual balance sheet total exceeding EUR 43 million. According to the data of the Central Statistical Bureau of Latvia, 11 food manufacturing enterprises are included in the list of large enterprises in 2020 (large enterprises producing beverages and alcoholic drinks are not included in the sample of the survey).

In scope of the research, an assessment of the communication of large Latvian food manufacturing companies with consumers in companies' media in the context of sustainability in digital environment has been obtained.

In order to achieve the objective of the study, the following research questions have been asked:

1. Is information on company's position in the context of sustainability available on the corporate websites of large food manufacturing companies?
2. Do large food manufacturing companies communicate with the consumer on social network accounts (FB and IG) (make news feed entries) on sustainability issues?
3. What sustainability topics do large food manufacturing companies use on social networking accounts (FB and IG)?
4. What is the consumers' engagement rate in business records on sustainability on social network accounts?

The sample of the study includes 11 large Latvian food manufacturing companies. The websites and social network accounts of these companies were assessed in October 2021, including the current status of the content on the websites of the companies and the implemented communications in social network accounts of companies in the period from January to September 2021.

In the framework of the research, it has been assessed whether information on the company's position on sustainability issues is available on the company's corporate website; also, it has been analysed which topics the company uses to communicate about sustainability. An assessment of companies' news and communication with consumers on social network accounts (FB and IG) has also been obtained, including the analysis of the number of messages, number of reactions, type of news content, consumer involvement, and other indicators. Screenshots of the most popular news (72 screenshots) and sustainability news (94 screenshots) have been taken for later evaluation. In total, the analysis of corporate websites of 11 companies, analysis of news feed entries on social network accounts (a total of 2010 news) and the analysis of the content and breakdown of sustainability-related news (a total of 94 news) by type has been carried out.

Literature Review

Nowadays, marketing communication in digital environment covers a wide range of issues, which are included in various aspects of scientific research and publications. Using internationally recognized sources, articles and other publications, authors have explored the use of company's media in digital marketing strategy in the context of sustainable development.

Marketing communication can be influenced by various factors, one of which is the media used in marketing (Fitrial, Indrawati, 2021) or the channels of transmission of marketing messages. Company's owned channels are a vital part of digital marketing strategy, enabling the company to demonstrate its market presence and position in the context of sustainable development, as well as serving as a springboard for further operations in paid and earned media.

Owned media are characterized by company- or brand-related media activities that the company creates and manages itself through the channels over which it has control. In order to implement owned media activities, the company creates a communication platform and its institutionalized management. Owned media are characterized by the convergence of editorial content and advertising and the authenticity of messages, which are perceived by consumers not as advertising but as editorial information or product and service offerings (Baetzgen, Tropp, 2013). In order to create a significant added value of owned media in the company's overall digital strategy, marketing specialists need to ensure the quality and reliability of the content of these media, as well as the compliance with the brand and the company's values. Owned media have a huge growth potential, especially for marketing activities in digital environment (Baetzgen, Tropp, 2013).

With the development of web platforms and the digitalisation of media, technological convergence of media is taking place and the possibilities of direct feedback are expanding, mass communication with interactivity acquires the features of two-way communication (Krishen et al., 2021). A company can use this trend to mobilize its resources and capabilities in its sustainability efforts and gain the support of partners and consumers. This can be achieved through clear and unambiguous communication about the company's position in the context of sustainable development, using brand-owned media.

Communication is an integral part of marketing strategy (Ailawadi et al., 2009), while digital marketing communication facilitates a greater interaction between the source and the recipient (Shankar and Malhotra, 2007). This interaction between businesses and consumers is increasingly being realized through the use of digital media (Shankar et al., 2021). Social engagement, dissemination, and interaction are key to the development of digital marketing (Lamberthson, Stephen, 2016). With the rapid growth in the number of people who have access to web browsers, smartphones, social networks and email technologies, a company can use digital marketing channels to achieve its business objectives in the context of sustainability.

Within the framework of digital marketing strategy, several activity platforms are used, each of which has different channels and technical solutions for reaching the target market. In the context of brand-owned media, the most widespread activity platforms in digital environment are social media (although technically these are not under the direct control of companies) and websites.

Social media is an interactive computer-based automated technology that facilitates the creation and exchange of information, ideas, career interests and other forms of expression through virtual communities and social networking. Social media is based on three elements: digital content in text and audiovisual form; users - individuals or organizations who create, distribute and consume the content; and software that allows the users to publish, disseminate and respond to the content. On social media, the users interact, based on the content they create on their own or choose. They differ from other online media by the fact that there is a communication model available in which many users can communicate with many other users - these can be individuals or representatives of organizations, brands, events and other communication units. The increase in the number of social media sites and the users thereof has been facilitated by the availability of Internet, as well as the popularity of smartphones, which enable the users to use these media from anywhere where mobile communications are available. For companies, social media provides an opportunity to improve their business activities, based on the exchange of information and cooperation with consumers and the company (Hruska, Maresova, 2020). Overall, social media can be characterized as a comparatively inexpensive and easily accessible electronic tool for sharing and accessing information, collaborating towards a common objective, and building relationships with consumers (Jue, Marr, & Kassotakis, 2009). Today, social media communication is one of the most widespread and demanded forms of digital marketing communication.

Social networking sites incorporate a variety of social media functions while emphasizing the creation and maintenance of interpersonal connections (Obar, Wildman, 2015). Social networks are a powerful company-owned channel not only to reach the consumers, but also a tool that enables the company to gain supporters and followers of the company's sustainable development policy. Social networks include various communication channels, such as Instagram, Facebook, LinkedIn, Youtube, Twitter, which are mainly chosen considering the specifics of the industry, the objective set by the company and the habits of the audience (Oyd and Ellison, 2007). In the framework of the study, the Facebook and Instagram social network accounts of large food manufacturing companies have been analyzed. The residents of Latvia use the Facebook platform the most often. According to the latest data of the company NapoleonCat (*Social Media users in Latvia - August 2021, NapoleonCat*), in August 2021, the number of Facebook users in Latvia reached about 1.24 million, which is about 66.9% of the total population of the country. In turn, Instagram in Latvia is used by a total of about 645 thousand people. The biggest advantage of social media is the engagement promoting combination of different forms of content that does not exist in any other marketing or advertising channel structure.

Engagement level is a metric used to estimate the average number of interactions a company's social media content receives per follower. Engagement can be described as the identification of consumers or followers of a company's social network accounts with the company's products or image (Li, Kent, 2021). The engagement of consumers in social media is determined by the number of likes and shares of the social media news entries (Eslami et al., 2021).

Within the framework of digital marketing strategy, a structured and regular communication on social networks opens wide opportunities for a company to reach a precise audience and to establish a dialogue with the consumers, thus moving towards the achievement of the company's objectives. By analysing social networking accounts, companies can better understand consumer behaviour, identify gaps in past communication, and improve communication with the consumers to ensure a greater engagement and to gain supporters of their ideas and plans amongst the consumers.

A company's website is an essential tool for corporate communication (Argenti, 2006). Websites are used to publish information on the company, important to both the consumers and the business partners (Pollach, 2011). Companies can use corporate websites to provide the consumers, the investors and the partners with the information on their business and its guidelines for sustainable development. No matter what information a company seeks to communicate, the wider audience it reaches, the greater is the reach of messages (Pant, 2018). In today's highly competitive environment, a corporate website is a visual expression of a company's reality and an important element of corporate identity management (Ageeva et al., 2018).

Corporate websites are an important digital marketing channel for companies, through which they seek a greater attention from the stakeholders (i.e., customers, investors, and communities) (Pant, 2018). If the responsibility for sustainable development lies with the society as a whole, the companies are able not just reduce the impact of their own production process, but also to make a positive contribution to the society and to raise the awareness of the importance of sustainable development and the potential contribution of each individual. Websites are one of the most important company-owned channels that it can use to communicate its position in the context of sustainable development, alongside the printed sustainability reports that existed before companies started communicating with the public through websites. Websites can provide a broader perspective, including the company's understanding of its mission and the position of a responsible market player, as

well as any other type of information that can lead to consumer awareness of the importance of sustainability and make more informed purchasing decisions.

Website analysis from a user perspective, focusing on usability, information availability, or topic relevance, is becoming an increasingly common form of research (Chong, Ali, & Lodhia, 2016). In scope of this study, attention will be paid to how sustainability is reflected on the websites of the sampled companies and communicated on the social networking accounts of the company.

Based on the findings of researches and the analysis of publications, the authors have conducted a study on the communication of large Latvian food manufacturing companies with the consumers in company's owned media in the context of sustainability in digital environment.

Research Results and Discussion

1. Analysis of the Content of the Websites of Large Food Manufacturing Companies

In order to answer the 1st question of the study, the content of the websites of the large food manufacturing companies included in the sample of the research was analysed. A summary of the analysis of the websites of 11 large food manufacturing companies is presented in Table 1. Of the 11 companies in the sample, only 4 have posted publicly available information on the company's sustainability policy on the corporate website. Three of these companies (companies A, F, H) have placed their position in the context of sustainability as a separate section on the home page of the website, thus allowing visitors to find information about the company's sustainability policy quickly, easily and efficiently. The description of these companies' sustainability guidelines is comprehensive and detailed, enabling consumers to get in-depth information and understanding of the company's position in the context of sustainability. In turn, for one company (company C), the information on sustainability is posted on the website, but compared to companies A, F and H, it is less comprehensive and detailed and can be found in the second-level menu instead of the start page, thus extending the time required for the website visitor to find the necessary information on the company's sustainability policy. For 7 companies (B, D, E, G, I, J, K), the website does not contain aggregated information on the company's sustainability policy, and there is no separate section on the website where information about the company's sustainability policy would be published either. While not posting information on the website does not preclude a company from developing a sustainability policy, the natural question arises as to why this information, provided that it is significant for the company as a part of an overall strategy, is not placed on the company's corporate website.

Companies with sustainability information on their websites available have used the following words and phrases in their first-level headlines: sustainability; sustainability objectives; sustainable business; sustainable raw materials; innovation; qualitative, healthy and safe food; animal welfare; society and cooperation partners; working environment; staff welfare; social responsibility; support for low-income pensioners; responsibility for the environment; energy management system, water and energy resources, waste management, product packaging, etc. Overall, the companies refer to all three dimensions of sustainability: environmental (conservation), economic (development) and social (public welfare).

Table 1

Accessibility and Location of SD Information

Company	SD Content			Number of clicks required to access SD content	Accessibility to SD report	Terms directly related to SD and used as first level Headings in the Sample Sites	Terms indirectly related to SD and used as first level Headings in the Sample Sites
	Availability	Amplitude	Location				
A	Yes	Wide	Front page menu	1	Yes	#sustainability #qualitative and healthy products #environment #welfare of animals #society #work environment #innovation #sustainability goals	-
B	No	-	-	-	No	-	#quality system #bio certification #quality
C	Yes	Narrow	Second level menu	2	No	#social responsibility #support for low-income senior citizens #energy management system	-
D	No	-	-	-	No	-	#legend and values #stability #mastery #cooperation
E	No	-	-	-	No	-	#goals #improvement of technological process #expansion of assortment #development of recipes, #creation of new workplaces
F	Yes	Wide	Front page menu	1	No	#sustainable business #goals, #water and energy resources #waste management #animal welfare #food safety #employee welfare #product packaging #society and partners	-
G	No	-	-	-	No	-	#human #quality #development #care

H	Yes	Wide	Front page menu	1	No	#sustainability #nutrition and well-being #safe products #sustainable materials #environmental responsibility #caring for employees and society	-
I	No	-	-	-	No	-	Introduction of environmentally friendly technologies
J	No	-	-	-	No	-	#manufacturer of high quality products # reliable partner
K	No	-	-	-	No	-	Quality, food safety, suppliers, production, storage and transport, open to the new, healthy choices every day, transparency, plant-based food benefits

Source: author's construction based on survey

Although most (7 out of 11) of the companies included in the sample do not have a separate section on sustainability on their websites, conceptually these companies also include the concepts that are directly related to sustainability in their product, production technology and company value descriptions (e.g., quality, quality system, development, company values, objective stability, excellence, cooperation, improvement of technological process, introduction of environmentally friendly technologies, expansion of assortment, development of new recipes, creation of new jobs, food safety, openness to the new, transparency, plant products). In general, companies that do not have sustainability information sections on their websites have posted information on product quality, improvements in the technological production process, and the introduction of environmentally friendly technologies.

2. Communication of Large Food Manufacturing Companies with Consumers on Social Network Accounts

In order to answer the second question of the study, the content of the social accounts of large food manufacturing companies was analysed. Eight of the 11 companies in the sample have both Facebook and Instagram social networking accounts active; two companies (D and K) have an active Facebook social networking account but no activity on their Instagram account was observed, while one of the large food companies (I) does not use social networking accounts in Facebook or Instagram to communicate with consumers.

The posts of large food manufacturing companies on social network accounts were analysed for the period from January 2021 to September 2021 (inclusive); in total the analysis of 2010 data was performed. Depending on the content, the posts have been divided into 6 types: Generic, Recipes, Contests, Engagement provoking, Informative, and Sustainability related posts. Table 2 shows a summary of the analysis performed with the breakdown of the total number of published news of each company by topic. For two companies (H and J), sustainability-related posts account for one-fifth of the total number of posts, for other companies the percentage of sustainability-related posts is significantly lower (between 2% and 6%) and only for two companies (D and E) the number of sustainability-related posts is less than 1% of the total number of posts.

Table 2

Social media posts by types

Comp any	FB page	IG page	Type of posts (FB and IG), %					
			Generic	Recipes	Contests	Eng. provoking	Informative	Sustainability
A	Yes	Yes	14,2	18,8	7,1	26,9	26,9	6,1
B	Yes	Yes	6,4	38,2	12,4	27,0	10,3	5,6
C	Yes	Yes	13,2	12,3	7,9	45,7	18,2	2,6
D	Yes	No	11,5	9,4	2,0	58,6	18,0	0,4
E	Yes	Yes	15,8	5,5	1,5	54,4	22,4	0,4
F	Yes	Yes	16,1	21,3	5,2	29,7	18,1	9,7
G	Yes	Yes	13,0	6,3	9,3	43,1	27,7	0,6
H	Yes	Yes	23,6	0,0	4,5	25,8	24,7	21,3
I	No	No	-	-	-	-	-	-
J	Yes	Yes	27,3	5,7	4,5	15,9	27,3	19,3
K	Yes	No	17,3	2,0	11,2	41,8	21,4	6,1

Source: author's calculations based on survey

The companies that did not include a sustainability section on their corporate website have, however, made sustainability issues in their social networking accounts. Company J has a particularly high rate, with no information on sustainability on its website, but overall, a fifth of the posts published on social network accounts (19.3%) is about sustainability.

In order to answer the 3rd question of the study, the content of all sustainability-related data (94 data for the period from January to September 2021 (inclusive)) was analysed and broken down by type (see Table 3). Each of the food manufacturing companies included in the sample published information on one or more topics on their social network accounts. The analysis of the obtained data shows that more than half (6 out of 11 companies) published posts related to sustainability on the following topics: Environmental concerns and the Company's strategy, activities and current achievements in sustainability issues.

Table 3

Sustainability related issues used by companies to communicate through social media posts

	A	B	C	D	E	F	G	H	I	J	K	Total
Care about environment	1	1	0	1	0	1	0	1	0	0	1	6
Company's strategy and current achievements and/or actions in context of sustainability	1	1	0	1	0	1	1	1	0	0	0	6
Sustainable packaging	1	0	1	0	0	0	0	0	0	1	1	4
Manufacturing Modernization	0	1	0	0	1	0	0	0	0	0	1	3
Care for the society	1	0	0	0	0	1	0	0	0	0	1	3
Sustainable products	0	1	1	0	0	0	0	1	0	0	0	3
Vegetarianism, veganism, flexitarianism	0	0	1	0	0	1	0	0	0	1	0	3
Animal welfare	1	0	0	0	0	1	0	0	0	0	0	2
Sorting of waste and / or processing of raw materials	0	0	0	0	0	0	0	0	0	1	0	1

Source: author's calculations based on survey

The third most popular topic (used by 4 out of 11 companies) is about environmentally friendly and recyclable packaging. The least used topic (used by just one company) is waste sorting and recycling.

To answer the 4th question of the study, the analysis of the social network accounts posts of the companies included in the sample was performed and the level of consumer engagement was detected for each of the 2,010 posts. The result was the data on the average rate of engagement (in all company posts in total) and the engagement for each of the six types of posts by content: Generic, Recipes, Contests, Engagement provoking, Informative, and Sustainability related posts.

Table 4

Consumer engagement rate, %

	A	B	C	D	E	F	G	H	I	J	K
Average engagement rate	1,7	1,3	1,1	0,9	0,4	0,6	0,7	2,2	-	1,8	1,1
Generic posts	1,0	0,4	0,3	0,7	0,2	0,6	0,2	2,1	-	0,6	0,7
Recipes	1,3	0,3	0,3	0,4	0,1	0,3	0,2	-	-	0,3	0,9
Contests	11,1	8,2	11,0	15,9	12,1	4,2	5,7	18,5	-	27,3	3,7
Engagement provoking posts	1,0	0,4	0,3	0,6	0,2	0,4	0,2	1,5	-	0,9	1,1
Informative posts	1,0	0,3	0,3	0,7	0,3	0,5	0,2	1,8	-	0,6	1,1
Sustainability related posts	0,8	0,6	0,3	0,4	1,0	0,5	0,1	0,5	-	0,5	1,3

Source: author's calculations based on survey

The consumer engagement rate includes reactions to the post with emotional signs, comments on the post and sharing it. The data collected (see Table 4) indicate that consumer engagement in sustainability related posts is generally lower than for other content posts. Only two out of 11 companies (E and K) have > 1% consumer engagement in sustainability-related posts. Consumers still show the highest engagement rate in contests (the highest level of engagement for all companies).

Conclusions

1. A corporate website is a business card of a company in digital environment, it gives every visitor an idea of the company, its values and the quality of the services offered. Based on the data obtained in the study, it can be concluded that the majority (64%) of large food manufacturing companies do not have information on the corporate position of the company in the context of sustainability. These companies do not present all the opportunities and benefits of the company to a wide audience of potential customers and do not provide potential customers with a comprehensive information on the company and its products in the context of sustainability.
2. A structured and regular social network communication opens wide opportunities for the company to develop advertising strategies, market and competitor research and communication with consumers, as well as to reach a precise audience, thus moving towards achieving the company's objectives. The majority (91%) of large food companies have active Instagram and / or Facebook social network accounts in which they have made sustainability-related communications, including the companies that have not placed sustainability information on their corporate website. These companies do not ensure a harmonized access to information and communication with the consumer in all company-owned media.
3. More than a half (55%) of the posts associated with sustainability on social accounts (FB and IG) of large food manufacturing companies are about the environmental concerns and the company's strategy, activities and current achievements in the field of sustainability. The third most frequently used topic (used by 36% of companies) is about sustainable product packaging.
4. Consumer engagement rate and response to company's posts on sustainability on social accounts range from 0.3 to 1.3%, and it is lower than for other types of content. Less than one-fifth (18%) of companies have an engagement rate of $\geq 1\%$, which can be characterized as a medium level of consumer engagement, while for the majority (82%) it can be described as low. Consumers show a higher level of involvement in other types of company posts (contests, generic, informative posts, etc.). The low level of consumer involvement suggests that the company's sustainability related posts have not been interesting and appealing enough to stimulate consumer response, engagement and change thinking and behaviour.

Proposals, Recommendations

Companies need to ensure the availability of harmonized information on the company's sustainability strategy in all assets owned by the company, including brand-owned media, thus creating a unified picture of the company, its values, the quality of services offered and the company's sustainability policy. Every business initiative in the context of sustainability needs to support a comprehensive objective. Each post published on a corporate website and social networking accounts should help address a broader issue that is critical to the company in the context of sustainable development. Through posts on social networking accounts and information on a corporate website, a company can

inspire consumers to make more responsible and sustainable choices by gradually raising awareness of the importance of sustainability and enabling consumers to make a positive difference in the context of sustainability.

Companies should focus on improving the level of consumer engagement, as engagement is the assessment of the degree and depth of consumer interaction (with company content) that makes it possible to understand the relevance of the content posted to the company's social networking accounts. Consumer engagement must stem from intrinsic motivations that are rooted in their beliefs and are sustainable in the long run, so the company's media must use authentic and emotionally engaging messages, aimed at reaching the audience and improving the company's relationship with consumers.

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CHOICE ARCHITECTURE AS A BASIS FOR PENSION SAVINGS DECISIONS

Evija Dundure, University of Latvia
Biruta Sloka, University of Latvia

Abstract. The study analyses the findings of behavioural studies in enhancing the amount of private pension savings. The aim of the study is to summarize the findings of the scientific literature in a unified system, which allows to analyse the behavioural theories methods used by countries in facilitating people's decisions in funded private pension savings. The authors look at the process of pension accumulation from the perspective of their three stages of formation and identify the need for investor involvement in each of them. The developed unified system is tested by performing a comparative analysis of the 2nd and 3rd pension pillars in Latvia. It clearly shows the commonalities and differences between the two pillars, as well as the areas in which the methods of behavioural theories can be used.

Keywords: *pension system, behavioural theory, choice architecture.*

JEL code: I38; G41; G51; H24; H55

Introduction

The conscious involvement of the population in pension savings is formed gradually and through continuous support mechanisms. The applicability aspect of the available information is increasingly emphasized, with the need for in-depth knowledge for potential investors being relegated to the background. Information that is easily accessible to people, both about the pension system itself, but even more about practical ways to make sure of the amount of your pension and how to create savings, plays an important role here.

To some extent, the success of the pension system depends on the deliberate action of its members - from participating in the social contribution system and paying taxes to qualify for a 1st pillar pension, choosing specific pension plans that correspond to the life cycle and risk tolerance of a 2nd pillar pension and deciding to accumulate additional pension voluntarily at the 3rd pension pillar.

Scientists are vigorously analysing the basis for human behaviour in long-term consumption and income planning from both the standard economic theories of saving (Friedman, 1957) and behavioural theories. The standard theory of economic savings is based on the rational action of a person - depositors accumulate and then use assets throughout their lives, consciously able and wanting to plan their actions. The tax incentives offered to promote pension savings provide a rational basis for savings decisions (Dundure, Sloka, 2020). In turn, behavioural theories widely discuss irrational reasons that encourage long-term thinking and facilitate a person's long-term financial planning.

Nudge theory is one of the most widely discussed behavioral theories in recent times (Thaler et al, 2009). *Nudging* talks about creating a supportive environment that makes it easier for the target audience to make the best possible decision easily and conveniently. It is the creation of an "architecture of choice" to steer decision-making in the desired direction, while leaving people free to act. Methods based on *Nudge* theory usually have no direct costs and are based on changing existing "choice architectures". For example, changing the default option to use people's tendency to passively accept default settings or "by default" choices. In this way, it contrasts with traditional instruments that change behavior with powers or prohibitions or with financial incentives that inevitably involve direct financial aspects.

Objective of the study:

- 1) To perform an analysis of the scientific literature on the use of methods based on *Nudge* theory in voluntary pension savings.
- 2) Based on literature review to identify the areas of responsibility of investors or voluntary decisions in the planning of pension savings with the aim of achieving a larger amount of the pension to be received.
- 3) To summarize tasks and methods of increasing pension savings in different stages of pension accumulation.
- 4) To create a comparative analysis of Latvia's 2nd and 3rd pension pillars from the perspective of decisions made by investors to determine the phases of pension savings, in which additional methods could be used to promote voluntary decision-making.

The results of the study provide a clear picture of the existence of voluntary decisions in the formation of pension savings, as well as specify areas and aspects in which the amount of savings can be increased by *nudge* methods.

The analysed scientific literature on the experience of developed countries and the analysis of the Latvian 2nd and 3rd pension systems developed by the authors from the perspective of the activities performed by the investor allow pension policy makers to purposefully improve the architecture of the pension system in Latvia.

Literature Review

Scientists have identified countless areas where governments, public authorities, large and small entrepreneurs can successfully use *nudge* theory methods in their work (Benartzi et al, 2017). Like all theories, *Nudge* theory has its drawbacks as well as the risky aspects of applicability. The choice environment must be built on the investor's long-term benefit strategy, and only then should nudging mechanisms be used to promote desired behavior. In their original article in 2003, the authors of *Nudge*'s theory Thaler and Sunstein (2003) describe the applicability of libertarian paternalism only when it influences the decisions of the parties involved only in their favor. For example, if you choose the default payment amounts, the amount selected may be disproportionate to a particular person and may be a reason not to pay at all and not to build up a private pension provision (Beshears et al., 2017, Goldin et al., 2017). Whether the system builders themselves do not suffer from behavioral bias is an important aspect in building a bias-free choice offer. This is also the reason why this method can only be used to stimulate well-established and tested preferred patterns of behavior.

Another important aspect is that nudging must be applied consistently - a survey of investor behavior between 2000 and 2016 conducted in Sweden (Cronqvist et al., 2018) showed that campaign-type *nudge* activities are unique in nature. This will make default rules nudges much more effective for individual, albeit very massive, advertising campaigns. To withstand a constant *nudge* system, digital tools provide a positive effect not only as a source of information, but also as a comparison site and even access to personalized information on people's retirement savings (Dundure, Sloka, 2019). Of course, this cannot be ruled out only if digital tools meet the requirements of light, convenient and easy-to-use functionality.

The fact that people deviate from the predictions of the rational agent model and are guided by supposedly irrelevant factors (SIFs) in their savings decisions shows the growing role of so-called non-financial incentives in decision-making (Kim, 2020). This poses new challenges for the regulator, creating requirements for information documents to be disclosed to investors, as well as presenting the offer of pension plans (Benartzi, Thaler, 2007). It turns out that the way information is presented prevails over content and issues such as return on investment, risk, investment strategies can be subordinated to the availability of plans and simplicity of choice (Bateman et al, 2016; Kozup et al, 2008; Madrian et al, 2011; Navarro-Martinez et al, 2011).

By researching the most effective ways to increase the amount of pension, several studies have been conducted on how it is possible to draw investors' attention to their preferred choices. *Nudge* theory methods can be used to create an investor disclosure document about the operation

of specific pension plans (Camilleri, Cam, Hoffmann, 2019; Bateman et al, 2016). According to research results participants did choose to use the default option, especially as it became more conservative as they approached retirement age and in combination with dynamic pictograms. The study showed that the way information is presented and the degree to which information is visible and relatively perceptible have a more significant effect than the content of the information.

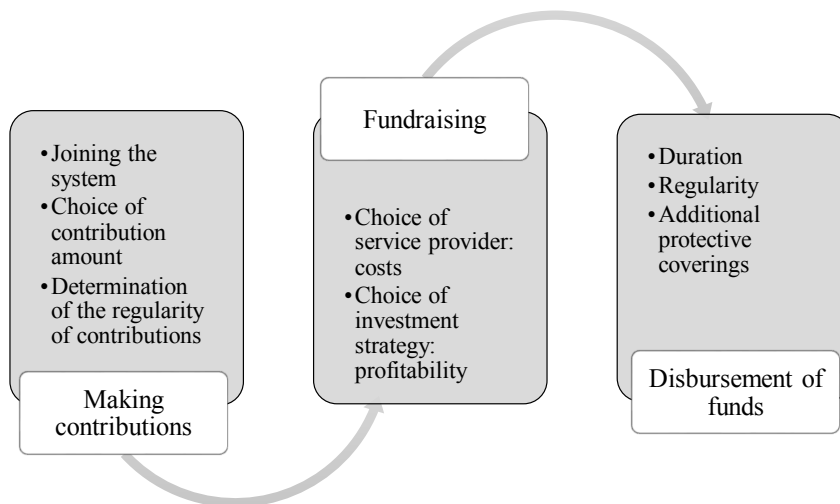
Although the described methods can be widely used to stimulate the desired action, the most effective way to involve the population in pension savings is the so-called auto-enrollment mechanism. (Madrian, Shea, 2001). The authors have extensively analyzed the impact of automatic registration on existing pension plans in England, concluding that auto-enrollment is critically important for participation in pension plans and the creation of automatically selected savings. It was concluded that this "default" behavior stems from the participants' inertia to make pension investment decisions independently. It is also important that the option automatically offered was considered to be the best that "someone more competent" offers. The findings of this study are very widely discussed in the academy and also serve as a basis for government agencies to develop pension planning tools.

The experience of the countries of the world shows that employers play a critical role in the involvement of the population in the formation of pension savings (Atkinson et al, 2015). At the beginning of the employment relationship, existing occupational pension plans with both explanatory work and financial motivators by matching the contributions are offered. In addition, creating savings by automatically deducting payments from the pension plan from your salary is convenient, easy, and therefore efficient. In addition, according to Beshears et al. study provided in 2013 a ready-made offer to join a pension savings plan with an already defined contribution rate and investment strategy, which means simplifying the choice, both increased the number of participants and increased the amount of their payments.

Equally important in increasing the amount of the pension is an efficient pension payment system - duration and regularity, as well as the possibility to postpone it to the later possible time and distribute it evenly over the rest of one's life. Here, too, the peculiarities of human perception must be considered, on the basis of which it is possible to form appropriate nudging. The results of the study (Brown et al.,2013) suggest that when planning the type of pension payment - annuities, the efficiency of pension savings should be achieved from the perspective of the desired amount of consumption and not from the measurement of return on investment. At the same time, when people build up their pension savings, they expect it to be clear how much their monthly pension is. According to another study (Finke, Fichtner, 2021), eighty-one percent of participants state that a guaranteed income would be the most desirable outcome of a life-saving pension provision.

Research results and discussion

To carry out a comprehensive analysis of the investor's impact on the increase in savings, it is useful to divide the pension accumulation process into stages: making contributions, saving and disbursing the accumulated funds. In each of these stages, it is possible to identify the activities (Figure 1) to be performed by the investor within the existing system, as well as the necessary Choice architecture, which would promote more active and effective involvement of investors in the increase of pension capital.



Source: author's construction based on literature review

Fig. 1. The pension accumulation process and its components

The figure shows the phases of pension savings, as well as the measures to be taken by investors to increase the final pension income in each of them.

The OECD not only compiles indicators for pension systems, but their annual studies shed light on specific pension analysis issues. Its 2018 edition (OECD, 2018) provided an in-depth study of developed countries' approaches to increasing pensions for the population, focusing on five key decisions that people need to make when planning and designing a pension: membership issues, contribution rates, choice of provider, investment strategy and pension payout.

Given the current relatively low level of financial literacy of the population, as well as the inherent behavior of people, the OECD in its study analyzes the experience of developed countries that pension policy makers are doing and can still do to increase pensions. Referring to the principles of nudge theory, the OECD (OECD, 2018) recommends the use of the following methods to facilitate people's decision-making in the formation of pension savings: Automatic features, Default options and Simplification of information and choice. All this together creates a favorable environment or choice architecture for pension decisions. In the table below, the authors have summarized the main methods used in developed countries to increase pension savings by linking them to the phases of pension savings described above.

Tasks and methods of increasing pension savings in different stages

	Task	Mechanism
Making contributions		
Joining the system	Involve as many participants in the system as possible	Changing the default enrolment mechanism Focus on occupational plans Self-employed and informal workers could be nudged into the same scheme into which formal employees are enrolled, with the same incentives
Choice of contribution amount	Motivate to increase contributions	Matching contributions with government or/ and employee Setting default contribution rates at high levels Automatically increasing contribution rates Creating pension planning tools with personalised information or calculators
Determination of the regularity of contributions	Motivate contributions to be made regularly	Simplifying the contribution process Automatic payments from income using occupational pension plans
Fundraising		
Choice of service provider	Simplify the choice of service provider Offer a wide range of service providers that are easy to compare	Enhancing disclosure on costs and fees, and past returns information Possibility for voluntary extra savings with an existing service provider
Choice of investment strategy: risk, volatility and return	To maximize possible capital return level according to life cycle and length of contract	Simplifying choice by using default mechanisms; default lifecycle strategy plans Reducing the set of available investment options Providing financial advice and financial education
Choice of investment plan: costs and fees	Provide an opportunity to assess the cost efficiency of service providers	Showing the the capital return after applicable costs and fees or simplifying costs and fees information disclosure
Disbursement of funds		
Retirement age	To give an opportunity to postpone the start of receiving a pension	Flexibility during the first years in retirement, with a deferred life annuity starting payments at the age of e.g. 85
Duration and regularity	Provide a lifelong stream of income after retirement	Promoting the demand for life annuities by establishing them as defaults Financial incentives to choose annuities Risk-sharing features can be included in life annuities Pension savings product should be presented in a consumption frame vs investment frame Facilitating product comparisons: A platform comparing post-retirement options and bids

Source: author's construction based on literature review

Summarizing the methods observed in the table, using default options is the most effective way to achieve greater coverage of pension savings. They can be used for the contribution rate, the pension provider, the investment strategy and the post-retirement product therefore simplifying the decision-making process.

The next task of this study is to analyze the Latvian pension system from the perspective of the decisions to be made by investors and the possibilities provided by the created choice architecture. Given that participants make decisions not only regarding the 3rd pension pillar, but also about the amount of capital accumulated in the 2nd pension pillar, it is important to analyze the involvement of the population in decision-making at both pillars.

The involvement of the population in the three stages of pension accumulation at the 2nd and 3rd pension pillars is determined by the rights and obligations of investors in accordance with the relevant legislation and accompanying regulations (Saeima, 2000, 2019). Based on the analysis of the legislation, the authors summarize in Table 2 the voluntary activities of the participants in the pension system in Latvia.

Table 2

The nature of investor decision-making in various phases of pension savings formation at the 2nd and 3rd pension pillars in Latvia in November 2021

	2nd pension pillar	3rd pension pillar
Making contributions		
Joining the system	Automatic in proportion to social contributions	Voluntary decision
Choice of contribution amount	Fixed, automatic in proportion to social contributions	Voluntary decision justified by tax incentives
Determination of the regularity of contributions	Automatic in proportion to social contributions	Voluntary decision
Fundraising		
Choice of service provider	Voluntary choice with the right to change once a year, there is a default choice	Voluntary decision
Choice of investment strategy: risk, volatility and return	Voluntary choice with the right to change investment plans up to twice a year, there is default choice	Voluntary decision
Choice of investment plan: costs and fees	Voluntary choice with the right to change investment plans up to twice a year, there is a statutory cost and fees ceiling	Voluntary decision
Disbursement of funds		
Retirement age	Defined by law without the possibility of postponement	From the age of 55
Duration and regularity	1)Automatically until the end of life, adding pensions to the 1st pillar 2)Under the terms of a lifetime pension, it is also possible to receive it irregularly, receiving half of the amount during the first five years	Voluntary decision
Additional protective coverings	Voluntary choice to inherit during accrual and pension	Voluntary choice to inherit during accrual and pension

Source: author's construction based on legislation

The table above shows the differences in the level of voluntary decisions made by investors at the level of the 2nd and 3rd pension schemes in Latvia. For the 2nd pension pillar, despite automatic involvement in the system, a lot of decision-making freedom is defined in the Fundraising phase, moreover, certain decisions are made by default instead of investors - in choosing the initial service provider and investment plans. Pension policy makers have also prepared an offer for the Disbursement of funds phase, setting out the options between adding pensions to the 1st pillar and choosing the insurance annuities policy, although the lack of flexibility in choosing the retirement age is a disadvantage. In turn, in all phases of the 3rd pension pillar, all activities are voluntary. We can conclude that there are no non-financial incentives for investments at the 3rd pension pillar in Latvia, extra pension savings are fully dependent from only financial incentives.

Conclusions, proposals, recommendations

1. In an ideal world, people would make informed decisions when making contributions to their retirement capital with their first salary, carefully choose service providers and investment plans, compare multiple offers, and choose the best retirement strategies. But even in developed countries, the reality is far from the ideal world. Therefore, when designing the choice architecture of a pension system, it is necessary to take into account both the level of financial literacy of the existing population and the existing patterns of behavior in financial planning issues.
2. The review of the scientific literature according to which the methods proposed by Nudge theory for improving the pension system are highly valued by both researchers and pension policy makers in developed countries.
3. The system of investor decisions allows to create an analysis of any pension system in a comparable way. It combines the tasks of each stage of pension accumulation - Making contributions, Fundraising and Disbursement of funds - with the applicable Nudge methods.
4. The comparative analysis of the 2nd and 3rd pillar of Latvian pensions allows concluding the applicability of the Nudge theory methods in several stages of pension savings formation of the 2nd pillar, while no behavioral theory methods are used for the 3rd pension pillar.
5. In this way that there is a high potential to promote additional pension savings at the 3rd pension pillar by introducing some of the methods listed in the study.

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RELATION BETWEEN ORGANIZATIONAL IDENTIFICATION AND WORK-LIFE BALANCE

Marija Geidelina-Lugovska, University of Latvia
Andrejs Cekuls, University of Latvia

Abstract. Organizational identification (OI) is considered to be one of the key concepts to explain behaviors and attitudes of employees. Therefore, organizational identification has become a widely used concept in the field of organization and management studies and across numerous other related disciplines. The objective of the research is to explore the relation between employee organizational identification and work–life balance and more specifically to check, whether the relation is linear and always positive. An online survey was distributed through various resources in October 2021 to measure organizational identification and work-life balance of employed people in Latvia. Van Dick organizational identification scale was used to measure OI and Work–Life Checklist, re-worked by Dex and Bond was used to measure work-life balance. 213 respondents provided complete data. During research a curvilinear link between organizational identification and work-life balance was found. The results provide evidence for the importance of organizational identification. Especially a need of promoting and stimulating organizational identification among employees.

Keywords: *organizational identification, work-life balance, stress.*

JEL code: M14

Introduction

Working time is a key component of people’s working lives. According to the organization for Economic Co-operation and Development (OECD) 11% of employees worked 50 hours or more per week in 2020. Numerous studies have shown that a specific psychological connection arises between employees and organizations (Abrams, Ando and Hinkle, 1998; O’Reilly and Chatman, 1986). This psychological attachment is most often called organizational identification. Cheney and Tompkins (1987) have posited that organizational identification is "both a process and product involving the development of a relationship between individuals and organizations". There is a widespread opinion in literature, confirmed by many empirical studies, that organizational identification has positive consequences that is favorable for both the employee and the organization (Hunter and Thatcher, 2007; Lee, Park and Koo, 2015; Riketta and van Dick, 2005; Steffens, Haslam, Schuh, Jetten and van Dick, 2017). However after more than two decades of research on the positive consequences of organizational identification, researchers have begun to realize that it also has a negative footprint that needs immediate consideration. The aim of the present research was to further explore the relation between employee organizational identification and work–life balance and more specifically to check, whether the relation is linear and always positive.

Literature Review

According to report of the Center for Evidence-Based Management (CEBMA) by Wietrak et al (2021) the first academic publications on what is today referred to as organizational identification appeared early in the development of organizational science – already in 1911 Frederick Taylor emphasised the importance of workers identifying with the organization’s values and strategic goals (Taylor, 1911). Around 45 years later, Herbert Simon and James March formalised the construct, giving it a theoretical foundation, and articulating its antecedents and outcomes (March and Simon, 1958). In the late 1980s, the construct gained trust and, with the publication of Albert and Whetten (1985), organizational identification became one of the root constructs in organizational studies (Ashforth et al, 2008). Due to the fact, the literature on organizational identification is diverse, there are quite many definitions available, including “the congruence of individual and organizational values” (Hall et al, 1970), “perception of oneness with or belongingness to the organization” (Ashforth and Mael, 1989), or “an affective bond with the organization” (Ouwkerkerk et al, 1999). It also affects the processes in the organization (Cekuls, 2018) and culture of communication (Cekuls, 2016). Basically all those definitions refer to an overlap between an employee’s self-image and their image of the organization (Riketta and van Dick, 2005). Organizational identification is closely related to but conceptually different from organizational commitment. Organizational commitment represents a positive attitude towards the organization, where the self and the organization remain separate entities, but organizational identification represents the perceived oneness with the organization, where the self and the organization are both part of a person’s self-concept (Ashforth et al, 2008; Lee et al, 2015). Put differently, organizational commitment is associated with “How happy or satisfied am I with my organization?”, whereas organizational identification is concerned with “How do I perceive myself in relation to my organization?” (Pratt, 1998). For ages organizational identification has been considered a source of positive employee outcomes. Most definitions also suggest that it represents something positive. For example, Mael and Ashforth (1992) define it as “perceived oneness with the organization”. However, researchers have begun to realize that organizational identification might not be as beneficial for organizations as it seems, mainly because it might cultivate negative emotions and behaviors among employees (Naseer et al, 2019). There is not much literature available regarding negative aspects of the organizational identification. The existing literature suggests that the negative outcomes of organizational identification are subject to underlying mechanisms and boundary conditions, which still need to be tested to fully understand the factors that cause employees to exhibit negative attitudes and behaviors as a result of organizational identification (Ashforth, 2016; Chen et al, 2016; Naseer et al, 2019). Therefore all kinds of researches related to the organizational identification and its consequences are extremely important for further development of theoretical basis and overall perception of the organizational identification.

Research

Latest researches regarding organizational identification are mainly focused on its negative consequences. For example, Naseer et al (2019) have discovered, that high identification creates unethical work behaviors through instigating feelings of psychological entitlement; Avanzi and van Dick (2012) proved, that organizational identification increased well-being by reducing workaholism, but when identification became too strong, its positive impact became negative, leading to higher levels of workaholism, which in turn decreased well-being.

The aim of this research is to check relation between organizational identification and work-life balance.

Methodology

An online survey was distributed through various resources in October 2021 to measure organizational identification and work-life balance of employed people in Latvia.

Following measures were used:

Organizational identification. However the most widely used scale that measures employee organizational identification is the Mael scale, developed by Mael and Ashforth (1992), another scale, developed by van Dick et al (2004) was used. This scale includes seven items, such as “I identify myself as a member of [name of organization]”, and “Being a member of [name of organization] reflects my personality well”. Responses were given on a 6-point response scale: 1 = not at all; 6 = totally (Fig. 1).

	NOT AT ALL					TOTALLY
	1	2	3	4	5	6
Q1 I identify as a member of (my organisation).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q2 Being a member of (my organisation) reflects my personality well.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q3 I like to work for (my organisation).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q4 I think reluctantly of (my organisation). (R)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q5 Sometimes I rather don't say that I'm a member of (my organisation).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q6 (My organisation) is positively judged by others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q7 I work for (my organisation) above what is necessary.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Source: Van Dick et al, *Journal of Occupational and Organizational Psychology* (2004)
NOTE: "(My organization)" can be replaced with the organization's name; (R) denotes a negatively phrased and reverse scored item.

Fig. 1. Van Dick organizational identification scale (2004)

Work-life balance. Checklist, developed by Daniels and McCarragher (2000), also known as The Industrial Society's Work-Life Checklist, re-worked by Dex and Bond (2005) was used to measure work-life balance. Initial checklist instrument consisted of ten statements about work-life balance where answers were either AGREE, SOMETIMES or DISAGREE (Fig. 2).

	A	B	C
	AGREE	SOMETIMES	DISAGREE
Q1 At the moment, because the job demands it, I usually work long hours	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q2 There isn't much time to socialise/relax with my partner/see family in the week	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q3 I have to take work home most evenings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q4 I often work late or at weekends to deal with paperwork without interruptions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q5 Relaxing and forgetting about work issues is hard to do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q6 I worry about the effect of work stress on my health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q7 My relationship with my partner is suffering because of the pressure or long hours of my work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q8 My family are missing out on my input, either because I don't see enough of them/am too tired	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q9 Finding time for hobbies, leisure activities, or to maintain friendships and extended family relationships is difficult	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Q10 I would like to reduce my working hours and stress levels, but feel I have no control over the current situation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Source: Daniels and McCarragher, *Industrial Society* (2000)

Fig. 2. The Industrial Society's Work-Life Checklist

The manual suggests that a predominance of A means work-life is out of balance and in need of attention (Table 1).

Table 1

Guidelines for interpreting the responses to the Work-Life Checklist

All or mostly A	You may already be under considerable stress from your lack of work-life balance. Over time, your productivity could suffer along with relationships, your health and long-term employability. As an individual, start to address your own needs so that you become more effective. At work, try to promote better work-life balance to the advantage of the whole workplace.
All or mostly B	You are not entirely happy with your work-life balance, but in a good position not to let the situation get out of control. By encouraging your organization to adopt a work-life strategy, you can help to create an enhanced working environment that will benefit you, the organization and colleagues at all levels.
All or mostly C	You have set your own priorities in work-life balance, making them work for you. As well as the benefits to you and your family, is your organization getting more from you? Show leadership by encouraging a culture that respects work-life balance for all and takes into account the fact that individuals have differing demands at various stages of the life-cycle. When people have a sense of control over their work-life balance, they can be more productive and committed to their work and better prepared to manage the demands of today's rapidly changing workplace.

Source: Daniels and McCarragher, *Industrial Society* (2000)

Dex and Bond during their survey in 2005 discovered, that the checklist presents problems. 3 of the statements (Q2, Q7 and Q8) can only be answered meaningfully by employees who are in partnerships and/or have children. During their survey some individuals left these questions unanswered, presumably because they felt they were inappropriate to their circumstances.

	A AGREE	B SOMETIMES	C DISAGREE
Q1 At the moment, because the job demands it, I usually work long hours	o	o	o
Q2 I have to take work home most evenings	o	o	o
Q3 I often work late or at weekends to deal with paperwork without interruptions	o	o	o
Q4 Relaxing and forgetting about work issues is hard to do	o	o	o
Q5 I worry about the effect of work stress on my health	o	o	o
Q6 Finding time for hobbies, leisure activities, or to maintain friendships and extended family relationships is difficult	o	o	o
Q7 I would like to reduce my working hours and stress levels, but feel I have no control over the current situation	o	o	o

Source: Dex and Bond, BSA Publications (2005)

Fig. 3. Work–Life Checklist by Dex and Bond (2005)

Therefore a new checklist was introduced, based on The Industrial Society’s Work–Life Checklist, largely to take account of the fact that employees could either have or not have family responsibilities. Work–life balance checklist includes seven items, such as “At the moment, because the job demands it, I usually work long hours” and “Finding time for hobbies, leisure activities, or to maintain friendships and extended family relationships is difficult” where answers were either AGREE, SOMETIMES or DISAGREE (Fig. 3). Answers agreeing with the statement A scored three; those who disagreed C scored one, and those who indicated this was sometimes a problem B scored two.

Research results and discussion

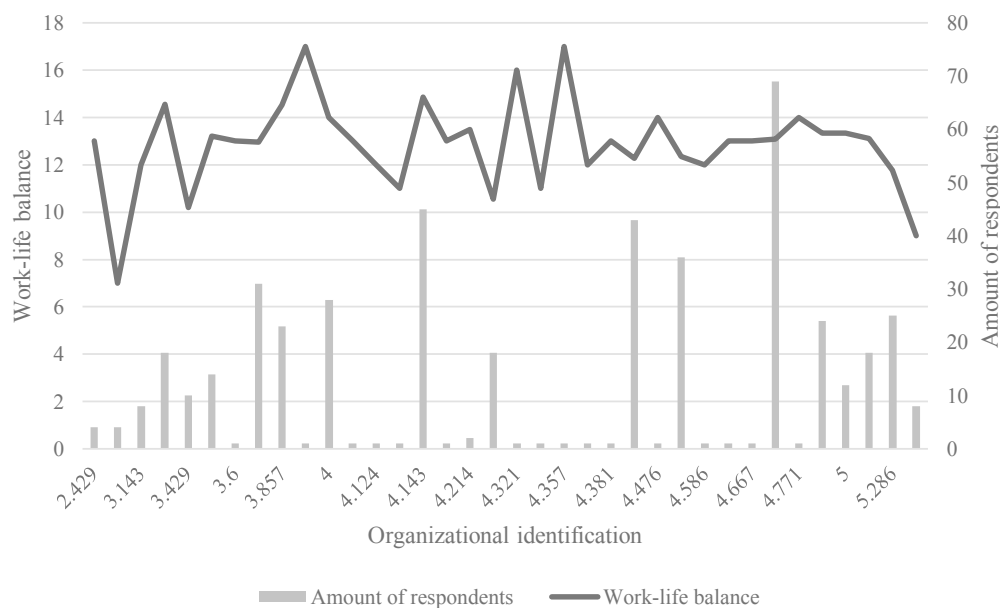
Overall, 213 respondents provided complete data. Participants’ age varied from 18 to 61 years (M 34.02; SD 9.473; 2 - missing data). Gender distribution - 49% male and 51% female. Overview of collected data regarding organizational identification and work-life balance is shown in table 2.

Table 2

Collected data overview		
	OI	Work-life balance
N	213	213
Mean	4.325	12.93
Std. Deviation	0.613	3.276
Minimum	2.429	7
Maximum	5.571	21

Source: author’s construction based on survey

According to table 2, organizational identification varied from 2.429 to 5.571, where mean result was 4.325 with standard deviation 0.613, while work-life balance varied from 7 to 21, where mean result was 12.93 with standard deviation 3.276. Maximum possible for OI is 6 and for work-life balance is 21. All answers were divided into clusters, indicating level of organizational identification. Figure 4 shows amount of respondents and average work-life balance result of each group.



Source: author’s construction based on survey

Fig. 4. Collected data overview by level of organizational identification

The IBM® SPSS® software platform was used to perform statistical analysis. The bivariate Pearson Correlation analysis was performed to check whether a statistically significant linear relationship exists between organizational identification and work-life balance. Correlation analysis results are shown in table 3.

Table 3

Correlation analysis results

		Work-life balance
OI	Pearson Correlation	-0.076
	Sig. (2-tailed)	0.27
	N	213

Source: author's construction based on IBM® SPSS® software platform performed statistical analysis

Significant linear correlation was not detected, but as $\rho \neq 0$, a non-linear relationships could exist. Further regression analysis was performed, where independant variable is organizational identification and dependant variable is work-life balance.

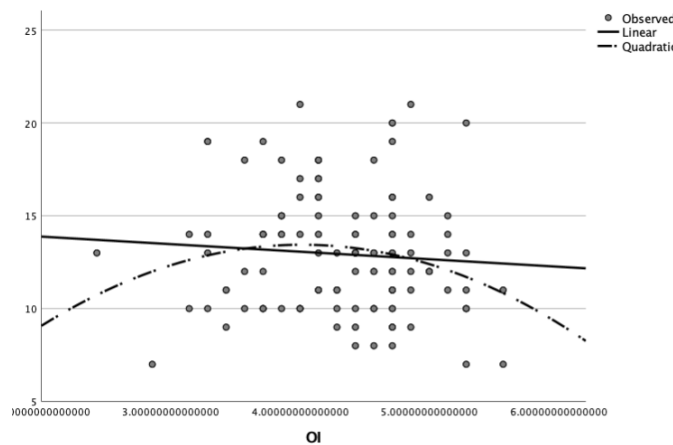
Table 4

Regression analysis results

Equation	Model Summary					Parameter Estimates		
	R Square	F	df1	df2	Sig.	Constant	b1	b2
Linear	0.006	1.223	1	211	0.27	14.689	-0.406	
Quadratic	0.033	3.575	2	210	0.03	-3.889	8.631	-1.075

Source: author's construction based on IBM® SPSS® software platform performed statistical analysis

Table 4 shows main results of performed regression analysis. R square result of quadratic relation shows, that this equation is more suitable to express relation between 2 variables.



Source: author's construction based on IBM® SPSS® software platform performed statistical analysis

Fig. 5. Quadratic relation between organizational identification and work-life balance

Figure 5 shows the instantaneous indirect effect of used multiple regression analyses to compute nonlinear relation between the independent and dependant variables.

Conclusions, proposals, recommendations

1. During research a curvilinear link between organizational identification and work-life balance was found. At the level of medium organizational identification, employees start getting considerable stress from lack of work–life balance. Over time, their productivity could suffer along with relationships, health and long-term employability. However, if the organizational identification gets higher, work-life balance bounces back at positive stage.
2. These results provide evidence for the importance of organizational identification. Especially a need of promoting and stimulating organizational identification among employees. When people have a sense of control over their work–life balance, they can be more productive and committed to their work and better prepared to manage the demands of today’s rapidly changing workplace.
3. The research also has some limitations. First, the samples were not particularly large and certainly not representative. The research should be replicated a few times to see correlations. Second, although the expected indirect effects of organizational identification on work-life balance were found, a mediation model could be created by adding additional variables, like workaholism and well-being to check cross-functional relations between all variables.
4. The findings suggests that strengthening employee identification is useful to help them cope with stress. Managers are suggested to encourage a culture that respects work–life balance and perform actions to strengthen organizational identification. However, should keep in mind other research findings - when organizational identification became too strong, its positive impact became negative (Avanzi and van Dick, 2012). Therefore, organization managers and top management should always levitate between moderate and too high organizational identification.

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E-WASTE MANAGEMENT SYSTEM PROBLEMATIC IN INDIA

Naibin George, University of Latvia
Andrejs Cekuls, University of Latvia

Abstract. The exponential growth or up-gradation in technologies, requirements for working or learning from home during COVID-19, manufacturers competition in releasing new electronic gadgets and devices that serves the consumers comfort and a declivity in services has contributed to an increase in the e-waste or waste of electrical and electronic equipment (WEEE) generation rates. In order to attain the goal and objectives, the following qualitative methods were used: a content analysis of the recent scientific and professional literature available, secondary data research of governmental reports, and industry databases. The study is based on scientific papers published by scholars, reports from governmental and industry bodies. This paper has discussed the generation of e-waste in India and its main constituents. The study was conducted in October and November 2021. The study includes a general screening of more than 100 publications covering the period 2010-2021 and a reading of more than 20 selected publications, including the cited literature and each citation. The paper launches a discussion of previous research on e-waste management, suggests ideas for further research, and expands the literature to the optimal utilization of e-waste. Furthermore, aspects related to the effect on the health due to e-waste and current practices in handling e-waste in the country. In particular, the current regulatory directives in India and how these regulations, control the authorized recycler is also discussed. Finally, the author conducted a T-test to study the relationship between the literacy and formal recycling centres in their states of India.

Keywords: *E-waste, WEEE, Recycling.*

JEL code: M10, P18

Introduction

Electronic waste (e-waste), i.e., waste arising from end-of-life electronic products such as computers and mobile phones, is one of the fastest-growing waste streams in the world today. India is among the top five E-waste producing countries in the world with an estimated annual production of 2 million tons. Like some of the other developing countries, E-waste management in India is dominated by the informal sector with estimates of more than 90 percent of the waste being processed in this sector. E-waste contains several precious metals, rare earth metals, ferrous and non-ferrous metals, plastic, wood, and glass. Unscientific practices in the processing of E-waste are associated with several environmental and health externalities (Toxics Links,2014). In response to these concerns, many developed and developing countries have, over the past few decades, introduced regulation.

Basel convention defines wastes as substances or objects that are disposed of or are intended to be disposed of by the provisions of national laws. Electronic waste or E-waste for short is a generic term embracing various forms of electric and electronic equipment that have ceased to be of any value to their owners. The approach of consumer-targeted growth policy combined with rapid product obsolescence and technological advances have generated a new environmental challenge; the threat of “Waste Electrical or Electronic Equipment (WEEE)” or “E-waste” that consists of obsolesces electronic devices.

E-waste management includes the collection, sorting, and recycling of electronic products. In India, most people are not aware of how to dispose of their old equipment, so they just sell out the things to the local scrap man roaming in the streets (known as Informal system). They are only bothered about the cost of their products. After that what that vendor will do with those things is none of their business. But now it’s high time to understand the systematic disposal of E-waste and spread awareness about it among people. Major E-waste collected is not recycled. Recycling is important but how the recycling would be done is a major concern (Tyagi N. et al.,2015). This article uses content analysis and T-test as the scientific methods. In content analysis, four groups of search words are used and are performed manually. The author takes into account the influence of cases and the number of words. As a result of the analysis, it is possible to determine the direction of the report and the degree of the informal e-waste management system in India. A T-test is also performed to find out the relationship between two variables such as the literacy rate of people of different states in India and formal recycling centers.

Literature Review

The main concerns and challenges of E-waste management are that Consumers and manufacturers are not aware of the correct disposal of e-waste. There is no check on E-waste generation and recycling. E-waste is majorly processed by the informal sector, which uses old techniques resulting in polluting the environment. The workers working in the informal sector are not aware of the generated toxins and health hazards and lack of the latest technologies in the informal sectors, resulting in the partial extraction of the resources. There are no specific rules defined and imposed to handle E-waste. Partial dismantled products are landfilled (Tyagi N. et al.,2015).

Due to the distinct nature of E-waste (containing both valuable and toxic chemicals), the waste products and the material constituting E-waste flow in a number of directions. In developing countries e-waste is considered a valuable commodity and customers get paid by the collectors (Islam et al.,2019). On the other hand, developed countries implemented strict regulations by which the flow of E-waste through illegal channels is banned and illegal dumping is banned. Identification of the flows of such a waste stream in both visible and illicit media is an important area of investigation for all countries from the point of view of resource conservation, transboundary movement, and human-health protection (Nazmul Huda et al.,2019).

Informal System (Tyagi N. et al.,2015).

This sector is managing the major e-waste in India. The collection has been done by the local scrap vendors. After collection, the recycling process involves segregation and dismantling the products. Primitive techniques are used in this process. Which may include (i) disassembling of electronic equipment; (ii) heating or manual dismantling of printed circuit boards; (iii) recovering metals by opening or cutting cables; (iv) breaking or melting plastics; (v) toner sweeping; (vi) metals recovery by open acid leaching of e-waste. Most of the scrap vendors are not much educated; moreover, the people working under them are also not skillful and educated. They also do the repair and refurbishment of old products, which will be sold in the second-hand market. They just use their older and traditional illegal methods of burning the products to extract the metals – in many cases, they are not aware of the risk/health risks involved. The extraction process emits various toxic elements polluting the air and the disposal/ smudges of e-waste contaminate the water. The remaining waste is then landfilled somewhere illegally. Additionally, workers work in an environment with no ventilation, or personal protection equipment, leading them to direct exposure to these hazardous elements causing many chronic diseases. As our society is not doing anything, this sector is growing day by day.

Formal System (Tyagi N. et al.,2015).

As most of the e-waste in India is handled in a non-regulatory method, some policies need to be implemented to make it regulated. A formal system is a sector where e-waste is managed in an environment-friendly manner. The latest available technologies are used to manage and recover the resources. But a lot more cost investment is required to maintain the measures, making the road tough for the formal recyclers, as

they have to face competition from the informal sector. Electronic equipment is collected and segregated on the basis of its use. Categorized equipment is sent for refurbishment or dismantling process, as required. After processing, the reusable components from refurbishment are sent to the market and the rest may be sent for dismantling. During dismantling, the proper procedure is taken to ensure environment-friendly disposal of residues. Various items are separated and categorized to recover important materials for the market. The number of cycles the process takes may vary.

Table 1

List of authorized E-Waste Recyclers/ Dismantler (updated on 24.03.2021)

SI	State	No. of Authorized Recyclers/Dismantlers	State-wise Capacity (in metric tons)
1	Andhra Pradesh	3	6600
2	Assam	1	120
3	Chhattisgarh	2	6600
4	Gujarat	19	50507.92
5	Goa	1	103
6	Haryana	39	133532.1
7	Himachal Pradesh	2	1500
8	Jammu & Kashmir	3	705
9	Jharkhand	2	660
10	Karnataka	71	52722
11	Maharashtra	99	94750.5
12	Madhya Pradesh	2	9600
13	Orissa	5	5690
14	Punjab	4	7250
15	Rajasthan	26	90769
16	Tamil Nadu	32	132049
17	Telangana	12	70893
18	Uttar Pradesh	68	382570.2
19	Uttarakhand	5	19971
20	West Bengal	4	1950
	Total	400	1068542.72

Source: Central Pollution Control Board, Govt. of India

Major issues related to the Indian scenario (Anupam Arora et al., 2013).

India's hospitals to see patients with 10 times the expected level of lead in their blood. In India, water samples revealed levels of lead, 190 times as high as the drinking water standard set by the World Health Organization. Thousands of children throughout India are attending schools that were built on or near toxic waste sites, with an increased risk of developing asthma, cancer, learning disorders, and other diseases linked to environmental pollutants. 1-20 kg per person/p.a and growing at 3 times faster than the municipal waste. Preliminary estimates suggest that the total WEEE generation in India is approximately 1,46,000 tons per year. 20 million electronic household appliances including TV, washing machines, PCs, etc., and 70 million cell phones reach end-of-life every year. Memory devices, MP3 players,

Table 2

Effects of e-waste constituent on health

SI No	Source of e-wastes	Constituent	Health effects
1	Solder in printed circuit boards, glass panels, and gaskets in the computer monitor.	Lead (Pb)	<ul style="list-style-type: none"> • Damage to central and peripheral nervous systems, blood systems, and kidney damage. • Affects brain development of children
2	Chip resistors and semiconductors.	Cadmium (Cd)	<ul style="list-style-type: none"> • Toxic irreversible effects on human health. • Accumulates in kidney and liver. • Causes neural damage. • Teratogenic
3	Relays and switches, printed circuit boards.	Mercury (Hg)	<ul style="list-style-type: none"> • Chronic damage to the brain. • Respiratory and skin disorders due to bioaccumulation in fishes
4	Corrosion protection of untreated and galvanized steel plates, hardener for steel housings.	Hexavalent chromium (Cr VI)	<ul style="list-style-type: none"> • Asthmatic bronchitis & DNA damage.
5	Cabling and computer housing.	Plastics including PVC	<ul style="list-style-type: none"> • Burning produces dioxin. • It causes Reproductive and developmental problems; • Immune system damage. • Interfere with regulatory hormones
6	Plastic housing of electronic equipment and circuit boards.	Brominated flame retardants (BFR)	<ul style="list-style-type: none"> • Disrupts endocrine system functions

7	Front panel of CRTs	Barium (Ba)	<ul style="list-style-type: none"> • Short-term exposure causes. • Muscle weakness. • Damage to heart, liver, and spleen.
8	Motherboard	Beryllium (Be)	<ul style="list-style-type: none"> • Carcinogenic (lung cancer) • Inhalation of fumes and dust. Causes chronic beryllium disease or berylliosis. • Skin diseases such as warts.

Source: International Journal of Future Computer and Communication, Vol. 2, No. 5, October 2013, E-waste exposure and child health, WHO,2021

iPods, iPad, etc. are the newer additions. About 70% of the heavy metals (mercury and cadmium) and 40% lead, in landfills in India, come from e-waste. 22% of the yearly world consumption of mercury is used in electronics manufacture. More acid content flows into the land contaminating the soil and land value. About 70 percent, of heavy metals in India's landfills, come from E-Waste.

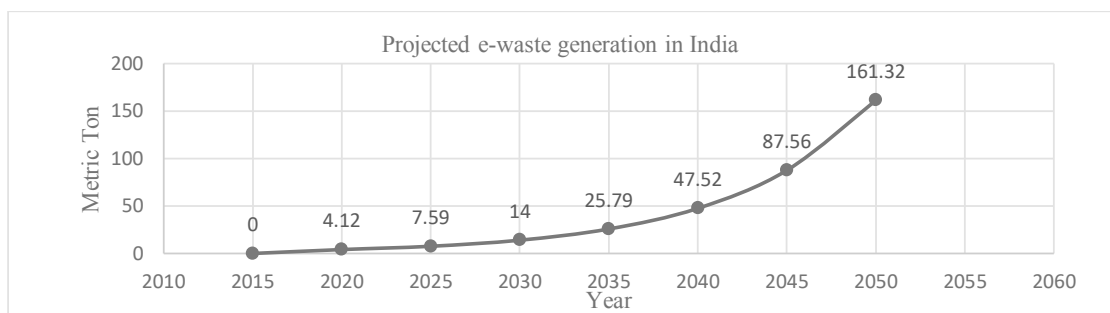
Indian's upgrade or exchange their cell phones every 18 months, meaning there are approximately 16 million unused mobile phones stashed away at home or in the office. The average working life of a mobile phone is 7 years but worldwide the average consumer changes their mobile every 11 months (Anupam Arora et al.,2013).

Sources of E-waste.

Manufacturer: According to surveys conducted about 50% of PCs that are sold all over the country are basically from the secondary market and are reassembled on the old components. The rest of the market share is covered by MNC's (30%) and Indian brands (20%). Besides manufacturers are major contributors of e-waste. The waste consists of defective IC chips, motherboards, CRTs, and other peripheral items produced during the production process. It also includes defective PCs under guarantee procured from consumers as replacement items (Gupta Reena et al.,2011).

Consumer: About 22% of junk computers are generated from Indian households, (Toxics Link report,2003). The routine process of getting rid of obsolete computers includes exchanging from retailers or passing on the same to friends or relatives. The business sector accounts for 78% of all installed PCs in India (Toxics Link report,2003). The junk computers from the business sector are often sold during the auction or sometimes donated to educational institutes or charitable institutions for reuse (Gupta Reena et al.,2011).

Import of E-waste: The import of e-waste is legally prohibited no doubt the reports prove that lots of e-waste are imported from abroad. The ministry of environment has no data related to the import of e-waste but the above says that 100% control of the borders is not possible (Gupta Reena et al.,2011).



Source: Atin Biswas and Siddharth Ghanshyam Singh Centre for Science and Environment,2020

Fig. 1. Projected E-waste generation in India

Current Practices of E-Waste Handling

Electronic waste can be profitable if we repair and/or reuse it or recycle the usable materials that it contains. On the other hand, it can be equally challenging to manage given that it contains a significant number of toxic substances. The basic principle of e-waste management thus includes collection, transportation, recycling, and disposal of the remaining waste with the least negative implications on the health, environment, and aesthetics of the location. There are several methods to manage e-waste and these techniques vary in developed and developing countries.

Disposal to Landfill

Landfilling is one of the most widely used methods for the disposal of e-waste because of its ease of operation. In this method, either the waste is openly dumped or mining voids/borrow pits can be used to bury e-waste. However, this method can cause leachate formation in landfill sites as well as change the site into a wasteland unable to be exploited anytime soon in the future (Ning C. et al.,2017).

Incineration (Pyrolysis)

Incineration involves burning a combustible fraction of e-waste in order to obtain non-combustible fractions such as metals. The main advantages of incineration are: faster reaction rates, ease to separate and recycle metals, and the gases and liquids formed as a result of material burning may provide enough energy to self-sustain the process thus serving as an energy or chemical source (Kumar A. et al.,2017). However, at low temperature (600–800 °C), copper can act as a catalyst and releases highly toxic polybrominated dibenzo-dioxins (PBDDs), polybrominated dibenzo-furans (PBDFs), polychlorinated dibenzo-dioxins (PCDDs), polychlorinated dibenzofurans (PCDFs), fly ash, carbon oxides, hydrogen bromide, methane, ethylene, benzene, toluene, phenol, benzofuran, styrene, PAHs, bromophenols, etc. (<https://www.itu.int/en>).

Reuse/Repair

Repairing/reusing instruments can be a good measure for sustainable waste management because it lowers the manufacturing volume of EEEs thereby reducing the amount of e-waste. A large volume of EEEs such as mobile phones has also created an opportunity to repair and reuse but is not realized well in many countries (Wieser H. et al.,2018). However, changes in product designs, technology, and wireless services often pose difficulties to upgrade or repair instruments (Cairns C.N.,2005).

Recycling

Recycling is an important method of e-waste handling because it helps re-extract materials from e-waste, reduces carbon emission, and restricts many usable and/or hazardous substances to end up in landfills. Only a small fraction (~17.4%) of the total e-waste generated was

documented to be collected and formally recycled (Tyagi N. et al.,2015). The average composition of an EEE includes 38% of ferrous and 28% of non-ferrous materials, 19% of plastics, 4% of glass, 1% of wood, and 10% of another material (Cui J. et al.,2003). On the other hand, printed circuit boards, which are essential parts of most EEEs, are rich in metal contents—an estimation is that a ton of circuit boards contains 40 to 800 times more gold and 30 to 40 times more copper than a metric ton of natural ore (Button K.,2020).

- a. Pyrometallurgical (Smelting) Processing: Pyrometallurgy has emerged as an easy, promising, and efficient method mainly used to recover non-ferrous materials such as copper and precious metals from e-waste (Jonovan V. et al.,2021).
- b. Hydrometallurgical Processing: Hydrometallurgical processes use alkaline or acidic solvents to leach metals from e-waste (Jonovan V. et al.,2021).
- c. Bio metallurgical Processing: Conventional recycling techniques need large sums to be invested in building infrastructures and that too comes at a cost of secondary emissions of hazardous substances risking both human health and the environment (Jonovan V. et al., 2021).

Table 3

Salient Features of the E-Waste (Management) Rules, 2016 and its likely implication

	E-waste (Management & Handling) Rules, 2011	E-Waste (Management) Rules, 2016	Reasons /and Likely implications
Applicability	Producer, consumer or bulk consumer, collection centre, dismantler and recycler	expanded to manufacturer, dealer, refurbisher and Producer Responsibility Organization (PRO)	to address leakage of e-waste to informal sector at all the stages of channelization.
	Only to Electrical and Electronic Equipment (EEE) as listed in Schedule I	Extended to components, consumables, spares and parts of EEE in addition to equipment as listed in Schedule I	Bulk of e-waste comprises of components, consumables, spares and parts of EEE which were not getting addressed in previous rules entailing to the scope of their channelization to informal sector.
		Compact Fluorescent Lamp (CFL) and other mercury containing lamp brought under the purview of rules.	Taking into account the lack of any regulation for management of CFL and other mercury containing lamp, CFL has been included in Schedule I which provide the list of EEE to which this rules is applicable.
Exemption	Micro and Small industry sector as defined in Micro Small and Medium Developmental Act, 2006	Micro enterprises as defined in the Micro, Small and Medium Enterprises Development Act, 2006	Exemption continues for micro enterprises; however small enterprises, which have been referred as one of the major source of generation of e-waste, have been included in the rules for responsibility as manufacturer, without burdening them with EPR responsibility as applicable to Producers.

Source: Central Pollution Control Board, Govt. of India

The E-Waste Management Rules 2016 have been amended vide notification G.S.R. 261(E), dated March 22, 2018. (Source: Press Information Bureau Government of India Ministry of Environment, Forest and Climate Change)

Some of the salient features of the E-waste (Management) Amendment Rules, 2018 are as follows:

1. The e-waste collection targets under EPR have been revised and will be applicable from 1 October 2017. The phase-wise collection targets for e-waste in weight shall be 10% of the quantity of waste generation as indicated in the EPR Plan during 2017-18, with a 10% increase every year until 2023. From 2023 onwards, the target has been made 70% of the quantity of waste generation as indicated in the EPR Plan.
2. The quantity of e-waste collected by producers from 1 October 2016 to 30 September 2017 shall be accounted for in the revised EPR targets until March 2018.
3. Separate e-waste collection targets have been drafted for new producers, i.e., those producers whose number of years of sales operation is less than the average lives of their products. The average lives of the products will be as per the guidelines issued by CPCB from time to time.
4. Producer Responsibility Organizations (PROs) shall apply to the Central Pollution Control board (CPCB) for registration to undertake activities prescribed in the Rules.
5. Under the Reduction of Hazardous Substances (RoHS) provisions, the cost for sampling and testing shall be borne by the government for conducting the RoHS test. If the product does not comply with RoHS provisions, then the cost of the test will be borne by the Producers.

Literacy rate of states & Union Territories in India

The results of the 2011 census revealed that there has been an increase in literacy in the country (see table 4).

Table 4

Literacy rate of states & Union Territories in India

SI	State & Union Territories in India	Literacy rate of states in Percentage
1	Uttar Pradesh	69.72
2	Haryana	76.64
3	Tamil Nadu	80.33
4	Maharashtra	82.91
5	Rajasthan	67.06
6	Telangana	67
7	Karnataka	75.6
8	Gujarat	79.31
9	Uttarakhand	79.63
10	Madhya Pradesh	70.63
11	Punjab	76.68
12	Andhra Pradesh	67.66
13	Chhattisgarh	71.04
14	Orissa	73.45
15	West Bengal	77.08
16	Himachal Pradesh	83.78
17	Jammu & Kashmir	68.74
18	Jharkhand	67.63
19	Assam	73.18
20	Goa	87.4
21	Kerala	93.91
22	Delhi	86.34
23	Nagaland	80.11
24	Manipur	79.85
25	Dadra & Nagar Haveli	77.65
26	Arunachal Pradesh	66.95
27	Bihar	63.82
28	Puducherry	86.55
29	Tripura	87.75
30	Daman & Diu	87.07
31	Lakshadweep	92.28
32	Mizoram	91.58
33	Sikkim	82.2
34	Andaman & Nicobar	86.27
35	Meghalaya	75.48
36	Chandigarh	86.43

Source: <https://knowindiaindia.gov.in>

The literacy rate in the country is 74.04 percent, 82.14 for males and 65.46 for females. Kerala retained its position by being on top with a 93.91 percent literacy rate, closely followed by Lakshadweep (92.28 percent) and Mizoram (91.58 percent). Bihar with a literacy rate of 63.82 percent ranks last in the country preceded by Arunachal Pradesh (66.95 percent) and Rajasthan (67.06 percent).

t-Testing is a common component of inferential statistics when comparing two means (Ben Derrick,2020) see table 5.

Table 5

T-Test: Two samples assuming unequal variance (using Excel)

				T-Test: Two-Sample Assuming Unequal Variances		
SI	State & Union Territories	State-wise Capacity of authorized Recyclers/Dismantlers (in metric tons)	Literacy rate of states in Percentage		State-wise Capacity of authorized Recyclers/Dismantlers (in metric tons)	Literacy rate of states in Percentage
1	Uttar Pradesh	382570.2	69.72			
2	Haryana	133532.1	76.64	Mean	48630.12	78.33
3	Tamil Nadu	132049	80.33	Variance	7516420524.47	67.84
4	Maharashtra	94750.5	82.91	Observations	22.00	36.00
5	Rajasthan	90769	67.06	Hypothesized Mean Difference	0.00	
6	Telangana	70893	67	df	21.00	
7	Karnataka	52722	75.6	t Stat	2.63	
10	Madhya Pradesh	9600	70.63	P(T<=t) two-tail	0.02	
11	Punjab	7250	76.68	t Critical two-tail	2.08	
12	Andhra Pradesh	6600	67.66			
13	Chhattisgarh	6600	71.04		0.020	
14	Orissa	5690	73.45		T.TEST(D4:D25,E4:E39,2,3)	
15	West Bengal	1950	77.08			
16	Himachal Pradesh	1500	83.78			
17	Jammu & Kashmir	705	68.74			
18	Jharkhand	660	67.63			
19	Assam	120	73.18			
20	Goa	103	87.4			
21	Kerala	1200	93.91			
22	Delhi	120	86.34			
23	Nagaland		80.11			
24	Manipur		79.85			
25	Dadra & Nagar Haveli		77.65			
26	Arunachal Pradesh		66.95			
27	Bihar		63.82			
28	Puducherry		86.55			
29	Tripura		87.75			
30	Daman & Diu		87.07			
31	Lakshadweep		92.28			
32	Mizoram		91.58			
33	Sikkim		82.2			
34	Andaman & Nicobar		86.27			
35	Meghalaya		75.48			
36	Chandigarh		86.43			

Source:

Calculated by the author

Testing involves comparing means and since the t-test is a parametric test, it assumes that the data is approximately normally distributed (Grech V.,2018). The author conducted a T-test to study the relationship between the literacy and formal recycling centers in their states of India. For the study, the author has considered the percentage of literacy of 28 states and 8 union territories and also the recycling capacity of authorized recyclers of the states and union territories of India. T-Test used is Two-Sample Assuming Unequal Variances, assuming null hypothesis (Ho) as there exist a relationship between the literacy and formal recycling centers in the states of India and an alternate hypothesis (Ha) as there is no relationship between the literacy and formal recycling centers in the states of India. The result of the T-Test, P(T<=t) value of the two-tail is 0.02 and is less than the critical value. So, the author has to reject the null hypothesis Ho and accept the alternate hypothesis Ha states that there is no relationship exist between the literacy and formal recycling centers in the states of India.

Conclusions, proposals, recommendations

1. E-waste management in India is dominated by the informal sector with estimates of more than 90 percent of the waste being processed in this sector. Unscientific practices in the processing of E-waste are associated with several environmental and health externalities. From the above table-1 which shows the list of authorized E-Waste Recyclers/ Dismantler in Indian states, out of 28 states and 8 union territories in India only 20 states have authorized E-Waste Recyclers/ Dismantler that too in very less number. Hence, new authorized E-Waste Recyclers/ Dismantler can be introduced in those states and union territories that have no formal sector or less in number.

2. From the T-test, it is found that there is no relationship exist between literacy and formal recycling centers in the states of India.
3. In India informal collection has been done by the local scrap vendors. After collection, the recycling process involves segregation and dismantling the products. Primitive techniques are used in this process, which leads to the wastage of resources. If proper training and support from the government are extended to those who work in the informal sector, wastage of resources can be reduced, and also health hazards can be minimized.
4. The e-waste management in this informal sector will lead to a lack of authenticated data. Such Non-availability of accurate data of e-waste flow is a major challenge to the Indian e-waste management system. Collection, recycling data on e-waste of EU nations are easily available due to the strong reverse supply chain. So Central Pollution Control Board, Govt. of India should develop a strong reverse supply chain model to record the data.

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CREDIT SCORING METHODS COMPARISON: A REVIEW

Daniels Jukna, University of Latvia

Abstract. Accurate assessment of borrowers' solvency is critical for lending companies, as improving lending decisions would reduce interest rates on loans and attract more borrowers with good solvency. For companies with only an expert-based and judgmental credit scoring, it may be unclear how to improve the accuracy of solvency determination and which statistical model to implement. There are many methods available in the scientific literature for developing such models. However, it is still unclear which method might be the best, considering the criteria relevant to the lending company. This paper performs an analysis of 71 scientific literature articles and conference proceedings included in the Scopus or Web of Science databases. It thus provides a unique and systematic assessment of credit scoring methods based on four basic principles - quality, statistical independence, interpretability, and efficiency. Logistic regression and decision trees have shown the highest score in this assessment due to the high classification accuracy and interpretability of results. These two methods could be the beginning of an efficient and well-functioning credit scoring model.

Keywords: *credit scoring, logistic regression, decision trees, classification methods' comparison.*

JEL code: C00, E51

Introduction

Accurate credit scoring is essential for every lending company to achieve high business performance and offer competitive interest rates to borrowers. High interest rates mainly are granted because there is a high probability that consumers will not repay the loan. At the same time, high interest rates impose an even more significant burden on the consumer, increasing the number of borrowers with poor solvency (Beck, et al., 2013). Wise and sound lending by creating an effective borrower solvency assessment model can help lending companies improve their lending decisions and achieve higher profits (Glennon et al., 2008), and it would also make it possible to reduce loans interest rates.

Both parametric (Bakker & Odundo, 2019) and non-parametric (Tripathi, et al., 2021) methods can be used to assess the solvency of borrowers, as well as hybrid models with a combination of several methods (Lawi, et al., 2017) (Li & Chen, 2021). Based on several studies, regression is one of the most used data mining algorithms that provide high accuracy of solvency determination (Zhou, et al., 2006) (Kleissner, 1998) (Schebesch & Stecking, 2005). As credit scoring models mostly use a binary dependent variable (borrower with good solvency and borrower with poor solvency) (Samreen, et al., 2013) (Bolton, 2009), logistic regression is recognised in the scientific literature as one of the best methods, and it is also widely used in the banking industry (Bolton, 2009) (Charitou, et al., 2004).

Although logistic regression is a suitable method for credit scoring and provides high-accuracy classification, it also has several shortcomings, such as the problem of multicollinearity and non-linear impact on solvency (Šušteršič, et al., 2009) (Gupta, 2018). In several studies, logistic regression has also been shown to perform worse than other methods, such as Artificial Neural Network (Ala'raj, et al., 2021) (Chuang & Lin, 2009), Random Forest (Breiman, 2001) (Tounsi, et al., 2019), or Support Vector Machine (Tripathi, et al., 2021) (Munkhdalai, et al., 2019). However, such conclusions are usually made considering just a few models. For example, there are also models for which logistic regression has given higher or similar accuracy compared to the Artificial Neural Network (Tripathi, et al., 2021) (Pławiak, et al., 2019) (Guo & Dong, 2017). It is still not clear whether non-parametric methods are better than parametric methods.

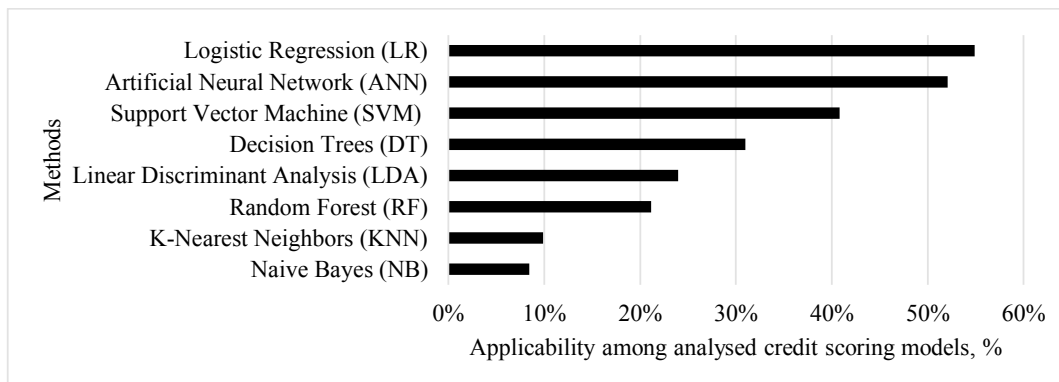
In recent years, machine learning algorithm methods for assessing borrowers' solvency have become more popular (Alpaydin, 2020). In the scientific literature, these methods mostly have given higher results in determining the borrower's solvency (Wang, et al., 2011) (Huang, et al., 2007). However, these methods also have several disadvantages, such as (1) the probability that the model will be over-fitted, (2) it is time-consuming for learning and training a model, (3), and it might not be clear how the model arrived at the results (Malhotra & Malhotra, 2003) (Vojtek & Kocenda, 2006).

As each study defends its own credit scoring modelling method, it is not clear to the lending company who is willing to make a credit scoring model for the first time which method to choose. For this reason, the primary purpose of this article is to compare and evaluate credit scoring modelling methods to make it easier for a lending company to choose the right and most appropriate method based on many important principles. For simplicity, this article only covers methods widely used to assess borrowers' solvency, and there is no hybrid model, as their implementation is quite complex, requiring additional scientific resources that a lending company may not have.

This work is mainly theoretical and based on an analysis of the scientific literature. However, this work helps understand which methods to use in future empirical research with actual data from lending companies. Some research limitations should be mentioned. Factor weights for each criterion were selected based on expert judgement, reflecting the ranked importance of these factors in the literature. In addition to the borrower's risk assessment, each institution has different loan terms that depend on different characteristics of the lending company, such as size, general business model, riskiness, and capitalisation. For example, smaller lending companies are likely to face more significant pressure and can therefore be expected to adjust their lending rules more aggressively than larger companies (Claessens, et al., 2018). The author did not assess whether these characteristics could affect the selection of the "right" method.

Literature review

An analysis of 71 scientific literature articles and conference proceedings included in the Scopus or Web of Science databases revealed that the most popular method for assessing borrowers' solvency is Logistic Regression (55%). However, the Artificial Neural Network (52%) is equally popular, followed by Support Vector Machine (41%), Decision Trees (31%), Linear Discriminant Analysis (24%), Random Forest (21%). Other methods are used less frequently, such as K-Nearest Neighbours (10%), Naive Bayes (8%) (see figure 1). The scientific literature also mentions many other methods that also have the potential to demonstrate high classification accuracy in credit scoring, such as Linear Regression (Nalić & Martinovic, 2020), Probit Model (Abdou, et al., 2008), Poisson Model (Dionne, et al., 1996), Fuzzy Logic (Tripathi, et al., 2021), Gradient Boosting (Parvin & Saleena, 2020), CHAID (Chi, et al., 2019), AdaBoost (Haoting, et al., 2018), Graph Convolutional Network (Lee, et al., 2021), Cost-Sensitive Multiple-Instance Learning (Zhang, et al., 2020) and others. However, these methods have been used less frequently, and they have not been included in this methods' assessment.



Source: author's construction based on the analysis of 71 scientific literature articles and conference proceedings

Fig. 1. Applicability of methods for credit scoring models in the analysed scientific literature

Logistic regression (LR) is a parametric method and one of the most widely used statistical methods in developing credit scoring models. The logistic regression model is an extension of linear discriminant analysis that allows overcoming data abnormalities. The simple logistic regression model can be easily extended to two or more independent variables, and the dependent variable consists of two values (the result is 0 or 1). The more variables, the more difficult it is to obtain multiple observations of all variables at all levels, so most logistic regression with more than one independent variable is performed using the maximum likelihood method (Abdou & Pointon, 2011). The logistic regression function is like the probability regression function, except that this regression acts as a standard distribution function instead of a logistic function (Eddy & Bakar, 2017).

Artificial neural network (ANN) is a mathematical representation inspired by the human brain and adaptation to new information. ANN is usually a non-linear optimisation tool based on the neural structure of intelligent organisms and which gain knowledge through experience (Fausett, 1993). ANN consist of two stages: (1) introduction of weights, which are usually small randomly generated variables; (2) introduction of a non-linear optimisation scheme (neural network learning). The neural network approach is appropriate in situations with a poor understanding of the data or its structure. Neural networks do not require data distribution assumptions (Noh, et al., 2005).

Support vector machine (SVM) is a non-parametric method (machine learning algorithm) that can be used to solve both classification and regression problems (Wah & Ibrahim, 2010). In SVM, each data item is represented as a point in a multi-dimensional space, while the number of features or factors determines the number of dimensions. The value of each object is represented in a coordinate system, and finding a hyperplane that distinguishes well between the two classes is the solution to the classification problem (Ray, 2017). The hyperplane is found by obtaining the greatest possible distance between it and the corresponding values of the object of different classes. Increasing the maximum distance reduces the complexity of the model, thus also reducing the expected overall risk of error (Ghodselahi, 2011). Another approach allows deviations subject to a penalty proportional to how far the object is on the wrong side. In this case, the task of the SVM method is to minimise the total amount of the penalty while increasing the distance between objects of different classes and the separating hyperplane (Bellotti & Crook, 2009).

Decision trees (DT) are a non-parametric method commonly used for regression and classification (Pedregosa, et al., 2011). This method uses a tree-like decision model, making it possible to visualise decisions, thus significantly facilitating the decision-making process (Gupta, 2017). In practice, DT is also complementary to existing solvency assessment methods (Bastos, 2007). DT is based on conditional probabilities, and this method can be represented as a tree consisting of nodes, branches, and leaves (each leafless node represents the attribute variable, the branches between this node and its downstream nodes represent the values of this attribute, and each leaf node usually indicates the exact class variable value) (Abellán & Castellano, 2017). The DT algorithm starts with two root nodes that contain borrowers with poor and good solvency. The attribute and the corresponding threshold that most successfully separates these borrowers are then found. The algorithm creates new subsidiaries according to a similar procedure until the stop criterion is met (Bastos, 2007). The purpose of the classification rules is to find the best decision based on its overall error rate or the lowest cost of misclassification (Eddy & Bakar, 2017) (Wah & Ibrahim, 2010).

Random forest (RF) is a non-parametric method and consists of many individual decision trees working together. A forecast is determined for each tree, and the class for which the most correctly classified number of cases is obtained becomes the solution (Yiu, 2019). The method creates several uncorrelated decision trees and uses them for forecasting or classification. The random forest algorithm selects a variable for each tree distribution from a limited number of randomly selected predictors to ensure a low level of correlation between these individual trees. The low correlation between decision trees protects each other from individual errors and thus provides higher classifications than each decision tree (Breiman, 1996). The performance of the random forest approach also accepts the non-linear data. The random forest approach results are obtained by taking the average value of all individual decision trees. Increasing the number of individual decision trees can also increase the accuracy of the result (Mbaabu, 2020).

Linear discriminant analysis (LDA) is a parametric method and one of the earliest traditional statistical methods used to assess borrowers' solvency models. Its purpose is to classify a heterogeneous population (borrowers) into homogeneous subgroups (borrowers with good solvency and borrowers with poor solvency) to decide whether to grant a loan to a borrower. Each borrower has a certain number of explanatory variables. The concept of the method is to find a combination of linear explanatory variables that separates most of the observations of one subgroup from another. In the case of two subgroups, the method aims to find a linear combination of explanatory variables that shows the maximum distance between the means of the two subgroups (Bolton, 2009).

The K-nearest neighbour classification (KNN) is a non-parametric method that evaluates the existence of similarities between the factors and their relationship in the test model (all subsequent observations of the model are classified in the class to which most "neighbours" belong) (Bolton, 2009). The k-nearest neighbour classification is intuitive, so it can be easily explained to business leaders, who should approve its implementation. The main problem with this method is the correct choice of the k-factor, obtaining discrete-value predictions with relative probabilities that do not have a proper interpretation of probabilities. This shortcoming could be eliminated by the Bayes method, which integrates this choice of the k-factor into the model, and such an approach also allows to determine the actual probabilities, which have an economic interpretation (Vojtek & Kocenda, 2006).

Naive Bayes (NB) is primarily a parametric method, but there are cases when it has a non-parametric nature (Soria, et al., 2011). The NB method is based on a simple probability distribution classifier applying the Bayesian theorem (from Bayesian statistics) with strict (naive)

independence assumptions. This method is well suited for cases where the number of dimensions of the input data is high (Vedala & Kumar, 2012). NB classifiers have performed quite well in many real-world situations, such as document classification and spam filtering, despite seemingly oversimplified assumptions. This method requires a small amount of training data to estimate the required parameters (Zhang, 2004). NB has several types, such as Gaussian Naive Bayes, Multinomial Naive Bayes, Complement Naive Bayes, Categorical Naive Bayes, and their difference is mainly in the assumptions about the probability distribution function (Pedregosa, et al., 2011).

Four basic principles are used to evaluate the methods. Three of them are quality, statistical independence (diversity) and efficiency (speed). The quality provided by the methods is recognised as the most valuable principle. The next most important principle is statistical independence, followed by efficiency (Duda, et al., 2000). It is also recognised in the scientific literature that in some cases, information on the reasons for the borrower’s refusal must be reported to the regulator or the borrower according to the legislation (Huang & Day, 2013) (Wah & Ibrahim, 2010), so the interpretability of the method (transparency) must be included as one of the criteria for evaluating methods, as (1) transparent credit scoring models can explain decision-making processes to managers, suggesting that they can be improved with expert knowledge (Hand, 2006), (2) managers still do not want to grant loans using combinations of methods (Lessmann, et al., 2015), (3) many countries require transparent financial supervision models (Finlay, 2011). Interpretability should be the second most important principle, together with the criteria of statistical independence considering its relevance.

There is evidence that the theoretical evaluation criteria of the model are not suitable for the evaluation of the credit scoring model. Therefore, it is important to use business reality measures (Munkhdalai, et al., 2019). However, these measures are practically not mentioned in the scientific literature. In this assessment, the quality of the model is evaluated using various performance evaluation criteria of the model, such as the Confusion Matrix (CM) or the Average Correct Classification (ACC) rate, Mean Square Error (MSE), Root Mean Square Error (RMSE), Mean Absolute Error (MAE), the Estimated Misclassification Cost, the GINI coefficient, the Receiver Operating Characteristics (ROC) curve and Area Under the Curve (AUC). However, the average correct classification rate is most common in the models (Bakker & Odundo, 2019). ACC rate determines the proportion of correctly classified borrowers with good and poor solvency in the data set, thus assessing the classification ability of the model. This ratio is derived from the confusion matrix (Abdou & Pointon, 2009). Although ACC is the most common performance evaluation criteria, AUC is also often used to evaluate the model. In some studies, ACC is not even calculated, but other criteria are used (Dastile, et al., 2020). In these cases, the study was not included in the selected list of scientific literature.

Research results and discussion

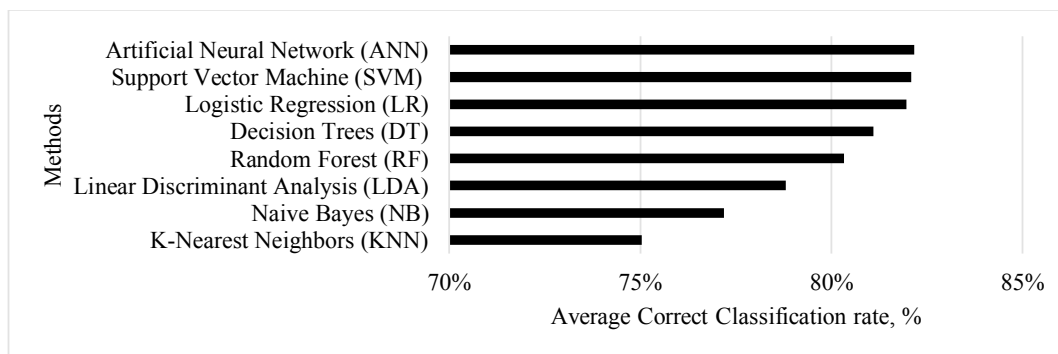
Each method is evaluated according to four criteria (quality, statistical independence, efficiency, interpretability) on a 5-point scale (5 is the highest score for the criteria, while 0 is the lowest). There are also weights for the criteria, thus determining which principles are more important. The paper defines the following weights for each principle: (1) quality - 30%, (2) statistical independence - 25%, (3) interpretability - 25%, (4) efficiency - 20%.

Scientific articles and conference proceedings were searched in Scopus and Web of Science databases using the following keywords - *credit scoring, accuracy, model*. A total of 71 items of scientific literature (from 2019 to 2021) were selected. For this selection, it was also evaluated whether a model used one of the most popular credit scoring methods and whether the required indicator for evaluating the model’s classification accuracy has been obtained.

Although hybrid models combining two or more methods usually provide even higher classification accuracy (Lawi, et al., 2017) (Li & Chen, 2021) (Haoting, et al., 2018) (Chuang & Lin, 2009) (Hsieh, 2005), they are not included in this method assessment because they are more complex to implement and have low repeatability and incidence among studies.

The ACC for each method is calculated using the arithmetic mean. In order to determine the number of points for each method based on a quality criterion, the following steps are performed: (1) the method that gives the highest classification according to the ACC ratio obtains 5 points, (2) the method that gives the lowest - 0 points, (3) while other methods obtain points proportionally to the calculated average ACC ratio. This paper suggests the allocation of points in this way to ensure a more significant distinction between methods evaluating quality principles.

The analysis of 71 scientific literature items revealed that the methods that significantly provide the highest accuracy are ANN, SVM and LR. They are followed by DT and RF, which have also shown a high ACC rate. LDA, NB and KNN have provided relatively low ability to separate borrowers with good solvency from bad solvency (see figure 2). In order to apply a joint assessment indicator (rating) to these methods, the percentage values are switched to a 5-point scale (respectively, the best assessment is given to ANN (5). In contrast, the lowest assessment is given to KNN (0). The rating for other methods is determined proportionally according to the classification accuracy indicator).



Source: author’s construction based on the analysis of 71 scientific literature articles and conference proceedings

Fig. 2. Methods average correct classification rate in the analysed credit scoring models

Mainly parametric methods have limitations, strict assumptions, and low ability to handle complex and non-linear data (these methods can handle simpler problems). LR has several assumptions and limitations, for example, (1) the dependent variable must be discrete and mostly binary or dichotomous, (2) there should be no multicollinearity between the independent variables, as all independent variables should be independent of each other, (3) and the independent variables must be linearly related to the log odds (the linearity between the dependent and independent variables need not be satisfied, as in the Linear Regression) (Gupta, 2018). The LDA gives a binary result, but (1) the relationship between the independent variables and the dependent variable must be linear (Lee & Chen, 2005), (2) there should not be outliers, (3) multicollinearity, (4) and there must be independence and homoscedasticity of the variables (StatsTest.com, 2021). Successful running of the

NB algorithm and obtaining more accurate results requires (1) avoiding multicollinearity (ensuring that all variables are independent of each other), (2) as well as eliminating the problem of zero observations, (3) and performing modifications to continuous value variables (Tokuç, 2021).

The advantage of non-parametric methods, on the other hand, is that they do not have such strict assumptions, they can handle many different functions, forms, and relationships, but they are likely to become overfitted. ANN does not have strict assumptions, and they can model highly complex functions, which contrasts with traditional statistical methods (Abdou, et al., 2008). SVM works well when there is a lack of knowledge about the relationship between the dependent and independent variables. There are no restrictions or assumptions in the SVM, except that the data variables must be independent and evenly distributed (Wilson, 2008). RF is considered a suitable method for assessing borrowers' solvency because it is not sensitive to multicollinearity. The results are relatively robust to missing data and unbalanced data. It can predict borrowers' solvency when thousands of explanatory variables are used (Breiman, 2001). RF is also suitable for large amounts of data with sufficient noise and can prevent overfitting as well as this method can distinguish important features in classification (Deng, et al., 2018). The DT method finds non-linear relations with relatively good accuracy, and it is particularly well suited for data mining tasks, where there is often little prior knowledge or any assumptions or predictions about which variables are related and how (Bolton, 2009). KNN, on the other hand, assumes that similar things are close to each other, and this method is based on this assumption, so it is essential that the data is smooth, without outliers. KNN is sensitive to the scale of the data and irrelevant features (Hastie, et al., 2009). The KNN does not need to model, adjust several parameters, or test additional assumptions (Harrison, 2018).

Another principle of method evaluation is statistical independence - the ability of the model to perceive more complex functions (including non-linear functions) and to use a much larger number of parameters. It is mainly based on the assumptions and limitations of the method (Duda, et al., 2000). A method that does not have strict assumptions, constraints on data variable linearity, multicollinearity, etc. obtains the highest rating - 5, while the method, which has sufficiently strict assumptions that can process only linear data, has multicollinearity, and cannot cope with complex functions and forms, obtains the lowest rating - 0.

In order to assess the statistical independence of these methods, the parametric and non-parametric nature of the methods, assumptions, the ability to cope with complex functions and other limitations are used as a basis. Each method is rated on a 5-point scale (see table 1). The LDA and the LR have similar assumptions and constraints, but the LDA still assumes the linearity of the variables and other rules that must be followed. Although these methods are not statistically diverse, they are widely used to solve the credit scoring problem, and certain assumptions are not inevitable - data can be transformed to meet all assumptions, so these methods are rated 1 (for LDA) and 2 (for LR) points. NB is mostly a parametric method, but it has even fewer assumptions than LDA and LR, so it gets 3 points. Creating a model with the help of these methods requires more expert involvement and data preparation and evaluation, but they can be used for solving the credit scoring problem. The KNN and SVM have some limitations and shortcomings in terms of statistical independence, so these two methods are awarded 4 points because they are non-parametric and can solve the credit scoring problem well without strict assumptions. The other methods (RF, DT, ANN), on the other hand, have practically no limitations and strict assumptions, as well as being able to process complex functions, forms and determine important relationships, even if the model builder does not initially understand the data.

Interpretability (transparency of the results) evaluates whether the model can show the main factors impacting the borrower's solvency and determine what the decision consists of, thus determining the main reasons (factors) for refusing or granting the loan. Methods with the highest interpretability obtain 5 points, while black-box methods whose results cannot be explained - 0 points.

Model results interpretation is another vital component to evaluate methods. However, interpretation is usually ignored in many studies because a black-box approach characterises popular credit scoring models (e.g., SVM, ANN) and many other methods pose problems in developing comprehensive credit scoring models (Xia, et al., 2017). Traditional statistical methods, such as LR and LDA, are transparent and can be easily understood by humans. Each feature and its coefficients can be analysed individually to determine the importance of each factor in determining the borrower's solvency (Barddal, et al., 2020). Although the LDA method usually provides a successful solution, the method does not provide the risk assessment associated with the borrower's insolvency (Lee & Chen, 2005). For this reason, LR is evaluated with 5 points, while LDA - with 4 points. Although NB is a parametric method, it is not based on regression, so this algorithm cannot provide information on the main determinants of borrowers' solvency and whether they are associated with a borrower with good solvency (Wah & Ibrahim, 2010). However, NB provides a simple probability prediction that can be useful in interpreting the results, and it is evaluated with 3 points.

Among the methods are several black-box methods, such as ANN, KNN and SVM. The non-parametric nature of the ANN method is a significant shortcoming to explain the importance of factors for credit scoring and the relationship to good or poor borrower solvency, making it difficult to justify a decision to grant or refuse a loan on these methods (Eletter & Yaseen, 2017). The use of the SVM method to separate non-linear credit scoring data makes it difficult to interpret the results (Le, 2018), and this method cannot determine which are the determining factors in borrowers' solvency assessment (Simumba, et al., 2018). Similarly, KNN, due to its non-parametric nature, does not provide easily understandable results (Loyola-González, 2019), so it cannot determine the most important factors of the borrower's solvency and why the loan was refused. This black-box approach for these methods gives 0 points.

The random forest approach is another method that is difficult to interpret, as it is based on the use of several decision trees and does not provide easy-to-understand results (Tomczak & Zięba, 2015). To make the results more interpretable, one can try to reduce the complexity of the aggregation rule of this method by choosing only a few decision trees that will work together to give the result (Dumitrescu, et al., 2020), so the method gets 1 point.

The DT method provides interpretability of the model (they are very intuitive, easy to understand, especially compared to other methods, such as "black-box" methods). A decision tree provides managers with clear and comprehensive rules for deciding whether to grant a loan to a borrower or not (Yufei, et al., 2017). In most cases, the interpretation of the results in the tree is straightforward and allows to classify new observations quickly and easily and provides a simple explanation of why the observations are classified in this way (Vidal & Barbon, 2019). Thereby, the DT method gets a maximum score.

Efficiency assesses how quickly the model can obtain the required results or whether the model needs to be adapted and the data analyst involved before the results are obtained. This evaluation criterion considers whether increasing the data set could also significantly affect the speed of model training, learning, and development. Methods that can quickly calculate results even for extensive data sets obtain 5 points, while methods that show much lower efficiency even for small data sets - 0 points.

Since efficiency indicates the speed of model development, the primary evaluation approach is to determine the computational time. SVM is a competitive approach to assessing borrowers' solvency and provides a quality advantage over other traditional methods, but its cost is the much longer computational time required to find the optimal parameters of the core function. Also, the SVM model development process is quite time consuming (Bellotti & Crook, 2009). Although ANN is a popular method for assessing borrowers' solvency, their training process is quite time-consuming, especially if the data set exceeds 50,000 borrowers (this also applies to SVM) (Abellán & Castellano, 2017). If the data set exceeds 50,000 borrowers, then these methods can be excluded from further study, assuming that the hardware is insufficient or not

designed to process large amounts of data (Li & Chen, 2020). However, if the amount of data is not too large, then the ANN model training and decision making can quickly provide a high efficiency (Ala'raj, et al., 2021). Also, the main disadvantage of the KNN method is that it becomes significantly slower as the number of data increases, so in cases of credit scoring modelling (for large amounts of data), the method may be impractical if forecasts need to be made quickly (Harrison, 2018). The amount of credit scoring data is highly variable - it can include both a small number of borrowers (especially in the start-up phase of a business) and many borrowers (especially in more extensive national and pooled databases) (Datarade, 2021). For this reason, these methods are awarded 3 points, as efficiency may decrease significantly as the number of data increases.

The most significant disadvantage of the DT method is the computational burden in the case of large data sets, as all characteristics must be checked and evaluated at each node. The obtained tree is often quite large, so the process of learning the model becomes too time-consuming (Bastos, 2007). However, the RF method takes even more time than the DT method, and it can become too difficult to implement in the case of large data sets (Mbaabu, 2020). Due to these shortcomings, the DT method is evaluated with 2 points, while the RF method is awarded only 1 point.

The NB algorithm provides fast, highly scalable model creation and evaluation. It can be used to solve both binary and multiclass classification problems, so it can be said that the algorithm is computationally efficient - it quickly processes multi-dimensional and voluminous data without affecting the dimensions themselves (Taylor, 2008). As the main advantage of NB is speed, 5 points are awarded for this method. Similarly, other parametric methods, such as LR and LDA, can get a result quickly, so they are evaluated with 5 points.

Table 1

Methods' scores based on four basic principles, and the total average score

Methods	Quality	Statistical independence	Interpretability	Efficiency	Total score
Logistic Regression (LR)	4.86	2	5	5	84.1%
Decision Trees (DT)	4.26	5	5	2	83.6%
Artificial Neural Network (ANN)	5.00	5	0	3	67.0%
Support Vector Machine (SVM)	4.95	4	0	3	61.7%
Linear Discriminant Analysis (LDA)	2.65	1	4	5	60.9%
Naive Bayes (NB)	1.52	3	3	5	59.1%
Random Forest (RF)	3.72	5	1	1	56.3%
K-Nearest Neighbours (KNN)	0.00	4	0	3	32.0%

Source: author's construction based on the analysis of 71 scientific literature articles and conference proceedings

The evaluation of methods must also consider the cost and complexity of the calculations (Li & Zhong, 2012). It could be determined by evaluating the simplicity of models, possible cost positions, whether it is necessary to link to other programs or develop a unique system in the start-up phase. Also, this evaluation of the methods does not consider what the annual cost of the model might be, but almost no studies in the scientific literature have argued about it.

The methods have been determined the sum of all the basic principles and their percentage value from the maximum possible number of points, considering the weights of the basic principles (see table 1). The results indicate that logistic regression and decision trees are the most appropriate methods for developing a credit scoring model. The main advantages of these methods are the high quality indicated by the classification accuracy and the high interpretability, which is especially important for companies that want to obtain transparent and clear results. The ANN method, which has the highest classification accuracy in the scientific literature, has taken the next position but is far behind this assessment's best methods. It is mainly due to the black-box nature of the method (like the SVM method, which ranks the fourth-best method in this assessment).

This assessment applies to companies that have not yet started developing their borrower solvency assessment models and may help understand which method could be used for initial credit scoring modelling. However, it should be noted that the classification accuracy depends on the size and characteristics of the data set used to construct the model (Szwabe & Misiorek, 2018), so it cannot be said that logistic regression and decision trees will be the best methods in all cases. Experts and researchers are advised to use various methods to determine which method will be the most appropriate for a particular data set, but this assessment provides a comprehensive systematisation of methods based on four basic principles.

Conclusions, proposals, recommendations

1. The methods assessment found that logistic regression and decision trees are the most appropriate methods for developing a borrower solvency assessment model. Logistic regression generates simple, easy-to-interpret models, and there is empirical evidence that simple linear models perform only partially worse than more complex model forms such as Artificial Neural Network and Support vector machines (Baesens, et al., 2003). On the other hand, decision trees are easy to understand and have high statistical independence, as this method is non-parametric, and there are practically no strict assumptions, which means that very different data sets can be used.
2. This assessment of methods is relevant for those companies that have not yet developed their credit scoring models, as it helps to understand which method could be used to start modelling. However, experts and researchers should use several methods to evaluate credit scoring in a company or a specific region or country, as the results depend highly on the data set. It is recommended to use at least five methods that have received the highest scores in this evaluation – logistic regression, decision trees, artificial neural network, support vector machine and linear discriminant analysis, and comparing their classification accuracy using different performance evaluation criteria, for example, area under the curve (Römer & Musshoff, 2017). The use of additional performance evaluation indicators for quality assessment would provide a more complete picture of the models and suitability of methods.
3. It is recommended to assess the cost of implementing each method for further research, as this would provide even more information to the lending company to make a more objective decision. The model implementation cost can be estimated by creating the models by "own hands", evaluating the linking possibilities with the system available to the company, and attracting experts or other lending companies who have already implemented such a model in one of the companies.

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LOGISTIC REGRESSION AND NEURAL NETWORK APPLICATION IN CREDIT SCORING: THE CASE OF LATVIA

Daniels Jukna, University of Latvia

Abstract. Interest on loans is the primary source of business income for financial institutions. Borrower solvency assessment models can increase financial institutions' profitability and reduce high interest rates in Latvia. Borrower solvency could be assessed with different methods. The relative performance of different methods is likely to be country-specific (or case-specific), so developing a credit scoring model applicable to Latvian nonbank borrowers is required. The most popular methods to develop the models are logistic regression and artificial neural networks. In order to ensure even more stable model results, a combination of the two methods (ensemble method) has also been developed. The results show that an ensemble method is a powerful tool to significantly improve the model's classification indicator and performance in all selected performance evaluation indicators. By introducing the best model in this work, a nonbank lending company would ensure that the number of borrowers with poor solvency would be reduced by about 35% than without implementing a credit scoring model at all.

Keywords: *credit scoring, logistic regression, neural network, nonbank loans.*

JEL code: C45, C51, E51

Introduction

Latvia has one of the highest interest rates in consumer lending compared to other EU member states (European Central Bank, 2021), and non-bank lending companies in Latvia offer consumers interest rates that are almost eight times higher than the EU average (Consumer Protection Center, 2021). High interest rates are mainly due to the high probability that consumers will not repay the loan. At the same time, high interest rates place an even more significant burden on the consumer, increasing the number of borrowers with poor solvency (Beck, Jakubik & Piloju, 2013). Sound and prudent lending by developing an effective borrower solvency assessment model can help nonbank lending companies improve their lending decisions and achieve higher returns (Glennon, et al., 2008). The introduction of a borrower solvency assessment model in Latvian nonbank lending companies would provide an opportunity to reduce interest rates to the EU level.

Interest on loans is the primary source of business income for financial institutions. However, lending to customers with bad solvency can cause significant losses to many financial institutions. Financial institutions need to balance lending and credit risk (World Bank, 2019). As credit scoring is vital in financial activities, much research has been done to improve model accuracy. An increase in valuation accuracy of only one per cent will allow banks to avoid significant losses (Chen, et al., 2009).

Credit scoring is a widely used mathematical and statistical approach to assessing the risk associated with an applicant applying for credit. In essence, these mathematical and statistical approaches to risk assessment consider the applicant's credentials and the applicant's loan repayment data (Mester, 1997), and its implementation improve the profitability of credit industries (Louzada, et al., 2016).

According to the scientific literature, credit scoring models have been developed mainly from bank customer data (Vidal & Barbon, 2019; Middelberg, Buy & Oberholzer, 2014; Bolton, 2009; Vojtek & Kocenda, 2008; Anoop, Banerjee, Francis, 2007). Developing a solvency assessment model from nonbank borrowers has been relatively rare (Bastos, 2008; Schreiner, 2003). The scientific literature in the Baltics does not provide models for assessing the solvency of nonbank borrowers that could be applied to nonbank lending companies in Latvia and the Baltics, and the factors determining the solvency of borrowers have been little studied throughout Eastern Europe.

Several studies have developed successful models for assessing borrowers' solvency, which would significantly reduce overdue loans, increase profitability and improve the accuracy of lending decisions (Berg, Burg, Gombovic & Puri, 2019; Bolton, 2009; Schreiner, 2003). However, different publications use different methods, performance evaluation indicators and independent variables to build borrowers' solvency models, and this diversity makes modelling even more challenging (Vidal & Barbon, 2019; Vojtek & Kocenda, 2008; Glennon, Kiefer, Larson & Choi, 2008).

Various studies have shown that combining traditional methods approaches the ideal classifier (Wang, et al., 2011) (Tripathi, et al., 2021). In general, traditional methods can work well with a specific dataset. Thus, an ensemble classifier is a stable and robust way to approach the optimal classifier for any dataset. (Parvin, et al., 2015). However, it is not clear from the literature which combination is the best way to improve forecasting performance. It is suggested that the ensemble classifier should be constructed from the methods that individually give the best classification (Zhang, et al., 2018).

There is a wide range of credit scoring models available in the scientific literature that has been developed using the ANN and LR methods. However, there are practically no models in the scientific literature based on Latvian borrowers, and the scope of such statistical models is limited in the Baltics and Eastern Europe. As mentioned above, the model results depend on the dataset, so it is necessary to build a solvency assessment model for Latvian nonbank borrowers suitable for Latvia's case.

Given the incomplete information in the scientific literature and the fact that credit scoring models are country-specific (case-specific) for assessing the solvency of nonbank borrowers, the following issues have been raised:

1. Which method (logistic regression or artificial neural networks) provides the highest predictability and most higher results in assessing the solvency of nonbank borrowers, taking into account several performance evaluation indicators?
2. What training dataset modifications are needed to reduce borrowers with bad solvency in credit institution portfolios?
3. Does the combination of the chosen methods achieve higher classification results?

The work aims to develop and choose the best nonbank credit scoring model for Latvian borrowers based on the two most popular methods - logistic regression and artificial neural network.

In order to achieve the set goal, it is necessary to perform the following main tasks: (1) to study the scientific literature on borrower solvency assessment methods (logistic regression and artificial neural networks) and models applications; (2) to develop several borrowers' solvency models and assess their predictability and discriminability and compare them using several performance evaluation indicators; (3) to study what improvements can be made to increase the classification results and to put these improvements into practice in the models; (4) to use the ensemble technique, combining the two models into one to see if it improves the results; (5) to draw conclusions concerning the developed models by comparing them with performance evaluation indicators, and to propose new research topics.

This study used the unpublished data of the Latvian nonbank lending company on the company's customers. For developing the borrower solvency assessment model, data on 5211 borrowers are available. The study develops several models applicable to the nonbank lending company evaluating Latvian borrowers. The study's findings will help the nonbank lending company more accurately determine borrowers' solvency, thus reducing the interest rate on loans and increasing the company's profitability.

The literature analysis performed in the study will be based on foreign scientific works, publications in scientific journals and periodicals, materials available on the Internet, and unpublished data of a nonbank lending company.

The main limitations of this study are that the model is initially only applicable to one nonbank lending company, as it has a specially adapted data structure and data that may not be available to other companies. Also, the study focuses more on evaluating methods and model development than on the interpretation of variables and identifying key determinants for borrowers with solvency. This second part will be carried out in other future studies.

Literature review

Credit scoring is the risk assessment process to manage and diversify risk in a portfolio. One of the main purposes of this tool is to assess the risk of borrowers. Borrowers solvency assessment models allow customers to be classified as good or bad according to their characteristics. They are used to evaluate new and existing borrowers. These models reduce the cost of credit analysis, make credit decisions faster, and reduce potential risks (West, 2000). The evaluation tasks are then linked to the classification analysis. As improving such classification can lead to significant savings for financial institutions, the accuracy of the different methods needs to be analysed and compared.

Based on the scientific literature, there is no best method that can be used in any credit scoring problem to give equally high results (Abdou & Pointon, 2011). The discriminability of a method is influenced by the structure of the data, the dependent variables, the purpose of the classification and the different criteria for evaluating the methods (Hand & Henley, 1997). As a result, many studies introduce new classification methods to find an even better approach to developing a credit scoring model (Akkoc, 2012; Zhu, et al., 2018; Şen, et al., 2020; Tsai, et al., 2009). When creating new classification models, the results are compared with traditional methods, such as logistic regression (Ala'raj & Abbod, 2015). Usually, the results are better for the individual case, but this approach is criticised. New classification methods are often tailored to the specific dataset, and the results are compared to a limited number of classifiers, so there is no reason to consider these new approaches to be better than logistic regression (Lessmann, et al., 2015).

Based on one of the studies that performed a five-fold cross-validation approach and used six different method evaluation criteria to ensure a stable and comprehensive comparison, it was found that logistic regression is considered the best and ANN is the second-best classification method. It also confirms the hypothesis that the datasets of the credit scoring model could be linearly separable (Baesens, et al., 2003). A review of several scientific sources revealed that these two methods are also the most popular credit scoring methods.

Logistic regression (LR) is considered the standard method for creating credit scoring models (Ala'raj & Abbod, 2015). Therefore, it is chosen as one of the approaches in this study. On the other hand, artificial neural networks (ANN) are a popular method in the financial field and visual object recognition, speech recognition, object detection, genomics, energy consumption and other fields (LeCun, et al., 2015). ANN is widely used to create a credit scoring model (West, 2000). Thus, it is also chosen as one of the methods used in this study. Although ANN is widely used throughout the financial industry, using large and complex datasets, this method does not allow the results to be understood and interpreted (Vellido, et al., 2012). In addition, the chosen methods are different - LR is a parametric method, while ANN is a non-parametric method.

Logistic regression (LR) is the most popular and powerful white-box method commonly used to create credit scoring models. The main features of the LR method that make it a benchmark - good forecasting accuracy, high level of interpretability, fast, understandable and straightforward modelling process (Lessmann, et al., 2015). LR is also very popular in processing data of other banks and financial institutions, as it returns the probability (Şen, et al., 2020).

LR is a variation of linear regression in which the dependent variable is binary (result is 0 or 1) and usually reflects the occurrence or non-occurrence of an event. Independent variables can be both continuous and categorical. LR (as opposed to linear regression) ensures that the probability will be in the range of 0 to 1, as it is based on the sigmoid function. The LR can check the statistical significance of certain variables, which cannot be done with many other methods, especially non-parametric methods (Viswanathan & Shanthi, 2017).

The LR model can also analyse the possibility of timely repayment of a loan and determine whether the client belongs to one of two groups - borrowers with poor or good solvency. Thus, the method determines the relative probability that a particular observation belongs to one of these two classes. (Matuszyk, 2018). Poor borrowers refer to customers who have not repaid their loans and are in arrears for more than 90 days, while borrowers with good solvency refer to those who have repaid their loans or repay all loan payments with no significant arrears.

Artificial neural networks (ANN) are an artificial intelligence learning approach influenced by the human brain. It consists of nodes receiving information from input data and passing the output to other nodes. The output of each node is defined as an activation function, which can be binary, linear or non-linear, such as a sigmoid. Nodes have scales that reflect the extent to which input can affect output, and as they change, ANN is trained (Aithal & Jathanna, 2019).

ANN can be used effectively to assess the solvency of borrowers, and they are a universal approximation and extremely powerful prediction tool. If the main goal is to achieve high classifications, ANN often provides more accurate results than statistical regression modelling (Viswanathan & Shanthi, 2017). Another important advantage of ANN is that ANN has to fulfil assumptions about the statistical distribution of variables and errors, and there are no restrictions on multicollinearity or homoscedasticity (Dzik-Walczak & Heba, 2021; Abdou, et al., 2008).

Before training the model, it is necessary to determine several parameters, such as the number of hidden layers, the number of their nodes, the learning speed, and others. However, excessive choice of parameters can make the ANN model extremely large and complex, resulting in high computational cost and overfitting, resulting in fewer test dataset accuracy (Munkhdalai, et al., 2020). ANN also showed the highest computation time in one of the studies (Şen, et al., 2020). In one of the models, 100% accuracy of the training dataset was obtained, but the accuracy of the test dataset differed significantly (Angelini, et al., 2008). In addition, these models are expensive to implement and maintain. They are opaque and difficult to interpret, so they are difficult to validate with the knowledge of company managers, and they are subject to excessive needs (Vidal & Barbon, 2019). The neural network cannot directly estimate the change in the dependent variable caused by the change in the independent variable (Viswanathan & Shanthi, 2017).

Comparison of models among studies. There are several models available in which ANN has provided a higher classification than LR (Yeh & Lien, 2009; Abdou, et al., 2008; Viswanathan & Shanthi, 2017; Li & Chen, 2021). However, a relatively large number of scientific articles also claim that the LR, in general, has been a more successful method for assessing the solvency of borrowers. (Guo & Dong, 2017; Şen, et al., 2020; Munkhdalai, et al., 2020; Dzik-Walczak & Heba, 2021; Tripathi, et al., 2021; Chi, et al., 2019; Seo & Tedjojuwono, 2020). Many studies concluded that the combination of ANN and LR in developing an ensemble model has led to even higher classifications and other methods for evaluating methods than either method alone (Munkhdalai, et al., 2020) (Dzik-Walczak & Heba, 2021). For the most part, these studies also indicate that the comparison of modelling methods is based on several evaluation indicators. Combining both methods shows that the ensemble model successfully reduces the potential risk of loss due to misclassification costs (Dzik-Walczak & Heba, 2021).

Another study has combined more than two methods (LR, SVM, RF, DT and ANN, respectively), with the best result among the nine individual methods and several other ensemble classifiers. Each of the methods included in the ensemble classifier has high predictive accuracy in some

datasets, but combining them ensures that the ensemble works well regardless of whether each of the five base classifiers works well in a specific dataset. (Zhang, et al., 2018).

Ensemble methods are machine learning techniques that combine several separate models to create a single model with higher classifications. The following types of the ensemble are distinguished:

- simple averaging – the result is obtained by calculating the average of the predictions of several methods;
- majority vote – the result is obtained taking into account the maximum vote from multiple models predictions;
- weighted average – the result is obtained similarly to averaging, but weights are determined for each method, thus showing which methods are more important (usually methods with higher classifications also obtain higher weights) (Kaushik, 2017).

Two of the most popular ensemble techniques are bagging and boosting (Doumpos, et al., 2019). Bagging is a variance reduction technique that generates multiple black-box estimation cases based on randomly created subsets of a training dataset and then aggregates the individual predictions of that subset to create final predictions. In turn, the boosting technique performs predictions estimation sequentially, thus reducing the overall variance of the estimation of the combined models. This method works well when several weak models are created, but combining them with the boosting technique usually allows to develop a strong ensemble (Pedregosa, et al., 2011).

The Stacking technique is also a popular ensemble learning method that combines multiple classifiers or regression models using a meta classifier to achieve better prediction accuracy (Wolpert, 1992). Initially, the models are trained using traditional methods, and then the combined model is trained using the output values of the initial models (Wang et al., 2011).

Ensemble classifiers work better than individual methods because their combination reduces the deviation and variance of individual model results. The expected classification of the model depends on the train data used to create the model, and these data contain noise and are subject to various methodological constraints, so classification depends on model bias and variability. The deviation can be reduced by introducing weaker assumptions about the model structure and variables (for example, in ANN is a slight deviation, while in LR and Linear discriminant analysis is more extensive). The purpose of ensemble classifiers is to reduce deviations by combining several models. Ensemble classifiers seek to create independence by constructing different models from train data and work well when individual models are unstable (Doumpos, et al., 2019).

Several studies try to introduce ensemble methods or combinations of several traditional methods to improve the classification rate. Classification combination techniques can be divided into homogeneous (using the same methods) and heterogeneous (using different methods) classifier ensembles (Ala'raj & Abbod, 2015).

This study develops an ensemble credit scoring model using ANN and LR to improve the classification. This model consists of two phases: (1) the ANN and LR models are trained separately, and (2) one of the ensemble techniques (averaging technique) mentioned in this article is used to increase the model's ability in identifying borrowers with poor solvency.

Performance evaluation indicators. A slight increase in performance can lead to significant future benefits in higher profitability in a credit scoring model, so it is important to use different strategies to improve performance (Garcia et al., 2012). The first type of error indicates that a loan is not issued to a customer who would have had good solvency, while the second type of error indicates that a loan is issued to a borrower with poor solvency. In practice, it is crucial to strike a balance between the first and second error types (Garcia, et al., 2012). Repeated sampling allows both errors to be controlled. It is recommended to use balanced class train datasets to reduce misclassification costs compared to the original data. Balanced class dataset means that borrowers with good and borrowers with bad solvency has an equal or similar number of observations (Khemakhem, et al., 2018).

The simplest and probably most accurate analytical way to evaluate models is to analyse the expected costs of misclassified borrowers in the model, which are different for the first and second types of error. However, the most challenging part is choosing the expected costs of the first and second types of errors, as they change over time. Thus, various performance criteria are used to evaluate the models, which comprehensively assess the discriminability of the model (Doumpos, et al., 2019)

Based on the scientific literature, several model evaluation indicators are available. For example, one study compares classification methods using six different model evaluation indicators – the percentage correctly classified (PCC), the area under the curve (AUC), the Gini index (Gini), the H-measure (H), the Brier score (BS), and the Kolmogorov–Smirnov statistic (KS) (Lessmann, et al., 2015). In addition, there are also some other performance evaluation indicators such as Receiver Operating Characteristic (ROC), sensitivity and specificity that could be used to compare the models' performance (Doumpos, et al., 2019).

The PCC indicator measures the ratio of correctly rated borrowers (true positive and true negative) to all borrowers and is an important criterion for assessing the rating capacity of a model. (Abdou & Pointon, 2011). PCC (classification indicator or accuracy) is a standard for assessing discrimination (Cortes & Vapnik, 1995). Sensitivity refers to the ratio between a correctly classified positive borrower and the total number of positive borrowers, and specificity refers to the ratio between a correctly classified negative borrower and the total number of negative borrowers. G-mean is a criterion for evaluating classifiers of unbalanced datasets (Kubat & Matwin, 1997). G-mean considers both sensitivity and specificity and indicates the balance of classification performance between the two classes. The criterion is affected by the first and second types of error (Wang, et al., 2011).

The indicator that evaluates the performance of the classification model at all thresholds is the ROC (Receiver Operating Characteristic). The ROC curve represents the frequency of true positives and false positives at different classification thresholds. The x-axis is (1 - specificity) in the ROC curve, and the y-axis is sensitivity. The ROC curve of a good classifier must be entirely above the diagonal, representing the random model line. This indicator overcomes the limitations of classification factors by providing comprehensive model discriminant estimates without using cost or historical probabilities assumptions (Doumpos, et al., 2019).

The AUC (Area Under ROC Curve) is a criterion used to analyse the binary classification to determine which models best predicts classes. AUC can be used to evaluate model performance without assumptions about the cost of errors (Hand, 2009), and it provides an assessment of the model's performance at all possible classification thresholds. The AUC value ranges from 0 to 1. For an ideal classifier, the AUC is 1 (predictions are 100% correct), while the model with an AUC of 0.5 is similar to the non-discriminatory randomised model. The higher the AUC, the better the classification model. AUC is considered one of the best criteria for the overall performance that measures the quality of model discrimination (Harris, 2013).

Another measure of the performance of the binary classifier is the Gini coefficient based on AUC. The higher the Gini coefficient, the better the model. The Gini coefficient is the ratio of the area between the ROC curve and the line of the random model.

The Kolmogorov-Smirnov statistic (KS) is the maximum difference between a true positive coefficient (the probability that the model detects an actual positive as positive) and a false positive (probability that the model detects an actual negative as positive) obtained for different thresholds. A higher Kolmogorov-Smirnov statistical value indicates a better model (Dzik-Walczak & Heba, 2021). In binary classification problems, KS is used as a deviation criterion to estimate the discriminant distance of the classifier between the cumulative distribution functions of both classes (Adeodato & Melo, 2016).

The Brier score is the root mean square error (Brier, 1950), which measures the accuracy of classifier probability predictions. Unlike the classifier, the Brier considers the probabilities themselves (rather than 0 and 1) and calculates the root mean square error. The lower the Brier score, the better the classifier's performance (Ala'raj, et al., 2021).

H-Measure is an integral part of all costs of misclassification. A high H-measure value indicates that the total loss costs of the model are low, regardless of the actual cost of misclassification (Ala'raj, et al., 2021).

Research results and discussion

In order to compare different classification methods, a problem with selecting the dataset has been identified. Many studies are based on credit data from countries (e.g. Australia, Germany) that are freely downloadable online (Chuang & Lin, 2009), (Zhang, et al., 2007). For example, up to 1000 observations and 20 independent variables are available in the Australian and German datasets. It is acknowledged in the scientific literature that these two sets of data are not suitable for comparing classifiers because they have few observations. In addition, although the high default rates (44.5% and 30%, respectively) provide a balanced dataset, these data are not representative of the credit sector (Teply & Polena, 2019).

The unpublished data of the Latvian nonbank lending company on the company's customers were used in the study. According to the confidentiality policy and the non-disclosure agreement, the company's actual name is not disclosed and is referred to as the Non-Bank Lending Company. For the development of the borrower solvency assessment model, data on a total of 5211 borrowers to whom the Non-Bank Lending Company has issued loans between January 2019 and August 2021 are available.

Before issuing a loan, the borrower fills in an application on the website of the Non-Bank Lending Company, indicating information about himself and the desired loan. Upon receipt of the application, the employees of the Non-Bank Lending Company obtain additional data on the borrower from miscellaneous income, credit and debt databases and assess the borrower's solvency, taking into account the company's risk policy. After receiving a positive decision, the granted loan amount becomes available in the borrower's account, which must be repaid within five years.

The set of rules that allow the separation of all borrowers with poor solvency and good solvency, taking into account the lender's risk policy, is as follows: all borrowers who are currently at least 90 days past due are considered to be insolvent borrowers (a total of 1533 borrowers with poor solvency). The model does not consider borrowers who have historically been overdue for more than 90 days but whose loan has now been repaid as bad clients because the company's risk policy does not consider such borrowers undesirable. The company is willing to re-enter into a loan agreement with such borrowers, except when the borrower has been declared insolvent or written off a large part of interest or other charges related to lending.

70% of all available data is used to develop the borrower solvency model, i.e. 3647 observations (model development sample), while 1564 observations (model testing sample) are used to assess the predictability and discriminability of the model. The test sample is used to test the discriminability of the model for borrowers that were not used during the model development phase. The dataset is randomly divided into model train and test datasets using R studio software. In the model development (train) and testing dataset, borrowers with poor solvency account for about 30%.

Table 1

Independent variable names, types, and values

Variable name	Type	Values
Age	Numeric	18-78
Male	Binary	{yes, no}
Email domain	Categorical	{inbox.lv, gmail.com, other}
Email has personal name	Binary	{yes, no}
Industry	Categorical	{according to the NACE classification of sectors at letter level}
The part of the day of application registered	Numeric	{morning, day, evening, night}
Marital status	Categorical	{single, domestic partnership, married}
Dependents	Numeric	0-7
Education level	Categorical	{primary education, vocational education, secondary education, higher education}
Credit purpose	Categorical	{consumer goods, car purchase, car repair, repair of home, refinancing, health care, trip, other}
Monthly salary	Numeric	0 € - 11767 €
Additional monthly income	Numeric	0 € - 1725 €
Total monthly income	Numeric	271 € - 11767 €
Monthly liabilities	Numeric	0 € - 2459 €
Unpaid bad debt found in Latvian debt collection agencies registers	Numeric	0 € - 2963 €
Paid bad debt found in Latvian debt collection agencies registers	Numeric	0 € - 90291 €

Source: author's construction based on the model's independent variables

There are many numeric variables in the Non-Bank Lending Company datasets, such as income, liabilities, unpaid debt, and paid debt for the last two years. In addition, there are several categorical variables, such as borrower's company's industry, education level and credit purpose that are also modified as binary variables (for example, education level variables are modified as four binary sub-factors – primary education, vocational education, secondary education and higher education).

Class imbalances occur when more borrowers have good solvency than bad solvency in the model (Kiefer, 2009). Therefore, the classifier favours solvent borrowers because they represent the majority class. The model will be able to identify these customers with high accuracy, but it may be challenging to identify borrowers with poor solvency. In the lending industry, it is more important to identify borrowers with poor solvency (Khemakhem, et al., 2018), as well as incorrect classification of borrowers with poor solvency usually results in much higher costs (García, et al., 2014); therefore, class balancing is necessary.

The most common way to balance classes is to change the distribution of classes to the most balanced dataset. This can be done in two ways: by reducing the majority class or increasing the minority class at random until both classes are represented almost equally (Witten & Frank, 2005). Reducing the majority class may result in even more significant deviations and may not reveal factors associated with poor solvency borrowers (Khemakhem, et al., 2018). The second method duplicates several random observations in the training dataset, and in this case, the important interaction between the variables and solvency is not lost, as it could be in the first case, so increasing the minority class is considered a more appropriate way to balance the classes (Zehori, 2020).

In addition, traditional methods, such as LR, support vector machines and decision trees, are more designed for balanced datasets. When faced with unbalanced datasets, these models often produce sub-optimal classification results (good representation of the majority class but poor classification performance of the minority class) (Lopez, et al., 2013).

Based on the scientific literature recommendations, this study balances the classes with increasing minority class (borrowers with bad solvency) in the training dataset. A similar study has found that class imbalances significantly affect the performance of the three classification methods, and the balanced dataset has yielded higher results in almost all model performance indicators (Khemakhem, et al., 2018). After balancing the training dataset, observations increased from 3647 to 5147, and they were added randomly using R studio software. With the help of R studio software, two models were created - LR and ANN. LR model training took a faster time than ANN model training. Then, based on the averaging ensemble method, a combination of both methods (LR + ANN) was developed. Several performance evaluation indicators were evaluated for all three models - AUC, Gini, PCC, H, BS, KS, and sensitivity and specificity. The results are summarised in Table 2.

Table 2

Performance evaluation indicators for three models

Evaluation indicator	LR (%)	ANN (%)	LR + ANN (%)
AUC	63.54	60.96	68.28
Gini	27.08	21.92	36.56
PCC	60.36	57.35	65.54
H	6.82	5.40	11.46
BS	23.54	23.92	22.94
KS	21.05	19.26	30.82
Sensitivity	38.64	37.11	43.86
Specificity	78.14	78.71	80.67

Source: author's construction based on unpublished data of Non-Bank Lending Company

Table 2 shows that the ensemble method (LR + ANN) is better than the individual methods in the current dataset. Specificity was the only indicator that showed better performance in the ANN model than in the LR model. It means that ANN could better distinguish borrowers with bad solvency. However, the difference between values is relatively low. The ensemble method showed the highest results among all performance evaluation indicators, which is also confirmed by the scientific literature because it is the ensemble method that can create a more stable model that could be applied to different datasets.

In order to implement the LR model in a nonbank lending company, the values of variables are used, with the help of which the model score (probabilities) can be calculated. If the probability exceeds 0.5, then a loan is issued, while if it is less than 0.5, the loan is not issued. The cut-off value can also be changed depending on the company's risk policy (Ala'raj, et al., 2021).

Conclusions, proposals, recommendations

1. Both methods (logistic regression and artificial neural networks) gave similarly good results. However, logistic regression is slightly better in most performance evaluation indicators - the percentage correctly classified, the Gini index, the H-measure, the Brier score, and the Kolmogorov – Smirnov statistic.
2. Combining logistic regression and artificial neural networks into one model allows to achieve even better accuracy and significantly better distinguish between borrowers with poor solvency and borrowers with good solvency. If it is more important for a financial institution to identify borrowers with poor solvency, better results can be obtained using balanced datasets.
3. By introducing the ensemble model in this study, a nonbank lending company would ensure that borrowers with poor solvency would be reduced by as much as 35% than without implementing a credit scoring model at all.
4. Future studies should consider implementing other methods, different combinations of methods and new independent variables to achieve even higher results. In addition, it is necessary to assess how these models predict borrowers with poor solvency over time and whether the crisis caused by Covid-19 has not significantly affected the model's results. In order to obtain valuable conclusions on the practical application of models in the field of borrower solvency assessment, it is also necessary to interpret the obtained results. For example, it is possible to determine the relative importance of factors and margin effects in logistic regression. It will allow company management to understand what variables are essential in credit scoring and how they affect results.

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EXPECTED CHALLENGES AND OPPORTUNITIES OF PHARMACEUTICAL INDUSTRY IN LATVIA DURING AND AFTER COVID-19 PANDEMIC

Matiss Kite, University of Latvia
Anda Batraga, University of Latvia
Jelena Salkovska, University of Latvia

Abstract. Covid-19 pandemic has made a significant global impact and is expected to leave long-term consequences on the healthcare systems by increasing the burden of long-term patient treatment and rehabilitation. Healthcare systems are expected to face increasing expenditures and therefore should continuously look for improvements and updates. Novel technologies and management tools could be the potential solutions for more effective treatments and cost containment. By understanding how the pandemic might impact healthcare systems and by outlining how technological innovations could be implemented as countermeasures, the potential solutions to policy makers and governing bodies can be defined and suggested.

Purpose of the article: The purpose of the research is to review the latest development trends in healthcare systems and see how their implementation has been affected by the Covid-19 pandemic both globally and locally. By realizing global healthcare system development trends and Covid-19 pandemic potential impact on the pharmaceutical industry in Latvia, future challenges and their countermeasures can be outlined and proposed. If addressed timely and properly, the negative impact of such challenges could be reduced or avoided.

Methodology/methods: In order to attain the objective of the research, a literature review of public databases, literature, healthcare policies and research articles is performed, followed by interviews of experts representing the pharmaceutical industry in Latvia.

Findings: Research outlines the potential directions the pharmaceutical industry should focus their research and development, highlights the novel technologies that are expected to be implemented in pharmaceutical care as well as suggests potential updates for the pharmaceutical industry management system in Latvia.

Keywords: *Pharmaceutical Industry, Covid-19, Healthcare system, Digitalization.*

JEL code: M31

Introduction

Coronavirus disease (Covid-19) has been a globally transforming matter for almost 2 years and has left a significant influence on our daily lives (World Health Organization, 2021). After the introduction of Covid-19 vaccines in 2021, the public hoped to see the potential elimination of the pandemic and returning to normal everyday life. It was stipulated that Covid-19 could be fully eradicated or eliminated as a best-case scenario, cohabitation was indicated as a more realistic scenario, and conflagration as the worst of the alternatives (Kofman, A. et al., 2021). The rising infection rates in late 2021 in the countries with considerably high vaccination rates suggest that the later scenarios are more realistic and Covid-19 is here to stay for a longer period than expected.

Bearing in mind that Covid-19 will be a global challenge at least for the foreseeable future, it is important to keep track on how the pandemic is affecting our societies, everyday life and especially healthcare systems. These systems are bearing the highest burden of the pandemic, hence its seasonality trends should not be ignored when shaping the future healthcare environment (Murray, C.J.L., Piot, P., 2021). Furthermore, 10-20% of Covid-19 patients experience post-Covid-19 condition which is commonly referred to as the Long Covid that is expected to have a long-term impact on the healthcare systems, including pharmaceutical care (World Health Organization, 2021) (Crook, H. et al., 2021).

The objective of the research is to review how Covid-19 pandemic has impacted pharmaceutical industry trends and its development in Latvia. The development trends are further assessed from a healthcare management perspective in order to suggest measures on how to adapt and face future challenges caused by the pandemic.

Methodology – in order to achieve this objective, the research is based on a literature review of public databases, literature, healthcare policies and research articles regarding pharmaceutical care development, Covid-19 pandemic, its impact on pharmaceutical industries and healthcare systems as well as its management. Within the scope of the research, pharmaceutical producers, pharmaceutical research institutions, retail pharmacies and academia are jointly referred to as “Pharmaceutical industry”.

Articles from BMJ, JAMA, Value & Outcomes Spotlight, Health Policy, Computers & Chemical Engineering journals, data and information from Bank of Latvia, Center for Disease Prevention and Control, European Commission, Latvian Investment and Development Agency, MarketLine, Ministry of Finance, National Health Service, PwC, State Agency of Medicines, World Health Organization reports and databases were used as sources of information.

Multiple interviews of experts representing the pharmaceutical industry were conducted, including a member of the board from one of the local pharmaceutical producers, a faculty dean from one of the universities in Latvia, a scientist from one of the pharmaceutical research institutions and an official from the Pharmacists Society of Latvia. During the in-depth interviews, experts were questioned regarding the pharmaceutical industry development in Latvia, how Covid-19 pandemic affected the industry and how they expect the industry would develop during and after the pandemic.

Research outlines the potential long-term health complications that Covid-19 patients will be facing and highlights the directions the pharmaceutical industry should consider developing their products. With the challenges of an aging population and Covid-19 pandemic, healthcare systems will be facing increasing expenditures, thus increasing the importance of continuous health technology cost-effectiveness analysis. Patient-centered healthcare with personalized pharmaceutical care has been discussed even prior to the pandemic and with novel technologies and digital solutions becoming more accessible, they are shaping the future healthcare systems. To successfully implement the novel healthcare trends, a need for a governing structure that would link pharmaceutical producers with research institutions, as well as coordinate closer cooperation with academia and policy makers, has been outlined.

Literature Review

The authors of this study searched the BMJ, American Medical Association (JAMA Network) and ISPOR databases for articles and studies related to “pharmaceutical development”, “Covid-19”, “healthcare management”, “novel technologies” and “digitalization” terms. Articles and studies not relevant to the goal of this study were excluded, thus focusing on the literature that is closely related to healthcare system management, Covid-19 impact on the healthcare systems, pharmaceutical industry development, novelties in pharmaceutical care and the implication of digital technologies in healthcare.

Covid-19 impact and challenges on the healthcare systems

In late November 2021, a new Covid-19 virus variant (Omicron) has shaken the world (World Health Organization, 2021), thus once again highlighting that the Covid-19 pandemic might be far from over and the global communities should adapt accordingly.

As Covid-19 seems to become a long-term global burden with a seasonal trend several principles and strategies have been outlined to tackle the disease. For example, Murray and Piot have indicated five major strategies to focus on – strengthening global vaccination coverage; observing the epidemiological prevalence of the disease and the emergence of new variants; managing and adequately funding seasonal hospitalization surges during winter periods; reducing the disease prevalence during the seasonally most dangerous months; adapting and changing the behavior of a high-risk population. (Murray, C.J.L., Piot, P., 2021) This highlights the need for public and private services to cooperate in handling the social behavior during the most critical winter months – to introduce remote workspaces wherever possible, to avoid physical contact, conferences and travel by rescheduling these events towards the safer season like summer. Furthermore, the increased numbers of hospitalized patients during the Covid-19 peak months, have stressed the need to focus on the preventive measures that would reduce the risk of patient hospitalization – further development and implications of home care solutions is expected (PwC, 2021).

Long lasting effect of the Covid-19 should not be ignored as the virus affects considerable number of patients even after their recovery – the long term post-Covid-19 health related issues are often referred to as Long-Covid. The most common Long Covid symptoms affects respiratory, cardiovascular, neurological, gastrointestinal, musculoskeletal systems as well as include psychologic, ear-nose-throat, dermatological and generalized symptoms that may express combined or separate, have inconstant dynamic and intensity that could change over time (Shah, W. et al, 2021). It has already been noted that healthcare systems are expected to face increased morbidity and mortality due to the Covid-19 and therefore will be pushed to reassess patient care management in order to make it more efficient and adapted for Long Covid patient care and rehabilitation (Sivan, M. et al, 2021).

Covid-19 pandemic has also made an indirect impact on other diseases due to limited prevention measures during the pandemic, subsequently resulting in increase of preventable deaths (15-16%) as well as productivity loss. (PwC, 2021).

The impact of Covid-19 pandemic on worldwide economies should not be ignored – it has limited the operability to some of entrepreneurs due to Covid restrictions as well as impacted their performance due to labor availability during disease outbreaks. By challenging the entrepreneurs (reducing income) and overloading the healthcare systems (increasing expenditure) Covid-19 pandemic has been jeopardizing the economies globally and locally, thus urging the policy makers to look for healthcare cost optimization (PwC, 2021). Therefore, highlighting the need for further development of cost-effectiveness analysis and adoption of preventive care in healthcare systems (Fuchs, V.R., 2020).

Healthcare system development

Even before the Covid-19 pandemic hit the global healthcare system the inevitable changes to pharmaceutical industries and pharmaceutical care had already been described by multiple researchers and authors – pandemic as an extreme occasion has only pushed the public to adapt these changes at a faster pace (Fuchs, V.R., 2020). With respect to Long Covid potential impact on the healthcare systems, its research should run in parallel with the continuous adaptation of such systems and they should become more integrated, pragmatic, adaptive, iterative, and rapid in implementation (Banejee, A., 2021).

Aging population has been a global trend for a while already and has been one of the driving forces for increasing healthcare expenses (MarketLine, 2021). Growth of supply chain complexity, development of personalized medicines, uncertainty and increasing risks have been the key driving forces towards further evolvement of pharmaceutical industry. A need for paradigm shift has been outlined and a patient centered decision framework has been proposed that would be patient centered, cost-effectiveness driven with targeted strategies and improved flexibility that would emphasize on emerging markets and sustainable mindset (Marques, C.M. et al, 2019).

By developing towards a patient centered healthcare, integration of patient in the care of his health should not be forgotten – they should be interested and motivated in following their well-being and addressing the potential risks on developing a disease. Therefore, promotion of wellbeing and rising the awareness of the healthcare systems, their processes and benefits to patient should be part of the healthcare system agenda (PwC, 2021).

In parallel to patient centered healthcare development, healthcare systems should become flexible and ready to adapt emerging technological innovations. For example C.Lemmen et al have already outlined and analyzed "Systems medicine" as the potential future healthcare system framework for Germany. Systems medicine would be based in "methods adopted from the fields of systems biology and omics technology, bio-mathematical models, bio-informatics, "big data", and aspects of network theory". Such system would be depending on gathering, storing and interpreting vast amount of health-related data and would require researchers and healthcare specialists to have competences in handling them (Lemmen, C. et al, 2020). Flexible and well-trained healthcare specialists would be crucial in gathering, analyzing health-related data and applying the results in patient centered and personalized medicine where treatment decisions would be based on each patient individual genetic, molecular and cellular specifics. Furthermore, the need for appropriate infrastructure and software tools should be taken into consideration for accommodation of such system.

European Union (EU) Commission has approved its pharmaceutical strategy for Europe in 2020 outlining that digitization, technological innovations and Covid-19 pandemic has been the major forces driving the changes of pharmaceutical industry. EU pharmaceutical strategy for Europe outlines the EU's focus on ensuring access to affordable medicines for patients; addressing unmet medical needs; supporting competitiveness, innovation and sustainability of the EU's pharmaceutical industry; enhancing crisis preparedness and response mechanisms; promoting a high level of quality, efficacy and safety standards. (European Commission, 2020). Furthermore, in response to restraints caused by Covid-19 pandemic the EU commission has developed and is in process of endorsing the Recovery plan for Europe (NextGenerationEU) that also introduces a new health programme (EU4Health) as one of its main elements (European Commission, 2020). Besides boosting EU's preparedness for major cross border health threats EU4Health addresses the need for disease prevention, health promotion in an ageing population, digital transformation of health systems and access to health care for vulnerable groups (European Commission, 2021).

Well before the Covid-19 pandemic struck Europe, EU had already been developing a framework for deeper cooperation between the EU member states on joint health technology assessment (HTA) system by defining that "development of health technologies is a key driver of economic growth and innovation in the EU" (European Commission, 2018). So far EUnetHTA (a network of government appointed HTA organizations, regional agencies and non-for-profit organizations) has developed a HTA Core Model® (HTA Model) that could act as a methodological framework for production and sharing of HTA information within the EU member states (EUnetHTA, 2016). The HTA Model defines some of the key principles that would be applicable once EU sets for a joint HTA system – health technology relative effectiveness assessment would be handled jointly by the member states, but the decision whether to approve the treatment and its costs would be made on the national level by each member state separately. During the joint stage of the HTA the disease epidemiology, its burden on individual patients and society would be summarized together with available alternative treatments; afterwards they would be compared with the novel treatment, also taking into account its potential safety concerns and effectiveness. Treatment economic evaluation, ethical analysis, organizational, social and patient care related aspects as well as alignment with local regulations would then be made on national level separately, hence outlining fields the national policy makers should be developing and competences national HTA agencies should focus specializing in.

Pharmaceutical industry and its role in tackling impact of Covid-19 pandemic

Covid-19 pandemic has also tested the flexibility and agility of the pharmaceutical industry and its regulatory institutions – they have proven that if consolidated under a common goal and purpose they can reach stunning results. If previously testing, control and approval of novel

treatment could take approximately 10 till 15 years prior their launch in the market, the development, approval and rollout of Covid-19 vaccines has proven that the process timelines could be significantly reduced if met by extreme demand, followed by mobilization and unlimited support from the industry and regulatory institutions. This proves that policymakers should further continue outlining the priorities of public and healthcare needs, assign resources to support the research and development of such issues. Patient organization active involvement is equally important as it validates and highlights the public needs, thus, pointing a goal for the industry and their development plans (PwC, 2021).

To provide the care in most efficient way it should be integrated between multidisciplinary teams with a range of specialist involved in personalized patient care (Shah, W. et al, 2021). The multidisciplinary personalized care would involve specialists ranging from physical, mental and social care who would look for an integrated and personalized patient treatment. Such approach should be more efficient and cost-effective by reducing the burden on the healthcare system. It is crucial that specialists involved in such multidisciplinary team should be adaptive, with expertise in novel technologies, analytic methods, commercial principles, supply, communication skills and understanding in social and economic sciences (PwC, 2021) (Metzi, J.M. et al, 2020) (Sivan, M. et al, 2021).

Novel technologies and digitalization in pharmaceutical care

Besides the never-ending search for healthcare system optimization and cost-effectiveness improvement there are multiple novel technologies that are being developed and adapted for use in healthcare and provides potential for healthcare improvements.

K.Schwab has noted the increasing amounts of sensors, their interconnectivity, generation and storing of data, therefore bringing high potential to improved decision making and automation. Furthermore, K.Schwab predicts the high possibility of first robotic pharmacist introduction in the US market until 2025 – with robotic and autonomous solutions becoming more and more present in supply chains this seems only inevitable (Schwab, K., 2017). In recent years the increasing availability and use of wearable health devices has brought some implications in wellness and health monitoring. Such devices (for example fitness tracker, blood pressure monitor, smart watch) collect, store and transmit health and wellness data that can be further used for health state analysis thus aiding in treatment adaption and personalization (MarketLine, 2021) (PwC, 2021). Furthermore, the wearable health devices together with adapted software could provide distanced monitoring, dynamic health data recording and trend analysis. If connected to network the data could also be shared with the healthcare personnel remotely and the personalized treatment could be adapted without the need for patient to visit hospital or physician's office.

Another novel technology that is being successfully adapted in multiple industries is the 3D printing technologies that have been developing rapidly in recent years and has also found implications in healthcare where personalized prosthetics and medical devices are becoming the reality (MarketLine, 2021).

Further implementation of digitalization processes in healthcare systems would be expected as Covid-19 pandemic has shown it can be managed in a short duration if only there's enough will and support. Still, with the increasing availability of digital technologies and their users, the alignment of the developed digital solutions and their interoperability should not be forgotten so the gathered data could be exchanged and used both locally and internationally. Also, personal privacy issues should be addressed and patients should be aware and in consent of their personal data collection, rationale behind it and benefits that it might bring to healthcare system development.

Research results and discussion

Results of the research are summarized in three sub-sections each having its own focus. In first sub-section authors of the study summarize the data from public databases and assess how the pharmaceutical industry in Latvia has developed so far and what has been the major challenges that have been hindering pharmaceutical care development in Latvia. Local expert point of view on pharmaceutical industry development and how it has been affected by Covid-19 pandemic is summarized in second sub-section. The thesis from literature review and expert interviews are compiled in sub-section three in order to indicate the future challenges for pharmaceutical industry in Latvia and their countermeasures are proposed by the authors of the study.

1. Pharmaceutical industry structure and administration challenges in Latvia

As defined in the Pharmaceutical Law pharmaceutical industry in Latvia is governed by Health ministry with State Agency of Medicine (SAM), National Health service (NHS) and Health Inspection acting as the major controlling bodies of the industry. The governing bodies, as under the supervision of Ministry of Health, are focused on healthcare organization and controlling and, as confirmed by experts, deals less with pharmaceutical industry management from economic perspective.

Pharmaceutical producers and research organizations in Latvia historically have been associated with high potential in developing and delivering novel products (Latvian Investment and Development Agency, 2021). Subsequently having a considerable potential in aiding healthcare system sustainability during and after the Covid-19 pandemic. Still, currently local pharmaceutical producer turnover in Latvia constitutes only 14.5% of their total turnover (2020 data), and covers roughly 4.3-4.7% of pharmaceutical market in Latvia, thus showing their products high export value, but minor significance to local market as it can cover only a fracture of Latvian healthcare needs making it highly dependent on pharmaceutical product imports.

The largest pharmaceutical producers in Latvia are Grindeks, Olainfarm and Kalceks (State Agency of Medicines 2021) and their main focus is on developing and supplying generic pharmaceutical products. The development and introduction of innovative pharmaceutical products has not been as successful as it used to be historically during the Soviet Union era – as confirmed by experts the innovations and scientific advances have been scattered across multiple therapeutical areas, has found limited implications by local pharmaceutical producers and has been sourced to other international pharmaceutical companies. The interoperability between local pharmaceutical research institutions and producers has been declining in recent decades – limited availability of funding allocated to pharmaceutical research and lack of joint administrative body has been outlined as one of the possible reasons why novel pharmaceutical products have not been developed and introduced by pharmaceutical industry in Latvia despite their potential.

Latvian pharmaceutical market data shows that it has steadily risen from 251.76 Million € in year 2010 to 380.07 Million € in year 2020 (State Agency of Medicines, 2021). Also state budget for pharmaceutical product reimbursement has been increasing from 101.59 Million € in year 2010 to 183.82 Million € in year 2020 (National Health Service, 2021, 2015). Therefore, a trend of increasing pharmaceutical care related expenditure can be observed and it is expected that it will continue to grow in the future. For example, during the year 2022 State budget discussions, additional funding has been granted to healthcare system (130,5 million €) out of which 60% will be allocated for covering novel treatments and pharmaceutical product reimbursement (Ministry of Finance, 2021).

Pharmaceutical products treating oncology diseases have received the most amount of state reimbursement (38.1 Million €) followed by endocrine, nutritional and metabolic diseases (32.1 Million €) and circulatory system (bloodstream) diseases (31.3 Million €), thus outlining the disease treatment priorities set by the state in 2020. Furthermore, pharmaceutical products treating cardiovascular system, alimentary tract, metabolism and nervous system having the highest reimbursed consumption (Defined Daily Dose per 1'000 inhabitants daily) in 2020, thus outlining the state reimbursed pharmaceutical products with highest demand from the public (National Health Service, 2021).

As per Eurostat data Latvia has been having one of the lowest government healthcare expenditure shares versus state GDP, and although it has been increasing in recent years (from 3.42% in 2017 till 4.00% in 2019) it still significantly trails back from the EU-27 average that has been around 7.7%-7.9% (2014-2018 data). The trend of aging population is affecting Latvia similarly as other countries worldwide and followed by the increasing need for Covid-19 patient treatment and rehabilitation the healthcare expenditure is expected to grow continuously.

The increasing healthcare expenditure would lead to an increasing need for existing and novel treatment HTA and cost-effectiveness analysis. Currently the cost-effectiveness of pharmaceutical treatment in Latvia is used for granting or reassessing state reimbursement for pharmaceutical products and it is linked to GDP per capita. The treatment is counted as cost effective if its incremental cost effectiveness ratio does not exceed three times the value of GDP per capita per life year, quality adjusted life year or progression free survival gained (Cabinet of Ministers, 2006). Although the cost-effectiveness thresholds in Latvia are in line with WHO recommendations (Marseille, E., et al, 2015) the considerably low healthcare budget (vs. GDP) has resulted in limited availability of novel treatments that would be available elsewhere in Europe.

Besides shaking Latvian healthcare system Covid-19 pandemic has also shocked Latvian economy and it has switched to recession with 3.6% GDP loss in 2020. Although the economy is expected to recover swiftly in the coming years (Bank of Latvia, 2021) it will bring challenges for healthcare funding allocation in the future – in case Latvian GDP continues to decline it would reduce further availability of novel treatments within the existing budget, but if the economy recovers an increase in healthcare budget should follow in order to maintain the healthcare budget parity with GDP. Therefore, if Latvian healthcare system would like to catch up with the rest of the EU the healthcare expenditure should continue increasing even if the economy falls into decline and should increase even more rapidly if the economy grows – keeping in mind the principle that healthcare expenditure should grow faster than GDP.

2. Latvian Pharmaceutical industry adaption to Covid-19

Covid-19 pandemic brought challenges not only to institutions that were managing healthcare system, but also to pharmaceutical industry and its parties as well. Experts representing pharmaceutical producers, research organizations, pharmacists' professional organizations and universities shared their experience on local development trends and on how they had to adapt their services during the uncertain and challenging Covid-19 pandemic.

Pharmaceutical producers

In recent years pharmaceutical producers in Latvia have been specializing in generic pharmaceutical product development, capitalizing on the fact that being an EU producer they can promote their product high quality, furthermore their lower labor costs (if compared to rest of EU) and small company sizes offers considerable flexibility and advantages in global pharmaceutical market. The producers have also been capitalizing in their historical relation with post-Soviet markets. Nonetheless, experts representing pharmaceutical producers highlight that in order to grow they are exploring global demand trends and looking for niche segments to develop so they can compete and offer their products in EU and global markets.

Development of novel products is one of the keys to sustaining company growth and its position in the market, therefore local producers confirm that eventually they might reach the need for development of novel pharmaceutical products. Still, novel pharmaceutical product development requires significant upfront investments and trained specialists with wide field of competences in pharmaceutical sciences. Therefore, a lack of highly qualified specialists and financial resources are outlined by pharmaceutical producer and research organization experts as the major limitations for pharmaceutical producer growth in Latvia in future.

Experts also highlight that Covid-19 pandemic has highlighted local pharmaceutical producer dependency on global supply chains, as during the pandemic timely deliveries of raw materials and other supplies were disrupted, thus delaying the production and deliveries of the final products. Furthermore, only part of the pharmaceutical industry employees could adapt to remote working conditions, but the specialists in production facilities and testing laboratories had to operate under hazardous conditions, sometimes even resulting in Covid-19 outbreaks and quarantines delaying the production even further.

Research institutions

Covid-19 pandemic has proven the significant importance of well-established cooperation between pharmaceutical research institutions, industry and governing structures – common goal, close cooperation and responsibility alignment between the parties has been crucial for prompt solution generation.

It has been noted by experts that Covid-19 pandemic struck the governmental structures by surprise and some of the crisis management solutions might have been chaotic and unreasonable – extra funding had been allocated with short notice with little time to adapt, thus some of the crisis management solutions might have been rushed and lacking proper assessment for their contribution to fighting the pandemic.

Upon facing Covid-19 pandemic research institutions had challenges with managing their already ongoing researches with the unexpected demand towards Covid-19 related research – the limited availability of specialists and laboratory supply shortages were the main setbacks for flexible transition from ongoing researches to Covid-19 related research. Research personal had also limited options for switching to working remotely as the laboratory equipment could not be taken outside the research facilities, thus the personal had to continue working under hazardous conditions even during the strictest lockdowns.

Taking into consideration the historical traditions in development of cardiovascular and neurologic pharmaceutical products (Meldonium and Phenibut) pharmaceutical research institutions in Latvia have experience and competence in Long Covid related diseases, thus highlighting their potential in researching solutions for diseases highly common in the future. Still, experts representing pharmaceutical producers and research institutions experts note that in recent years local cooperation has been very limited and both fields are mostly focused on cooperation with foreign international companies.

Retail pharmacies and pharmaceutical care

Experts from pharmacists professional organizations note that in recent years pharmaceutical care has been developing towards defining and consolidating its role withing the Latvian healthcare system – mostly, by focusing on patient pharmaceutical treatment monitoring and personalization, preservation of pharmaceutical compounding in pharmacies, offering simple health diagnostics (blood pressure, glucose and triglyceride tests) and introducing continuous professional development as responsibility for practicing pharmacists. Also, since 2018 pharmaceutical product prescription has been digitalized and uses joint electronic system, thus taking initial steps towards pharmaceutical care digitalization.

If comparing 2019, 2020 and 2021 retail pharmaceutical market monthly data a drop of pharmaceutical product turnover could be noticed once the Covid-19 pandemic reached Latvia in March 2020 (if compared with 2019 data). Nonetheless, 2021 data shows that the retail turnover continues to grow even during the pandemic (if comparing 2020 and 2021 monthly turnover data), thus confirming that Covid-19 came as a shock to pharmaceutical care, but it was promptly and successfully managed (State Agency of Medicines, 2021).

As highlighted by experts, pharmacies have proven their high value during Covid-19 pandemic as a primary healthcare institution that is close and easily accessible for patients especially during lockdowns with limited availability of physicians and ambulatory care. Furthermore, pharmacists have proven themselves as valuable healthcare professionals in promoting and explaining scientifically based treatments and disease prevention.

Most recently, pharmaceutical care has been looking for ways to improve their services with potential pharmacy-based vaccinations being one of the solutions.

Universities

In past decades pharmaceutical education has been mostly focusing on training specialists for pharmaceutical care in retail pharmacies as it is the highest labor market for pharmaceutical graduates. Nonetheless, as noted by experts the increasing demand from industry, public institutions and other fields of pharmaceutical market has been contributed in development of new pharmaceutical education pathways, thus clinical and industrial pharmacist studies were introduced and first generation of graduates have started their practice in pharmaceutical care and industry.

In parallel to changing demand from the pharmaceutical labor market, experts note that latest generation of students is demanding novel approaches towards education – bringing more focus on flexibility and less limitations in the education environment. Such approach could be quite challenging taking into account the significant part of practical laboratory tasks and theoretical resources that have to be mastered during pharmaceutical studies.

As a positive effect of Covid-19 pandemic has been identified by the experts confirming that the pandemic has fostered switch from face-to-face lectures to fully digital lectures in pharmaceutical studies and it is expected that similar approach will continue even after the pandemic – lectures will stay 100% remote and digital (available in place and time convenient to student), but the practical laboratory works will have to be performed in university, thus also giving students opportunity for face-to-face consultations with professors. Similar approach has also been adapted by rest of the pharmaceutical industry as pharmaceutical producers, scientists and healthcare professionals nowadays interact with each other mostly remotely.

Experts agree that there will be an increasing demand for pharmaceutical specialists to be competent in fields outside pharmaceutical care and further specialization of pharmacists is expected in the future – clinical research, management, health economics, legal and regulatory fields for example. Thus, there will be an increasing need for professors who will be capable of covering such fields and sharing their insight with the students.

3. Latvian Pharmaceutical industry potential administration updates

Latvian healthcare system will have to adapt to Covid-19 seasonality trend – surging Covid-19 patient hospitalizations should be expected during autumn and winter periods; therefore, hospitals might have limited capacity for inpatient care and such services should be scheduled and provided mostly during the spring and summer periods. Also, an intensive communication with public should be carried out in order to modify its social behavior during the virulent autumn and winter months – to reduce social interactions, movement and public gatherings; alternatively, such activities should be encouraged during the spring and summer seasons.

With the development of digital technologies future pharmacists will be required to work in multidisciplinary teams focusing on personalized, patient centered care and act as healthcare specialist that is most accessible to patient. Therefore, pharmacists will take an important role in patient health status and pharmaceutical therapy monitoring by analyzing and adapting it to patients' personal specifics and needs. The increased availability of robotic technologies, healthcare software, AI implementation in patient data assessment and science-based decision-making, pharmacists will be acting more as a patient support and guidance specialist on personalized treatment, disease prevention and will promote healthy lifestyle. Furthermore, pharmacist might be required to step out of boundaries of pharmacy and be ready to provide pharmaceutical care in an environment more suitable for patient by providing remote consultations or pharmaceutical product home deliveries, for example.

Pharmaceutical product compounding in pharmacies that has been well preserved in Latvia could be further developed and improved as part of personalized healthcare – introduction of 3D printing technologies in healthcare could be one of the novel technologies that could become a part of pharmaceutical care in pharmacies already specialized in pharmaceutical product compounding.

Experts confirm that a governing body linking the needs of the public and pharmaceutical industry with the expertise of academic and research institutions and vice versa could be developed, thus potentially fostering their cooperation. Furthermore, healthcare policy makers, research institutions and pharmaceutical industry should highlight the research areas and topics that could be addressed by academia and pharmaceutical students, thus encouraging future pharmacists to get acquainted with and involved in tackling ongoing and upcoming healthcare challenges.

It is expected that the increased funding allocated to Covid-19 related research will generate Covid-19 related infrastructure, experts and competences – the abovementioned governmental body should also seek for Covid-19 non-related implications of the boosted sub-industries so they do not decline once the Covid-19 pandemic is tamed and available funding potentially reduced.

With the historical traditions and experience in development and production of pharmaceutical products for treatment of cardiologic and neurologic diseases pharmaceutical industry in Latvia should have the potential to develop novel treatments that could be applicable for treatment of Long Covid symptoms. Thus, highlighting the significance of the abovementioned governing body that could increase both pharmaceutical industry and research organization interoperability. Policy makers would also be welcome to cooperate with local pharmaceutical producers on highlighting and financially supporting the development of products with significant need and consumption in Latvian market.

Many of the mentioned solutions would require extra funding that would be quite limited, especially with the expected increasing healthcare expenditure. Therefore, broader use of HTA and healthcare cost-effectiveness analysis should be expected. To be in line with the principles already developed by EUnetHTA and its HTA Model, the governing bodies should drive their focus on defining local limitations for economic evaluation and ethical analysis of the available and novel treatments, also continuously revising the potential updates and optimization of healthcare system. A regular national epidemiological assessment should be in place, the results of such assessments should have an impact on the treatment prioritization and state healthcare budget allocation – diseases that has the heaviest burden on the society should be treated as priority and treatments that bring the highest benefit to overall society should be funded firsthand.

With respect to expert suggestions and proposals found in literature, future pharmaceutical industry specialists will have to face a dynamic and everchanging world – in order to keep up with the industry demands, in addition to the skills they are already developing, they will be expected to develop management skills (self-discipline, organizing, prioritization, teamwork), digital skills (programming, proficiency in health software, data analytics and interpretation), research skills (being in line with pharmaceutical research trends, contributing to academic research), competences in epidemiology (health economy, healthcare system functionality, being in line with latest therapeutic guidelines),

quality management (continuous workplace and self-development), develop flexibility (adapting skills, mobility) and willingness to evolve in areas outside pharmaceuticals. Thus, also outlining the competences that should be part of future pharmaceutical education.

Conclusions, proposals, recommendations

1. Covid-19 pandemic will have a long-term impact on global population and will create large amounts of patients with respiratory, cardiovascular, neurological, gastrointestinal, musculoskeletal and psychologic complications, hence outlining opportunities for pharmaceutical industry as high demand on pharmaceutical products treating such complications is expected in the future.
2. Healthcare expenditure (vs. GDP) in Latvia historically has been considerably lower than EU average – previously the aging population has been outlined as one of the major challenges for future healthcare system, in addition Covid-19 pandemic and its long-term effects are now expected to increase the need for increasing healthcare expenditure on public health even more and therefore will test the limits of healthcare system capacity in Latvia.
3. It is expected that pharmaceutical care will continue developing towards patient centered personalized healthcare and further digitalization with broader implications of wearable health devices, health assessment software, remote patient care and 3D printing solutions.
4. Further research on patient centered personalized pharmaceutical care implementation in Latvia should be addressed.
5. Increasing need for highly qualified pharmaceutical specialists with competence in process management, health economics and epidemiology is expected in the future in order to increase the cost-effectiveness assessment capabilities within governmental institutions.
6. An institution linking and coordinating the cooperation between research institutions and pharmaceutical producers in Latvia should be developed and introduced in order to improve interoperability within the pharmaceutical industry and potentially generate novel products.
7. A need for deeper cooperation between policy makers, governmental institutions, pharmaceutical industry and academia has been outlined, suggesting that ongoing industry challenges should be highlighted and shared with academia that could address them in their research as well as prepare and specialize future pharmaceutical industry specialists in handling such challenges.
8. Pharmaceutical industry experts have outlined skills and expertise's that will be required by future pharmaceutical industry specialists, but are not yet fully addressed in their curriculum – flexibility, management, digital, research skills and competence in epidemiology and quality management. These skills and expertise's should be integrated into pharmaceutical studies in order to raise future pharmaceutical industry specialists' efficiency and competitiveness.

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THIRD MISSION OF HIGHER EDUCATION: CASE OF UKRAINIAN UNIVERSITIES

Maksym Kolisnyk, Kharkiv National University of Radio Electronics
Anatolii Matviichuk, State University of Infrastructure and Technologies
Vitalina Ozel, State University of Infrastructure and Technologies
Maryna Petchenko, Kremenchuk Flight College
Maryna Salun, Simon Kuznets Kharkiv National University of Economics
Oksana Tsukan, Kharkiv National University of Internal Affairs

Abstract. The article discusses an idea of a modern set of solutions for developing a business ecosystem at the universities to enhance students', teachers', graduates' entrepreneurship) which should be evaluated by National and International Rating Agencies while ranking universities for government funding and for educational services.

The aim of the paper is to analyse the university activity through the lens of third university mission indicators. The indicators of modern rankings enable assessment of the "traditional" mission of the university – the commercialization of knowledge and results of research activities of universities. This approach does not include new role of the university as a “third-generation” HEI capable to improve social, economic and legal environment. The “third mission” approach seeks to strengthen university position in highly competitive world education space. Such changes in the indicators for university ranking should be accepted for correct presentation of universities as innovation centers open to society and to relations with the business ecosystem.

The main findings of the article show that application of "third mission" in Ukrainian universities would lead to the acceleration of entrepreneurial activity in higher education. That means the formation of new cohort of young professionals, business ecosystem, professional consulting and mentoring system in the student environment. The other finding of the paper is rather limited coverage of the third university mission in the national rankings of Ukraine and the lack of the efforts to include new indicators in the assessment.

Keywords: *higher education, business ecosystem, university–business–society relationship, commercialization of knowledge.*

JEL code: I21, I23, I25

Introduction

Contemporary universities are actively involved in an entrepreneurial ecosystem alongside with investors, business companies, public bodies, regulatory institutions, local authorities and non-governmental organizations. These entities support and broaden the potential of a business-idea, cooperate on legal, social, technological and commercial basis with HEIs. Such type of entrepreneurial ecosystem based on university–business– society relations aims to produce new knowledge, develop and protect, finance and implement new technologies for new projects, new business and society wellbeing.

The universities have a vital role in the building of the sustainable relationships between the entrepreneur-starter and the academic and regulatory institutions' experts, business-professionals, local authorities and society. The universities provide technical support, train qualified and innovative personnel, improve entrepreneurial culture for student and academic staff, enrich study experience by solving practical cases from the theory to practice. These new functions expand the entrepreneurial university mission in which business ideas are not bound only to technological sectors. That means new business ideas emerge from “non-technological” social sciences promoting values of social entrepreneurship, creative or solidarity economics. Thus, entrepreneurship at the university is aimed at making a profit, and at building stable relations university – business – society, and at promoting the values of social equality, security and wellbeing.

According to “traditional” entrepreneurship university approach based on maximizing economic profit from intellectual property, key stakeholders are researchers, technology transfer offices, science parks, incubators, joint venture and big companies (Salun M. et al., 2020). In many cases this model results in domination of market forces over classical university functions that limit academic freedom and prioritizes the commercialization of university services.

Modern entrepreneurship university strives to involve new actors in entrepreneurial ecosystem by creating co-working spaces (not only students and academic staff but also alumni to develop long-standing relations) and by establishing entrepreneurial infrastructures (new generation of incubators, accelerators and venture companies). It is worth to mention that public institutions implementing entrepreneurship development strategies usually pay more attention to academic initiatives in this field that highlights the function of the entrepreneurship university as a coordinator of business ecosystem in the promotion of entrepreneurial culture.

To this end, the paper addresses research questions

- 1) What is a new role of the universities in the transformation of business ecosystem?
- 2) How do Ukrainian HEIs apply new basic indicators measuring involvement and participation of the university in the business ecosystem?

The paper is structured as follows. Next section describes the results of literature review. Then, the paper provides theoretical analysis of university third mission highlighting pros and cons of this phenomenon. Each of themes offers a measure which might support policy intervention of the university third mission. Next section provides case study and comparative analysis of third university mission at a sample of 10 Ukrainian HEIs. Conclusions and future avenues for research are suggested at the end of the paper.

Literature review

The transformation of university mission in the society and socio-economic system has been recently highlighted by the European Commission (Basso, A. et al., 2018), the evolution of the mission is extensively analysed in the research papers (Fronzizi, R. et al., 2019; Pinheiro, R. et al., 2015; Giuri, P. et al., 2019). The key idea of current research discussions on university mission in the knowledge economy is grounded on the shift to the planning of economic and technological progress supporting more proactive strategies of the academic involvement in business ecosystem. This new university mission is sometimes defined in contradictory ways.

The traditional goals of knowledge and technologies transfer (i.e. education) are seen as the mission aspects (Berghaeuser, Hoelscher, 2020; Perkmann et al., 2013; Rampersad, 2015; Veugelers, 2016). The researchers put the emphasis on expanding the traditional vision of the university education mission. Many researchers underlined social justice and interaction as aspects of the universities' mission (Berghaeuser, Hoelscher, 2020; Bezanilla et al., 2020; Compagnucci, Spigarelli, 2020; Fernández et al. 2000; Haugh, 2007).

Economic efficiency achievement is becoming a topical issue in universities development (Compagnucci, Spigarelli, 2020; Fernández et al., 2000). It's about commercialization that combines the social and economic universities role in society (Biranvand, Seif, 2020; Scholz, 2020), ensuring their capacity (Perkmann et al., 2013; Rampersad, 2015).

Moreover, the sustainable development aspects emerge in recent research (Bezanilla et al. 2020; Hirsuet et al., 2021). Experts emphasize

the universities project activities need, their focus on the communities development and society as a whole (Community Partnership and Extension Office, 2016; Culkin, 2016; García-Peñalvo, 2020; Gulbrandsen, Slipersaeter, 2007; Pinheiro et al., 2015), communication with external stakeholders and coordination of activities with the industry and society needs (Giuri et al., 2019; Veugelers, 2016). This new university mission is sometimes defined in contradictory ways (Table 1).

Table 1

Third university mission

Source(s)	Definition
Berghaeuser, H., Hoelscher, M. (2020)	Three main dimensions of universities' activities can be described as third mission, following from this definition: knowledge and technology transfer, further education and social engagement
Bezanilla, M.J., García-Olalla, A., Paños-Castro, J., Arruti, A. (2020)	Universities have recognized the role of education in building societies based on values of equity, social justice and sustainability
Biranvand, A., Seif, M. (2020)	Commercialisation is accounted as the third mission of the universities; it is the idea expressing that the universities play a socio-economic role
Compagnucci, L., Spigarelli, F. (2020)	The TM is a multidisciplinary, complex, evolving phenomenon linked to the social and economic mission of Universities in a broad sense. Existing studies mainly focus on Universities in accomplishing their traditional missions, or they offer a narrow perspective of the TM
Community Partnership and Extension Office (2016)	"extension", i.e. "[t]he extension projects, programs, and activities aim to develop its adopted communities to become empowered, responsible, and sustainable"
Culkin, N. (2016)	Universities can be actively engaged in these projects, as they are close to the markets and have sound knowledge of the different trends as they emerge
Etzkowitz (2003)	Third mission is a relatively new function that universities assume
Fernández, I., Castro, E., Conesa, F., Gutiérrez, A. (2000)	In today's knowledge society, universities are increasingly and more directly becoming promoters of economic and social development
García-Peñalvo, F.J. (2020)	third key mission for society should be incorporated into universities: Fostering entrepreneurial projects or conducting development projects working together with other agents within the regional system
Giuri, P., Munari, F., Scandura, A., Toschi, L. (2019)	Third mission is a complex and evolving phenomenon which, over the past few decades, has been being articulated in policy as a result of dialogue between university, industry, government and society
Gulbrandsen, M., Slipersaeter, S. (2007)	Governmental and societal demands that universities work for society by going beyond their traditional teaching and research missions to visibly contribute to societal and economic problem-solving has been labeled the "third mission"
Haugh, H. (2007)	an innovative approach to achieve social mission
Hirsu, L., Quezada-Reyes, Z., Hashemi, L. (2021)	Universities play a critical role in the delivery of the Sustainable Development Goals through the third mission, i.e. public engagement activities
Perkmann, M., V. Tartari, M. McKelvey, E. Autio, A. Broström, P. D'Este, R. Fini (2013); Rampersad, G. (2015)	Processes such as capability building reflect one of the major points for universities' so-called third mission alongside with traditional objectives, such as teaching and research
Pinheiro, R., Langa, P.V., Pausits, A. (2015)	Re-engagement of the university in helping to tackle the great challenges facing societies and local communities have propelled the third mission to the forefront of policy discussions
Pinheiro, R., Langa, P.V., Pausits, A. (2015)	TM refers to the changing roles and functions of universities which, despite recent developments, have always been a matter of debate amongst academics and society at large
Scholz, R.W. (2020)	An unreflected commercialization following of the idea of the (market oriented) third mission contrasts with developing socially robust orientations for sustainable development, in mutual learning processes between science and society and for learning as well as in mitigation in multi-stakeholder discourses
Scholz, R.W. (2020)	We elaborate on the conception that an unreflected commercialization following of the idea of the (market oriented) third mission contrasts with developing socially robust orientations for sustainable development, in mutual learning processes between science and society and for learning as well as in mitigation in multi-stakeholder discourses.

Veugeliers, R. (2016)

The TM can include activities ranging from university patenting and collaborations with the industry for economic development, spin-offs, technology transfer and knowledge exchange for innovation, public engagement and work with communities

Source: author's construction based on literature review

The transformation of HEI mission has resulted in the emergence of entrepreneurship universities model. The latter suggests entrepreneurship approach to the operation and strategic management; developing entrepreneurial partnerships with actors external academic environment (society, institutions, business ecosystem etc.), strengthening entrepreneurship skills of students and academic staff (Salun, M., Zaslavska, K., Kolisnyk, M., 2020). In this context, traditional indicators covering teaching quality and financing of research would not suffice for correct evaluation of HEIs' outcomes and support of entrepreneurship universities in Ukraine. Moreover, third mission assessment in current rankings would enable universities to improve governance and quality culture based on involvement of students, researchers and academic staff in solving practical tasks of entrepreneurship. This new indicator may add real value to the university mission in the modern society.

For the purpose of assessment and ranking of "traditional" university mission Ukraine has an information system that embraces sources as follows:

- Public bodies and organizations with standard report forms for universities including financial reporting;
- Interviews and surveys of university stakeholders.
- Research databases (Scopus, Web of Science, Google Scholar);
- Universities that provide the most complete and exact information;
- Other sources as social media or website statistics, the information from these sources is often not comparable so it is used very seldom.

The assessment results serve as a basis for the ranking of the universities and, consequently, for the amount of HEIs financing (Cabinet of Ministers of Ukraine, 2019). The HEIs ranking "Top-200 Ukraine" includes the criteria listed in table 2.

Table 2

Ranking assessment of Ukrainian universities

Rankings/Indicators	Assessment of University action	Open source
QS World University Rankings	Academic	https://www.topuniversities.com
Scopus	Research	http://ru.osvita.ua
Webometrics	Research results of the HEIs through comparison of their web-sites	http://webometrics.info
Participation in the Erasmus+ program of the European Union	International cooperation	https://erasmusplus.org.ua/erasmus/novyny-i-baza-proektiv.html
Google Scholar Citations	Citation of university research papers	http://www.webometrics.info/en/transparent
UniRank	Quality of presence and popularity of a HEI in the Internet on the basis of independent webometric indicators	https://www.4icu.org/ua/
Results of Ukrainian national student education competitions and Olympiads (sum of points)	Quality of education	https://imzo.gov.ua/2019/08/07/nakaz-mon-vid-5-08-2019-1060 https://imzo.gov.ua/2019/08/07/nakaz-mon-vid-05-08-2019-1059
Scholarships of the President of Ukraine and the Cabinet of Ministers of Ukraine for young researchers	Education and research	http://www.kdpu-nt.gov.ua
Number of patents obtained by the researchers of the University in 2019	Research	http://www.eurosvita.net https://ukrpatent.org
Average value for HEIs ranking in number of applications to the University and average admission level in 2019	Attractiveness of the University for applicants	https://vstup2019.edbo.gov.ua/statistics/

Source: author's construction based on open data and opinion polls

The Consolidated ranking of the HEIs is also known in Ukraine and presented on the information educational resource "Osvita.ua". It summarizes the rankings "Top-200 Ukraine", "Scopus" and "External Evaluation scores for a contract". All rankings above have precise objective (assessment of concrete activity) but, in fact, they neither cover the technologies and innovations aspect (in terms of knowledge or technology transfer) nor include social impact of the HEI on the business ecosystem of district, region, territory or state (regional development and international orientation of a HEI).

In 2012 the European Commission and OECD (European Commission & OECD, 2012) have elaborated Guiding principles for effective management of institutional and cultural change designed to accompany the universities in their self-assessment under seven areas: leadership and governance; organization capacity, people and incentives; entrepreneurship development in teaching and learning; pathways for entrepreneurs; university – business/ external relations for knowledge exchange; the entrepreneurial university as an international institution; measuring the impact of entrepreneurial university. First of all, European Commission & OECD framework seeks to help universities in self-assessment identifying their current situation and potential areas of action taking into account innovations in research, teaching and learning, knowledge exchange, governance and internationalization in the relations with their local and national environments. As authors highlighted, this framework is not a benchmarking tool; it supports the universities in determining their strengths, weaknesses and finding ways for improvement.

Ukrainian education quality assurance system consists of several layers including the Ministry of Education and Science of Ukraine, Ukrainian Center for Education Quality Evaluation (established in 2005), Ukrainian State Quality Evaluation Service (created in 2017), National Agency for Higher Education Quality Assurance (launched in 2015). However, any of these public bodies did not evaluate higher education outcomes in terms of third university mission criteria covering openness to the society and involvement in the business ecosystem.

The search and choice of assessment criteria seek to measure concrete outcomes of university-business relations: research contracts, consulting of external clients; patent commercialization; intellectual property management; establishment of experimental, industrial and/or non-profit undertakings, participation in incubators, technology transfer offices etc. Such criteria evaluate generation of new knowledge to

improve social welfare that is complicated to perform due to heterogenous outcomes above. Moreover, the criteria should cover university activities as a part of university third mission that are not typical for HEI's, in particular, networking and promotion events, local socio-cultural and development projects, partnerships and contracts with external actors, business centers and co-working spaces, leasing and entrepreneurship centers. In order to measure HEI's relations with business ecosystem it is reasonable to apply criteria aggregated per each activity and intangible capital:

Human capital refers to knowledge, skills, innovations and abilities acquired by individuals (students, academic, research and administrative staff) at the universities. Therefore, university achievements in the human capital development would serve as a basis for research and publication activity assessment (there is no original publications without research) including citation index, intellectual property protection documents, number of theses defended, government scholarships and fellowships for young researchers etc.;

University structural capital could be defined as existing organizational culture that embraces organization procedures, processes and technological components. Possible evaluation criteria for structural capital are licensing and accreditation, databases and management processes;

Communication capital looks over all university – external relations (stakeholders, business ecosystem) through the lens of quantitative and qualitative criteria.

The authors have chosen the sample of 10 universities to analyse and compare their ranking indicators of third mission. The sample covers all fields of study including defence and public security. The paper examines the concept and indicators of third university mission by comparing the ten largest Kharkiv universities: Kharkiv National University of Radio Electronics, Simon Kuznets Kharkiv National University of Economics, Kharkiv National University of Internal Affairs, V. N. Karazin Kharkiv National University, Kharkiv National Medical University, National Technical University – "Kharkiv Polytechnic Institute", O. M. Beketov National University of Urban Economy in Kharkiv, Ivan Kozhedub Kharkiv University of Air Force, H.S. Skovoroda Kharkiv National Pedagogical University, Kharkiv National Automobile and Highway University.

Research results and discussion

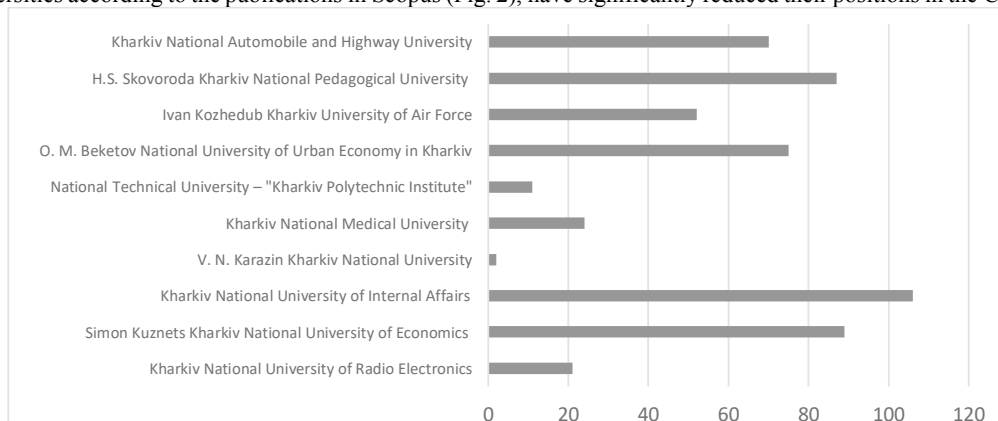
The ranking comparison of ten Kharkiv universities (Fig. 1) shows significant indicators gaps in the "Top-200 Ukraine" ranking and the Consolidated ranking. Significant differences in the ranking are observed for all listed HEIs in the city of Kharkiv.



Source: author's construction based on Ranking table of HEIs "Top-200 Ukraine" – 2021 and the Consolidated ranking of Ukrainian HEIs in 2021

Fig. 1. Kharkiv universities ranking comparison

This situation can be explained by several factors. First reason is double-counting the Scopus criterion (the first time it is taken into account when calculating the Top-200 rating, the second time is during the Consolidated ranking). Thus, Kharkiv HEIs having the lowest rates among the surveyed universities according to the publications in Scopus (Fig. 2), have significantly reduced their positions in the Consolidated ranking.

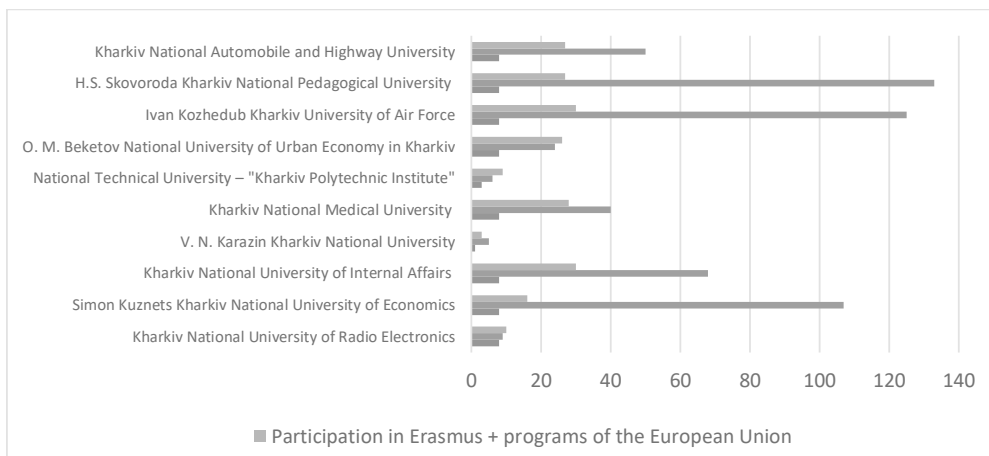


Source: author's construction based on the Ranking table of HEIs "Top-200 Ukraine" – 2021

Fig. 2. Ranking of Kharkiv universities by the Scopus criterion

Second factor, the results of the Consolidated ranking are influenced by the external evaluation score for entering into a contract study. At the same time, the criterion is significantly influenced by the universities volume of licensed field due to certain criteria included in the Top 200 ranking, as well as the amount of funding, which also depends on the rating position.

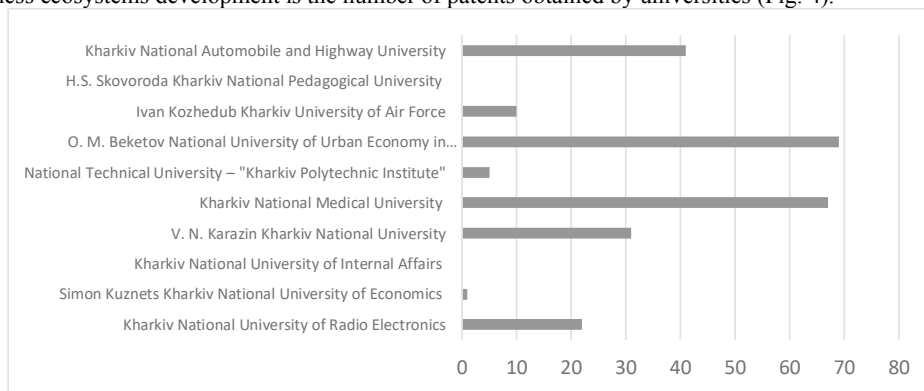
Thus, in addition to Scopus the most significant impact on the ranking position has the criteria of Academic Activity, Webometrics, Participation in Erasmus + programs of the European Union (Fig. 3).



Source: author's construction based on HEIs Ranking table "Top-200 Ukraine" – 2021

Fig. 3. The most influential factors of Kharkiv universities ranking

Such evaluation criteria relate mainly to traditional aspects of the universities' mission. The only criterion that is closest to the third mission – to promote the business ecosystems development is the number of patents obtained by universities (Fig. 4).



Source: author's construction based on the Ranking table of HEIs "Top-200 Ukraine" – 2021

Fig. 4. The number of received patents by Kharkiv universities

Thus, it is possible to conclude the limited coverage of the assessment in the university-business relations ranking and the lack of the university communication capital assessment.

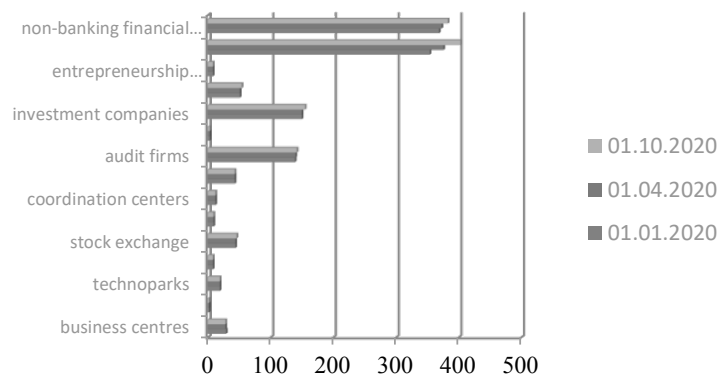
The analysis of university – business relations in Kharkiv region shows that SME support infrastructure consists of 28 business centers, 2 business incubators, 19 technological parks, 8 clusters, 46 stock exchange, 9 leasing centers, 12 coordination centers, 43 insurance companies, 142 audit companies, 3 innovation funds, 155 investment companies, 54 entrepreneurs professional unions, 8 entrepreneurship development funds, 403 consultancy firms, 384 non-banking financial institutions.

University-business relations analysis in Kharkiv region shows that the SME infrastructure consists of the objects listed in table 2 and their dynamics see Fig.5

Table 2

Objects	01.01.2020	01.04.2020	01.10.2020
business centers	29	28	28
business incubators	2	2	2
technoparks	19	19	19
clusters	8	8	8
stock exchange	44	44	46
leasing centers	9	9	9
coordination centers	12	12	12
insurance companies	43	43	43
audit companies	139	140	142
innovation funds	3	3	3
investment companies	150	150	155
entrepreneurs professional unions	51	51	54
entrepreneurship development funds	8	8	8
consultancy firms	354	376	403
non-banking financial institutions	369	373	383

Source: author's construction



Source: author's construction based on analytical reference to the promotion development of SMEs in Kharkiv region

Fig. 5. Dynamics of infrastructure facilities

The analysis shows that University-business cooperation has taken various forms depending on the specialisation. The common feature is the involvement in expertise of national and regional strategic documents. The HEIs actively improve innovation infrastructure to offer new opportunities for students, professors and business. Thus, it is of utmost importance to include concrete outcomes in evaluation criteria because they better reflect the development of knowledge economy. The latter stimulates universities to make use of human and structural capital to attain regional development goals conjointly with public bodies, local authorities, experts and society.

Conclusions, proposals, recommendations

1. Having observed social and economic added value created by the HEIs, the emergence of entrepreneurship universities has a significant effect on analysis of third university mission outcomes (university-business ecosystem relations). Although international rankings seek to evaluate academic, research and publication activity without considering university-external relations, the paper suggests incorporate third university mission in the rankings indicators to assess integration of the universities into business ecosystem with three major components – human, structural and communication capital.
2. European Commission and OECD have developed Guiding Principles for effective management of institutional and cultural change to support the HEIs in their self-assessment effort to identify their strength, weaknesses, opportunities and threats. However, this approach is of limited use in Ukrainian universities since self-assessment is mostly applied to study program evaluation than in the considering university as a whole. HEIs still cope with outdated paper reporting forms for institutional evaluation.
3. European scholars on third university mission are divided as to the evaluation of a new university role and efficiency indicators meaning that active university-business relations do not always lead to measurable economic or image outcomes. In addition, interdisciplinary nature of the third university mission complicates identification of this phenomenon due to active involvement of various social groups and economic sectors.
4. Comparative analysis and case-study of the sample (10 biggest Kharkiv HEIs) has demonstrated contingent results in the sense of third university mission. Current rankings rather focus on indicators of “traditional” university activities. Such an approach does not reflect evolving role of HEIs in the innovation and business ecosystem development.
5. Further investigation on third university mission will be focused on the innovative university activity in the society. Evidence from different approaches to evaluate communication capital would provide more complete insight of third university mission implementation.

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WHETHER LOW-INCOME HOUSEHOLDS AND RETIREES FACE HIGHER INFLATION? EVIDENCE FROM LATVIA

Olegs Krasnopjorovs, University of Latvia, Bank of Latvia

Abstract. Economy-wide inflation rate does not necessarily correspond to the inflation rate actually faced by any given household. This paper is the first one to assess different inflation experiences of various household types in Latvia. It finds that low-income households and retirees have faced consistently higher inflation rate by about 0.5 percentage points per annum over the last 20 years. This result is consistent with higher inflation perceptions among these population groups as recorded in consumer surveys. Higher inflation for low-income households and retirees reflects the lion's share of food, utility bills and healthcare services in their consumption basket, which are among those goods and services with the fastest increase in consumer prices. Inflation inequality was particularly large before the Global Financial Crisis (GFC) of 2008 and grew again at the beginning of the Covid-19 pandemics. It is expected that inflation inequality in Latvia might increase further in 2022. The results of this study could be used in welfare policy debates, particularly regarding the use of retiree-specific (rather than economy-wide) inflation rate for indexation of old-age pensions, as well as analysing unequal economic costs of the Covid-19 pandemics on different population groups.

Keywords: *inflation inequality, inflation by population groups, inflation perceptions by population groups.*

JEL code: D12, E31

Introduction

Economy-wide inflation rate reflects the changes in aggregate consumer price index, which is based on an aggregate consumption bundle and on average prices for various goods and services. It does not necessarily correspond to the inflation rate actually experienced by any given household (Kaplan and Schulhofer-Wohl, 2017). Furthermore, since the consumption basket of the rich has a larger weight than that of the poor in a consumer price index, it better reflects the evolution of prices experienced by upper-income groups than that of lower-income groups in what is known as the plutocratic bias of the consumer price index (Garcimartín et al., 2021). As consumption structure differs between households and consumer price trends differ across products, each household faces its own inflation rate – a phenomenon which is referred in academic literature as inflation inequality. Inflation inequality could cause disagreements in inflation perceptions, inflation expectations and might have an impact on households' asset allocation and consumption decisions (Li et al., 2017). Inflation inequality might also have important implications for income inequality and, thus, welfare policy.

There is an evidence that the higher is the average inflation rate, the bigger are inflation differentials between various population groups (Janský and Hait, 2016). After a short deflationary period at the beginning of Covid-19 pandemics, consumer price inflation in Latvia increased substantially - in October 2021, consumer prices posted a 6% year-on-year rise, which is the highest inflation rate in twelve years (Official Statistics Portal – Official Statistics of Latvia, 2021). The fact that the current inflation upswing is to a large extent driven by a rise of global prices of energy and food commodities makes rising inflation a global phenomenon. Large-scale fiscal stimulus measures combined with exceptionally accommodative monetary policy since the very beginning of the Covid-19 pandemics are likely to further contribute to medium-term inflation (Bonam and Smādu, 2021). Covid-19 pandemics already increased inflation expectations and its volatility both measured by inflation swaps (Apergis and Apergis, 2021) and consumer surveys (Armantier et al., 2021). Note that the largest increase in consumer prices so far is observed in utility bills (heat energy, electricity, natural gas), car fuel and some food products. Therefore, inflation faced by households consuming a lot of those specific products might be significantly higher than the economy-wide inflation reported by statistical offices.

Different inflation rates for different population groups is an important consideration that has largely been missing in the welfare policy debate in Latvia so far, and this paper aims to fill this gap. This paper is the first one to measure consumer price inflation differentials among household types in Latvia. It begins with analysing whether there are any systematic differences in (1) perceived inflation, and (2) structure of consumption basket between different population groups. Then, by using consumption structure of every household type and consumer price inflation by components it calculates inflation rates faced by different household types in Latvia over 2002-2021 (the choice of research period is determined by the data availability).

Some limitations of this study should be mentioned. First, official data regarding consumption structure by household types in Latvia is available only until 2019. Therefore, results of this study regarding the inflation inequality during the period of Covid-19 pandemics are still preliminary and might be adjusted thereafter. Second, consumption structure by household types is published only in a breakdown of 12 broad categories like food, transport or education. It is possible that in reality consumption structure between household types differs not only between but also within these 12 broad categories of consumer prices; this might limit the precision of inflation inequality estimates. Third, the average consumption structure by household types is observed, while it is possible that consumption structure varies significantly between households within the respective household type. Thus, further research on the topic should explore the use of (unpublished) micro data, ideally representing prices actually paid for every particular product by each household.

Literature Review

The idea that different households have different consumption structure and therefore are affected differently by inflation has a long tradition in the literature (Garcimartín et al., 2021). There is a mainstream view in the literature that low-income households and retirees tend to face higher inflation rate than the other population groups; however, the difference might not be large and this result might be specific to a particular countries and time periods.

Several studies have explored the inflation inequality subject to households' income and found that low-income households generally face higher inflation rates than high-income households (for instance, see Jaravel (2021) for evidence on the United States, Kints and Breunig (2021) for Australia, Janský and Hait (2016) for Czech Republic). These results are in line with a survey evidence that poor people are more likely than the rich ones to mention inflation as a top national concern (Easterly and Fischer, 2001), and also have higher inflation expectations (Goyal and Parab, 2019). Low-income households have both greater dispersion in experienced inflation and bigger disagreement about future inflation path (Johansen, 2014). Low-income households experience the most import price inflation (Hottman and Monarch, 2020) and their cost of living is most sensitive to the historically large fluctuations in gasoline prices (Hobijn and Lagakos, 2005). The negative correlation of inflation with income implies that inequality in real income is rising faster than inequality in nominal income (Kaplan and Schulhofer-Wohl, 2017). The negative relation between household income and household-specific inflation rate, however, sometimes is driven by a particular product category. For instance, Kints and Breunig (2021) report that in Australia inflation inequality is driven solely by alcohol and tobacco prices – after removing alcohol and tobacco, they find that there is little variation in the inflation experiences of households across the income distribution. It is also possible that inflation differentials between the poor and wealthy households are period-specific and may reverse in later

years (Drezgić, 2008). Individual households that are confronted with relatively high inflation in one year do not generally face higher inflation in the subsequent year as well (Hobijn and Lagakos, 2005).

Various studies also explored the link between inflation and age. Households with older household heads experience higher inflation on average (Kaplan and Schulhofer-Wohl, 2017). In the US, the cost of living increases were generally higher for the elderly, in large part because of their health care expenditures (Hobijn and Lagakos, 2005). In the Netherlands, retirees have experienced relatively high consumer price inflation over the last few decades, arising from relative price increases in goods, such as rent and utilities, on which single, low-income and older households spend relatively more of their budget; and relative price decreases in goods, such as leisure activities and vacations, on which these households spend relatively less (Kalwij et al., 2018). In Czech Republic, retirees faced significantly higher inflation rates in most years, which motivated Janský and Hait (2016) to consider employing retiree-specific inflation rates rather than economy-wide inflation rates in old-age pension indexation mechanism, with a remark that the possible benefits of this proposal need to be weighed against implementation and operation costs. In Japan, both inflation and inflation expectations are increasing with age; moreover, age and inflation expectations continue to exhibit a positive correlation even after controlling for the household-level inflation rate, which is likely to represent the effect of historical inflation experience on inflation expectations (Diamond et al., 2020). However, in UK inflation experienced by retirees is not significantly different to that experienced by workers over a long time period – although there are substantial differences in given years, on average retirees' inflation has been only 0.1 percentage points higher than that of workers (Lluberá, 2018). It should be noted that different households might face different consumer prices for identical consumption goods even in the same metropolitan area at a given moment. For instance, in Japan elderly people generally face higher prices than younger ones due to lower participation in bargain sales (Abe and Shiotani, 2014). Therefore, it is likely that the welfare loss caused by inflation is smaller for those households that can find better bargain prices or discount shops, compared to households that have limited choices to seek for lower prices. In the USA, however, for identical goods, prices paid are highest for middle age, rich, and large households, consistent with the hypothesis that shopping intensity is low when the cost of time is high (Aguar and Hurst, 2007).

Regarding the data employed to study inflation inequality, several articles pointed the preference towards the use of the most granular data that is available for a researcher, which ideally should be household-level scanner data providing detailed and frequent information on purchases at the household-commodity level (Abe and Shiotani, 2014). When studying inflation inequality using such micro data (prices actually paid for every product by each household), one can find bigger inflation inequality than when employing aggregated data (such as consumption aggregates by household types; see Jaravel, 2021). There is an evidence that most of the heterogeneity in inflation experiences could come not from variation in broadly defined consumption bundles but from variation in prices paid for the same types of goods (Kaplan and Schulhofer-Wohl, 2017). Only the use of micro data would allow to explore the difference in consumer prices “paid across households for identical consumption goods in the same metro area at any given point in time” as stated by Aguiar and Hurst (2007). As the differences in inflation rates across demographic groups are small relative to the total variance of the inflation distribution, observable household characteristics might have little power to predict household inflation rates (Kaplan and Schulhofer-Wohl, 2017). It should be noted, however, that such household-commodity scanner data are not available in Latvia. Therefore, measuring inflation inequality employing the consumption aggregates by household types is a limitation of the current study. The novelty of this study is being the first in Latvia to consider different inflation experiences by different population groups, and it fills the respective gap in the literature.

Data description

To construct inflation rates that are specific to a particular household type, this study employs Central Statistical Bureau of Latvia data on household budget structure and inflation by components (Official Statistics Portal – Official Statistics of Latvia, 2021b; 2021). Note that household budget structure was not available for 2017 and 2018. Missing data for these two years were estimated using a linear interpolation method, based on the household budget structure in 2016 and 2019. Note also that the household budget structure was not available for 2020 and 2021. Data for 2020 were extrapolated using consumption structure by household types in 2019 and the change in consumer price index item weights from 2020 to 2021 (Official Statistics Portal – Official Statistics of Latvia, 2021a; note that these weights represent consumption structure of the previous year). Thus, it was implicitly assumed that all household types had similar consumption structure changes between 2019 and 2020. Since there was no data on consumption structure for 2021, it was assumed that it remained at 2020 level (for every household type). This assumption could be regarded plausible since given the ongoing Covid-19 pandemics consumption structure was not likely to change significantly between 2020 and 2021. However, it should be noted that inflation inequality estimates presented in this study for the period of Covid-19 pandemics are still preliminary and might be adjusted thereafter.

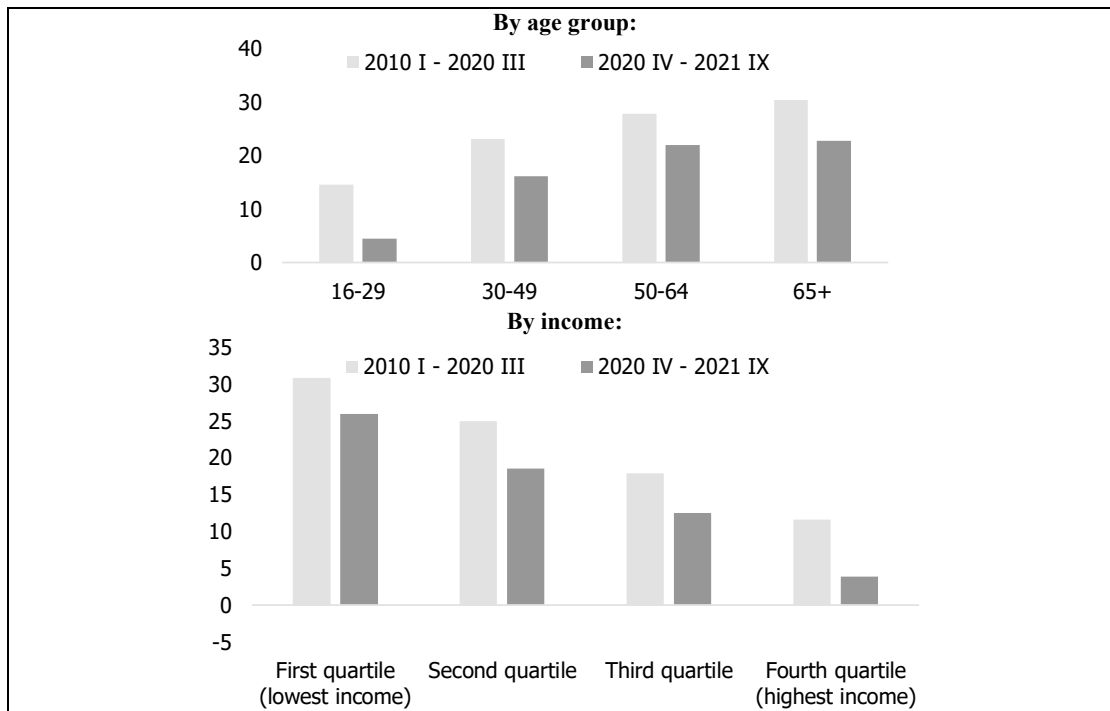
Regarding inflation perceptions by population groups, this study employs European Commission (2021) consumer survey results.

Research results and discussion

This section begins with analysing whether in Latvia there are any systematic differences in perceived inflation between different population groups by income and age. The presence of such systematic differences might indicate that these population groups actually experience uneven inflation rates. In a second subsection, consumption structure of different household types is presented, as well as inflation rate by components. Finally, third subsection analyses different inflation experiences of various household types in Latvia before and during Covid-19 pandemics.

1. Different inflation perceptions across population groups

Consumer survey results indicate that inflation perceptions vary substantially across different population groups in Latvia (European Commission, 2021). Particularly, inflation perceptions tend to increase with age and decrease with income. These differences persisted also during the Covid-19 pandemics, with low-income people and retirees being more likely to report a significant increase in consumer prices over the past 12 months and less likely to point to a consumer price decrease (Fig. 1).



Source: author's construction based on European Commission consumer survey data

Note. The question answered by the respondents was the following: "How do you think that consumer prices have developed over the last 12 months? They have..." The possible answers are as follows: risen a lot "+"; risen moderately "+"; risen slightly "="; stayed about the same "-"; fallen "-".

Fig. 1. Perceived inflation by age group and income level (balance of replies; in Latvia)

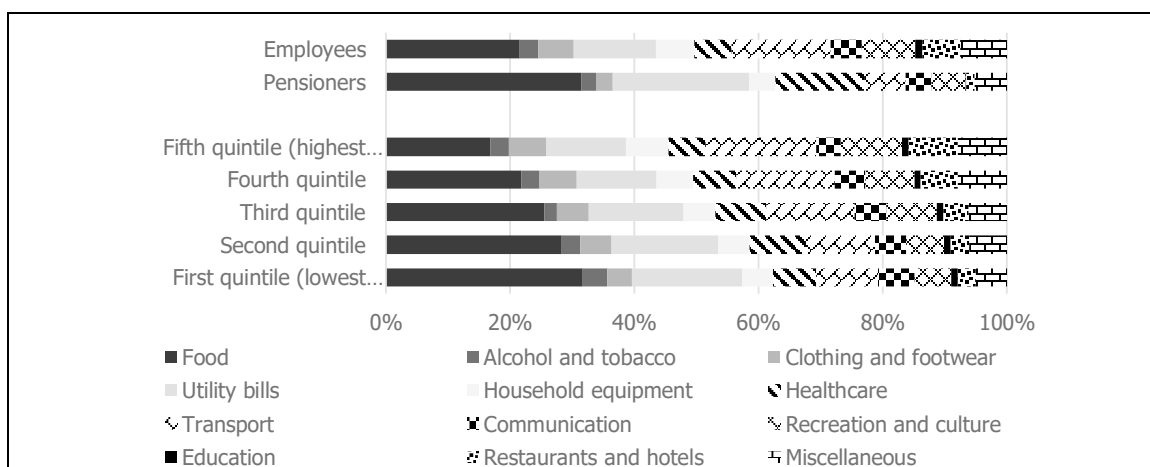
While different inflation perceptions do not necessarily mean different inflation experiences, still it is an indication that various household types might face uneven inflation rates.

2. Different consumption structure across household types

There are systematic differences in consumption basket among household types in Latvia. For instance, about two thirds of a consumption basket of retirees consist of food, utilities and healthcare, while for employees these items represent only about 40% of consumption basket. Consumption structure of retirees also differs substantially to that of young people; the latter spend relatively more money on education, clothing and footwear, leisure and cultural activities, as well as on restaurants and hotels.

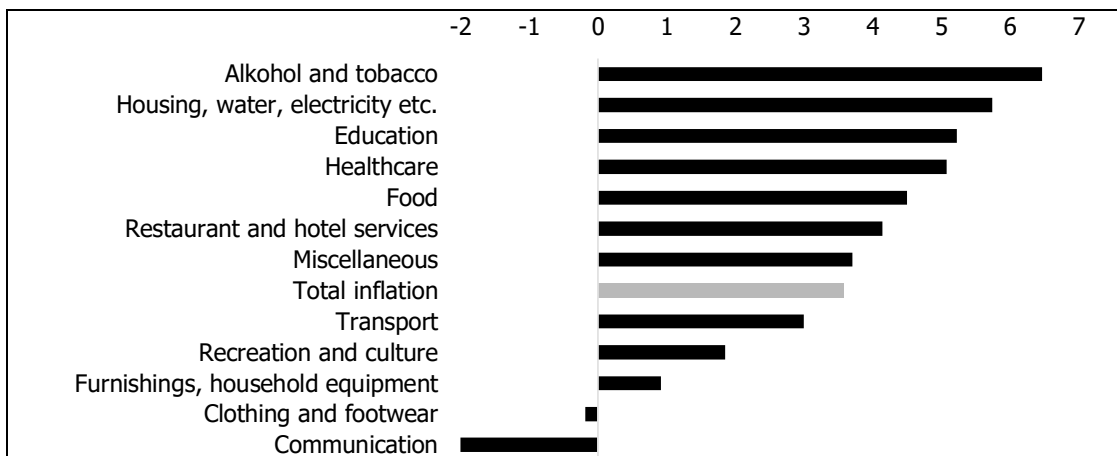
Income of the household is another important factor influencing consumption structure. The share of food and utilities (housing, water, electricity etc.) in consumption basket decreases with income: low-income households spend half of their budget on food and utilities, while the wealthiest households spend on these items less than a third of their budget. In turn, the share of transport, recreation and culture, as well as hotels and restaurants in consumption steadily increases with income (Fig.2).

Inflation differs significantly for different products. It cannot be said that a certain population group favours only those products whose prices are raising steeper or slower. For example, the product groups for which prices have risen the most over the last 20 years include both the products that dominate the consumption basket of retirees (food, utilities and healthcare), and those that appear more frequently in youth consumption (education, restaurants and hotels; Fig.3).



Source: author's construction based on Central Statistical Bureau of Latvia data

Fig. 2. Consumption structure by socio-economic group of household (%; Latvia in 2019)

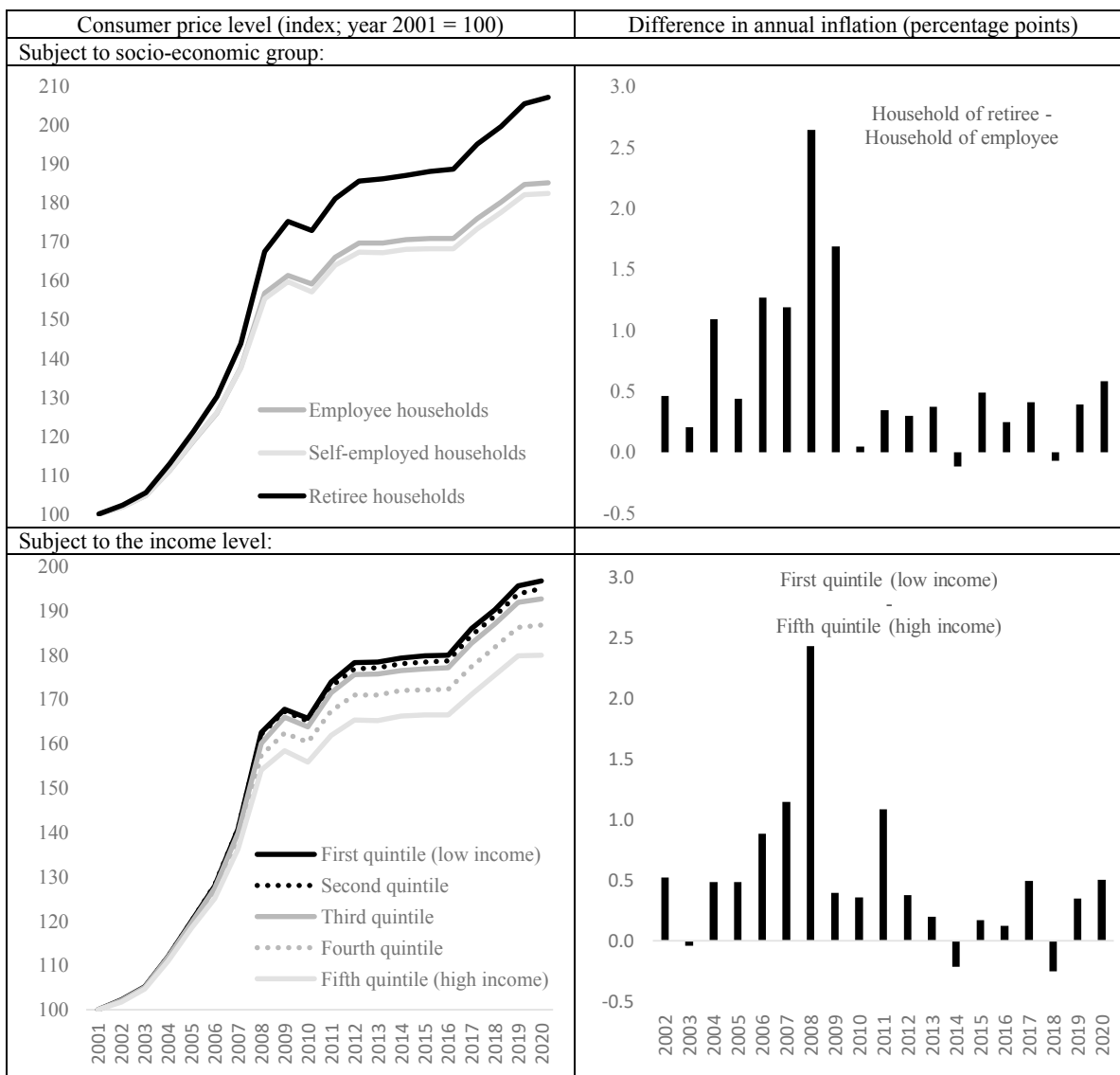


Source: author's construction based on Central Statistical Bureau of Latvia data

Fig. 3. Consumer price inflation of the main product groups (annually, in Latvia during 2002–2020 on average)

3. Inflation inequality in Latvia

This study reveals that there are notable differences in inflation experience by household types in Latvia. Consumer price inflation is systematically higher for retirees and low-income households, which is in line with both academic literature for other countries (e.g., Janský and Hait, 2016; Hobijn and Lagakos, 2005; Kalwij et al., 2018) and inflation perception differences across population groups reported by the European Commission (2021) consumer survey. For instance, the increase in prices for retiree households since the beginning of the 2000s has been 22 percentage points higher than if the household's head was employee. In turn, for the first quintile (low-income) households, the price increase was 17 percentage points higher than that for the fifth quintile (high-income) households (Fig. 4).



Source: author's construction based on Central Statistical Bureau of Latvia data

Fig. 4. Consumer price inflation differences subject to household types (Latvia, over 2002–2021)

Although the inflation inequality between different age groups has been gradually narrowing since the GFC, it widened again in 2020 with the start of Covid-19 pandemics. In 2020, inflation in retiree households was 0.6 percentage points higher than in households headed by an employee. In turn, low-income households faced by 0.5 percentage point higher consumer price inflation than wealthy households. However, situation reversed in the first nine months of 2021, with inflation faced by retiree and low-income households being slightly lower than economy-wide inflation. The latter phenomenon is largely driven by transport component (in particular, car fuel), which has bigger weight in the consumption of wealthy households and which recorded a steep price increase during 2021. It should be noted that given a notable increase in utilities prices at the end of 2021 (electricity, heat energy, natural gas) as well as further increase in global prices for food commodities, it is expected that in 2022 the highest inflation rates will be recorded among utilities and food products, which represent lion's share of consumption in retiree and low-income households. Thus, it is likely that in 2022 retirees and low-income households will again face higher inflation than the economy-wide inflation rate.

Overall, average annual inflation rate which corresponds to the average consumption basket of Latvian population was 3.5% since the beginning of the century. This research study shows that consumer price inflation rate experienced by retiree households was by half a percent higher (4.0%). In the consumption basket of retirees, a significant share consists of food, utilities and health care services – product groups whose prices grew faster than the average inflation rate. Thus, retiree inflation is systematically higher than inflation of a representative consumer published by the Central Statistical Bureau. If the old-age pensions were indexed only to economy-wide inflation, it would not be able to fully compensate retirees for the price increase of their consumption basket products. However, as the indexation of pensions also partly takes into account the average wage growth rate, the purchasing power of the average pension increases over time. At some point in the future, the average wage may not increase. Thus, inflation inequality and particularly a systematically higher inflation experience by retirees (on low-income households in general) is a topic that should be taken into account in the welfare policy debates.

Conclusions, proposals, recommendations

Conclusions:

1. Structure of consumption basket differs substantially by household types in Latvia. For instance, about two thirds of a consumption basket of retirees consist of food, utilities and healthcare, while for a household headed by employees these items represent only about 40% of consumption basket.
2. Inflation perceptions tend to be different by population groups in Latvia. Inflation perceptions collected via consumer surveys generally increase with age and decrease with income of respondents.
3. In Latvia, consumer price inflation faced by retirees and low-income households tends to be higher than the economy-wide average inflation rate, reflecting significant inflation inequality. For instance, the increase in prices for retiree households since the beginning of the 2000s has been 22 percentage points higher than if the household's head was employee. In turn, for the first quintile (low-income) households, the price increase was 17 percentage points higher than that for the fifth quintile (high-income) households.
4. Inflation differences across Latvian households increased markedly at the beginning of Covid-19 pandemics. In 2020, inflation in retiree households was 0.6 percentage points higher than in households headed by an employee. In turn, low-income households faced by 0.5 percentage point higher consumer price inflation than wealthy households.

Proposals and recommendations:

1. Different inflation experiences of various population groups should be taken into account in welfare policy debates in Latvia. For instance, one should examine a possibility to index old-age pensions with a specific inflation rate faced by retirees, not with economy-wide inflation rate that is currently employed in the indexation mechanism.
2. Future research aiming to assess inflation inequality in Latvia should use micro data. Scanner data which is able to provide detailed and frequent information on purchases at the household-commodity level can give more precise estimate on the prevalence of inflation inequality in Latvia.

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ON THE USE OF GENERAL EQUILIBRIUM MODEL TO ASSESS THE IMPACT OF CLIMATE POLICY IN LATVIA

Olegs Krasnopjorovs, University of Latvia, Bank of Latvia
Daniels Jukna, University of Latvia
Konstantins Kovalovs, University of Latvia

Abstract. Ambitious climate policy targets by developed countries towards carbon neutrality created a necessity to model the impact of climate policy on macroeconomic and socioeconomic indicators. Academic literature suggests that Computable General Equilibrium (CGE) model representing the entire economy, linked with a TIMES model reflecting the energy sector in detail, proved to be an effective tool for such modelling. This article contributes to the starting point for creating such a modelling system in the University of Latvia (CGE model) and the Institute of Physical Energetics (TIMES model), focusing on the CGE model. First, it reviews the literature on the use of the CGE model and its effective link with the TIMES model to assess the economic impact of climate policy. Second, it reviews the features of the current Latvian CGE model owned by the University of Latvia, compared to its ORANI-G model prototype. Third, as a list of recommendations, it proposes a roadmap for the future development of the Latvian CGE model to be effectively linked with the TIMES model to assess the impact of climate policy on macroeconomic and socioeconomic indicators.

Keywords: *Computable General Equilibrium model, climate policy modelling, soft-link.*

JEL code: C68, Q54, Q58

Introduction

Reducing greenhouse gas (GHG) emissions is a key factor in curbing adverse climate change. Increasing the carbon tax and introducing and improving the emissions trading system are key research topics in climate change mitigation policy. Wider use of renewable energy and improvements in energy efficiency have been identified as key drivers for the transition to low carbon emissions (Babatunde, et al., 2017).

Strict GHG emission limits need to be put in place to avoid catastrophic climate risks, as the welfare loss from global warming is likely to be underestimated: excess deaths from floods, droughts, malnutrition, malaria and heat problems also should be considered (Weitzman, 2012).

Although global warming is likely to negatively impact Gross Domestic Product (GDP), its consequences for the European region, including Latvia, are assessed to be moderate (Kompas, et al., 2018). However, these estimates do not include the consequences and costs of natural disasters or extreme weather events, which can be significant. It also excludes utility loss from air pollution, biodiversity loss, the spread of invasive species, changes in the energy mix and high migration costs. Therefore, the actual impact of global warming on the economy and society is likely to be more significant. In addition, lower GDP means lower tax revenues, which might put fiscal stress on governments. Moreover, if global warming is associated with often extreme weather events and natural disasters leading to high exceptional costs, the public finances might face even more immense pressures.

Although some articles have focused on the analysis of only one sector for GHG reduction (Giraudet, et al., 2012; Wong & Alavalapati, 2003), the mainstream view is to consider the inclusion of all significant energy-related sectors, such as agriculture, industry, forestry, construction, transport and waste management, given their prominent role in the economy and their high GHG reduction potential (Babatunde, et al., 2017).

Although climate policy is generally believed to have a negative impact on GDP and is likely to increase the price level, the double dividend hypothesis states that a cleaner environment might go hand-in-hand with higher prosperity. The double dividend hypothesis states that the introduction or increase of taxes on environmental pollution provides an opportunity to reduce other (distortionary) taxes, with the latter providing additional benefits to society (Jaeger, 2013).

Energy policy is designed to achieve three main objectives: ensuring (1) secure supply of energy; (2) economic growth and job creation; (3) sustainable environment and climate (Jordan, et al., 2012). Although it would be preferable to use a single model to evaluate all energy policy issues, rather than combining several models, such a “super-model” has not yet been developed (Frei, et al., 2003). Thus, academic literature considers linking a Computable General Equilibrium (CGE) model representing the entire economy with a TIMES model reflecting the energy sector in detail, an effective tool for modelling the impact of climate policy.

This article represents the starting point for creating an energy-economy-environment modelling system in the University of Latvia (CGE model) and the Institute of Physical Energetics (TIMES model, and its initial version called MARKAL), with the focus on the CGE model. It aims to develop a roadmap for the future development of the Latvian CGE model to be effectively linked with the TIMES model to assess the impact of climate policy on macroeconomic and socioeconomic indicators. First, it reviews the literature on using the CGE model and its effective link with the TIMES model. Second, it reviews the features of the current Latvian CGE model owned by the University of Latvia, compared to its ORANI-G model prototype. Then, as a list of recommendations, it proposes a roadmap for the future development of the Latvian CGE model. Therefore, this article might be viewed as a cornerstone of the future development of energy-economy-environment modelling in Latvia. However, it should be noted that this article will not present any modelling results. Assessing the impact of climate policy tools on the economy and the respective scenario analysis is, thus, left for further research.

Literature Review

There are two main types of models for linking the energy sector and the economy: (1) Bottom-Up models and (2) Top-Down models (Herbst, et al., 2012; Prina, et al., 2020). Bottom-Up models (such as TIMES) describe the energy sector in detail but do not include non-energy sector impacts. In turn, Top-Down models (such as CGE) assess climate policy’s macroeconomic and socioeconomic impact but ignore energy sector details.

TIMES is one of the Bottom-Up models implemented in several EU countries. The TIMES model is based on maximising prosperity by reducing overall energy system costs. The types of input variables used in the modelling are (1) energy demand and supply curves (i.e., the number of key energy technologies and imported energy goods available at a given price); (2) policy (the impact of legislation, such as taxes and subsidies, on specific technologies or fuel prices); and (3) technical and economic parameters for each technology (i.e., investment costs and interest rates; Balyk, et al., 2019).

Top-Down modelling could be implemented with several approaches such as input-output models, econometric models, CGE models and system dynamics (Herbst, et al., 2012).

The CGE model is a computer simulation that uses a system of equations that characterises the interaction of all sectors of the economy. The simulation of the model usually starts with a baseline scenario with a calculated general equilibrium state. After introducing a shock, such as an increase in a carbon tax, a new equilibrium state is calculated (Babatunde, et al., 2017). A unique feature of the CGE model is its ability

to assess the impact of climate policies on non-energy sectors. However, the inability of CGE models to cope with the detailed structure of the energy sector (i.e., it cannot reflect energy supply and technology) is often cited as the most significant shortcoming of Top-Down models.

CGE models often cannot solve the following three aspects of the energy system: (1) changes in energy intensity due to the introduction of new technologies; (2) changes in energy mix following changes in energy demand; and (3) changes in electricity and heating prices due to limited competition in the energy sector (Krook-Riekkola, et al., 2017).

The CGE model mainly consists of a model structure (a system of equations that takes into account economic interrelationships) and a database (expenditure and income flow in the economy, and parameter values) (Babatunde, et al., 2017). The researcher itself calibrates parameter values during a model run. All industries and subsectors are directly or indirectly related to the demand and supply of goods and services and are characterised by expenditure and income flows (in the form of input-output tables; Meng & Siriwardana, 2017).

There are three CGE model types: (1) static model, (2) recursive dynamic model, and (3) forward-looking dynamic model. The static CGE model provides a comparison between the baseline scenario and the equilibrium that occurs after a shock, reflecting who are the ultimate losers or winners of the shock. A distinction is made between short-term and long-term simulation, with the main difference being an assumption of physical capital accumulation: in the short-term simulation, capital is exogenous (i.e., fixed and given outside the model), while in the long-term simulation, capital is allowed to adapt and respond to external conditions (Kompas, et al., 2018). However, the static model does not reveal the costs and benefits of a transition phase from the initial to the new equilibrium; also, the impact over time cannot be assessed (Babatunde, et al., 2017). It may be necessary for policymakers to find out when the economy will be in equilibrium again and compare the behaviour of different macroeconomic variables over time. For this reason, the use of dynamic CGE modelling is recommended (Devarajan & Go, 1998).

A recursive dynamic model is a dynamic alignment of the static model, in which economic agents have adaptive expectations. The solution is obtained from the base year equilibrium, calculating the result for each consecutive year, with economic agents reacting only to changes in the current year (or previous years) and ignoring other known future changes. In turn, economic agents are assumed to have perfect foresight in a forward-looking dynamic model, which makes the model much more complex. Therefore, forward-looking dynamic models have difficulty achieving convergence of a solution (Kompas, et al., 2018). In addition, a forward-looking dynamic model often does not take into account regional or sectoral breakdown, as this would further increase computing time (Babatunde, et al., 2017). With many regional and sectoral dimensions, the size of CGE models is growing exponentially, posing a severe challenge to the most commonly used software packages such as GEMPACK and GAMS (Ha & Kompas, 2016).

The CGE includes three categories of taxes: consumption taxes (paid by consumers and producers for input), production taxes (paid by producers for output and capital), and labour taxes. The introduction of a carbon tax in CGE could be done by increasing the amount of consumption taxes for at least some consumers. Initially, the amount of tax is proportional to the carbon emissions of the respective product. With the introduction of a carbon tax, the input costs for carbon-intensive goods become higher than for other goods, so CGE will try to shift its energy technologies to more environmentally-friendly ones. The TIMES model works similarly to the demand for technology, with lower demand for carbon-dependent goods and higher demand for more environmentally-friendly goods (Wiebe, et al., 2017).

Linking CGE and TIMES models can be a solution to reduce the shortcomings of each model. It allows benefiting both from the consistency of the CGE model and the high level of energy sector detailing in TIMES. Linking the two models would help to close the gap between model differences and obtain more consistent modelling results (Vuuren, et al., 2009) (Dai, et al., 2016).

The first step is to explore linking the two models to consider how changes in the economy may affect performance in the energy system and vice versa. Initially, it would be necessary to understand what types of policy shocks each of these models can best address and how they can help analyse broader non-energy policy goals, such as economic growth and income distribution (Katrís, et al., 2017). The two models could be linked as the following: (1) two independently developed Top-Down and Bottom-Up models (Krook-Riekkola, et al., 2017); (2) simplification or “reduced form” of a model (Bosetti, et al., 2006); or (3) full integration of both models (Böhringer & Rutherford, 2008).

Independently developed CGE and TIMES models can be linked in three ways: (1) soft-linking; (2) hard-linking; (3) development of a hybrid model (Böhringer & Rutherford, 2009; Helgesen, 2013). In the first two cases, models operate independently. In the case of soft-linking, the processing and transfer of information between models are controlled by the user, while in the case of hard-linking, this is done automatically and usually using computer programs (Helgesen, 2013). In a soft-linking case, the user evaluates the results of the models and decides whether and how the input of each model should be changed to make the two sets of results more consistent with each other, making the model input assumptions and results match each model. In a hard-linking case, one model is usually given control over specific results, while the other model is set to reproduce the same results, usually with a different level of aggregation (Holz, et al., 2016). Soft-linking could be the starting point for linking models, as the initial investment in computer programming is usually low, and modelling results could be got relatively fast. However, for productivity and efficiency reasons, the preferred end-product might be hard-linking (Helgesen, 2013).

Although integration of the two models could also be viewed as the preferred end-product, there are significant benefits to keep the CGE and TIMES models separate and independent from each other – such as model design and maintenance, maintaining the relative strengths of both models, and different levels of spatial and temporal distribution (Holz, et al., 2016). The main aspects why model integration might not be the best end-product are: (1) an integrated model may need to simplify one or both models significantly; (2) CGE and TIMES models might operate at different time scales, with different detailing levels or with different regional breakdown; (3) the models have different data sources, which significantly complicates the model integration (Helgesen, 2013). In general, an integration approach that narrows the detailing level is practical when looking at the global picture; however, with less sectoral or technological details, it is less useful for public policy considerations (Andersen, et al., 2019).

Several studies focus on single-sector linkage in Bottom-Up and Top-Down models (Martinsen, 2011; Schafer & Jacoby, 2005). However, the literature suggests that the end-product should be a “full link” and “full-form” approach. A “full-link” and “full-form” approach combines the technological details of the Bottom-Up models and the macroeconomic structure of the Top-Down models (Andersen, et al., 2019), and has been implemented, for instance, in China (Dai, et al., 2016), Portugal (Fortes, et al., 2014), Sweden (Krook-Riekkola, et al., 2017), Denmark (Andersen, et al., 2019) and Poland (Antosiewicz, et al., 2020). Several examples of linking CGE and TIMES models are summarised in Table 1.

In Norway, three models (TIMES, CGE and EXIOBASE) have been merged. The connection points in the TIMES model are mainly consumption indicators, such as the expected demand of sectors and households, which are derived from the CGE, as they take into account population and labour force growth projections. The connection points in the CGE model is an energy mix from five sectors (agriculture, industry, services, transport, consumer welfare production) derived from TIMES. In the iteration process, indicators are exchanged, and convergence is achieved if the values of the indicators do not change significantly from iteration to iteration (Wiebe, et al., 2017).

In China, the connection points of the TIMES model are the relative changes in industrial output that are transferred from the CGE model and provide relative changes to the corresponding future demand for energy services in the TIMES model. In turn, the connection points of the CGE model are energy consumption, which is derived from the TIMES model and adjusts the parameters of energy efficiency improvement (Dai, et al., 2016).

Examples of linking the CGE and TIMES models

Article	Data sent from CGE to TIMES	Data sent from TIMES to CGE	Linking
Böhringer & Rutherford, 2009	<ul style="list-style-type: none"> • Energy demand 	<ul style="list-style-type: none"> • Net energy output • Inputs of non-energy goods to the energy system 	Hard-linking
Fortes, et al., 2014	<ul style="list-style-type: none"> • Energy demand 	<ul style="list-style-type: none"> • Energy prices • Energy consumption • Policy monetary values 	Integration
Dai, et al., 2016	<ul style="list-style-type: none"> • Energy demand 	<ul style="list-style-type: none"> • Energy consumption 	Soft-linking
Holz, et al., 2016	<ul style="list-style-type: none"> • Energy demand 	<ul style="list-style-type: none"> • Energy mix 	Soft-linking
Abrell & Rausch, 2016	<ul style="list-style-type: none"> • Electricity demand and price • Input prices for fuel, capital, labour, goods and services 	<ul style="list-style-type: none"> • Electricity dispatch • Input demand for fuel, capital, labour, goods and services 	Hard-linking
Krook-Riekkola, et al., 2017	<ul style="list-style-type: none"> • Energy demand 	<ul style="list-style-type: none"> • Energy intensity parameter • Energy mix • Energy prices 	Soft-linking
Wiebe, et al., 2017	<ul style="list-style-type: none"> • Energy demand 	<ul style="list-style-type: none"> • Energy mix 	Hybrid-linking
Andersen, et al., 2019	<ul style="list-style-type: none"> • Energy demand • Fuel prices 	<ul style="list-style-type: none"> • Energy prices • Energy mix 	Soft-linking

Source: author's elaboration based on academic literature

In the soft-linking process, both models depend on the input of the other model. In the case of Sweden, it is recommended to start with the CGE model, as the TIMES model requires energy demand assumptions, while the CGE model can start without TIMES input. The number of iterations needed for a model solution to achieve convergence may not be determined, but the change in results should be reviewed in each iteration, which is particularly relevant in the case of many connection points. The manual review identifies the necessary improvements to the model and provides more information about the system being studied. The most significant change is usually observed in the first iteration. In subsequent iterations, the result is being slightly adjusted, so it is important not to exaggerate the number of iterations, as convergence may not be achieved in the soft-linking case (Krook-Riekkola, et al., 2017), for instance, if the differences in the structure and methodology of the two models are significant (Böhringer & Rutherford, 2009).

In Denmark, on the other hand, it is recommended to start an iteration with the TIMES model to inform the CGE model about future energy prices, energy service production technologies and fuel taxes. Based on this information, the CGE model determines new energy demand and prices. The TIMES model uses these results in the second iteration to predict the connection points found. The iterative process continues until fuel costs, and fuel tax revenues (by industry, services, and fuel) converge in both models (Andersen, et al., 2019).

There are also several challenges and problems with the soft-linking approach. For instance, in the case of a significant economic restructuring (such as a radical reduction in the use of fossil fuels), investment flows could also change significantly. The calculated investments from the TIMES model could be unrealistic and inappropriate, as it does not assess the link between investment demand and the rest of the economy. In turn, the CGE model has difficulty in perceiving the spread of new technologies. Some changes in investment flows can be made by adjusting electricity and heat prices. Also, the soft-linking approach is time-consuming if a manual check and quality control are performed in each iteration (Krook-Riekkola, et al., 2017).

Despite several challenges and problems, soft-linking is important and necessary to bridge the gap between the results of the CGE and TIMES models. The most important thing is to keep in mind and, if necessary, use the strengths and limitations of the two models, as significant differences in at least some results may be detected (Dai, et al., 2016).

Assessment of the current Latvian CGE model

The current version of the Latvian CGE model owned by the University of Latvia (and developed by the University of Latvia researchers during the previous project) is based on the Australian CGE prototype-model ORANI-G, mainly it is 2013 version "TPMH0110" (further – ORANI-G). There are only some differences of the Latvian CGE model from ORANI-G. Latvian CGE model: (1) has a more detailed sector structure (65 sectors, compared to 37 sectors in the ORANI-G); (2) divides employees by 10 occupational groups (compared to 8 occupational groups in the ORANI-G); (3) excludes regional dimension (it contains one region, compared to 8 regions in the ORANI-G). Also, most of the model parameters in the Latvian CGE model differ from the ORANI-G (see Table 2).

Table 2

A comparison of model parameters in Latvian CGE and ORANI-G models

Nr	Parameter	Comparison
1	Armington elasticities	In the Latvian CGE model, Armington elasticity values are slightly higher than in the ORANI-G model (1.55 and 1.07, respectively), which could reflect the greater openness of the Latvian economy to international trade flows. The range of elasticities by sectors in the Latvian CGE model is narrower - from 0.10 to 3.00 (for comparison: in the ORANI-G model from 0.00 to 5.02). In the Latvian CGE model, the values of Armington elasticities differ by industry. However, the elasticities for the industry defined in the three blocks of the model (intermediate consumption, investment, households) are identical. In contrast, in the ORANI-G model, Armington's elasticity values differ by both industry and model blocks.
2	Substitution of labour to capital	In the ORANI-G model, the coefficient for all industries is 0.5. In the Latvian CGE model, it differs by industry (average value 0.74; range: 0.25 - 1.50); it is higher in the agricultural and service sectors and smaller in the electricity and water supply sectors.
3	Export demand elasticities	EXP_ELAST: In the Latvian CGE model, the same elasticity value is set for all sectors (-5.00). In the ORANI-G model, the average value is -9.49 (range from -1.64 to -10.00); in addition, most sectors (80%) were assigned a value of -10.00. EXP_ELAST_NT: In Latvian CGE model: -5.00, in ORANI-G model: -10.00. IsIndivExp: Similar coefficients between sectors were observed in Latvian CGE (0.42) and ORANI-G models (0.38).
4	Income elasticity of demand	The values of elasticities by sector are similar: In the ORANI-G model: average value 0.93 (range 0.40 - 1.59) In Latvian CGE model: average value 1.07 (range 0.42 - 1.68).
5	Propensity to export	In both models: 0.50 in all sectors of the economy.
6	Frisch parameter	In Latvian CGE and ORANI-G model: -1.82. Higher (by module) Frisch parameter is observed in poorer countries. In contrast, for high-income countries, the value of the Frisch parameter approaches zero.
7	Labour substitution by type of skills	Latvian CGE and ORANI-G model: 0.50 in all sectors. It reflects the substitutability of employees by occupation groups.

Source: author's elaboration based on the materials of the ORANI-G model and the project of the national research program "Energy and Climate Modeling Towards Carbon Neutrality"

Latvian CGE model is static and has two simulation options - short-term and long-term. Both simulation scenarios use the standard available ORANI-G model exogenous and endogenous variables (see Table 3).

Table 3

Latvian CGE and ORANI-G models main assumption about short-term and long-term simulations

Nr.	Short-term simulation	Long-term simulation
1	Capital and investment have given outside the model (exogenous)	Capital and investment are determined within the model (endogenous)
2	Wages are exogenous; employment is endogenous	Wages are endogenous; employment - exogenous
3	Private and government consumption are exogenous	Private and government consumption are endogenous
4	The new equilibrium corresponds to the state of the economy after 1 - 3 years	The new balance corresponds to the state of the economy after 10 – 20 years

Source: author's elaboration based on the materials of the ORANI-G model and the project of the national research program "Energy and Climate Modeling Towards Carbon Neutrality"

The static form of the Latvian CGE model means that it is impossible to observe the dynamics of the variables by periods (years) neither in long-term or short-term simulations.

A cornerstone of the Latvian CGE model database is the Input-Output matrix. Central Statistical Bureau of Latvia produces Input-Output matrices every five years, publishing them with a significant time lag (36 months after the respective year). The most recent publicly available Input-Output matrix for Latvia is for 2015. Therefore, the next Input-Output matrix is for 2020 and will be published at the end of 2023. Currently Latvian CGE model employs the Input-Output matrix for 2017, which was produced by the technical support of the Center of Policy Studies (CoPS), using Input-Output matrix for 2015, Supply-Use tables for 2017 and the GEMPACK program extension, which is not available in the case of a standard license. Thus, the Latvian CGE model is currently based on the data constructed by an external expert, without the possibility of verifying the methodology according to which it was constructed.

One of the other matrices which is included in the Latvian CGE model database is the GHGE matrix. The GHGE matrix is one of the links between the CGE and TIMES models. It provides information on GHG emissions, and it is obtained from the TIMES model. Manual recalculations are required to modify the structure of the sectors displayed in the submitted matrix. The soft link between the two models is not effective due to the lack of harmonisation between sectors. In addition, the principle of introducing a carbon tax in the Latvian CGE model has not been developed yet. It should be noted that an estimate of the increase in production costs due to rising carbon prices currently is, to a large extent, based on expert judgement.

Conclusions, proposals, recommendations

Conclusions:

1. CGE model and its soft-linking with the TIMES model is an effective way to assess the impact of climate policy on the economy, as shown by the use of this approach, for instance, in Sweden, Denmark and China. This approach benefits both from the consistency of the CGE model and the high level of detail of the energy sector in TIMES.
2. The current Latvian CGE model is static – it is built based on the ORANI-G Australian prototype. It offers two simulations: short-term and long-term (both using the standard available ORANI-G exogenous and endogenous variables). They compare the initial and final equilibrium of the economy but do not include the costs and benefits of the transition path and do not answer how long (in years) is needed to reach the new equilibrium.

Proposals and recommendations:

1. The dynamic version of the CGE model should be developed at the University of Latvia. It would allow comparing the behaviour of different macroeconomic variables over time (by years).
2. The principle of introducing a carbon tax in the Latvian CGE model should be developed. An estimate of the increase in production costs due to rising carbon prices should move from expert judgement to a model-based assessment.
3. Calibration of model parameter values for Latvia should be continued. For instance, the Frisch parameter (-1.82) value in the Latvian CGE model is identical to that in the Australian ORANI-G prototype, although income levels differ significantly between countries. Even when the parameter values in the Latvian CGE model differ from the ORANI-G (as in the case of Armington elasticities), their refinement and economic justification might be necessary.
4. Given that the latest Input-Output matrix in Latvia is for 2015, and the Central Statistical Bureau will publish the next Input-Output matrix for 2020 with a significant time lag (at the end of 2023), it is necessary to choose which Input-Output matrix would be the base of the CGE model. There are three alternatives regarding that: a) Input-Output matrix for 2015, which is the latest officially published one; b) Input-Output matrix for 2017, constructed by Center of Policy Studies technical assistance, employing Latvian Supply and Use Tables for 2017, the Input-Output matrix for 2015 and the GEMPACK extension (which is not available in the case of a standard license) and whose methodology cannot be verified; c) Input-Output matrix for 2018, which is not available, but which can theoretically be constructed from the Supply and Use 2018 tables (which will be published by the Central Statistical Bureau at the end of December 2021). The relevance of the third option should be considered taking into account opportunities provided by the software packages GEMPACK and GAMS.
5. An effective soft-link between the Latvian CGE and TIMES models should be established by the University of Latvia in cooperation with the Institute of Physical Energetics. One of the links between the CGE and TIMES models is the GHGE matrix, which structure by sectors should be better harmonised between the two models.

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THE ROLE OF SOCIAL CAPITAL WITHIN SPORT SECTOR DURING AN ONGOING PANDEMIC: THE PERSPECTIVE OF THE EUROPEAN UNION

Marina Kudinska, University of Latvia
Sabine Rusmane, University of Latvia

Abstract. Being in the second year of a raging pandemic across the globe, the modern world civilization and individual nations are now learning to live with the disease, while also still facing and fighting issues of various complexity levels in all possible sectors of economy. Because of its importance, sport sector's social and economic ecosystem has not been spared by the pandemic induced crisis, too. It is a major contributor to the economic and social development with its valuable social role and nature. One of the ways to understand the role of societal ties within sport sector is to assess the role of the social capital within sport. The aim of this research paper is to analyse the role of social capital within sport sector during an ongoing pandemic through the European Union perspective. It is done by describing the role of sport within economic and social dimension of the EU, theoretical aspects of social capital, the synergy of social capital and sport and the role of the pandemic on the sport sector, social capital and their synergy. As the result of this research paper is an analytical confirmation of social capital's crucial role during the pandemic and in sport overall, as well as list of recommendations to the policy makers how to use sport as social capital facilitator, especially, at the youth level.

Keywords: *social capital, sport sector, European Union.*

JEL code: B55, Z20, Z21, Z28

Introduction

At the time when Covid-19 virus pandemic was officially announced in March 2020, nobody believed it will take the world this long to get back to normalcy or even get as close to it. Being in the second year of a raging pandemic across the globe, the modern world civilization and individual nations are now learning to live with the disease, while also still facing and fighting issues of various complexity levels in all possible sectors of economy. Because of its importance, sport sector's social and economic ecosystem has not been spared by the pandemic induced crisis, too. It is a major contributor to the economic and social development with its valuable socially inclusive role and nature recognised as contributor to the empowerment of women and young people, individuals and communities [author: of various sizes], as well as a health enhancing activity. One of the ways to understand how vital societal ties are within sport sector is to assess the role of the social capital within sport during the still ongoing pandemic by looking at the situation through the perspective of European Union.

The aim of this research paper is to analyse the role of social capital within sport sector during an ongoing pandemic through the European Union perspective. To reach the set aim of the research the authors apply content analysis and synthesis, logical constructive analysis and generalisation methods. The role of social capital within sport sector during an ongoing pandemic through the European Union perspective will be described by carrying out the following research tasks: 1) to describe the role of sport within economic and social dimension of the EU; 2) to analyse theoretical aspects of social capital; 3) to describe the overall synergy of social capital and sport; 4) to generally assess the impact of the pandemic on the sport sector, social capital and their synergy; 5) to draw general conclusions; and 6) to elaborate a short list of proposals based on the analysis performed.

The main research question posed by the authors is the following: "*What is the role of the social capital during the pandemic from the perspective of the sport sector?*" An additional question might be raised in relation to the aforementioned one, namely, "*How crucial is the role of social capital during the pandemic overall?*" Taking into consideration the overall social nature of any human personality, with all its distinct differences and preferences of socialisation, love for sport included, the answer to the second questions could be "extremely".

The novelty of this research paper is founded on the assumption that the synergy of social capital and sport, considering sector's high profitability and labour intensity and its social nature, during the pandemic could be used to even further argue the vital role of sport sector, especially when looked through the dimensions of social capital that could be evaluated by the various sets of available data that are used to conceptually measure the impact of social capital on and within any economic sector. Despite the measurement of social capital not being at the forefront of this research paper, it is touched upon, it needs to be taken into consideration, as one should always reflect on the set of data available and necessary for the impact measurement, especially, the annually and timely collected data on sport sector socio-economic development and growth (while employment statistics are collected annually, it is not done so for the data on total GDP of sport, both in million euros and in share of total GDP), as well as numbers of sport participation being posted sporadically or could be lacking on official statistical websites (these statistics are just one of the few that add weight to the overall social capital impact measurement). The delimitation of this particular research paper is that the conclusions are not yet based upon a developed econometric model, as it is to be an aim of author's future research. It is also limited in fact that the Covid-19 pandemic crisis is still an ongoing precedent with once again no set end in the nearest future, thus the topic is still open for further topical theoretical and empirical research development.

Literature Review

The author used various sources of different levels of significance to conduct the quick overview of the topic presented. This research paper is developed by using theoretical, scientific and specialized articles from academic journals, various online published legal documents and reports of international importance, e.g. EU legislation, European Commission research reports, European Parliament briefings. Other complimentary and crucial scientific research articles on the topic of social capital, sport, the current pandemic and correlation between all of those aspects written by various other authors have been also included.

The most prominent literature used by the author during this research were the official legal documents from the Council of the European Union on various European sport policy and dimension defining topics, such as Work Plans 2021-2024, as well as on the economic dimension of sport and its socioeconomic benefits (2018) and on the impact of the COVID19 pandemic and the recovery of the sport sector (2020), that cover and emphasise the socio-economic importance and benefits of sport sector. Just as vital for the production of this paper has been the major European Commission's report on *Mapping study on measuring the economic impact of COVID-19 on the sport sector in the EU* published in 2020, that provided the author with the necessary statistics of the economic impact of the pandemic on the sport sector, e.g. calculated various possible outcomes for the sport-related GDP and employment numbers across all EU Member States to prove how much the COVID-19 crisis has affected the sector within the total economic framework.

To describe the theoretical aspects of the social capital concept the most prominent authors who have covered the topic were used, namely, article by Coleman: *Social capital in the creation of human capital* (1988) and *Foundations of social theory* (1990), by Putnam: *Bowling alone: The collapse and revival of American community* (2000) and *Making Democracy Work: Civic Traditions in Modern Italy* (1993), as well as such vital social capital research establishing articles by Adler and Kwon: *Social Capital: Prospects for A New Concept* (2002), Nahapiet and

Ghoshal: *Social Capital, Intellectual Capital, and the Organizational Advantage* (1998) and Narayan and Cassidy: *A dimensional approach to measuring social capital: development and validation of a social capital inventory* (2001). The paper is also complimented by the most recent scientific publications of role of social capital during the pandemic, such as *Social capital and COVID-19: a multidimensional and multilevel approach* by C. Wu (2021) and *Bowling Together by Bowling Alone: Social Capital and Covid-19. Covid Economics* by Borgonovi and Andrieu (2020), while a major research conducted by MLSE Foundation was carried out to determine the role of sport access during the pandemic, called: *Change the Game Research. A study focused on youth sport access, engagement, and equity factors in the wake of the pandemic* (2021).

As the pandemic is still ongoing and the situation within the world economy, incl. sport sector is constantly evolving, the described situation and role of social capital within sport sector is not going to change over the duration of the pandemic. However, it should be taken into consideration that the statistical data presented is subject to change, yet it could be assumed that the overall general socio-economic scene of sport sector represented in the different sources within next year or two, per author's view, is not going to change, yet might be slowly recovering and even growing.

Research results and discussion

For many territories and countries, sport is seen as one of the central defining characteristics of the population. Sport is not only an important cultural element and a vital economic sector, but it is also adding many positive developmental elements on all levels of the society. On a public administration level, sport is used as a government policy tool to contribute to a number of social panaceas - be it health enhancement, contribution of the overall quality of life, reductions in anti-social behaviour and attraction of inward investment to the local, regional and national economy. Sport is an important economic sector on a supranational level of the European Union, with a bigger or smaller share within the Member State economies of Member States with a far-reaching impact across almost all sectors of economy.

However, it is important to remember that first and foremost sport – be it an economic sector and various set of physical activities - is a social institution that stems in a family circle, that allows to connect to a community and then further to a wider society of various governance levels, with set norms and a particular level of trust and functionality and observed on various community and governing levels of one sport. Sport sector brings people and businesses together and involves and tightly ties it to various other economic sectors, as it efficiently impacts the economy by creating new growth and development opportunities for both sport-related and non-related businesses. The complexity of sport emphasises its vital contributions not only to shaping competitions, elite career, aesthetic bodies and mental perseverance, or as a personal health and well-being agent. Sport has become equally a driver of innovation and sustainable development, as well as a cohesion factor that bridges social gaps and creates a sense of belonging to local communities (European Commission, 2020bc). The role of sport is irreplaceable within the spectre of national economic growth, and for the most part, it is the involvement of all sport sector stakeholders that set the social capital theory efficiently in motion.

The first year of the pandemic saw the national responses of countries vary widely – from firm restrictions placed on any sporting activities taking place, to every social gathering forbidden, just to bring down the Covid-19 infection numbers – no matter the age group or level of professionalism, or what kind of impact it will leave on the children and youth sport that are the future high-performance sport hopefuls. At the same time the global response prompted the almost total shutdown via postponements and cancellations at all levels, such as postponements of UEFA European Championship – EUROs 2020 and Tokyo 2020 Olympic and Paralympic Games that took place the past summer of 2021, while cancellations of many bigger events (e.g. Formula 1 races, IIHF 2020 World Championship and Wimbledon Grand Slam in 2020) and smaller community recreation and grassroots sporting events (e.g. cancelled Riga 2020 marathon, grassroots bicycle rides, orienteering competitions etc.) have left deep economic and social implications. The European Commission's research (2020a) showcases an estimate of nearly a million sport sector related jobs that have been impacted by the pandemic in the European Union (EU). These are not only sport professionals, but everyone who works in related retail and sporting services such as travel, tourism, infrastructure, transportation, catering and media broadcasting while imposed pandemic combating measures in 2020 have been estimated to have caused the loss of at least 50 million euros in GDP across the 27 Member States of the EU (Katsarova, 2021).

In addition to economic repercussions, the cancellation of games impacted many social benefits of global and regional sport events that play a vital role in a smooth social cohesion, thus contributing to the social and emotional excitement of fans, as well as their identification with athletes leading to greater physical activity of individuals. Since the beginning of time, sport is has been considered a valuable tool and even set of measures to foster communication, build bridges and create links between communities and generations, and people of various personal and professional ideologies. Through sport, various social groups are able to play a more central role towards social transformation and development, particularly in divided societies. It is crucial at developing social ties and networks – social capital, that in turn refers to the features of societal organisation, like norms, trust, and reciprocity, and what facilitates coordination and cooperation with government. Rawat and Wu (2020) have stated it is “country's quality of healthcare, standards of governance, and strong social capital [that] are essential for effectively fighting Covid-19.”

Thus, through social capital and sport it might be possible to unite and heal a divided society and get the overall societal life through the deadly obstacle that is the raging pandemic and get back not only to the responsible growth of the sector and the overall economy, but of the society, as well.

The role of sport within the economic and social dimension of the EU

Definition of sport within the Revised European Sport Charter states the following: “Sport encompasses all forms of physical activity which, through casual or organised participation, expressing or improving physical fitness and mental well-being, forming social relationships or obtaining results in competition at all levels.” Based on the *SportsEconAustria* (SpEA) research studies conducted both in 2012 and 2018 (commissioned by European Commission), sport is an important economic sector in the European Union, as the sector's share in national economies – dependent on the country's size, as well, of course – is comparable to agriculture, forestry and fisheries combined. In 2005, the overall sport sector accounted for 1.76 % of the EU total GDP, while the number of people employed within the sport sector related activities amounted to 4.5 million persons, equivalent to 2.12 % of the total EU employment share. By 2012, the total sport sector generated GDP within EU increased to 2.12%, amounting to 297.7 billion euros, while the share of sport related employment increased to 2.72 % of the total EU employment (equivalent to 5.6 million persons) (European Commission, 2018).

The latest research study by European Commission (2020a) on pandemic's economic impact on sport sector presented an updated reference scenario to showcase the economic development of sport sector both in line of total GDP (mln, EUR), share of GDP and total employment and its share both for EU-27 and EU-28. The presented data showcased what would have been a positive trend, namely, if not for the Covid-19 pandemic – sport sector's total GDP within EU-27 (EU-28) would have been – 310.679 mln EUR (393.390 mln EUR), the share of GDP also increasing – 2.16 % (2.15 %). As for the sport related employment, the reference scenario created by the authors of the study present the

following numbers for both the total number of employees and the share of sport-related employment: 5.22 mln persons (6.46 mln persons) that corresponds to 2.67 % (2.84 %) respectively.

Looking upon the number described above, it is safe to say that sport is a fast moving policy area. The importance of sport has been further recognised by the EU policy makers – not only the obvious health and wellbeing reasons, but also for a number of key areas such as – social cohesion and research, territorial regeneration, economic growth or tackling climate change (European Commission, 2020b). European Commission’s Communication on “Developing the European Dimension in Sport” (2011) highlighted the need to mainstream sport into other policy areas, while also pointing out that Structural Funds could be used to support investments made in the field of sport, when they fall in line with the broader scope and priorities of the requirements of each Fund. The same thematic policy direction is being upheld within the framework of the current EU Work Plan for Sport for the period 2021 - 2024 by prioritising support to the sector during and post the Covid-19 pandemic, also through the use of the Structural Funds (Council of European Union, 2020).

One of the EU sport policy priorities is its contribution to economic activity and social cohesion. It is taking place through the following socio-economic development inducing activities: 1) creating direct business activity (from large football enterprises to local sport clubs and gyms); 2) generating locally-rooted employment (including indirectly through construction projects); 3) driving attractiveness and impacting positively the image of territories; 4) contributing to innovation and fuelling Information and Communication Technologies (ICT) with sport content; 5) promoting well-being and social cohesion, and engaging with social groups other policies fail to attract; and 6) increasing soft mobility solutions and decreasing negative health impacts thanks to increased physical activity (European Commission, 2013; 2016). Sport is a powerful mean of achieving the economic and social objectives through effective and efficient use of European Structural Funds, as it further directly and indirectly impacts development of regional and national economies. More than 200 sport and physical activity project supported by the Structural Funds during the Multiannual Financial Framework 2007-2013 have positively affected lives of population across EU’s Member States across various economic fields, such as employment, innovation, infrastructure development, regional strategy, rural development etc. Given the various ways sport can impact regional development, regions across the EU have already included or are integrating sport into their regional development strategies by applying cross-sectoral approaches that aim to involve various connected economic sectors (e.g. tourism, new technologies, ICT education, transport, and healthcare) and to strengthen local sport ecosystem. It is done by developing and promoting sustainable business opportunities, a healthier and more active lifestyle and low-carbon, experience-based economy (European Commission, 2020c), thus placing sport at the centre stage for the development of territories to enhance their attractiveness, social cohesion, urban regeneration, as well as their economic vitality all year long, not only during particular seasons.

Social capital: theoretical review of the concept

Most often social capital is accumulated through building social relations between people, groups, communities and institutions (Cimdinis, Skinkis, Usca, 2015), and it is understood as the connections keeping the society together and represents the degree of social cohesion that exists in communities of all levels. Social capital is seen as a way of expanding empowerment, well-being, and community development: all of which are geared toward an improved civil society (Zakus, Skinner and Edwards, 2009).

Social capital is a crucial aspect of each community that facilitates coordinated actions, reduces transaction costs and enables communities to be more effective in pursuit of their collective interests (Putnam, 2000). Main focus of Putnam’s (1993) social capital research has been the aspects, norms and networks, emphasising the prominent role of the involvement of the general public in various civic society organisations that can stimulate collective action. It makes possible to achieve results that are thought impossible in the absence of the said capital (Coleman, 1990) if the individual is involved in certain relationship structures where certain social norms, information channels and collective obligations and expectations are functioning. Thus, social capital is related to the ability of individuals to form connections among members of their group / community and “bridges” with other groups. Both of its manifestations – individual connections and relations within a group, and links between groups / inter-institutional relations, could be used to explain social capital.

Social capital is a multidimensional research concept with various dimension, levels, types, views and approaches – widely discussed as its defining characteristics. Social capital’s dimensions are being defined in various ways by different scholars, e.g. informal social ties (friends and family), formal social ties (relationship between citizens and public institution), trust, and norms of collective action (Liu and Besser, 2003); while Cassidy and Narayan (2001) define seven dimensions of social capital: group characteristics, generalised norms, togetherness, everyday sociability, neighbourhood connections, volunteerism, and trust.

Michael Woolcock (1998) defines four dimensions, however, later these views are conceptualized as approaches to social capital (Woolcock and Narayan, 2000) that include the aforementioned dimensions one way or another. The approaches are split in two pairs of opposing concepts: embeddedness and autonomy, and the macro and micro level. The approaches are the following: 1) *communitarian perspective* is viewed from the point of view of local associations with main actors being the community groups and voluntary organisations with “small is beautiful” and recognition of social assets of the poor as the policy prescriptions; 2) *network perspective* is viewed from the point of view of bonding and bridging community ties with the main actors being entrepreneurs, business groups and information brokers and decentralisation, creation of enterprise zones and bridging of social divides as policy prescriptions; 3) *institutional perspective* is viewed from the point of view of political and legal institutions with the main actors being the private and public sectors by applying such policy prescriptions as grant civil and political liberties, institutionalise transparency and accountability; and 4) *synergy perspective* is viewed from the point of view of community networks and state-society relations with the main actors being various community groups, civil society, firms and states with policy emphasis being on coproduction, complementarily participation and linkages, enhancement of capacity and scale of local organisations.

With so many dimensional definition differences, social capital could be found at the level of individual, the informal social group, the formal organisation, the community, the ethnic group and even the nation. Namely, social capital is wherever the actor finds oneself to be at the moment (Adler and Kwon, 2002) and it belongs to the group and is used by the group or individuals within the group (Kilpatrick et al., 1998). Thus, it is clear that social capital is evident at any level where there is identification and belonging and the classification into micro (individual), meso (group) and macro (societal) is useful in analysis of social capital. Micro level consists of individual, household horizontal cooperation networks and related cooperation norms and values. Meso level includes the horizontal and vertical relationships within groups, between individuals and society as a unit. Macro level is where the impact of social capital is assessed as an institutional and political environment for quality of public governance that builds the very essence of all economic and social happenings. At macro level, the institutional environment is the decisive indicator of economic growth.

Social capital is also distinguished between the bonding, bridging and linking types. Bonding social capital is horizontal, among equals within a community with a thick trust, usually found among people who live in the same or adjacent communities featuring internal and exclusive relations and promoting solidarity and cooperation. Bridging social capital is created vertically between communities and is closely related to thin trust that extends to individuals and organisation further removed possessing external inclusive relations and enabling access to resources and information outside the group thus assisting in social cohesion processes and producing wider identities and reciprocity between

people from other social groups Linking social capital type is defined as an even mixture of both bonding and bridging social capital characteristics that operates through the synergic approach on a macro level of social capital where both norms of respect and networks of trusting relationships between people are present across explicit, formal, or institutionalised power or authority gradients in society (e.g. co-production between public institutions and non-governmental organisations) (Putnam, 2000; Seagert et al., 2001; Tonts, 2005; Atherley, 2006).

As the social capital is different at various levels of society, it also varies at different units of spatial hierarchies (Westlund and Larsson, 2016). The social capital of these spatial hierarchies building from a city block, neighbourhood, village, community to a municipality, town or city to counties and regions (within a state) to an independent country or a supra-organisation) could be analysed from several aspects. One of them is the internal-external or also known as bonding-bridging aspects of social capital. The internal social capital of a town consists of local networks with values and norms that contribute to a common identity that forms the bonding social capital. The external social capital of any local level unit is composed of links to actors of other towns, and of links to neighbourhoods and other units having a lower position in the spatial hierarchy and the county centre and/or other units having a higher position in the spatial hierarchy, builds the linking social capital.

McPherson et al. (2001) state that the social capital of local communities may vary considerably in homogeneity depending on their composition of various groups, as individual characteristics, such as education and social class, have a considerable effect on the social networks that a person connects to, thus creating one's social capital. Thus, it could be concluded that if people from different walks of life share the same local space, different social networks and different social capital may be found in the same locality. The higher the level of the spatial unit, the lower the level of homogeneity and it will become harder to build a rock-steady social capital. This also correlates with the way social capital has an evident synergy with sport.

The synergy of sport and social capital during the Covid-19 pandemic

Participation in sport has many reasons for many people, yet the main reasons are associated with personal, interpersonal, environmental and societal benefits (van Bottenburg et al., 2005), with interpersonal reasons being one of the most important elements of the sport experience to people (Beard and Ragheb, 1983). This is also true when one pursues to research the interconnection between the promoted universal power of sport and the very essence of social capital on public governance (administration) level. People across the world interact with and within sport differently and the structures, principles, events and scandals could foster and hinder the sense of community, as they create the very backbone of the social capital and sport synergy on all levels of its governance. The capacity of sport structures to provide the people involved with sense of belonging is not only perceived as a key element of the sport participation experience (Chalip et al., 1992; Perks, 2007), it is also viewed as forerunner for the actual presence of social capital (Putnam, 1993).

One of the views of social capital is that even though social capital might orientate in the psychological perception of the individual (micro level of social capital), the person does own it; it is the community – no matter its size (village, town, city, region, country – meso/macro level) – that actually possesses it and further drives the desire of any individual to become the member of a particular community (Putnam, 1993). The very presence of social capital within sport governing and participation structures appears to be vital to the existence and continuance of these communities (Maguire et al.; 2002). The intensity of social capital reflects the power of the community thus further cultivating the survival and growth of any community or even nation. It is present on various regional levels through the popularity of various sports across the world, e.g. football with an unofficial estimated following of 3,2 billion people both participating across the world, and universally loved, yet, there are and will be communities that are generally not interested in it or prefer to watch another sport altogether (ice / field hockey with an estimated following of 2 billion people, basketball with following of 2,2 billion people etc.). However, it also depends on the size of the country and the national pride and joy that is felt when a smaller country achieves a high result in any sporting discipline. It is safe to say – the smaller the country, the bigger the result, the more widespread is the joy and pride and deeper trust in the sport as a community driving tool. At the same within smaller countries, i.e. the divide of love for different sports are also quite distinguishable across various spatial units, e.g. the whole nation love basketball and ice hockey, while a separate region might prefer floorball. At the same time, when it comes to football in Europe – the low level of homogeneity within a country dissipates the moment the national team lifts the champion trophy (e.g. the income and poverty levels in Italy) and the society is brought together by the sheer joy and pride, while putting aside all political debates and disagreements.

Within sport participation communities with this level of passion for sport, the presence of social capital can encourage their members to remain physically active, volunteer on behalf of the community and gain various, incl. psychological benefits from their membership (Harvey et al., 2007). One of the ways how to gain a perspective on the social capital reflections within public sport governing structures of different countries is to consider the proposed concept of Glanville and Bienenstock (2009) where they emphasise three main components of social capital are the following: a) level of social network density, b) level of trust and/or reciprocity, and c) level of resources.

Social commitment, cultural orientation, as well as socio-economic status appear to be three elements that are vital in influencing people of various ages to perform activities – sporting and/or volunteering – in favour of the community. Donati and Tronca (2008) stated a certain continuity between the primary (family) social capital, the secondary one (associational) and the generalised one (societal). It is accompanied by three ideal type visions of sport that are the basis of social capital generated within sport (Cecchi, 2012): 1) educational type vision with sport participation being open for all and it is focused on the affirmation of the value of sacrifice and commitment, respect for one's adversary, collaboration with companions and sporting loyalty; 2) ludic type vision which envisages taking part in sport as occasion to have fun and make new friends; 3) professional type vision being aimed at selecting the best athletes and focused on victory. The biggest amount of sport participants are found in sport clubs of various sizes that offer the possibility of meeting, playing and education experiences. These experiences are also the main pre-conditions to showcase the readiness and the level of action and reaction across communities to the ongoing pandemic overall and the government imposed restrictions and set health safety guidelines in response to it.

In facing the pandemic, communities and societies have shown varying responses. Social capital which captures the very essence and features of social organisations and formal and informal norms within societies has shown (Coleman, 1990; Putnam, 2000) to be powerful predictor of the diverse responses of governments when trying to stop the spread of the Covid-19 virus. Social capital is a concept that can explain a wide range of social phenomena such as economic growth, quality of government and people's health and well-being (Wu, 2021), as well as the necessity to do and consume sport. Wu (2021) also describes social capital's critical role in preventing and controlling previous epidemics, e.g. SARS, Ebola and Zika outbreaks etc., while also mentioning that social capital is positively associated with people's intention to accept vaccinations, to wash their hands more frequently, and to wear a face mask. She adds that low social capital can be explained by low compliance with control interventions and high refusal to adopt preventive behaviours. It also presents the just how both social and political trust produce significant impacts on reduction of the pandemic spread, whereas social activism and political participation seem to increase the spread.

It is also expressed by Wu (2021) that there are some specific patterns of social capital that have been observed over the length of the pandemic. Namely, that the effect of social capital seems to be time sensitive, in form of societies with strong bridging and linking social capital ties start out more susceptible to Covid-19 spread, but over time as information on the virus spread and high-social-capital areas start to show

a slower increase in Covid-19 cases. The association between social capital and the spread of Covid-19 can change in accordance with the government policies in controlling the spread. It is proved by Borgonovi and Andrieu (2020) statement that social capital is mostly needed when lockdowns, social distancing and other control measure are enforced in the beginning of the pandemic, while admitting that the effect of social capital will diminish when strict control policies are in place. Wu (2020) adds that social capital might be especially important in democratic societies, as compliance cannot be ensured by more forceful means.

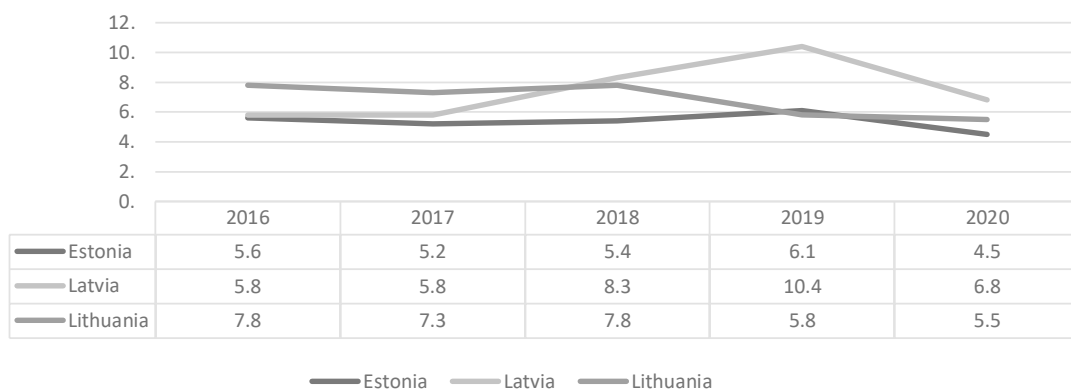
Rawat and Muluan (2020) describe the role of social capital during the current pandemic by comparing it to an occurrence of common threat and people’s need to come together to mitigate it. The higher the social capital, the easier it is to enforce the useful norms, and for the sake of collective good, compliance with governmental regulation by an individual is much higher in crisis, at least in the beginning of it. In nations with higher social capital, self-motivated people can be relied upon to work together to comply with the set guidelines by the health experts and officials, as well as the regulations imposed by the governments.

While the set health safety guidelines and government imposed regulations are meant to keep every person in the country safe and healthy and the responsible part of the society doing its best of public good to comply, this kind of high social capital level within societies also highly impacts sport and participation in it. Covid-19 pandemic imposed shutdowns have given millions a glimpse of a world without sport (Damjanovic, 2021), while also to evaluate and reflect on what is important, and reimagine a better way for youth and wider society to develop through sport, as it is a vital place to build their community ties or the feeling of belonging.

The sense of belonging is the epitome of social network building that is at times expressed through the sport participation data –across the European Union collected for both 2014 and 2015 (should be noted that the data for sport participation across the EU is not collected annually, the next update is promised for February 2022) – presented the following results: 43 % of the EU citizens practised some physical activities at least once a week (active participation in 2014), while less than one third (28 %) of the EU citizens attended a live sport event (passive participation in 2015). Both active and passive sport participation generate social capital. Active participation has a positive influence on personal health and well-being, team sports foster players’ communication skills and build team spirit and self-confidence, thus forming a potential socially inclusive and capable employee. While passive sport participation - referred to physical attendance of organised events as a spectator does not only reflect an interest in sport competitions but also brings people together, namely, it has an important socialising value (Eurostat, 2022).

This kind of belonging is not only formed through participation or event attendance, but most importantly through economic activities that are tightly knit with sport sector on a regular basis, such as the overall employment in sport and its sport-related economic activities that accounts also as one of the main social capital impact determining indicators. During the research of available statistical data on the employment in sport across the EU it was made evident that the still ongoing pandemic has negatively impacted the total employment levels in the sport sector, as it has overall decreased by at least 54 000 people from 1,366 million to 1,312 million, which accounts a fall of 4 % among the total employment in sport. For example, among the Baltic States the biggest decrease in the period of one year within the employment in sport expressed in thousand persons took place in Latvia – from 10,4 thousand to 6,8 thousand, while the smallest decrease happened in Lithuania – from 5,8 to 5,5 thousand people employed in sport. It is argued to be due to their overall wider dependence on other countries in their supply chain, while also because of the effects of the strict government imposed restrictions that saw many people out of jobs due to closures of sport and fitness clubs. However, over the period of the last five years, the biggest decrease took place in Lithuania from 7,8 to 5,5 thousand people,

Estonia experienced a decrease of 1,1 thousand people, while Latvia experienced a positive growth within total employment in sport – from 5,8 thousand to 6,8 thousand. The depiction of changes within the total employment in thousands of people is presented in the Figure 1 below.



Source: author’s constructed graph based on EuroStat data on Employment in Sport (EuroStat, 2022)

Fig. 1. The changes in employment in sport within Baltic States in thousand persons from 2016 to 2020

The level of significance of sport within EU as social capital facilitator, as it does not matter how big or small is the share of people showing up to a stadium to watch a game or participate in sport activities, it still showcases the amount of citizens whose weekly life in some way is connected to sport. It could be surely assumed that during the pandemic the imposed governmental restrictions, which put an effective and immediate halt of all sporting activities (active group activities depending on the epidemiological situation), also affected the level of belonging to a (sport) community, be it a club, town, region or even country.

The social dimension of sport is as crucial as ever, as is its synergy with social capital, yet it needs to be restricted during the pandemic to slowly but surely get back to the level social capital impact as before. The social distancing measure might be effective for the time being of the pandemic, but the consequences of long-term spent at home without the much needed socialisation that only sport can bring – in whatever form it is ingested – be it active participation, active supporting, active volunteering or any other social or economic way how to be within the social sport community - it will take some time to get over and get back to how things were before the pandemic. Just as much social capital is at the base of strict following of the regulations, it will and should be looked upon as the main facilitator of getting back to the full life of sport within the framework of existing restrictions, as well as during the post-pandemic era.

Conclusions, proposals, recommendations

The aim of this research paper was reached by carrying out the set tasks analyse the role of social capital within sport sector during an ongoing pandemic through the European Union perspective. Based on the performed tasks the following conclusions could be drawn:

1. Sport is an important socio-economic sector in the European Union, as the sector's share in national economies is comparable to agriculture, forestry and fisheries combined recognised by the EU policy makers, with sector's share of GDP and sector related employment across EU-27 in 2020 would have been 2,16% and 2,67% respectively if not for the Covid-19 pandemic.
2. Social capital is understood as the connections keeping the society together and represents the degree of social cohesion that exists in communities of all levels, by accumulating social relations between people, groups, communities and institutions. Across spatial unit hierarchies it is analysed through the bonding-bridging aspect perspective. The higher the level of the spatial unit, the lower the level of homogeneity will be to build a rock-steady social capital.
3. The presence of social capital within sport governing and participation structures is vital to the existence and continuance of communities that encourages their members to remain physically active, volunteer on behalf of the community and gain various benefits from their membership.
4. During the pandemic high social capital is positively associated with people's intention to accept and follow the required social distancing, while low social capital can be explained by low compliance with control interventions and high refusal to adopt preventive behaviours.
5. High level of social capital impacts sport, participation and employment in it during the ongoing pandemic. Sport participation and employment in sport are some of the main social capital indicators and building blocks of sport sector growth, as it produces a very strong sense of belonging to their community. In 2020 the total employment in sport decreased by 4% across the EU-27, while the employment in sport in the Baltic States also present a substantial decrease due to their wider dependence on other countries in their supply chain.

Based on the general conclusions listed above it is possible to propose a set of following general recommendations for action that could use sport as effective tool to bring economy out of crisis, as well as to improve the research of sport and social capital through various socio-economic indicators:

- To emphasise the importance of sport as an economically vital activity in the development of any municipality, region and country due to its labour intensive character, as well as its social role, especially, at the youth level;
- Because of the sport's role as social facilitator and social capital generator, to prioritise access, participation, engagement and employment in sport activities both during the pandemic, as well as in post-pandemic era by expanding opportunities for everyone to resume play, competition and employment in environments that accord with the safety regulations while also being fun and accessible;
- To further develop/facilitate social capital within a society through objective investments made towards various sport initiatives across all spatial units that could further generate a deeper belonging, connectedness and solidarity, thus also recognising the necessity for required sport infrastructure and sport opportunities for the society, e.g. various grassroots sporting events with both volunteering and contractual labour opportunities;
- Last but not least, to collect sport-related socio-economic statistical data on a more regular basis, such as the total GDP and its share within EU economy, sport participation (active and passive) etc., thus enabling the measurement of social capital impact within public sport governance.

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OPPORTUNITIES AND CHALLENGES OF SOCIAL MEDIA USE IN MUNICIPALITIES IN LATVIA

Kate Lase, University of Latvia
Biruta Sloka, University of Latvia

Abstract. The use of different kind of social media by local governments has gained relevance in recent years, however, along with many opportunities and successes, the use of social media by local governments has many challenges, barriers and issues which are not enough researched and discussed in academic research.

Purpose of the study is to analyse benefits and challenges of social media use in municipalities in Latvia. Research methods used in preparation of the paper: recent scientific publication studies, analysis of social media of municipalities of Latvia, survey on social media use in municipalities in Latvia realized on April 2021. For data analysis there were used indicators of descriptive statistics: indicators of central tendency or location (arithmetic mean, mode, median, quartiles), indicators of variability (variance, standard deviation, standard error of mean), cross – tabulations, statistical tests of hypotheses and analysis of variance (ANOVA).

The results show that most municipalities generally have positive views of their social media use but the real application of social media is not consistent in each municipality. Although majority of municipalities use at least two social media, the study found important challenges in terms of regional development, digital skills, appropriate employees and social media content.

Keywords: *digital skills, Facebook, municipalities, social media, social networks.*

JEL code: O33; R11; M31

Introduction

Social media use in municipalities has expanded around the world on the basis of development of internet and technology. Although each social network offers substantial benefits and opportunities to municipalities, research of social media use in municipalities in Latvia remains scant. Municipalities needs to be more open and transparent about its activities and social networking can help in evolving more inclusive governing model where municipality not only spread awareness of its activities and plans, but also engage in a communication with citizens. However, along with many positive impacts, limited attention has been directed towards number of challenges of social network use in the public sector.

But in Latvia – where are hundred and nine teen (119) municipalities) in 6 regions where there are large regional differences between those regions and municipalities, social media is a tool that improves communication with the population, promotes the involvement of the population in decision-making and makes the activities of local governments more transparent. However, along with many positive impacts, limited attention has been directed towards number of challenges of social network use in the public sector.

The aim of the research is to analyse benefits and challenges of social media use in municipalities in Latvia.

The tasks of the study:

- 1) to review theoretical background of social media use in municipalities;
- 2) to review existing research of income differences in the regions in EU;
- 3) to analyse problems of social media use in municipalities of Latvia.

Research methods used in preparation of the paper: recent scientific publication studies, analysis of social media of municipalities of Latvia, survey on social media use in municipalities in Latvia realized on April 2021. For data analysis there were used indicators of descriptive statistics: indicators of central tendency or location (arithmetic mean, mode, median, quartiles), indicators of variability (variance, standard deviation, standard error of mean), cross – tabulations, statistical tests of hypotheses and analysis of variance (ANOVA).

Literature Review

Social media is a powerful tool for public organizations and governments as well. Use of social media open up an increase citizen engagement, increase transparency (Bonson, et.al., 2017), facilitate communication and interaction and increase accountability (Nica, et.al., 2014). Usually municipalities create social media accounts, but do not use them to the full potential. The main reasons of creation of social media accounts in municipalities in Sweden is promoting municipality, provide citizens with fast and easily accessible information, increase democracy and build extensive network (Norstrom, Hattinger, 2016).

Majority of scientific articles analyse content and benefits of Facebook use in municipalities, for example, study in Slovakia (Mital, Jozef, 2020) revealed that majority of regional cities use their *Facebook* page mostly to share informational posts about past and future events and there is a lack of posts that ask citizen participation. In case of Romania, all of the main municipalities have Facebook page, but content varies depending of the municipality, for example, Constanta post more tourism information, but Oradea share strong digitalization initiatives (Teiu, 2020). Study in Portugal indicated that use of Facebook increases visibility of newly elected officials, foster the political engagement of apathetic voters and underlines the link between municipalities' commitment to transparency and the use of social media (Silva, et. al., 2019). By popularity Facebook is the dominant social network in municipalities in USA and the content posted on Facebook and Twitter is very similar, and most often it is information about events, what mean that most municipalities tend to post one-way content in their social networks, which is also easier and more understandable form of content, but at the same time less engaging and does not form a dialogue with the municipality (Graham, Avery, 2013). Social media are highly regarded as a beneficial communication tool for local governments (Graham, 2014), but many cities of US are still in the initial information and communication stage of social media usage, which is clearly reflected in their policies (Manoharan, 2017). Public authorities of the world's largest cities prefer Facebook, Twitter and Youtube, followed by Google, LinkedIn, Instagram (Mainka, et.al., 2015).

Some research analyses also Instagram and Twitter revealing that both photos and videos facilitate communication between the municipality and the public (Hofmann, et.al., 2015). Study about Instagram use in municipalities in Spain showed that in the region of Andalusia, which has 29 municipalities, Instagram accounts are maintained by 17 municipalities, and found that municipalities with high debts do not maintain or actively use Instagram. (Perea, Bonson, Bednrova, 2021). While study about Twitter use in municipalities in Netherlands revealed that municipalities which use *Twitter* for a longer time make more advanced use of its functions (Faber, et.al., 2020).

Social media as a tool of citizen engagement is widely researched topic in several countries, for example, findings from Italian municipalities (Bonson, et.al., 2019) show that similar to other social media, Twitter is widely used in Andalusian municipalities, because it helps to promote the municipality with very low costs or no costs at all, however there is no significant relationship between population of the municipality and its citizens' engagement and there is a significant negative relationship between *Twitter* audience and engagement and between activity and engagement. *Haro-de-Rosario* et.al. also indicate that higher levels of citizen engagement are achieved with Facebook, not Twitter (Haro-de-Rosario, et.al., 2018). It is important to choose social media instrument and its managerial integration depending on the purpose, because

Youtube, for example, is used to support public communication while Facebook to favour public participation (Agostino, 2013). Majority of audience of the Western European municipalities' official *Facebook* page is high, but citizen engagement is very low (Bonson, et.al., 2017). However, *Roengtam* indicate that although social media use can apply through various formats, they can generally only facilitate communication activities and there are no apparent activities to promote engagement and interaction (Roengtam, 2020).

Several researches are devoted to social media use in municipalities by age, education and income level, for example, municipalities with a higher presence of people at the age from 20 to 65 and municipalities with a higher presence of people with higher education use their social media more for interaction (Faber, et.al., 2020) and the lower the income level of the population, the more actively municipalities use social networks (Guillamon, et.al., 2016).

Several researches are devoted to social media use in municipalities during Covid-19 pandemic, where findings from Wuhan, China indicate that social media can provide a venue for the government to not only tackle the information overload, but also mitigate the friction among levels of government (Li, et.al., 2020). Findings from Portugal (Padeiro, et.al., 2021) show that there are factors which lead some municipalities to communicate more actively than other on social media, as well as financial autonomy of the municipality is the main predictor of e-disclosure. However, more effective disclosure can be reached by establishing communication strategies for public health crisis, making financial resources available for these strategies and reducing digital divide.

Methodology

To analyze views of municipalities in Latvia on different aspects of use of digital marketing it was conducted survey of municipalities representatives. The survey questionnaire was sent out and collected from April 20 to April 29. The questionnaire was created using survey tool *QuestionPro* and sent to 119 municipalities of Latvia on *Facebook* or to the e-mail if the municipality did not have a Facebook account. The results of the survey were analyzed using SPSS. For data analysis there were used indicators of descriptive statistics: indicators of central tendency or location (arithmetic mean, mode, median, quartiles), indicators of variability (variance, standard deviation, standard error of mean), cross – tabulations, statistical tests of hypotheses and analysis of variance (ANOVA).

A total of 87 responses by respondents included in the sample were received; demographic profile of the sample is shown in Table 1.

Table 1

Demographic profile of the sample of the survey

		N	Percent
Position	Public Relation specialist	49	57.0
	Editor	3	3.5
	Project Manager	3	3.5
	Head of Development	2	2.3
	Youth specialist	2	2.3
	Other	27	31.4
	Region	Rīga region	1
Pierīga region		16	55,2
Kurzeme district		14	70,0
Latgale district		14	66,7
Vidzeme district		19	73,1
Zemgale district		21	95,5
Education	Basic education or lower	0	0
	Secondary education	2	2
	Vocational education	3	3.5
	Bachelor's degree	45	52.3
	Master's degree	36	41.9
	Doctor	0	0

Source: author's calculations, based on survey "Social media use in municipalities" in 2021, n=87

Municipalities from all regions of Latvia participated in the survey, but most were from Zemgale and Vidzeme region, but the least from Pierīga and Latgale region.

Data analysis revealed that person in charge of social networks in 49 municipalities of Latvia is public relation specialist, in 3 municipalities they were editors and project managers, in 2 municipalities – head of development and youth specialists, but in 27 municipalities representatives of other position like customer service specialist, communication specialist, tourism manager, website administrator etc.

Most respondents of the survey were public relation specialists who worked in the municipalities also as social media administrators.

Majority of respondents – 81 person - have higher education, respectively, 45 of them bachelor's degree, but 36 – master's degree. Two respondents have secondary education, but 3 respondents – vocational education. Overall, responsive rate of the survey is very high as 72% of municipalities filled in the survey.

Research results and discussion

Table 2

Main statistical indicators of responses of municipal representatives on the use of information sources for municipal communication with the population in Latvia in 2021

Statistical indicators		E-mail	Website	Newspaper	Announcements at the poster board	Mobile apps	Radio	Social media	TV
N	Valid	86	86	86	86	86	86	86	86
	Missing	0	0	0	0	0	0	0	0
Mean		7,70	9,52	8,99	7,43	2,45	4,07	9,40	5,07
Std. Error of Mean		0,301	0,105	0,209	0,229	0,302	0,303	0,163	0,284
Median		9	10	10	8	1	3	10	5
Mode		10	10	10	10	1	1	10	1; 3: 5: 6: 7
Std. Deviation		2,808	0,975	1,950	2,133	2,815	2,828	1,521	2,654
Range		9	5	9	8	9	9	9	9
Minimum		1	5	1	2	1	1	1	1
Maximum		10	10	10	10	10	10	10	10

Source: author's construction based on survey "Social media use in municipalities" in 2021, n=87, evaluation scale 1- 10, where 1- used seldom; 10 – used very often

Evaluating information sources from 1 to 10 after using them to provide information to inhabitants about the municipality's activities and events, the highest average rating was for municipality's website, followed by social networks, which was also expected, as both sources are widely used and popular today. The legislation in Latvia stipulates that each municipality must have a website, but the use of social networks is not stipulated at all. The next most frequently used source of information for a municipality with inhabitants is a municipal or county newspaper. Although there is a lot of talks in Latvia about the decline and even disappearance of magazines and printed press in the future, at the municipal level this is one of the most effective sources of information, which is important for both the municipality and the population. E-mail and announcements at the poster board were in a similar position, but the least frequently used sources of information are television, radio and municipal mobile application, which was also expected, because, firstly, radio and television as an information channel are most often used to advertise large events and occur relatively infrequently for most of municipalities. But municipal mobile applications would probably also be a frequently used source of information if more mobile applications were available to municipalities. Currently, only a few municipalities (of 119) have such opportunity.

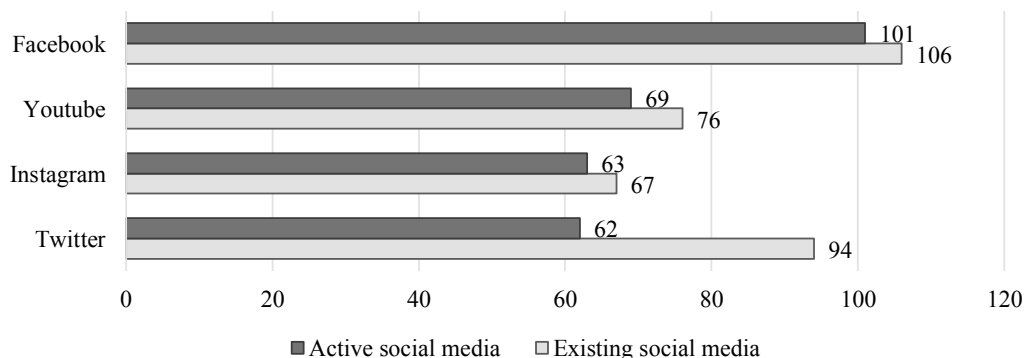
Table 3

Number of social networks used in municipalities in Latvia, 2021

Number of social networks used by municipalities	Number of municipalities
Do not use any social network	13
Use 1 social network	18
Use 2 social networks	24
Use 3 social networks	27
Use 4 social networks	37

Source: author's construction based on survey "Social media use in municipalities" in 2021, n=87, evaluation scale 1- 10, where 1- used seldom; 10 – used very often

The results of the research shows that there are 13 municipalities which do not use any social media at all - and one of the reasons revealed in the survey was that smaller municipalities do not have an employee who can take care of it. There are 18 municipalities which use one (1) social network and this network was Facebook. But what is more important – majority or 88 municipalities in Latvia use two or more social networks.



Source: author's construction based on survey "Social media use in municipalities" in 2021, n=87, evaluation scale 1- 10, where 1- used seldom; 10 – used very often

Fig. 1. Use of social media in municipalities in Latvia, 2021

According to data not all municipalities registered in social networks, actually keep them active. It became clear that 106 municipalities were found on the social network Facebook, but 5 of them do not carry out any activity. The biggest difference between active and inactive accounts were in case of Twitter use.

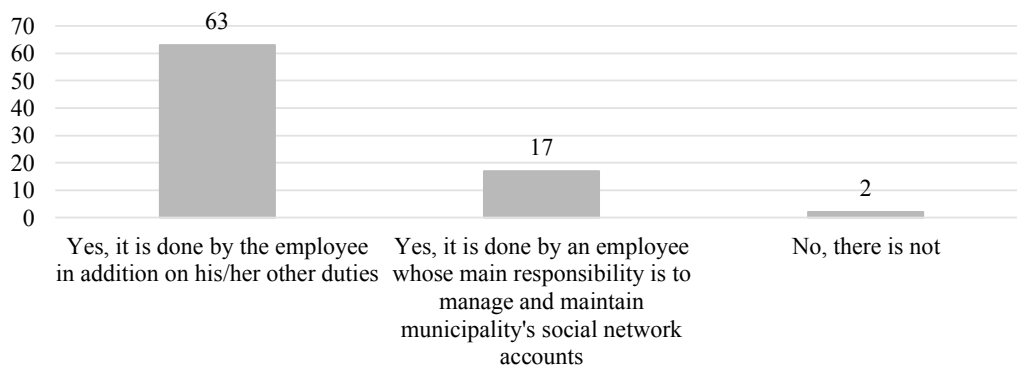
Table 4

Main statistical indicators on evaluations of differences in means of evaluations on factors influencing creation of accounts for social networks by importance of financial support needs

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Number of inhabitants in municipality	Between Groups	43,414	5	8,683	0,816	0,542
	Within Groups	862,310	81	10,646		
	Total	905,724	86			
Average income in municipality	Between Groups	40,324	5	8,065	1,130	0,351
	Within Groups	577,952	81	7,135		
	Total	618,276	86			
Digital skills of inhabitants	Between Groups	28,236	5	5,647	1,174	0,329
	Within Groups	389,764	81	4,812		
	Total	418,000	86			
Level of debts in municipalities	Between Groups	3,218	5	0,644	0,172	0,972
	Within Groups	303,012	81	3,741		
	Total	306,230	86			
Age of inhabitants	Between Groups	39,940	5	7,988	1,171	0,330
	Within Groups	552,336	81	6,819		
	Total	592,276	86			
Location of municipality	Between Groups	42,015	5	8,403	0,819	0,540
	Within Groups	830,882	81	10,258		
	Total	872,897	86			

Source: author's calculation based on survey "Social media use in municipalities" in 2021, n=87, evaluation scale 1- 10, where 1- is not influenced; 10 – has big influence

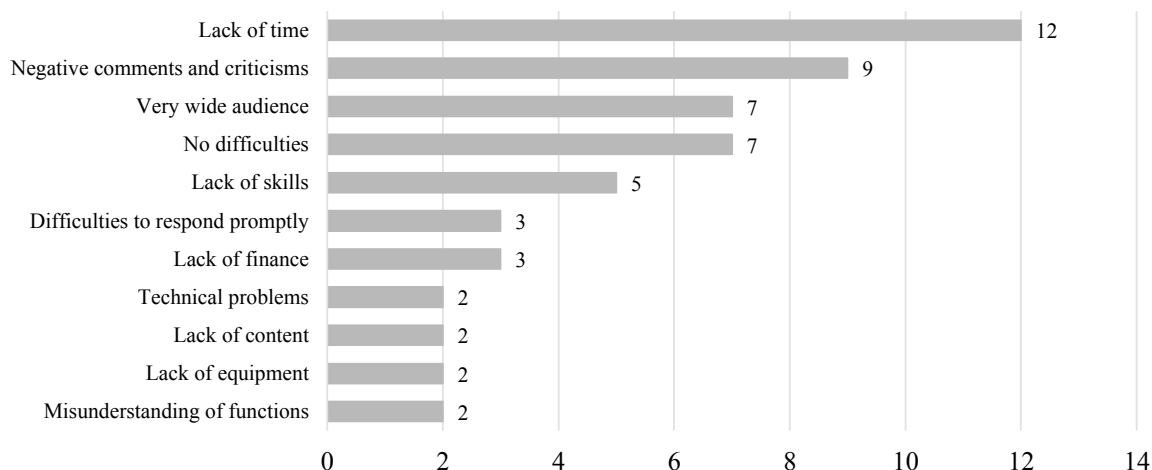
Analysis of ANOVA indicates that there are no statistically significant differences in arithmetic means of the evaluations by needs of financial support for inhabitants by municipality representatives.



Source: author's construction based on survey "Social media use in municipalities" in 2021, n=87, evaluation scale 1- 10, where 1- used seldom; 10 – used very often

Fig. 2. Does your municipality have an employee who is responsible for maintaining social network accounts of municipality?

According to survey important problem revealed - there is no social media specialist in municipalities in Latvia. Public relation specialists of municipalities are responsible for social media. For 63 municipalities social media duties are additional duties, while for 17 municipalities these were the main duties, but for 2 municipalities there were no such employee. Difficulties encountered in municipalities are showed in figure 3.



Source: author's construction based on survey "Social media use in municipalities" in 2021, n=87, evaluation scale 1- 10, where 1- used seldom; 10

Fig. 3. What difficulties has your municipality encountered in creating and maintaining social network accounts?

Majority of municipalities face several difficulties encountered in creating and maintaining social network accounts. For 12 municipalities the biggest difficulty is lack of time. This comes together with the fact explained previously – that public relation specialist is responsible for social network accounts while doing public relation activities. 9 municipalities has difficulties to cope with negative comments and criticisms. While 7 municipalities point out difficulties to cover all of the audience which is very wide. Also 7 municipalities do not face any difficulties. But other types of difficulties are lack of skills, lack of finance, lack of equipment, also lack of content due to covid, as well as technical problems and misunderstanding of functions.

Conclusions, proposals, recommendations

1. Information of inhabitants in municipalities on different aspects of life in municipality is becoming more and more important with development of different possibilities by providing information: webpages, social networks, as well as keeping traditional way of information – newspapers of municipality
2. Different countries have their traditional ways of communication with inhabitants but information technologies take more and more important role in information in municipalities
3. Municipalities which have not devoted attention to importance in providing of information on social networks have to change their traditions and pay more attention on information availability of different municipality aspects in social networks
4. There are important challenges in terms of social network administration as lack of employees and lack of appropriate skills in Latvia
5. However, it is not easy in Latvia, because there is a lack of employees in smaller municipalities. One of the proposals is for The Ministry of Environmental Protection and Regional Development to determine the position and qualification of a new employee in local governments - a social network specialist, in order to facilitate the daily life of public relations specialists and improve the activity of local governments in social networks, as well as social network content. As well it is necessary to establish a regulation on the use of social networks in local governments in the same way as for websites in order to reduce regional differences and introduce equal rules for all municipalities, regardless of their size or popularity.

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THE SENTIMENT OF THE INHABITANTS, THE SUBJECTIVE ESTIMATION OF THE PRESENT AND THE FUTURE AND THE ACTIVITY OF THE REAL ESTATE MARKET IN LATVIA

Andris Litins, University of Latvia
Silvija Kristapsons, University of Latvia

Abstract. The activity of the real estate market is influenced by many various factors, that are divided in big groups: economic, legal, political, social and environmental factors. Strong economic development creates consumers' positive sentiment and spendings. Changes in the economic situation in the state, also change the habits and spending of inhabitants. During economic crisis the inhabitants may experience concern about future that in its turn influence habits of financial spendings of an individual. When there is a growing uncertainty and anxiety about the future developments the inhabitants might save money instead of spending it. It can also be the opposite: being afraid about the loss of the value of the saved money, individuals could decide to invest it in stable values (for example property). Thus, the development of the real estate market can be linked with expectations and sentiments of the inhabitants about the future developments.

The aim of the article is to estimate mutual correlations of sentiment of the inhabitants and the real estate market development in Latvia during the period of 2009 -2019. In addition, the aim is also to carry out the analysis of the regression and obtain econometric models basing on which a prognosis of the real estate market development according to the sentiments of the inhabitants could be worked out.

The descriptive and inferential statistical analysis methods were used in the research. The basic information sources used were the scientific literature, the databases of the SKDS Latvia Barometer and of the Latvia state computerized Land Register.

It has been stated in the research that the correlation of the indexes of the Latvia Barometer and the number of transactions registered in the Latvia Land Register is statistically significant. The obtained results show that Latvia inhabitants' subjective estimation of the economic situation during the last decade has been closely related to the real estate market and it has been a significant influential factor. The regression model of the period under research testifies that the growth of the inhabitants' estimation of the Latvia economic situation per 1 point has increased the number of predicted transactions in real estate market average 30 deals per month.

The obtained results have pointed to the directions and questions for further potential research.

Key words: *inhabitants, sentiments, real estate market.*

JEL code: D10, I31, R21, R31

Introduction

The activity of the real estate market is influenced by many several factors, that in the majority of cases are divided in four big groups: economic, legal, political, social and environmental (Geipele, 2014). The existence of many factors illustrates the complexity of the real estate market and, vice versa, the peculiarities of the development of the real estate market makes one think about still other factors. The purchase of an immovable property is an individual's serious decision and the price of the property is decisive for the individual to make a decision. Most often the research is dealing with the survey of the influence of the economic factors on the real estate market when defining the essential factors and developing econometric models basically accentuating economic and socioeconomic factors. In Sweden, e.g., the influencing factors of the price of the immovable property are: the number of inhabitants, the amount of their income, the mortgage interest rate and the common size of the residential fund. At the same time, in Germany the influence of the inhabitants' income is smaller while a greater role belongs to the growth of the building amount (Engerstam, 2021). In its turn, in another research in China in 2017 a conclusion is made that a significant positive influence on the prices of residences belongs to the inhabitants' income, the prices of the land, the building expenses, but an interest rate has a negative influence that becomes more expressed when the prices of dwellings are growing (Staikos, 2019).

On the one hand, when the inhabitants' income is growing so are also the prices of dwellings that possibly make one postpone the decision to obtain the immovable property for some time. During the worsening of the economic situation the inhabitants' conviction about their life stability also change, there appears concern about future that further influence the inhabitants' financial habits. This change is determined by the inhabitants' expectations and sentiments about the future developments.

Likewise other countries, in Latvia research of the inhabitants' opinions and sentiments about the processes taking place in Latvia is being carried out. The Latvia Barometer is the research about the inhabitants' sentiments, opinions and attitudes to various social, economic a.o. issues that has been monthly carried out.

In each of the opinion polls a body of indicator questions is included that point to general changes in the general sentiment of the society. The data are obtained in the SKDS opinion poll in which permanent inhabitants express their viewpoints about changes in their sentiments and which was carried applying direct interviews in their living places (Latvijas Barometrs, 2008 – 2020).

The aim of the article is to evaluate mutual correlations of the inhabitants' sensations and the activity of the living fund market in Latvia in the period between 2009 – 2019, basing on the data of the Latvia Barometer and the official statistics. The aim was also to carry out the analysis of the regression and get the econometric models basing on which the activity of the real estate market could be prognosticated.

To achieve the aims the following tasks were set: 1) to carry out the analysis of the scientific literature, 2) to assess the indicators of the Latvia Barometer and the activity of the real estate market, to estimate the coherence between them.

The descriptive and inferential statistical analysis methods were applied in the research. The basic information sources were the data of the Latvia Barometer and The Latvia unified Land Register database.

Theoretical Aspects

Economic developments are cyclic and there are certain interconnections between the economic cycles and the development of real estate market because the changes of the real estate market also are cyclic revealing the totality of the situation of the economic development (Geipele&Kauskale, 2013).

When the economic situation changes, so change also the inhabitants' sentiments and expectations of the future developments, that accordingly influence the habits and spendings of consumers.

Consumer spending usually follows the scenario of the development of the economic cycles. During the economic decline when unemployment is growing and personal income decreases, personal spendings diminish as well. Just the opposite situation is observed during the cycle of the economic ascent – unemployment decreases, personal income is growing and accordingly consumer spending is increasing (Congressional Research Service, 2020).

Strong economic development influences the consumers' sentiment and spending. The consumer confidence due to the economic situation can increase purchase of durable goods (goods that can be used for a longer period of time) such as, e.g., means of transport, immovable property, a.o. Spendings on durable goods are more characteristic for their cycliness in comparison with the goods for quick

consumption (goods for single consumption, or goods that are anticipated for a short-time use). Therefore the consumption of durable goods should decrease comparatively more during the recession period because the individuals have an opportunity to postpone big purchases till the economic situation improves or the need becomes urgent and pressing. (Congressional Research Service, 2020).

Alongside with the several groups of factors influencing the real estate market, mentioned in literature, Dzikevičius A., Kazlauskas L. in their research point to the consumers' behaviour and psychological factors that influence activities of the real estate market. For example, the behaviour of the multitude that appears when consumers observe the surrounding behaviour and active purchase of properties, thus the consumers experience inclination to follow the tendencies and conclude deals similar to those of the surrounding people (Dzikevičius & Kazlauskas, 2015).

Another essential factor that influences the consumers' behaviour and consequently also deals in the real estate market, is the consumers' sentiment - concern or just the opposite, positive feelings about economic developments in the future. Positive expectations – consumers can believe that the favourable economic situation will never end and such “euphoria” decreases fear from financial risks. Also concerns that the growth of prices in future might threaten the opportunities to buy a property can promote a situation when individuals hurry to purchase a property before the growth of price (Dzikevičius & Kazlauskas, 2015). The authors believe that this scenario was clearly observed in Latvia in 2006-2007. In its turn, at the present moment in Latvia the existing activity in the real estate market is more linked just with the individuals' concern about the economic situation in the future and predictable indicators of high inflation. Accordingly, the purchase of an immovable property could serve as safe accumulation of savings that can make regular income for the owner (e.g., rent or hire), at the same time it is subjected to a smaller risk for the loss of value in comparison with the money savings.

The study also emphasizes the impact of market participants mood and behavior on the real estate market. Because as it is known, in 2008 the global financial crisis took place, which affected the economies of all countries of the world, including Latvia. It is stated, that the formation of the real estate bubble was one of the main factors that led to the financial crisis. And irrational consumer expectations are mentioned as one of the main drivers of a price bubble. (Dzikevičius & Kazlauskas, 2015).

During the last years the growth and the decrease of the real estate market have been followed by essential psychological elements and therefore these market and price changes cannot be fully explained only basing on economic factors. It points to the phenomenon that the prices of properties reflect the consumers' readiness to pay. Accordingly, it would not be correct to conclude that the market is directed only by economic factors, but also the consumer sentiment must be taken into consideration as the indicators of these sentiments are aimed at the estimation and revealing the peoples' sentiment and expectancies about the market (Dietzel, 2016).

There is a number of various indicators that characterize the economic development of an enterprise, a state or another sector. A big part of them describe the actual development, e.g., gross domestic product, industrial output, index of consumer prices a.o. These indexes are essential for the developers of the economic policy, inhabitants and entrepreneurs in order to estimate the condition of the development of the national economics. Yet, the economic theories include also the element of expectancies – the development of the national economics in future to a great extent depends on its participants' - households' and enterprises' opinions about future opportunities or the evaluation of the past events. Alongside with it, certain popularity is gained by the data of various opinion polls, that are obtained by making interviews on the past or future conditions in some branch or the national economic situation in general. The answers are turned into indexes to simplify the perception and make their usage applicable for as great as possible number of users (Kasjanovs, 2011).

In the world in order to define the sentiments of inhabitants the consumer confidence index is applied (CCI). This index offers a notion about tendencies how households are making consumptions and savings, and it is based on the inhabitants' answers about the expected financial situation, sentiments about the general economic situation and its development, unemployment and ability to make savings. E.g., if the indicator of the development of the economic situation is favourable, consumers are less inclined to make savings and tend to spend money on bigger purchases in the coming year. At the same time, if the value of the indicator shows a pessimistic attitude to further processes in economics, it is likely to point to a tendency to save more and spend less (OECD).

Changes in housing sentiments can give information about the main forces of the prices of dwellings, that at the same time can help define changes in the psychology of buyers and sellers, revealing the aspects that influence the individual's behaviour, and that in its turn will influence the change of prices in the real estate market. Psychological economics has shown that the behaviour of the participants in economics is influenced by their attitude, perception and expectancies that appear in the evaluation of the index of the individual's housing sentiment, that in its turn can explain the fluctuation of prices of dwellings and improve the forecasts for future if compared to the models at the basis of which only fundamental indicators are applied not considering the essence of psychological factors (Christophe & Gabauer, 2021).

In the research carried out in the USA when analyzing the data of the consumers' interviews it has been stated that the viewpoints of consumers are significant for the dynamics of the USA real estate market. The research data testify also that when carrying out the analysis of the market development, the indicators of inclusion of the housing sentiment and other sentiments allow to be more precise when predicting changes in the amount of transactions in the trade of dwellings (Christophe & Gabauer, 2021).

COVID 19 pandemics has essential influence on the developments of all countries in the world. The pandemics has created a crisis that will tamper the consequences in all branches of economics including the real estate market. During the period of the pandemic restrictions dwellings for the majority of people become spaces that are meant for living, for work and also for spending free time. Therefore dwellings were adequately reorganized and rearranged so that the major part of the day could be spent at home. That in its turn influenced the real estate market. Due to Covid-19 a considerable decline of the real estate market can be observed (De Toro & Nocca, 2021). The research in which various future scenarios are analyzed, the fall of prices in the real estate market is predicted as a result of the decrease of income of the households. The fall depends on the stimuli introduced by the government to fight the consequences. Alongside with it the expressed uncertainty characteristic for the period is an essential reason to hold back the individuals from buying dwellings or other big purchases (De Toro & Nocca, 2021).

The available statistical data for 2020-2021 are not yet complete and the lines of the dynamics are too short, therefore in this article the influence of Covid-19 is not investigated.

Methodology

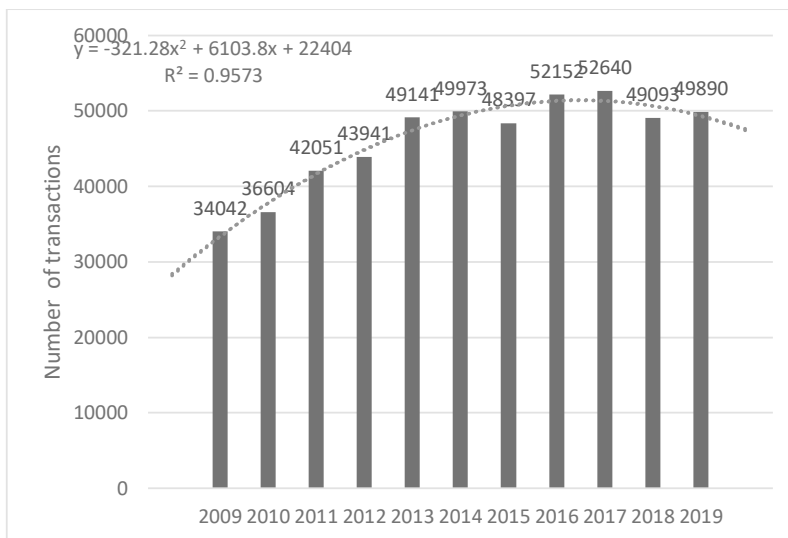
Within the framework of the research the data of Latvia unified datorized Land Register data base and the data of the research centre SKDS Latvia Barometer are used. These sources contain results of the research of the inhabitants' monthly sentiments, opinions and attitudes to various social, economic and other issues. In each of the opinion polls the society of permanent inhabitants is asked a complex of indicator questions that point to the changes in general sentiments. Direct interviews are carried out in the inhabitants' living places.

With the method of stratified accidental selection not less than 1000 respondents at the age of 18-75 in all Latvia are monthly included in the opinion poll. The selection is representative in relation to the general totality. The statistical error of the total number of the divisions of answers does not exceed the limits $\pm 3\%$ (SKDS).

In order to define which indicators in the Barometer as the inhabitants’ subjective estimations are connected with the number of transactions with the immovable property a correlation analysis was carried out within the framework of the research. In its turn, to get the answer which indexes of the inhabitants’ sentiments and to what extent they influence the activity of the real estate market a regression analysis was made.

Research results and discussion

As a characterizing indicator of the activities of the real estate market in Latvia the number of immovable properties fixed in the Latvia Land Register was chosen (Figure 1).



Source: author’s construction based on: Latvia Land Register database

Fig. 1. The number of transactions registered in Latvia Land Register 2009-2019

Although within the framework of this research the data for the period from 2009 to 2020 is used, in the authors opinion, the pre-crisis period (years 2006-2007) must also be mentioned, because during this period, the real estate market bubble was formed, which was one of the main causes of the financial crisis. During the real estate bubble formation, there is an increase in real estate prices, as well as an increase in the number of transactions. The authors explain this by that aspect that individuals are affected by psychological factors and seeing the real estate prices increasing, the individual feels the need to buy the property as soon as possible, out of fear that the prices will rise even more.

The authors also believe that the financial crisis in 2007-2008 certainly had a major impact on a consumer and real estate market behavior. It is possible that consumer sentiment is now more affected by past events and past experiences, so individuals are more cautious about activity in the real estate market, especially during the Covid-19 pandemic.

The current activity in the real estate market in Latvia is more related to individuals’ concerns about the future economic situation, as there are concerns that a similar scenario could reoccur. Those who bought the real estate at a high price during the pre-crisis period, lost a very large part of its value in the post-crisis period.

During the years of economic crisis 2009-2010, a significant fall in the transactions with immovable properties was observed, from 42,8 thousand a year in 2008. The branch was recovering only in 2011-2012, in the coming years reaching 49 - 52 thousands of transactions each year. During the last decade the highest activity in the real estate market was in 2016-2017. The authors connect it not only with economic cycles but also express a hypothesis that a deficit had formed in the living fund of the real estate. It is linked with the fact that after 2008 crisis a great number of immovable property development enterprises had gone bankrupt, i.e., enterprises that have started but not finished constructions (e.g., a constructed frame of a multiflat house). Banks in the secondary market sold them for comparatively low prices. Nearing 2018 all aftercrisis overproduction was realized. A development project of the immovable property that is being made from “zero” cannot offer dwellings for lower prices that does not correspond to the principles of price making, and the dwellings offered in the market are becoming more expensive in comparison to the amount of selling.

As a result of the SKDS Latvia Barometer inquiries 8 indexes are obtained (see Table 1), that in essence is a subjective estimation of the state economic situation, the work of the government, the material state of families and job opportunities. The period of analysis is from January 2009 to December 2019, i.e., full eleven years or 132 months, excluding the data of 2020 that refer already to the pandemic period.

When carrying out the analysis of correlation the following correlation coefficients were obtained (Table 1).

Table 1

The correlation coefficients of the Latvia Barometer indicators and the registered number of transactions in the Land Register

Indicators n=132 (2009 -2019)	Numbers of transactions Spearmen Correlation
N1. The index of estimation of the total situation development direction	,589**
N2. The index of estimation of the government work	,510**
N3. The index of the present economic situation	,643**
N4. The index of the change direction in Latvia economic situation	,387**
N5. The index of the prognosis of Latvia economic situation development	,313**
N6. The index of estimation of the present material situation of families	,655**
N7. The index of the prognosis of the development of the material situation of families	,558**
N8. The index of estimation of employment opportunities	,682**
The index of estimations of the present (N1, N2, N3, N4, N6, N8)	,594**
The index of estimations of the future (N5 un N7)	,406**
The index of the total sentiment (all indicators)	,573**

**Correlation is significant at the 0.01 level (2-tailed).

According to the data obtained, the correlation of the indexes of the Latvia Barometer and the number of registered transactions in the Land Register is statistically significant. The closest coherence is seen in the estimation of the employment opportunities that is followed by the index of the estimation of the present material situation of the families and the index of the present economic situation in Latvia. As essentially the indexes calculated by the Latvia Barometer should be separated as estimations of the present and the future, the mutual correlation ($r=0,594$) of the index of the present and the number of transactions registered in the Land Register is closer in comparison with the index of the future ($r=0,406$).

The index of the direction of changes of Latvia economic situation ($r=0,387$) and the index of the prognosis of Latvia economic situation development ($r=0,313$) show lower correlation coefficients.

As there is a very close mutual correlation of N3 and N6 ($r=0,935$) and also N3 and N8 ($0,955$) then in the regression model the variables N6 and N8 should not be included because N3 – the economic situation of Latvia – determine estimation of the two variables, i.e., the better is the economic situation in the country, the better is the material situation of families and also better employment opportunities (Table 2). Because of the same reason N1 and N2 are also not included in the regression model.

Table 2

The correlation of the index (N3) of the present economic situation in Latvia with the rest of the Latvia Barometer indexes

Indicators	N3. The index of the present economic situation in Latvia
N1. The index of estimation of the direction of the development of the total situation	,890**
N2. The index of estimation of the work of the government	,770**
N4. The index of the change direction in Latvia economic situation	,550**
N5. The index of the prognosis of the development of Latvia economic situation	,522**
N6. The index of the present estimation of the material situation of families	,935**
N7. The index of prognosis of the development of the material situation of families	,854**
N8. The index of estimation of employment opportunities	,955**
The index of the estimation of the present (N1, N2, N3, N4, N6, N8)	,970**
The index of the estimation of the future (N5 un N7)	,692**
The index of the total sentiment (all indexes)	,960**

** Correlation is significant at the 0.01 level (2-tailed).

Essentially the estimation of the economic situation of the state is the determining factor of the rest of the factors. Including variables N3, N4, N5 and N7 in the analysis of the regression (Linear regression, Stepwise) the statistically recognized model is with Predictors N3 - the index of Latvia economics present situation (Table 3).

Table 3

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,786 ^a	,619	,616	387,434	1,559

a. Predictors: (Constant), N3. The index of Latvia economics present situation

b. Dependent Variable: Numbers of transactions

When evaluating the Model Summary a conclusion can be made that the estimation of the present situation in Latvia economics explain the amount 61,6% of the transactions with the immovable property. Accordingly, the value of Durbin-Watson coefficient ($DW > 1,5$) show that multi-correlation in fact does not exist. The regression model is statistically significant (Table 4).

Table 4

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31645691,079	1	31645691,079	210,824	,000 ^b
	Residual	19513621,830	130	150104,783		
	Total	51159312,909	131			

a. Dependent Variable: Numbers of transactions
 b. Predictors: (Constant), N3. The index of Latvia present economic situation

Model 1 Tolerance = 1, VIF = 10, are indicators that correspond to the demands of the linear regression (Table 5) un it means that the model is practically applicable.

Table 5

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	5016,798	87,281		57,479	,000		
	N3. The index of the present Latvia economic situation	29,646	2,042	,786	14,520	,000	1,000	1,000

a. Dependent Variable: Numbers of transactions

The obtained data show that the inhabitants’ subjective estimation of Lavia economic situation during the last decade has been closely linked with the real estate market and it has been an essential influencing factor. During the period of research 2009 – 2019 with the economics developing and the inhabitants feeling the development for 1 point in the regression model of the estimation of Latvia economic situation there is an increase of the prognosed transactions with the immovable property for about 30 deals monthly.

Including the Latvia Barometer indexes as the indexes of the present (N1, N2, N3, N4, N6, N8) and the indexes of the future (N5 and N7), one model has been obtained that contains the index of the present (Table 6).

Table 6

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31468186,660	1	31468186,660	167,833	,000 ^b
	Residual	26624599,500	142	187497,180		
	Total	58092786,160	143			

a. Dependent Variable: Numbers of transactions
 b. Predictors: (Constant), the index of the estimation of the present (N1, N2, N3, N4, N6, N8)

The model explains the number of transactions with the immovable property 53,8% (Table 7).

Table 7

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,736 ^a	,542	,538	433,009	1,440

a. Predictors: (Constant), The index of the estimations of the present (N1, N2, N3, N4, N6, N8)
 b. Dependent Variable: Numbers of transactions

The index of the subjective situation of the present situation rising per 1 point the number of transactions registered in the Land Register increases per 34 deals a month at an average. (Table 8).

Table 8

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	5022,516	95,266		52,721	,000		
	The index of the estimations of the present (N1, N2, N3, N4, N6, N8)	34,429	2,658	,736	12,955	,000	1,000	1,000

a. Dependent Variable: Numbers of transactions

The obtained results allow to conclude that the activities and the development of the real estate market are determined by the state economic situation at the moment. It is the basis for the inhabitants to get involved in this market at the same time there existing a positive estimation of the direction of the total development of the situation, the work of the government, the change direction of the economic situation, the present material situation of families, employment perspectives.

The consequences of 2020-2021 Covid-19 pandemics in the branches important for the people to some extent could change the conclusions. The line of the dynamics continuing for some more years, the calculations could be actualized in order to verify the possible consequences of Covid-19 pandemics.

Conclusions, proposals, recommendations

1. The results of the research allow to make conclusions that there exist interconnections between developments of economics and the real estate market, as the real estate market changes cyclically reflecting the situation of the development of economics in general. When the economic situation changes so does the inhabitants' sentiment and expectations of the future development, that in its turn influence habits and consumption of consumers.
2. Thus, the consumers' sentiments and expectations about the future can influence consumer spending habits. Consumer spending usually follows the scenarios of the development of economic cycles. During the decline in economics when unemployment is growing and personal income decreases, so does the consumer spending. The opposite situation is during the cycle of increase – unemployment is diminishing, personal income is increasing and, alongside with it, the consumer spending is growing.
3. Strong economic development positively influences the consumers' sentiment and accordingly spending. The consumer confidence due to economic circumstances can increase purchases of durable goods.
4. The analysis of the correlation shows that the indexes of the Latvia Barometer statistically significantly correlate with the number of transactions registered in the Land Register. The closest coherence is seen in the index of employment opportunities, the index of the present material situation of families and the index of the present situation of Latvia economics. Yet, the first two indexes are dependent variables the determining factor of which is the present Latvia economic situation. Accordingly, in the regression model the index of the present economic situation of the state was chosen as the independent variable.
5. The results of the analysis of the regression show that the inhabitants' subjective estimation of Latvia economic situation during the last decade has been closely linked with the real estate market and it has been an essentially influencing factor.
6. During the research period 2009-2019 with the economics growing and inhabitants feeling it, in the regression model the estimation of this moment Latvia economic situation rises per 1 point, and it increased the predicted number of transactions for about 30 transactions monthly.
7. Activities and development of the real estate market are determined by the state inhabitants' subjective perception of the economic situation, which is the basis for the inhabitants to get involved in the market, at the same time there existing a positive estimation of the direction of the development of the general situation, of the work of the government, of the change direction in the economic situation, of the material situation of families and the employment opportunities at the moment.
8. As the years 2020 -2021 in global economics and also in Latvia economics are connected with Covid-19 pandemics then in the future research it will be necessary to investigate the COVID period activity of the real estate market and the individuals' sentiment that will possibly show another correlation direction, i.e., the index of the inhabitants' sentiment lowering the real estate market activity could increase.

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THE IMPACT OF THE CAPITAL STRUCTURE ON THE PERFORMANCE OF DEPOSITING CORPORATIONS: AN ECONOMETRIC ANALYSIS OF THE BANKING SYSTEM IN KOSOVO

Fisnik Morina, Haxhi Zeka University
Vlora Berisha, Haxhi Zeka University
Argjend Shabanaj, Haxhi Zeka University

Abstract. The main purpose of this study is to identify the impact of capital structure on the performance of depository corporations (commercial banks) in Kosovo. Another purpose of this study is to analyze the effect of asset management and liabilities of commercial banks on the financial performance of depository corporations, and the final purpose of this study is to highlight the conclusions and recommendations in order to serve as a reference base for future studies to be conducted in the field of corporate finance and financial institutions.

The sample of this study analyzed all commercial banks in Kosovo that are licensed by the Central Bank of Kosovo, and this study covers a period of 20 years (2000 - 2020). The components of share capital that will be considered in this study are: funds contributed by owners, retained earnings, general and special reserves, grants from donors, assets and liabilities of commercial banks. The data used in this research are secondary, and these will be taken from the reports of the Central Bank of Kosovo, the World Bank, the International Monetary Fund, the OECD, the Kosovo Agency of Statistics, the Ministry of Finance, amongst others.

Based on the econometric results of this study, we can conclude that funds contributed by owners, retained earnings, total and special reserves, grants from donors and asset and liability management have a significant impact on the financial performance of depository corporations in the banking system in Kosovo.

Keywords: *financial performance, capital structure, depository corporations, profitability.*

JEL code: G20, G21, G31, G32, G38

Introduction

The capital structure refers to the sources of financing used by the depository corporation. These resources include the debt, equity, and securities that a corporation uses to finance its assets, operations, and future growth (Baker & Martin, 2011). Capital structure decisions are strategic decisions governed and determined by the senior management of a commercial bank. Theories on capital structure and new models closely identify the economic costs and benefits associated with the decision but fail to include the role of the decision-maker in the decision-making process (Agarwal, 2013). The most important objectives in the process of managing the capital of depository corporations are: establishing the optimal capital structure for a depository corporation for the short and long term, ensuring financing so that funds are always available to finance the growth and development of the corporation, minimizing the cost of capital, ensuring that money will be available to meet debt repayment obligations, and that refinancing will be available if required, monitoring interest rate risk exposures and, where appropriate, obtaining of measures to protect the risk (Coyle, 2000).

Decisions on capital structure are among the most crucial decisions for any business because of their effect on company performance. This research paper focuses on investigating how capital structure decisions affect depository corporations in the banking sector in Kosovo. Kosovo's banking sector is currently an essential contributor to financing the real economy and enjoys good financial health based on all relevant indicators. The banking sector continues to have a high level of capitalization, with capital adequacy ratios at around 18.4%, which is significantly higher than the required regulatory minimum of 12%. The research questions of this study are:

1. *How have the funds contributed by the owners affected the financial performance of depository corporations in Kosovo?*
2. *What effect do retained earnings have on the financial performance of depository corporate companies in Kosovo?*
3. *What is the impact of total and specific reserves on the profit/loss of depository corporations in Kosovo?*
4. *What impact do donor grants have on the profitability of depository corporations in Kosovo?*
5. *What effect does asset and liability management have on the financial performance of depository corporations in Kosovo?*

Bank capital is the link between the financial markets and the bank's profitability. Linking banking operations to financial markets shows how well banks are functioning. A capital shortage of a bank indicates that it needs to change, among other things, its operating policies. Financial markets constantly evaluate the relationship between profits, assets and capital. Return on equity (ROE) measures the net income of a depository corporation shared with its shareholders' equity. Low-profit banks are considered inefficient and may find it challenging to raise capital.

On the other hand, the bank's capital provides a basis against temporary losses and signals that the bank has a basis of continuity and that its constituents have reason to see banks' difficulties in the long run. Therefore, the correlation between the capital structure and risk-taking directly impacts the solvency of individual banks and the health of the banking industry in general. The relationship between the capital ratio and risk levels should be such that increases in business risk are offset by reductions in financial risk and vice versa, thus restoring the probability of bank failure to an acceptable level. So, this study is intended to explain what impact the capital structure has on the profitability of commercial banks in Kosovo.

Based on the studies of various authors like Birru (2016), Nguyen & Nguyen (2020), Serwadd (2019), Saeed et al. (2013), Susan & Nasieku (2016), Nwude & Anyalechi (2018), Anarfo (2015), Doku et al. (2019), who have been analyzing the impact of capital structure on the financial performance of commercial banks in different countries of the world, it was noted that different variables of the capital structure (including total debt to total assets, debt to equity, loans to deposits, size of a bank) have a positive, negative and insignificant impact on the financial performance (ROA, ROE) of commercial banks.

Literature Review

A large number of studies have analyzed the impact of capital structure on the performance of commercial banks in different parts of the world. Based on the findings of studies by various authors, we have compiled a review of the existing literature on the capital structure and its impact on the financial performance of commercial banks.

Summary of extant literature

Author	Year	Variables	Methods	Findings
(Birru, 2016)	2011-2015	ROA, ROE, Debt Ratio, Debt to Equity Ratio, Loan to Deposit Ratio, Firm's Size, Tangibility of Asset	Fixed Effect –Panel Regression, Breusch-Pagan Lagrangian Multiplier Test for Random Effects	The study findings show that Debt Ratio, Debt to Equity Ratio, Firm Size and Tangibility of Asset are statistically significant factors that affect the financial performance of commercial banks in Ethiopia measured by return on assets and return on equity at a significant level of 1%, 5% and 10% and Loan to Deposit Ratio is statistically insignificant.
(Saeed et al., 2013)	2007-2011	Long Term to Debt of Capital (LTDC), Short Term to Debt of Capital (STDC), Total Debt to Capital (TDC), ROA, ROE, Earnings per Share, Firm Size, Asset Growth	Multiple Regression Models	The study's findings confirmed a strong positive dependence of short-term debt on equity for all indicators of financial performance (ROA, ROE and EPS). Long-term debt to equity has a negative correlation with return on assets (ROA), return on equity (ROE) and earnings per share (EPS). Total debt to equity and firm size (SIZE) have a strong correlation with all dependent variables of financial performance. (ROA, ROE and EPS). Asset growth has a negligible negative impact on return on assets and return on equity, while a significant negative impact on profitability measured by earnings per share.
(Serwadda, 2019)	2006-2015	ROA, ROE, Cost to Income Ratio, Net Interest Margin, Bank Size, Tangibility of Assets, Short-term Debt, Long-term Debt, Total Debt	Unit Root Test, Correlation Matrix, Regression Model, Hausman Specification Test	The findings show that all variables of capital structure have a significant effect on the performance of banks. For example, long-term debt and total debt have a significant positive effect on the performance of commercial banks.
(Nguyen & Nguyen, 2020)	2013-2018	Ratio of long-term debt to total assets, ratio of total debt to total assets, ratio of short-term debt to total assets, ROA, ROE, EPS	GLS Regression	Empirical results from GLS regression show that increasing the debt ratio has a negative effect on the financial performance of two types of enterprises, state-owned and non-state-owned. However, the impact of capital structure on financial performance is stronger in state-owned enterprises.
(Susan & Nasieku, 2016)	2010-2014	Return on Assets, Core capital, Subordinate capital, Risk-weighted capital	Correlation Analysis, Regression Analysis	The study concludes that the level of core capital is positively related to the financial performance of commercial banks.
(Nwude & Anyalechi, 2018)	2000-2013	Return on asset, return on equity, debt finance, equity finance, debt-equity ratio.	Hausman Test	The study reveals that debt financing negatively and significantly affects the return on assets of commercial banks in Nigeria. On the other hand, equity financing has a positive and not significant impact on the return on assets, while the debt-equity ratio has a negative and not significant impact on the return on assets.
(Doku et al., 2019)	2000-2014	ROA, Firm Size, Credit Risk, Deposit Ratio, Ratio of Non-Interest Earning Assets to Total Assets, Management Efficiency, Capital to Assets Ratio	Regression Analysis	The results show that the capital ratio to the bank's assets is a strong and positive driver of commercial bank performance (profitability). Furthermore, an increase in the ratio of capital to bank assets is statistically and significantly correlated with the increase in bank profitability.
(Yakubu et al., 2019)	2010-2015	Return on Equity (ROE), Ratio of Short-term Debt to Total Capital (STDC), Ratio of Long-term Debt to Total Capital (LTDC), Ratio of Total Debt to Total Capital (TDC), Bank Size (SIZE), Liquidity (LIQ)	Regression Analysis	Empirical results confirmed that short-term and long-term debt have a statistically significant negative correlation with the bank's performance. Total debt has a positive and statistically significant correlation with the bank's performance.
(Anarfo, 2015)	2000-2006	Debt Ratio (DR), Firm Size, Asset Tangibility,	Fixed and Random Effect Models	The results show that the capital structure of banks in Africa is statistically insignificant. This means that the capital

		Profitability, Growth, Taxation		structure does not affect the performance of banks, i.e. the performance of banks does not depend on their capital structure, but it is the capital structure that depends on the performance of banks based on the previous analysis of determinants of capital structure.
(Gohar & Rehman, 2016)	2009-2013	Spread Ratio, Return on Assets, Earnings per Share, Total Debt to Total Equity, Long-term Debt to Total Equity, Short-term to Total Equity	Regression Analysis	The capital structure is negatively related to the performance of banks in Pakistan. All zero hypotheses are not accepted at the significance level of 0.01. Therefore, all evaluators are significantly related to performance.

Source: Meta-analysis processed by the authors (2021)

From the review of the existing literature, we can conclude that in most studies, the decisions of the capital structure have a positive impact on the financial performance of commercial banks in different countries of the world. This review of the scientific literature will significantly help researchers evaluate their research work in a better form. Especially in corporate finance, the impact of capital structure is opposite to financial performance in the financial and non-financial sectors. With the help of this meta-analysis, investors can analyze changes in banks' stock prices due to changes in the capital structure. There are many other performance indicators of the banking sector that can be used in future studies, and the sample size may be increased to increase the reliability of the results in the future.

Scientific research methodology and specification of the econometric model

The primary purpose of this study is to analyze how share capital structure decisions affect the performance of depository corporations (commercial banks) in Kosovo. The main tasks of this study are: the collection and analysis of contemporary literature of recent years related to capital structure and financial performance, the application of advanced statistical methods through panel data, and the extraction of econometric results, which will enable the promotion of academic discussions on how the components of the capital structure have affected the performance of depository corporations in Kosovo. In addition, during the literature review process, the empirical findings of many studies by other authors that have addressed the issue of the impact of capital structure on the financial performance of commercial banks in different parts of the world have been analyzed.

Authors like Birru (2016), Nguyen & Nguyen (2020), Serwadd (2019), Saeed et al. (2013), Susan & Nasieku (2016), Nwude & Anyalechi (2018), Anarfo (2015), Doku et al. (2019) as well as many other studies of other authors have analyzed the effects of capital structure on the performance of commercial banks in different countries.

The main hypotheses of this study are:

H1 – Owners' contributions have had a positive impact on the financial performance of depository corporations in Kosovo.

H2 – Retained earnings have had a positive effect on the financial performance of depository corporations in Kosovo.

H3 – General and specific reserves have had a positive impact on the profitability of depository corporations in Kosovo.

H4 – Donor grants have a symmetrical impact on the profitability of depository corporations in Kosovo.

H5 – Asset and liability management has resulted in positive effects on the performance of depository corporations in Kosovo.

Quantitative methods have been applied to test these hypotheses based on the secondary data of the annual reports of the Central Bank of Kosovo, the Kosovo Agency of Statistics, the World Bank, and others. However, to analyze funds contributed by owners, retained earnings, special and general reserves, donor grants, and asset and liability management, it is necessary to consider many other factors that explain the correlation between these variables. Therefore, to specify the econometric model, we based ourselves on several studies by different authors that have analyzed the effects of health expenditures on the national life expectancy of different countries of the world.

The time period included in this study is 21 years (2000 - 2021), the number of banks included in the analysis is nine, and the number of observations reaches 242. The data are processed in the STATA program, and to verify the validity of the hypothesis of this study, we have applied the following statistical tests: linear regression, random effect, fixed effect, Hausman - Taylor Regression, GMM Model - Arellano Bond Estimation as well as linear trend analysis through the historical and comparative method.

Table 2

Description of variables included in econometric models

Variables	Description of the variable	Data Source
Dependent variable (Y)	Financial Performance - Profit / Loss of the Year (FP)	Annual reports of the CBK - time series (2001 - 2021)
Independent variable (X₁)	Funds contributed by the owners (FCO)	Annual reports of the CBK - time series (2001 - 2021)
Independent variable (X₂)	Retained Earnings (RE)	Annual reports of the CBK - time series (2001 - 2021)
Independent variable (X₃)	General and Special Reserves (GSR)	Annual reports of the CBK - time series (2001 - 2021)
Independent variable (X₄)	Grants from Donors (GD)	Annual reports of the CBK - time series (2001 - 2021)
Independent variable (X₅)	Asset and Liability Management (ALM) - Asset Coverage Ratio	Annual reports of the CBK - time series (2001 - 2021)

Source: Data processing by authors (2021)

The primary purpose of using these econometric models is to deal with panel data and dynamic models. Most authors have identified the correlation between commercial banks' capital structure and financial performance through these statistical tests.

To verify the validity of the hypotheses of this study, we have constructed this econometric model, as follows:

$$FP_{it} = \beta_0 + \beta_1 FCO_{it} + \beta_2 RE_{it} + \beta_3 GSR_{it} + \beta_4 GD_{it} + \beta_5 ALM_{it} + \gamma_{it}$$

Where:

FP – Financial performance

FCO – Funds contributed by the owners

RE – Retained earnings

GSR – General and special reserves

GD - Grants from donors

ALM – Asset and liability management

γ – stochastic variables (other factors not taken into account in the model)

i – code and *t* – time period,

Financial performance is a subjective measure of how well a firm can use its core business model assets and generate revenue. There are many stakeholders in a company, including commercial creditors, bondholders, investors, employees and management. Each group has its own interest in tracking a company's financial performance. Financial performance identifies how well a company generates revenue and manages its shareholders' assets, liabilities, and financial interests. Financial analysis refers to the process of studying and evaluating a company's financial statements - a collection of data and figures organized according to recognized accounting principles. The goal is to understand its business model, how it gains (or loses) its operations, and how it is spending, investing, and generally using its money - summing up the company by numbers.

Contributed capital, also known as paid-up capital, is the cash and other assets that shareholders have given to a company in exchange for shares. Investors make capital contributions when a company issues equity shares based on a price that shareholders are willing to pay for them. The total amount of capital contributed or paid in equity represents their shares or ownership in the company. Contributed capital may also refer to the balance sheet item of a company listed under shareholder equity, often presented together with the balance sheet entry for additional paid-in capital. Contributed capital is reported on the equity portion of the balance sheet and is usually divided into two separate accounts: ordinary shares and additional paid-in capital accounts. In other words, the contributed capital includes the par value - or par value - of the shares, found in the ordinary share account, and the amount of money above and above the par value that the shareholders were willing to pay for their shares - the premium of the stock was found in the additional paid-in capital account.

Retained earnings are the part of the company's net profit that remains after taxes, and the distribution of dividends among shareholders is used for reinvestment purposes, for development needs. What remains unallocated can be invested in the bulk, held in the form of cash balances or suitable for market circulation securities, used to finance the purchases of other firms, lend to customers, repay loans, or increase liquid assets. Compared to raising new capital by borrowing or issuing shares, retaining some of the profits is an alternative and more straightforward method of financing. To grow and develop, a company must invest its retained earnings in itself. If successful, in the long run, this will increase the company's profitability and increase its share price, i.e., investors will earn more money than if they initially demanded significant dividends. Every company starts its activities to generate income. Therefore, company members expect to have extra money, regardless of whether they will work in this enterprise or not. Profits held on the balance sheet are the company's remaining income after all debts owed to suppliers and employees of the company have been paid.

Total reserves: total reserves are not set aside for any specific purpose but the overall financial strengthening of the company. Specific reserves: specific reserves are set aside for a specific purpose and can not be used for any other reason. Specific reserves are sometimes known as special reserves. Capital reserves are created from capital gains - profits from sources other than ordinary trading activities. Capital reserves are usually set aside for capital losses. The General Reserve is the amount set aside from the profit earned by the company during its normal course of operations to meet future needs. Namely, such as unforeseen cases, strengthening the company's financial position, increasing working capital, paying dividends to shareholders, compensating for specific future losses, amongst other things. The General Reserve is considered part of the profit and loss sharing account. It is generally used to cope with future uncertainties such as future business losses, future litigation, etc. Moreover, there is no set percentage for creating reserves. It is at the company's discretion how much reserve it wants to accumulate. In case of losses, reserves are not created by the company. They are shown under 'Reserves and surpluses' on the balance sheet liabilities side.

Grants are assistance provided by a governmental or non-governmental body, in the form of transfer of resources or KAS 10 - Grants and other forms of assistance four assets to an entity, as opposed to the fulfilment in the past or future of certain pre-determined conditions related to the operating activities of this entity. Exceptions are those forms of assistance that cannot be valued (for example, free technical advice or marketing, as well as the provision of guarantees) and transactions with the government, which are no different from the regular trading operations of the entity (for example, procurement by government bodies, through which part of the unit's sales is realized). Grants should be recognized as income and not be credited directly to equity. Grants should be recognized as income systematically during an accounting period, in the same way as the expenses that these grants will reimburse will be recorded.

Asset/liability management is the process of managing the use of assets and cash flows to reduce the firm's risk of losing a liability on time. Well-managed assets and liabilities increase business profits. The asset/liability management process is typically applied to bank loan portfolios and pension plans. It also includes the economic value of capital. The concept of asset/liability management focuses on cash flow time because company managers have to plan the payment of liabilities. The process should ensure that assets are available to pay off debts on time and that assets or profits can be converted into cash. The asset/liability management process applies to different categories of assets in the balance sheet. The practice of asset and liability management can involve many factors, including strategic asset allocation, risk mitigation, and regulatory and capital frameworks adjustment. By successfully matching assets to liabilities, financial institutions are left with a surplus that can be actively managed to maximize the return on their investment and increase profitability. To measure the effect of asset and liability management on the performance of corporate account deposits as quantitative, the asset coverage ratio is used.

Analysis of linear trends between financial performance and funds contributed by owners of commercial banks in the banking system in Kosovo (2001-2021)

This section of the study will present a linear trend analysis or comparative analysis between the leading indicators of the capital structure in commercial banks in Kosovo and the financial performance representing the profit or loss of the year for all licensed commercial banks for the period 2001-2021. The first part of the analysis will present the linear trend between financial performance profit and loss expressed in millions of euros and funds contributed by owners for the period 2001-2021.

The following tables show the linear trend between financial performance and funds contributed by owners, which represent one of the main items within the capital structure in the banking sector in Kosovo.

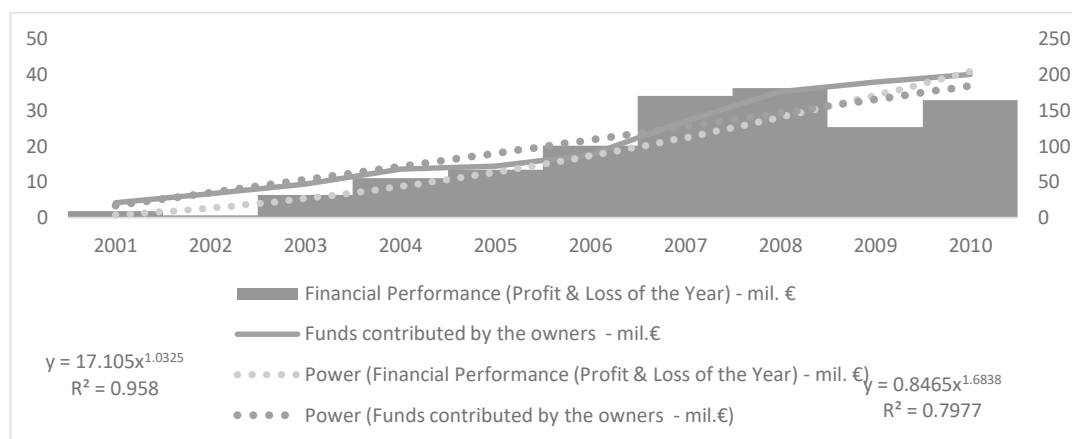
Table 3

Analysis of linear trends between FP and FCO (2001-2010)

Year	Financial Performance (Profit & Loss of the Year) - mil. €	Funds contributed by the owners - mil.€	Trend
2001	1,8	21	-6,18
2002	0,6	33,3	7,88
2003	6,3	46,6	21,94
2004	11	67,7	36,00
2005	13,5	72,4	50,05
2006	20,2	88,4	64,11
2007	34	134,9	78,17
2008	36,3	175,9	92,22323308
2009	25,3	189,4	106,2802256
2010	32,9	200,4	120,337218

Source: Processing and calculation of data by authors (CBK 2021)

Based on the trend analysis results presented in Table 3 and Figure 1, we can conclude a linear upward trend between the cumulative trend between financial performance and funds contributed by owners for the banking sector for 2001- 2010. The value of the average cumulative trend at the beginning of 2001 reaches -6.8 where this value in 2010 reaches 120.33 million euros. Based on these values, it can be concluded that there is a positive upward trend between these two variables of this comparative analysis, while based on the graphical presentation of these two variables, it can be seen that there is a positive upward trend for both variables for financial performance and funds contributed by owners.



Source: Processing and calculation of data by authors (CBK 2021)

Fig. 1. Graphic presentation of linear trends between FP and FCO (2001-2010)

The value of financial performance for the banking sector in Kosovo in 2001 was 1.8 million euros while in 2010 it was 32.9 million euros. A downward trend in the financial performance variable could be observed in 2008 because the value of financial performance reached 36.3 mil. and fell to 25.3 million euros in 2009, a decline that could be attributed to the financial crisis 2007-2009. Based on these values, it is evident that the adverse effects of the financial crisis were also felt in the banking sector in Kosovo. However, funds contributed by owners from 2001 to 2010 have an increasing trend from 21 million to 200.4 million euros.

The value of the coefficient of these variables is 95.57%, representing a very high level of explanatory nature between these variables. Therefore, there is a positive correlation and a positive upward trend between the financial performance representing the loss or profit for the banking sector in Kosovo and the funds contributed by the owners. Based on this, we can conclude that the increase of funds contributed by shareholders will positively affect the financial performance as investments in shares can provide very high returns that positively affect the profit of these companies.

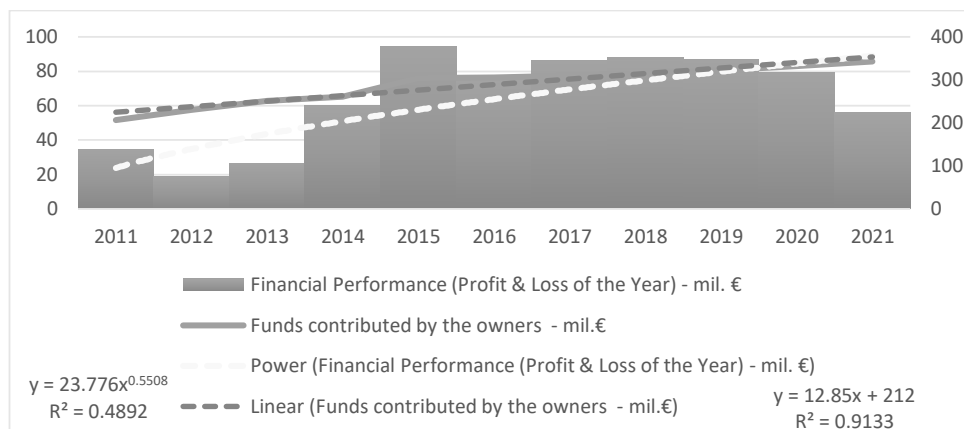
Table 4

Analysis of linear trends between FP and FCO (2011-2021)

Year	Financial Performance (Profit & Loss of the Year) - mil. €	Funds contributed by the owners - mil.€	Trend
2011	34,6	206,6	114,7
2012	18,6	230,1	126,5
2013	26,6	251,2	138,3
2014	60	261,3	150,1
2015	94,3	303,9	161,9
2016	75,1	305,9	173,6
2017	86,1	310,4	185,4
2018	88	313,6	197,2
2019	86,7	321,8	209,0
2020	79,1	332,5	220,8
2021	55,8	342,8	232,6

Source: Processing and calculation of data by authors (CBK 2021)

From this statistical data and comparative analysis between these two variables, it can be concluded that there is a cumulative upward trend for the period analyzed 2011-2021. The value of this linear trend in 2011 was 114.7 million euros, while the value in 2021 was 232.6 million euros. Therefore, we can conclude that between these two variables, there is a positive correlation that the increase of funds contributed by owners has had a positive impact on the growth of the financial performance of the banking sector in Kosovo as one of the main pillars of the financial system in Kosovo.



Source: Processing and calculation of data by authors (CBK 2021)

Fig. 2. Graphic presentation of linear trends between FP and FCO (2001-2010) (2011-2021)

The value of the coefficient of determination of these two variables reached 88.37%, which means that we have high expediency between these variables. Based on the data presented in Figure 4.3, we have an increasing trend for the financial performance variable and contributed funds, and this allows it to be understood that funds contributed by owners have had positive effects on growth for financial performance in the banking sector in Kosovo.

Based on these results, we can conclude that such an empirical result is comparable to other authors who have analyzed the funds contributed by the owners in financial performance but can also be verified based on economic theory that the more shareholders of commercial banks invest in securities such as shares which are then invested in financial markets that have a higher rating, the more these will also contribute positively to the financial performance of their corporations. Furthermore, given that the banking sector in Kosovo is the most profitable compared to other Western Balkan countries, it can be seen that the capital structure and decision-making on the capital structure contribute positively to the financial performance of commercial banks in Kosovo.

Analysis of linear trends between financial performance and retained earnings by commercial bank owners in the banking system in Kosovo (2001-2021)

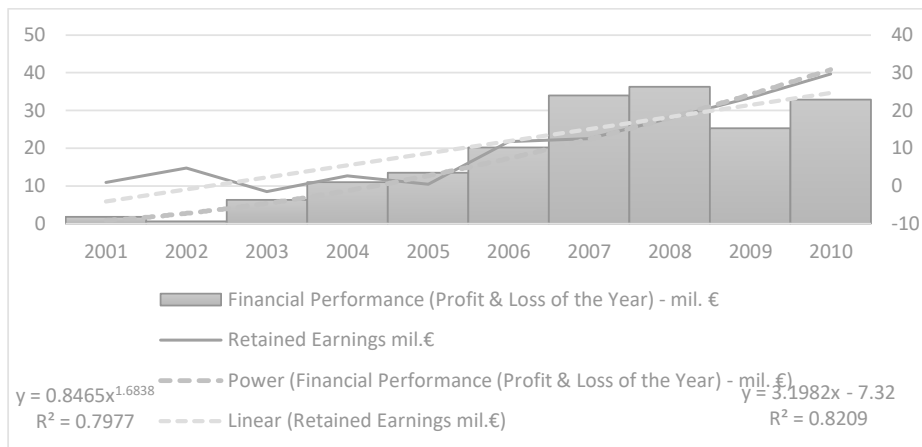
In this section of the study, the authors will present the linear trend analysis or comparative analysis between the leading indicators of capital structure in depository corporations in Kosovo and financial performance that represents the profit or loss of the year for all banks which are licensed by Central Bank of Kosovo for the period 2001-2021. Initially, this part of the analysis will present the linear trend between financial performance and retained earnings expressed in millions of euros for the period 2001-2021. The following tables show the linear trend between financial performance and retained earnings, which represent one of the main items within the capital structure in the banking sector in Kosovo.

Table 5

Analysis of linear trends between FP and RE (2001-2010)

Year	Financial Performance (Profit & Loss of the Year) - mil. €	Retained Earnings mil.€	Trend
2001	1,8	0,9	-2,4
2002	0,6	4,8	1,1
2003	6,3	-1,5	4,6
2004	11	2,7	8,1
2005	13,5	0,4	11,6
2006	20,2	11,8	15,1
2007	34	12,5	18,6
2008	36,3	18	22,1
2009	25,3	23,4	25,6
2010	32,9	29,7	29,1

Source: Processing and calculation of data by authors (CBK 2021)



Source: Processing and calculation of data by authors (CBK 2021)

Fig. 3. Graphic representation of linear trends between FP and RE (2001-2010)

From the data presented in Table 4 between the linear trend of financial performance and retained earnings for 2001-2010, it can be concluded that there is an upward trend between financial performance and retained earnings. The value of the cumulative linear trend in 2001 was -2.4 million euros, and in 2010 it was 29.1 million euros, where we can see an increasing correlation between financial performance and retained earnings. Thus, with the increase of retained earnings, the financial performance of commercial banks in Kosovo will also increase for 2001-2010. Based on these results, it can be confirmed that the more the shareholders of commercial banks reinvest their retained earnings, the more they contribute positively to profit growth or increase the profitability of the banking sector in Kosovo.

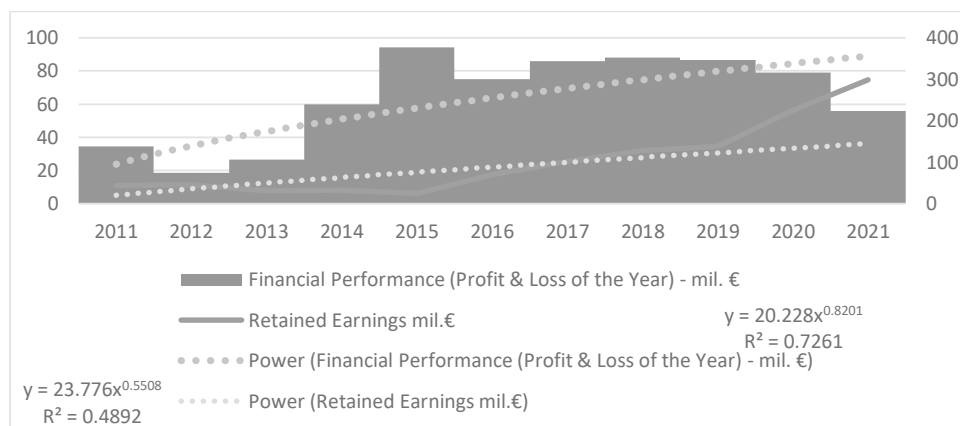
The value of retained earnings in 2001 in the banking sector in Kosovo was 0.9 million euros, while in 2010, it was 29.7 million euros. During the period of the financial crisis, 2007-2009, we have an increasing trend of retained earnings even though we have had a decline in financial performance. Banks have consistently increased retained earnings as an essential item of capital structure. The value of the determinant coefficient between these two variables is 84.96% which means a high level of expediency between these two variables.

Table 6

Analysis of linear trends between FP and RE (2011-2021)

Year	Financial Performance (Profit & Loss of the Year) - mil. €	Retained Earnings mil.€	Trend
2011	34,6	43,4	6,1
2012	18,6	44,8	20,9
2013	26,6	30,7	35,7
2014	60	31,6	50,5
2015	94,3	24,7	65,3
2016	75,1	70,3	80,0
2017	86,1	102,3	94,8
2018	88	128,2	109,6
2019	86,7	137,9	124,4
2020	79,1	224,5	139,2
2021	55,8	298,8	153,9

Source: Processing and calculation of data by authors (CBK 2021)



Source: Processing and calculation of data by authors (CBK 2021)

Fig. 4. Graphic representation of linear trends between FP and RE (2011-2021)

Referring to the trends, we can conclude that for the period 2011-2021, there is a cumulative trend with an increasing trend between these two variables. The value of the average cumulative trend in 2011 was 6.1 million euros, while in 2021, it was 153.9 million euros. The value of the coefficient of determination between these two variables is 76.68% which shows a high level of clarity between these two variables. Also,

for this period, there was a growing trend for retained earnings which means that the value of profits distributed in the banking sector in Kosovo in 2011 was 43.4 million euros, where it marked a slight decrease until 2015, with 24.7 million euros.

By 2021 it had reached 298.8 million euros, which means that with the continuous increase of retained earnings in the banking sector in Kosovo, the shareholders of commercial banks have continuously reinvested retained earnings, which has contributed positively to the return from investments, and these have had a positive impact on the financial performance of commercial banks in Kosovo.

So as a general finding from this analysis, there is a positive correlation between financial performance and retained earnings - an increase in retained earnings will contribute positively to the profitability of Commercial Banks in Kosovo.

Econometric Analysis and Study Findings

This section presents the results of descriptive statistics, together with the hypotheses and the answer to the research questions. The data for testing the hypotheses of this study are processed in the STATA program, using mainly secondary data. Finally, they are presented by the panel data, based on statistical reports of the Central Bank of Kosovo, World Bank, Kosovo Banking Association, The IMF and the Kosovo Agency of Statistics.

The time analyzed in this scientific research is 2000-2021. In this section of the study, descriptive statistics will be presented, then correlation analysis and hypothesis testing are done through standard multiple regression analysis using different models such as fixed effect model, random effect model, Hausman Taylor Estimation and GMM Model using Arellano Bond Estimation.

Descriptive statistics and correlation analysis

Table 7 presents descriptive statistics for the variables included in the econometric models.

Table 7

Descriptive statistics for the variables included in this study

Variables	Obs.	Minimum	Maximum	Mean	Std. Deviation
FP	247	-2.3	94.92	22.36	22.65
FCO	247	4.9	342.8	187.61	109.82
RE	247	-1.8	303.1	65.69	73.52
GSR	247	0.3	39.1	16.00	8.92
GD	247	0	2.37	0.5754	0.33
ALM	247	133.3	1920	1279.57	458.16

Source: author's calculations in the STATA program (2021)

From the data presented in Table 7, we can conclude that the number of observations included in this study is 247 for all variables.

- Dependent variable of financial performance: is observed to have an average of 22.36 mil. euros with a standard deviation of 22.65, minimum values are -2.3, and maximum ones are 94.32 million euros.
- Descriptive statistics for the main independent variable and the endogenous variable, that is, the funds contributed by the owners, has an average value of 187.61, with a standard deviation of 109.82, the minimum values are 4.9 and the maximum ones 342.8.
- The other independent variable is retained earnings: the average value is 65.59, with a standard deviation of 73.52, the minimum values are -1.8, and the maximum ones are 303.1.
- General and special reserves have an average of 16.00, with a standard deviation of 8.92, the minimum values are 0.3 million euros while the maximum value is 39.1.
- Grants from donors have an average of 0.57, with a standard deviation of 0.33, the minimum values are 0 million euros while the maximum value is 2.37.
- As for the last variable, the management of assets and liabilities, where there is an average of 1279.57 mil. euro, with a standard deviation of 458.16, the minimum values are 133.3, and the maximum ones are 1920.

Table 8

Correlation Analysis

Variables	FP	FCO	RE	GSR	GD	ALM
FP	1	0.6833	0.4265	0.5717	0.2634	0.5334
FCO	0.6833	1	0.7803	0.9283	-0.4598	0.8916
RE	0.4265	0.7803	1	0.8126	-0.3625	0.5762
GSR	0.5717	0.9283	0.8126	1	-0.4058	0.8697
GD	0.2634	-0.4598	-0.3625	-0.4058	1	-0.5782
ALM	0.5334	0.8916	0.5762	0.8697	-0.5782	1

Source: author's calculations in the STATA program (2021)

Table 8 shows the general correlations between the dependent and independent variables of this study. Initially, the correlation between the financial performance and the funds contributed by the owners is given and based on this value, the correlation is 68.33%. This value shows us that we have an average level correlation. There is a positive linear correlation between these variables, which with increasing of funds contributed by holders will have a positive impact on increasing the financial performance of deposit banks in the banking system in Kosovo.

The correlation between the financial performance of depository corporations and retained earnings has a positive linear correlation value of 42.65%. This indicates a fairly high correlation between these two variables, which means that increased retained earnings will positively affect the increase in financial performance. Furthermore, the correlation between financial performance and total and special reserves is in the amount of 57.17%, so we have a high positive correlation, which means that an increase of general and special reserves in the capital structure of depository corporations in Kosovo will have a positive impact on the financial performance of depository corporations in Kosovo.

The value of the correlation between financial performance and grants from donors is 26.34%, thus representing a weak correlation between these two variables. This means that with the increase of grants in the capital structure, the financial performance of these depository corporations in the banking system in Kosovo will also increase. The Pearson correlation coefficient between financial performance and

management of assets and liabilities in the banking system in Kosovo is 53.34% which means a positive correlation between these two variables, so the increase of assets and liabilities will increase the financial performance of depository corporations in Kosovo.

The Pearson correlation coefficient between funds contributed by owners and retained earnings is 78.03%, which means a high positive linear correlation. With the increase in retained earnings, the funds contributed by owners will also increase to increase the profitability of depository corporations in Kosovo. The correlation between the funds contributed by the owners and the special and general reserves is 92.83%, representing a very high positive linear level, so the increase of the special and general reserves will positively affect the funds contributed by the owners. Furthermore, at the same time, this will have a positive effect on increasing the financial performance of depository corporations in Kosovo.

The correlation coefficient between the funds contributed by the owners and the net external assets is 89.16% which is a very high positive correlation between these two variables. Therefore, with the increase of asset and liability management in depository corporations in Kosovo, there will be a positive effect on the owners' increased funds to increase the profitability of depository corporations in Kosovo.

Econometric Results and Estimation of Regression Coefficients

This part of the study will present the standard multiple regression analysis, where the validity of the hypotheses will be confirmed through statistical tests. Through the results of multiple standard regression, taking into account the level of significance, the impact of all independent variables on the dependent variable is analyzed, and the regression coefficients will be interpreted.

Table 9

Empirical results for the first econometric model

Variables	Linear Regression	Random Effects – GLS Regression	Fixed – Effects Regression	Hausman Taylor Regression	GMM Model
FP	-	-	-	-	0.5715504*** (0.000)
FCO	0.339292*** (0.000)	0.339292*** (0.000)	0.2571038*** (0.000)	0.2609881*** (0.000)	0.1897165*** (0.000)
RE	0.1770626*** (0.000)	0.1770626*** (0.000)	0.1158309*** (0.000)	0.1187468*** (0.000)	0.0936187*** (0.000)
GSR	0.4916227 (0.236)	0.4916227 (0.235)	1.163817*** (0.000)	1.130387** (0.010)	0.4279093** (0.034)
GD	9.41909** (0.044)	9.41909** (0.043)	8.464495** (0.011)	8.501341*** (0.000)	6.752041** (0.002)
ALM	0.0422754*** (0.000)	0.0422754** (0.001)	0.0420718*** (0.000)	0.0420448*** (0.000)	0.0071924* 0.095
Const.	21.20386** (0.001)	21.20386** (0.001)	20.69087*** (0.000)	21.20776** (0.016)	-13.8787** (0.001)
R ²	0.5745	0.7218	0.7147	-	-

Source: author's calculations in the STATA program (2021)

Explanation: p-values shown in parentheses: *** shows statistical significance at level 1%; ** shows the statistical significance at the level of 5% and * shows the statistical significance at 10%.

According to the GMM (Arellano Bond Estimation) model, we can conclude that all the independent variables of this study are at a significant level and are statistically significant. Furthermore, all these variables impact the dependent variable, the financial performance of depository corporations in Kosovo.

$$FP_{it} = \beta_0 + \beta_1 FCO_{it} + \beta_2 RE_{it} + \beta_3 GSR_{it} + \beta_4 GD_{it} + \beta_5 ALM_{it} + \gamma_{it}$$

$$FP_{it} = -13.87 \beta_0 + 0.189 FCO_{it} + 0.0936 RE_{it} + 0.427 GSR_{it} + 6.752 GD_{it} + 0.007 ALM_{it} + 0.2753$$

β_0 - if all other factors are constant, then the financial performance of depository corporations will be -13.87 units. This statement is incorrect because the significance level is $0.001 < 0.05$.

$\beta_1 FCO_{it}$ - If the funds contributed by the owners increase per unit, keeping other factors constant, then the financial performance of depository corporations in Kosovo will increase by 0.187 units. This statement is correct because the significance level is in the statistical reliability interval, i.e. it is $0.000 < 0.05$.

$\beta_2 RE_{it}$ - if retained earnings increase by one unit while keeping other factors constant, then PF will increase by 0.936 units. This statement is correct because the significance level is $0.000 < 0.05$.

$\beta_3 GSR_{it}$ - if total and specific reserves increase by one unit while keeping other factors constant, then PF will increase by 0.427 units. This statement is correct because the significance level is $0.034 < 0.05$.

$\beta_4 GD_{it}$ - if grants from donors increase by one unit while keeping other factors constant, then PF will increase by 6.75 units. This statement is correct since the significance value is $0.02 < 0.05$.

$\beta_5 ALM_{it}$ - if asset and liability management increase by one unit while keeping other factors constant, PF will increase by 0.071 units. This statement is correct because the significance level is $0.095 < 0.10$.

As a general conclusion of the results of the analysis of the GMM model using the Arellano Bond Estimation method, we can conclude that all independent variables are significant, have statistical significance and positively affect the financial performance of depository corporations in Kosovo. These results are realistic and comparable to the studies of other authors, who have analyzed the impact of capital structure on the profitability or financial performance of depository corporations in different countries.

Discussion

In this section, the authors will discuss the hypothesis testing and the answer to the research questions posed at the beginning of this study. The results will be compared with the findings of other authors who have analyzed the impact of the capital structure on depository companies in different countries of the world.

Research Question 1: How have the funds contributed by the owners affected the financial performance of depository corporations in Kosovo?

H0: Funds contributed by the owners have negatively affected the financial performance of depository companies in Kosovo.

H1: Funds contributed by the owners have had a positive impact on the financial performance of insurance companies in Kosovo.

Based on all the statistical tests of Table 8, we can conclude that FCO have contributed positively to the FP of depository companies as the main independent variable, where also the endogenous variable FCO is significant and statistically significant. Therefore, in this case, the null hypothesis is rejected, and the alternative hypothesis is accepted.

Research Question 2: What effect do retained earnings have on the financial performance of depository corporations in Kosovo?

H0: Retained earnings have negatively affected the financial performance of depository corporations in Kosovo.

H2: Retained earnings have had a positive impact on the financial performance of depository corporations in Kosovo.

Referring to the results of statistical tests, we can conclude that the null hypothesis is rejected, and the second alternative hypothesis is accepted. Retained earnings have had a positive impact on the financial performance of depository corporations in Kosovo, given that retained earnings are an essential element of the capital structure that can be continuously reinvested and which can contribute positively to the performance of financial corporations of depository corporations for the analyzed period 2000-2021.

Research Question 3: What is the impact of general and specific reserves on the gain/loss of depository corporations in Kosovo?

H0: General and specific reserves have negatively affected the profit/loss of depository corporations in Kosovo.

H3: General and specific reserves have had a positive impact on the profit/loss of depository corporations in Kosovo.

The statistical tests show that the null hypothesis is rejected, and the third alternative hypothesis is accepted, as the GSR variable is significant and statistically significant. Therefore, based on this, it can be concluded that if the value of GSR continues to increase, it could bring positive effects on the profitability or profitability of depository corporations in Kosovo.

Research Question 4: What is the impact of donor grants on the profit/loss of depository corporations in Kosovo?

H0: Donor grants have negatively impacted the profit/loss of depository corporations in Kosovo.

H3: Donor grants have had a positive impact on the profit/loss of depository corporations in Kosovo.

From the results of statistical tests presented in Table 8, it can be concluded that the null hypothesis is rejected, and the fourth alternative hypothesis is accepted, as the GD variable is significant and statistically significant. Therefore, based on this, it can be concluded that if the value of GD continuously increases, it could bring positive effects on the profit or profitability of depository corporations in Kosovo.

Research Question 5: What effect does asset and liability management have on the financial performance of depository corporations in Kosovo?

H0: Asset and liability management have negatively affected the financial performance of depository corporations in Kosovo.

H4: Asset and liability management have had a positive impact on the financial performance of depository corporations in Kosovo.

Referring to the results of statistical tests through various econometric models, we will conclude that the null hypothesis is rejected and the fifth alternative hypothesis is accepted. Therefore, ALM has had a positive impact on the financial performance of depository corporations in Kosovo and based on these results, it can be concluded that effective management of assets and liabilities and proper investment of these accounting items can contribute positively to the financial performance of depository corporations in Kosovo.

The results and findings of this study are real, consistent and comparable with the results and findings consistent with the studies of various authors such as Mathewos (2016), Nguyen & Nguyen (2020), Serwadda (2019), Saeed et al. (2013), Susan & Nasieku (2016), Nwude & Anyalechi (2018), Anarfo (2015) and Boateng (2019).

Conclusions and Recommendations

1. The main objective of this study is to assess the impact of capital structure on the financial performance of depository corporations in Kosovo. This study used panel data for 21 years (2000-2021) for ten commercial banks operating in Kosovo and are licensed by the Central Bank of Kosovo.
2. In this study, various statistical tests were used through panel data through econometric models that assessed the correlation between the capital structure and the financial performance of depository corporations in the banking system in Kosovo.
3. The findings of this study show that the independent variables: funds contributed by owners, retained earnings, special and general reserves, grants from donors, and net external assets have a significant impact and are significant at the level of 1%, 5% and 10% and have a positive effect on the financial performance of depository corporations in Kosovo.
4. Based on the empirical findings of this study, we recommend that commercial banks in Kosovo focus more to increase the volume of funds contributed by owners, retained earnings, special and general reserves, grants from donors and have effective management of assets and liabilities in order to have higher profitability. This higher profitability will increase investment in their fixed assets.

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CORPORATE SOCIAL RESPONSIBILITY AS A PART OF INTEGRATED APPROACH TO SUSTAINABLE DEVELOPMENT IN HOSPITALITY

Olegs Nikadimovs, University of Latvia
Ilze Medne, University of Latvia

Abstract. Tourism and hospitality industry have been two of the most important economic sectors that influence the development of global economies and societies. The ever-growing need for more sustainable approaches to hospitality businesses' development are of increased importance in the global pandemic post-crisis economy. Engaging in corporate social responsibility (CSR) in modern hospitality companies requires appropriate models and frameworks. Variety of approaches support the concept of CSR and sustainable development interlinking, including all dimensions of the hospitality company and stakeholders – both in downstream and upstream. Implementation of such models may lead to increased competitive advantage and financial performance of the companies. Business practices that are irresponsible and unsustainable in the long-term may lead to investment and capital losses, erosion of human capital and poor labour conditions, negative environmental impact, slowdown in productivity growth, negative business image and reputation; which in its turn will further damage the bottom-lines of the hospitality companies in the post-crisis reality. This study assesses components and structure of CSR as well as corporate sustainable development that might be applied in the hospitality companies to a positive effect. The results of the research will provide a better insight and perspective on the mentioned frameworks and their interpretations; the hospitality companies' managers can use these results to better understand the importance of practicing CSR for sustainable development and improving financial indicators.

Keywords: *corporate social responsibility, corporate sustainability, hospitality, post-crisis economy.*

JEL code: M140, Z310

Introduction

In pre-crisis years, up until 2020, the hospitality industry has faced an outstanding flow of international touristic arrivals, nights spent in different accommodation providers. Since the global pandemic has started, the tourism and hospitality industry, has suffered their worst years ever recorded with international arrivals decreasing by 74% according to the United Nations World Tourism Organization (UNWTO) data (UNWTO, 2021a). The same report highlighted that the destinations worldwide has suffered a total loss of one billion international arrivals, in comparison to 2009, where the drop of only 4% was recorded due to the global economic crisis negative effect. UNWTO World Tourism Barometer estimates a total economic loss of more than one trillion euro due to the pandemic effect and the followed collapse of travel and tourism industry, which is 11 times more than 2009 economic crisis numbers (UNWTO, 2021b), the same reports have discussed the “new normal” which is sustainable development approach to all aspects of tourism and connected industries, highlighting that it should no longer be a niche, but the only prerequisite and the new norm for the all the sectors involved. In post-crisis economy CSR and sustainability issues should be treated with due diligence and be an integral parting of building back a better and more sustainable future.

In recent years the customers themselves are becoming increasingly aware of sustainability issues, including environmental, social, and economic implications; and sustainable consumer behaviour and mindset has been extensively reviewed in various academic researches as well as has gathered significant attention in the hospitality consumer marketplace (Heesup, 2021; Tasci, 2017; Verma, Chandra, 2018; Demir et al., 2021). Same sources are deliberating the severe economic decline and required immediate response, encompassing the social, environmental, and economic impact of the operations, not just as an accountability tool but to drive strategy from it, unlocking new sources of revenue and sustainable growth.

Research relevance. The number of researches on strategic management and CSR in the hospitality industry is rather limited. In fact, Harrington et al. (2014) has concluded that less than 0.3% of research topics in hospitality include corporate sustainability issues. While the number of researches on corporate social responsibility in hospitality and tourism has grown significantly, with over 70% of studies on this topic published in the last five years, there is still a need to address this complex issue (Font, Lynes, 2018). This study is of a high relevance, as tourism and hospitality industries are among the most affected by the ongoing economic crisis caused by the global pandemic. The importance of the CSR and its role in sustainable development of the hospitality companies and the industry as whole should be studied extensively, with results providing a better insight and perspective on the issues, new concepts, and the possible directions to take in practicing CSR to improve financial performance and competitive advantage of the related enterprises.

The aim of the study is to examine available literature on sustainability practices and CSR in tourism and hospitality industry in the post-crisis economy. **The main research question** – are there correlations between CSR initiatives and the sustainable development of the hospitality companies? Literature review is provided to establish the theoretical background and to explain the key definitions of the concepts, applying secondary data research method – examination of the contemporary studies, comparable earlier research on the chosen topic, reports, and statistical data. Following, the research results and discussion are presented as well as conclusions, proposals, and possible future research directions.

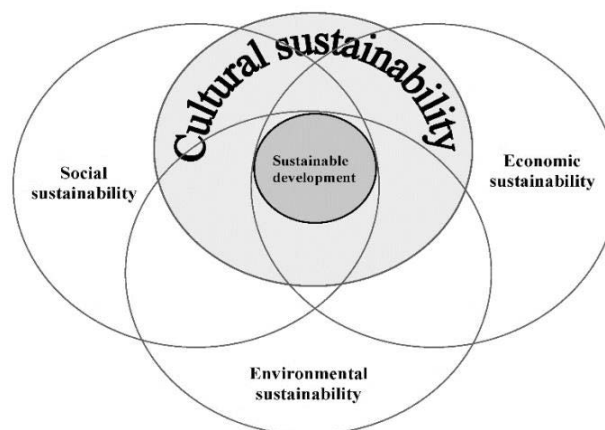
Literature Review

Sustainability and Sustainable Development

Sustainability as a term has been used in a wide range of contexts in recent times, and has been described not only as an idea or a mindset the present-day researchers or technical experts exercise within many industries, or as a simple term to lead the way for the eco-activists; it is the end goal of the critical importance to world cultural heritage, that encompasses events and ideas, and has a long and illustrious history (Grober, 2012). The roots of the sustainability can be traced back to the Industrial Revolution, when the world experienced the sudden increase in consumption of crucial renewable and non-renewable resources and the growing need of finding the sustainable ways to that consumption. The notion that the future generations might not experience these resources due to their depletion, and hence won't be able to maintain the living standards or meet their needs, forged the path for the developing the sustainable concepts throughout the industries (Du Pisani, 2006). In 1987 the Brundtland Commission, also known as the World Commission on Environment and Development (WCED), published a report, in which sustainable development has been defined as “*meeting the needs of the present without compromising the ability of future generations to meet their needs*” (WCED, 1987; Burton, 1987). Since that time the sustainable development has been discussed and became an integral part of the vocabularies of academics, industry experts and politicians. In outlining considerations for the hospitality industry response to a global pandemic and the following crisis, Deloitte (2020) argued that sustainability will become a defining factor for the industry in 2020 and beyond “*COVID-19 has highlighted what can be achieved to support sustainability; include sustainability in your supply chain review to thrive in the longer term*”, suggesting to develop agility within production and distribution channels and chains, to quickly reconfigure and maintain supply in the face of global demand. Employers should balance the needs of the employees with adapting to a volatile and highly unpredictable business

environment, prioritizing employee health and well-being; should continue to engage with customers and continue to maintain stable cash flows in the crisis, as the economic loss during the crisis period may be permanent.

Traditionally, sustainability concept is described by the *triple bottom line* paradigm and recognizes three pillars - social, economic, and environmental; in this case, sustainability is accomplished when all the requirements are met at the same time (Global Reporting Initiatives, 2006). Triple bottom line (TBL) is described as an integrated framework of business accounting that incorporates environmental and social performance outcomes into the profit-based financial reporting model. Adoption of the TBL approach implies the state of being accountable for reporting on social, environmental, and economic performance towards all the stakeholders (Dwyer, 2005). The economic reporting is concerned with monitoring general financial performance and sector-specific operational efficiency. The environmental reporting with a attention to issues such as solid waste and water management, energy usage, climate change, biodiversity conservation, and is related to savings and ecological footprint accounts on natural capital assets. First mentioned in 1977, the process was described as “*focusing corporations not just on the economic value they add, but also on the environmental and social value they add - and destroy*” (Elkington, 2017). Generally, TBL is used as a framework for measuring and reporting corporate performance against economic, social, and environmental parameters. In its broadest sense, the term refers to the entire collection of ideals, challenges, and processes that businesses must address in order to minimize any harm caused by their operations while also creating economic, social, and environmental benefits ((Elkington, 2018). United Nations Educational, Scientific and Cultural Organization (UNESCO) has defined four dimensions of sustainable development “*society, environment, culture and economy – which are intertwined, not separate*” (UNESCO, 2021) (See Fig. 1). Sustainable development has been viewed upon as a perception model for environmental, sociological, economic, and cultural elements that are harmonized to achieve a higher quality of life



Source: Pop et al., 2019

Fig. 1. Extended framework - the four pillars of sustainable development

This extended sustainable development paradigm suggests an approach of creating a long-lasting benefits and values, fostering company longevity by applying ecological, social, and economic governance principles with the inclusions of the fourth element – cultural sustainability. United Nations Agenda for Sustainable Development 2030 has featured Sustainable Development Goals (SDGs), where cultural sustainability is listed as the one enhancing the cultural identity and “*sense of place through heritage, shared spaces, public art, social capital, educational opportunities*”, as well as supporting equal rights, and linking cultural element with the environment, helping to raise awareness and responsibility (United Nations, 2015). With ever-evolving sustainable development concepts, cultural sustainability must be included into more conversations and its correlation to the economic, social, and environmental aspects of the societies and businesses should be assessed in details. Culture and its linkage to the environmental, economic, and social components must be discussed to a greater extent in regards of a holistic approach to sustainable development.

Many hospitality related companies have highlighted the importance of applying sustainability principles within their operations, which is especially important in the crisis time. As stated by Hilton, the success of the business is linked to the ability to operate and grow in a sustainable manner. The recognition of the critical responsibility in protections to the communities and planet (Hilton, 2020). Sustainable hospitality is an entire industry that stands up to face environmental, economic, and societal challenges in the face of the crisis by exploring ideas, solutions and strategies on how to develop hotels and how to manage operations in a sustainable way. Sustainable hospitality stands for the responsible use of productive resources in a project development, undertaking a task to enhance environmental, social, and economic benefits in a long term (Hotel Yearbook, 2020). Sustainable development is adopted to provide lasting socio-economic benefit to all project stakeholders without compromising the ability of future generations to meet their own needs (Autin, 2020). Many articles in the literature has addressed the issues of sustainability during Covid-19 pandemic crisis, namely – social issues, as consumer behaviours and perceptions have shifted tremendously since the beginning of it (Kim, Lee, 2020). Covid-19 outbreak and subsequent crisis provided some opportunities for business sustainability plans while also posing some problems. The crisis may be seen as highlighting the need to respond to investor demands that the hospitality industry's leading players facilitate reductions in carbon dioxide and greenhouse gas emissions by using more renewable energy sources and adopting a stronger commitment to waste recycling and circular economic principles. That said, such changes have major implications for the hospitality industry's traditional business models (European Parliament, 2021). Nevertheless, it is impossible to ignore the reality that the Covid-19 crisis has wrought a havoc on the world's financial markets and has reduced capital availability, and this may effectively force the leading players within the hospitality industry to concentrate what financial resources they do have access to, on their core business operations (Jones, Comfort, 2020).

Corporate Social Responsibility and Corporate Sustainability

CSR was defined as business's contribution to sustainable development that does not only positively benefit the stakeholders, economic gains, and competitive advantage, but also caters to societal and environmental needs (OECD, 2001). Many major international hotel chains are increasingly emphasizing their commitment to sustainability and integrating it into their fundamental business strategy, even as they pursue further growth that places a variety of demands on natural resources (Jones et.al. 2014). CSR is a self-regulating business model that helps a company be socially accountable – to itself, its stakeholders, and the public. Companies can be aware of their impact on all parts of society, including economic, social, and environmental, by exercising corporate social responsibility, also known as corporate citizenship (Ogola, Mária, 2020). The beneficial impact that a business has on the community in terms of its stability to meet and exceed public expectations of good

corporate citizenship is the subject of this definition of CSR (Vilanova et al., 2009). To engage in CSR means that, in the ordinary course of business, a company is operating in such ways that enhance society and the environment, instead of contributing negatively to them (Guzzo et al., 2019). The commonality among these different definitions of social responsibility is that companies should engage in socially responsible behaviour as part of their organizational strategy. The outcome of embracing CSR as an organizational strategy is that it offers organizations a competitive advantage within the relevant marketplace (Porter, Kramer, 2006). Taking into consideration the economic value of the hospitality industry, sustainability trends and the environmentally conscious customers, hospitality companies are expected to integrate CSR policies into their business models, facilitate efficient CSR reporting to the various stakeholder groups. It is especially important in the post-crisis economy, as Covid-19 pandemic has pushed many hospitality businesses to brink of survival, putting their business models to the test and making this time the most appropriate time to fully embrace the needed change in the CSR strategies. People feel their organization has a purpose and defined values only when they see management make a move that compromises short-term profits for the sake of those values, according to research (Kramer, 2020). Carroll (1991) has identified three ethical approaches to management – *immoral, amoral, and moral*; where each orientation is closely related with moral philosophies of individuals, defined as management, where in the case of amoral and immoral approaches, business operations are separated from private life ethical considerations and thus there are not role for such considerations in business environment. The same author has proposed the hierarchy of the CSR components - *economic (“make profit”), legal (“obey the law”), ethical (“be ethical”), and philanthropic (“be a good corporate citizen”)*. Campbell (2007) criticized the hierarchy by the lack of motivation for corporations to act in an accountable way if there will be weak contribution to financial benefits, and that the hierarchy does not clearly link the society, environment and business and should be studied more extensively. Economic foundation of the CSR hierarchy suggests that it can be held accountable and act in a responsible way, only if it is profitable (Aviva, 2008). Licandro et al. (2019) found that there are five definitions to CSR identified in the literature, but predominantly three are used – *“contribution of the company to the solution of social problems, incorporation of the expectations and demands of the stakeholders, and responsible management of the externalities of the operation”*. In recent years, the amount of academic research on the interrelationships between sustainability and hospitality CSR practices and related issues has increased (for example, Lee, 2020; Kramer, 2020; Heesup, 2021; Jones, Comfort, 2020). Number of researches included CSR under *Corporate Sustainability* in the proposed framework; corporate sustainability focuses on the ethical, social, environmental, cultural, and economic dimensions of the business model, with goal to bring long-term values to all stakeholders (Amini, Bienstock, 2014; Gerner, 2013; Steinkellner, 2016). (See Fig. 2). Fundamentally changing market conditions, notably in terms of innovation and business-model development on the one hand, and socio-cultural contexts on the other, are posing increasing challenges to corporate sustainability management. Inclusion of socio-cultural components, namely, *“cultural environments or landscapes of socialization affecting individuals’ behaviour due to learned values and shared attitudes, including modes of communication, norms, customs, ideas, beliefs and meanings”*, is playing important role in building sufficient corporate sustainability management framework, yet often is overlooked, in favour of other components, such as environmental values and economic benefits (Gerner, 2019).



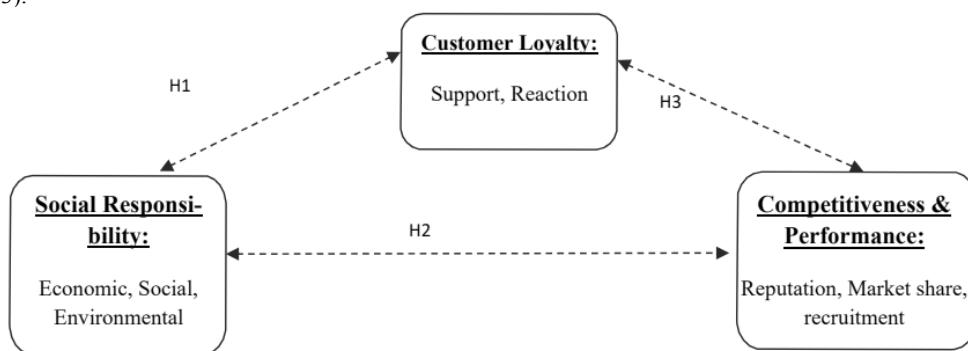
Source: Gerner, 2019

Fig. 2. Corporate Social Responsibility included into integrated Corporate Sustainability framework

The proposed framework suggests that corporate sustainability integrates all the elements – disciplines, theories, and underlying concept, such as environment, economy, society, and culture, as well CSR, which is selective, can be consider as integrated or holistic corporate management model. Sustainable development makes a two-fold contribution to the integrated corporate sustainability framework. First, it aids in identifying the areas in which businesses should concentrate their efforts: environmental, social, and economic performance. Second, it establishes an ecological, social, and economic sustainability goals for corporations, governments, and civil society to aim toward (Wilson, 2003). Still, Corporate Responsibility (CR), Corporate Social Responsibility (CSR), Corporate Sustainability (CS) and comparable concepts are all hazy concepts, as there is a wide range of ideas about how corporate sustainability should be defined and implemented depending on the company's perspectives, mission, vision and objectives (Bansal, 2017; Wilson, 2003). Sheehy and Farneti (2021) through the research have identified that CSR is focusing on individual business organisations; corporate sustainability (CS) on organisation level environmental policy; sustainable development (SD) is a public policy; and sustainability is a broad term encompassing global local and organisational levels. Corporate sustainability will not be successful unless it is part of a larger strategic initiative that considers the influence of resource availability on the development of competitive advantage (Amini, Bienstock, 2014). Despite their fundamental differences, research suggests that CSR and CS are convergent due to their shared environmental and social concerns. Environmental concerns are a component of a larger range of social performance dimensions in CSR. The social dimension of the sustainability paradigm has grown increasingly relevant in the CS area. Both the CS triple bottom line concept, which includes economic, social, and environmental components, and the CSR concept, which integrates economic, social, and environmental dimensions, indicate that businesses must balance the three parts of the triple bottom line to achieve long-term sustainability and social responsibility. Regardless of whether they view environmental challenges as a separate issue, both CSR and CS aim to strike a balance between economic prosperity, social integrity, and environmental responsibility (Montiel, 2008).

Competitive Advantage and Financial Performance

Any hospitality business aims to be profitable, to sustain stable financial flows, and sets various strategic goals, with one of them being getting competitive advantage over the competition. Sustainable competitive advantage can be organized around resources that are valuable, scarce, hard to imitate and to replace. Competitive advantage should be viewed upon as a strategic valuable resource to achieve better position on the competitive market (Kuncoro, Suriani, 2018). Research indicates that CFO’s, investment professionals, CSR managers strongly suggest to invest into strategic CSR to strengthen competitive advantage, although there is no one clear concept on *how* to apply this strategy to achieve the determined strategic goals (McKinsey, 2009; Smith 2003). Previously general research has focused on the correlations between integrating CSR and financial performance of the companies, while marketing researchers has extensively talked about the positive consumer perceptions of companies engaging in CSR activities and building brand loyalty (Sen et al., 2008). According to Pino et al. (2015), if one customer endorses a specific brand, it sways the thoughts of other consumers when making a purchasing decision; consumers enjoy companies that are known for their socially responsible behaviours and would communicate favourably such an experience to the larger audiences. Businesses that are engaging in strategic CSR activities possess ability to accumulate sustainable amount or resources, consequently these businesses may have a long-term competitive edge, allowing them to continue their economic activity in a productive way. As a result, companies with better environmental performance also have better financial results; research in hospitality business has discovered that CSR has a favourable association with financial success, resulting in economic, social, and cultural benefits (Lee, Park, 2009). Hospitality business market can be characterized as highly competitive, and all the players are looking for reaching competitive advantage over the competition. Most approaches in strategic management have historically discussed the idea of competition to be resisted when it comes to organizations' sources of profits; however, sustainable competitive advantage is the framework that makes full use of existing business opportunities for organizations' capital while exploiting other resources to ensure the sustainability and replicability of its competitive position for the future. (Arbelo et al., 2020). Mehreza (2020) has conducted a theoretical research and has developed the conceptual model on CSR, competitiveness, and customer loyalty correlations (See Fig. 3).



Source: Mehreza, 2020

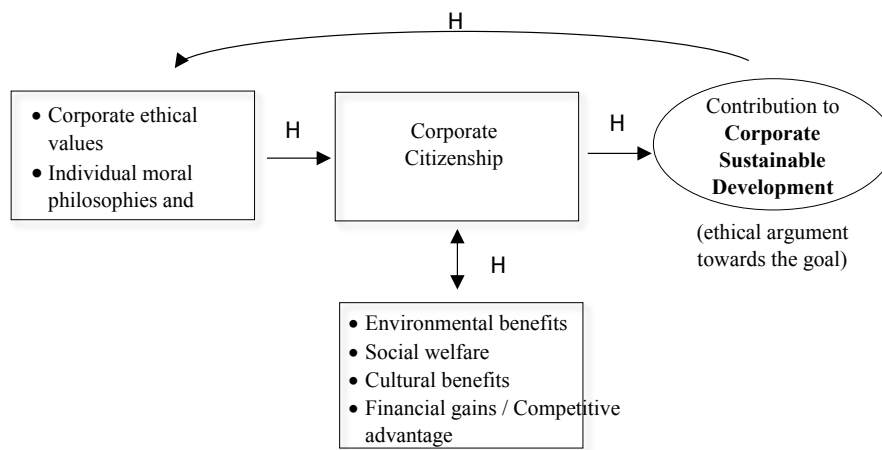
Fig. 3. Conceptual model: Social Responsibility, Customer loyalty and Competitiveness

The model suggests that implementing CSR elements in a strategic way would directly affect competitiveness and customer loyalty, where H1, H2, H3 are indicating mutual benefits and effects to the components of the model. Competitiveness and performance form increased brand reputation, market share and positively influence recruitment of the company; when customer loyalty includes positive brand support and customer reaction. Hospitality companies must understand that the benefits of CSR are mostly dependent on mediating strategic elements to design a successful CSR strategy, considering the influence of the CSR components on competitive advantage and customer satisfaction might not always be direct (Carroll, Shabana, 2010). In many cases determining the strategic goals and factors can lead to improved customer satisfaction and loyalty and overall success of the hospitality business. Hospitality customers are becoming more aware of the natural resource usage, wellbeing of the societies, environment, ethic side of the business; hence it puts additional pressure and is another source of complexity for the hospitality businesses to cater to the customer needs and exceed their expectations (Mohammed, Rashid, 2018).

Research results and discussion

Sustainability framework can be looked upon from many aspects and one of them is intersection of the goals attributed to three connected elements – social, environmental, and economic; with some sources claiming that sustainability is to become the defining factor for the post-crisis hospitality industry that was heavily affected by Covid-19 global pandemic. Studies suggest different interpretations and constructs of sustainability framework, with majority of academics referring to the triple bottom line model, when organizations should not only commit to the economic aspects of their businesses, but should also commit to measuring their social and environmental impacts. In addition to triple bottom line concept, the fourth element has been added to sustainability framework – cultural; the elements are reinforcing overall positive impact on business operations and are not separated, but rather are interlinked in synergy. The study has highlighted the need for inclusion of the cultural component into the extended sustainability framework, to sustain a higher quality of life and provide long-term benefits for societies, as well as strengthening organizations longevity, corporate awareness, and responsibility. Hospitality companies has long included CSR in their agendas making the policies a fundamental tool to enhance their capabilities and implementing emerging trends and new theories. Findings indicate that CSR links organization’s success with ethical values and moral responsibilities and moves the organization towards the overall corporate sustainability, that encompasses ethical, social, environmental, cultural, and economic dimensions of the business model in an integrated way.

CSR contributes to the process of linking ethical values and moral responsibilities with the overall corporate sustainable development goals (H1, H3). Effective implementation of the CSR within the hospitality organizations will enable them to make a good contribution towards environment, society, culture, economy as well as to get competitive advantage; which will strengthen the CSR in return (H2). It might be assumed that the higher is the contribution towards the corporate sustainable development, the stronger feedback link is being established with the corporate values and individual moral principles – reinforcing them (H4). (See Fig. 4).



Source: author

Fig. 4. CSR as a part of Corporate Sustainability

Corporate sustainability framework aims to: 1) identify the areas in which organization should concentrate their efforts in environmental, social, and economic dimensions 2) establish sustainability goals in the same dimensions for all stakeholders. Corporate Responsibility (CR), Corporate Social Responsibility (CSR), Corporate Sustainability (CS) and comparable concepts are blurry concepts and are forms of corporate self-regulation that ensures compliance with legislation and regulations, ethical, environmental, societal, cultural concerns, while positively benefiting organizations acting as “good citizen”. Integrated model of the corporate sustainability suggests that CSR can only be a part of a broader picture and one of the self-governance tools to achieve a better future for the hospitality industry. Hospitality companies are operating in an oversaturated market, especially during Covid-19 pandemic when many economies are in crisis, thus it is of high importance to achieve competitive advantage over the competition. Sustainable competitive advantage focuses on resources that are valuable, scarce, hard to imitable and to replace, and is a strategic valuable resource to achieve better position on the competitive market. The findings suggest that CSR and competitive advantage phenomena are interrelated in such a way, when strategic CSR goals are appropriately set, it might impact hospitality businesses in beneficial ways. Overall awareness of the hospitality customers of suitability and social responsibility concepts, can be considered as a catalyst factor for more hospitality companies to engage in CSR activities.

Conclusions, proposals, recommendations

The topic of CSR, corporate sustainability and competitive advantage might be of interest for hospitality experts, CSR specialists, strategy makers, general managers, and practitioners in the field of hospitality, as there is a need for discovering more sustainable business development approaches, and the need to understand the increased importance of CSR in achieving overall corporate sustainable development. Hospitality businesses should not contemplate on *whether* to implement CSR into their operations, but rather on *how* to do it in a strategic way. This study contributes to the overall scope of CSR research in hospitality as well as discusses the positive impact of CSR on corporate sustainable development and competitive advantage. The authors have examined available literature on sustainability practices and CSR in tourism and hospitality industry in the post-crisis economy. Literature review has helped to establish the theoretical background and to explain the key definitions of the concepts. Main conclusions are as follows:

1. There are clear correlations that can be observed between CSR initiatives and the sustainable development of the hospitality companies. CSR initiatives contribute positively towards environmental, societal, cultural, and economic gains, as well as to competitive advantage of the hospitality enterprises. CSR, also known as Corporate Citizenship, contributes positively to corporate sustainable development, adding ethical argument towards the common goal.
2. CSR might be viewed as a part of an integrated approach to corporate hospitality business development, and clear positive links can be observed between CSR, competitive advantage, and corporate sustainable development. Sustainability framework can be extended with the inclusion of additional pillars, as this study has indicated, in addition to environmental social, economic component, cultural component could be added. There is a need to develop CSR framework specifically for the hospitality industry companies, as the impact of CSR initiatives might be different in the service sector in comparison to manufacturing industry.
3. The suggested CSR framework will require additional study and possible inclusion of more elements, as well its approbation through the empirical research. Additional studies of CSR possible components and analysis of the situation in the Latvian hospitality sector should be carried out.

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THE INFLUENCE OF MANAGERS STYLE OF LEADERSHIP ON THE FORMATION OF ORGANISATIONAL CULTURE

Jurgita Pauzuoliene, Klaipeda University

Ligita Simanskiene, Klaipeda University

Darius Burgis, Klaipeda University

Abstract: During the years the approach to leadership and the view of what kind of person could become a manager has changed significantly. Scientific problem addressed in this article is formulated in a question: do managers with different styles of leadership form organisational culture in a different way? The competencies required to lead remained unchanged, but the perception of leadership itself has changed. In this article we analyse the influence of leader's style of leadership (autocratic, liberal, democratic, transactional, transformational, charismatic, servant, coaching) on the formation of organizational cultures. Based on the analysis of leadership styles and organizational culture, we depict the influence of leadership styles on organizational culture. We found that organizational culture strengthened democratic, transformational, charismatic, servant and coaching leadership styles. Organizational culture weakened autocratic, liberal, transactional leadership styles. *The methods applied in the research include analysis of literature sources, systematization, synthesis, generalization, and comparison in the theoretical part, and qualitative research, i.e., a semi-structured interview was used in the empirical research.* Semi structured interview with eleven managers of different kinds of organisations was carried out. Interviews were conducted meeting with each of the managers in person. We determined, that different kinds of styles of leadership have different influence on the formation of organisational culture in organisations. Among the managers that participated in the research, transformational, coaching, democratic leadership styles were the most prevalent, these managers are oriented towards teamwork, help for subordinates, they can critique constructively, direct subordinates to the right direction and create organizational culture in a right way.

Keywords: *organizational culture, leadership style, organizations, formation.*

JEL classification: D2, M14

Introduction

The strength of organisational culture significantly depends from the manager, from his knowledge of different fields like economics, finance, technologies, law etc., his set of managerial and professional competencies. According to W.Zhu, L.K. Treviño, Z. Zheng (2016), the skills of leader are important as well as his ability to adhere to norms of ethics, his values and leadership style. L. Šimanskiene, E. Župerkienė (2013) note, that the influence of leader is bigger the more he knows about organisational culture: customs, values and traditions of the organisation. A. Miniotaitė, I. Staškevičius (2019) add that it is very important what kind of person the leader is, if he is ethical, bases his actions on values, his subordinates feel safe with him, because they can feel that if they adhere to the norms of ethics and morale, they will continue to be part of the organisation, there is a certain kind of trust among managers and subordinates.

The success of a company significantly depends from the manager and his leadership style, traits and behaviour. Managers, especially higher-ranking ones, always have a high influence on the organisational culture, by their words and actions they set the norms that penetrate whole organisation. These norms form an understanding among employees' whether there is encouragement to take risks or not, how much freedom does each employee have within organisation, how to dress, what behaviour is rewarded and which is penalised. Organisational culture is not set in stone, it can be changed and modelled, it depends on the skills, competencies of the manager as well as his leadership style. **Scientific problem** addressed in this article is formulated in a question: do managers with different styles of leadership form organisational culture in a different way?

Goal: To determine the influence of managers with different leadership styles on the formation of organisational culture.

Methods: *The methods applied in the research include analysis of literature sources, systematization, synthesis, generalization, and comparison in the theoretical part, and qualitative research, i.e., a semi-structured interview and data processing methods were used in the empirical research.*

Theoretical framework

Usually, the managers already have a certain set of values, therefore it is simpler to adapt the values of the subordinates to that set, nevertheless, a manager alone can't change the norms and values of all members of the organisation. The actions of the manager will depend on his ambitions and personality, whether he values personal or organisational goals more. When the manager is also an owner, or a shareholder of an organisation this distinction is not so common – the manager will always seek to make the best decision for the organisation, to have a good organisational culture and be effective. Human resource management determines how one organisation will be different from another and leadership is much more important than the ability to allocate physical resources. Managers shape organisational culture through communication and delegation, they can strengthen the culture by making sure that their actions and words are in line with the values of the company and its vision. It is important that the managers show good example, so the desired culture is adopted, clear communication and frequent feedback encourages collaboration among employees. When managers delegate responsibility to team members and assign tasks, employees understand how plans and goals of the departments are linked to the plans and goals of the whole company and its vision. Delegation frees up managers and allows them to spend more time on organisational values, encourages their trust in team members (Macey 2016).

O. Bunni (2007) states, that organisational beliefs, values and actions determine the common leadership style. If the manager is far away in the sense of his values and beliefs from his subordinates, it can have a negative influence on organisational culture. On the other hand, trust in the manager and his good example has a positive influence on the effectiveness of the group. Leadership style is a behavioural model, that the manager applies in solving organisational problems. The style can be determined by the actions of the manager, each style has its strong and weak sides (Awan, Mahmood 2009). Leadership style – a usual behaviour of the manager towards his subordinates, while trying to influence them to achieve organisational goals. The level of delegation, power, orientation to task or relations reveals the style of leadership of the manager. Because every manager is a unique person, it is quite difficult to assign a particular manager to a concrete leadership style.

To describe the styles of leadership, the classification devised by K. Lewin (Burnes, 2004) is used, he classified the styles of leadership into three categories – autocratic, democratic and liberal. As it was mentioned before it is hard to find a manager, that has only characteristics of one style of leadership, but it is still important to understand this classification.

Autocratic style of leadership. A manager with this style has enough power to bend his subordinates to his will, when it seems necessary to him, he doesn't hesitate to use that power. In order to achieve the goal, the autocratic leader is more likely to dominate and act unilaterally. This style usually brings out a passive resistance of the subordinates and requires a constant effort and direction from the manager in order for things to get done (Awan, Mahmood 2009). Members of the team in this case avoid responsibility and only do what is told (Ukaidi 2016). If a manager

of organisation has this style of leadership, he is the one who is forming organisational culture, he decides what values subordinates have to have and directs their actions. One of the values usually is compliance, as the autocratic manager can't stand objections.

Democratic style of leadership. A manager with this style gives an opportunity for the employees to participate in the management of an organisation. He encourages teamwork, has trust in his subordinates and thinks that they are willing to accept responsibility. Democratic leader allows team members to initiate any task and fulfil it on their own will. A good democratic leader always encourages participation, delegates and does not forget that he is responsible for the results (Awan, Mahmood 2009). A manager with this style will not be the only one to form organisational culture, he will try to understand the need of all of the employees and will encourage to voice their position, so he could influence them to achieve the goals of an organisation. In this case the formation of an organisational culture is a team effort where the leader sets only the guidelines.

Liberal style of leadership. A manager with this style of leadership is not confident in his ability to lead, he is not capable to set the goals for the group and the decision is usually made by the one who takes the responsibility. Liberal manager seldomly interferes with the affairs of his employees, doesn't control the activities of the group much at all (Awan, Mahmood 2009). The group is not so much concerned about its attitudes, moral norms or teamwork, the results usually are poor (Ukaidi 2016). A liberal leader will have a small influence on the formation of organisational culture, he could be an idea generator, but the final result will be determined by the subordinates. Organisational culture will be formed sporadically, based on the current circumstances. This style of leadership can only be effective in an organisation with a high level of consciousness of employees.

J. M. C. Burnes (1978) continued the work of K. Lewin in classifying styles of leadership and described a transactional and transformational styles.

Transactional leadership. This style sets out as motivating employees mainly through reward – there is a transaction between a manager and an employee, reward for the fulfilment of the tasks set (Danish et al. 2014). Transactional leader usually set the goals, ways they should be achieved, reward and constructive feedback. Transactional style could be summarised as rewarding desirable behaviour and punishing undesirable ones, this style is a source of conflict in a organisation (Jung, Avolio 1999). Transactional leaders concentrate on the fulfilment of current needs of the employees, but do not try to inspire them to reach for the self-realisation. These leaders act in an existing culture and do not try to change it, they adopt and use the existing rituals, stories and behavioural models (Mullins 2007). When the mission of an organisation coincides with the values of employees, organisational culture is strong, but the level of innovation and willingness to take risks in an organisation with transactional leadership style is quite limited (Bass, Avolio 1993).

Transformational leadership. Leaders with this style create a clear vision for the organisations, empower employees to achieve higher standards, to behave in a way to inspire trusts of the others and give meaning to life in the organisation (Danish et al. 2014). Transformational leadership leads to the interaction between manager and subordinates that is based on trust and commitment, rather than transaction. The goal of this style is not to explain to the subordinates how to achieve the goals, but to inspire them to work better than they thought they could, to rise above self interest in the name of a common goal. Transformational leaders usually are charismatic, they inspire subordinates to develop and fulfil their potential (Mackenzie, Podsakoff, Gregory 2001; Bass, Ringio 2005). Transformational leaders develop the consciousness of their subordinates, based on higher ideals and moral values like freedom, fairness, equality, peace, humanism and not the negative emotions like fear, greed, jealousy and hate (Masood, Dani, Burns and Backhouse, 2006).

Transformational leaders seek to reorganize organizational culture, one of their main tasks is to create an organizational culture that would bring meaning to the members of an organization. These leaders understand, that before making any change to organizational culture, one must first understand it. Respect for the past of organization guaranties continuity, radical brake from the past can negatively affect organizational culture. (Mullins 2007). Transformational leaders encourage employees to change their attitude towards themselves and work, employ their charisma and ability to create an inspiring vision. When organization has a transformative organizational culture, there is a unifying sense of common goal and organization becomes something like a family.

It is possible to have an organizational culture that combines the traits of transformational and transactional leadership styles. B. J. Avolio and B. M. Bass (2002) explain these managers have to move to transformational leadership but keep some of the traits of a transactional leader. There is no ideal style of leadership, and the style has to fit the organizational culture and it also depends on the subordinates, who should have a voice in shaping the organizational culture.

Charismatic leadership. These types of leaders possess some exceptional traits perceived by their followers, they are charming, capable of stirring strong emotions like love and hate of their subordinates. Charismatic leadership is based on the leader's ability to communicate and act in a way, that inspires and motivates the followers through their emotional response (Danish et al. 2014). Charisma comes from personal traits, observation, self-inspection, psychoanalysis and popularity (Covey 2007). G. Yuklo (2006) states, that even leaders without charisma can be successful, because they have good managerial skills, like planning, organising etc. Charismatic traits are easier established in the organisations with clear set of values. It is possible to use these exceptional abilities for evil as well as good, so it is very important that charismatic leaders put the interest of an organisation and society above their personal ones. Charismatic leaders contribute to the formation of organisational culture that employees trust and feel inspired by it.

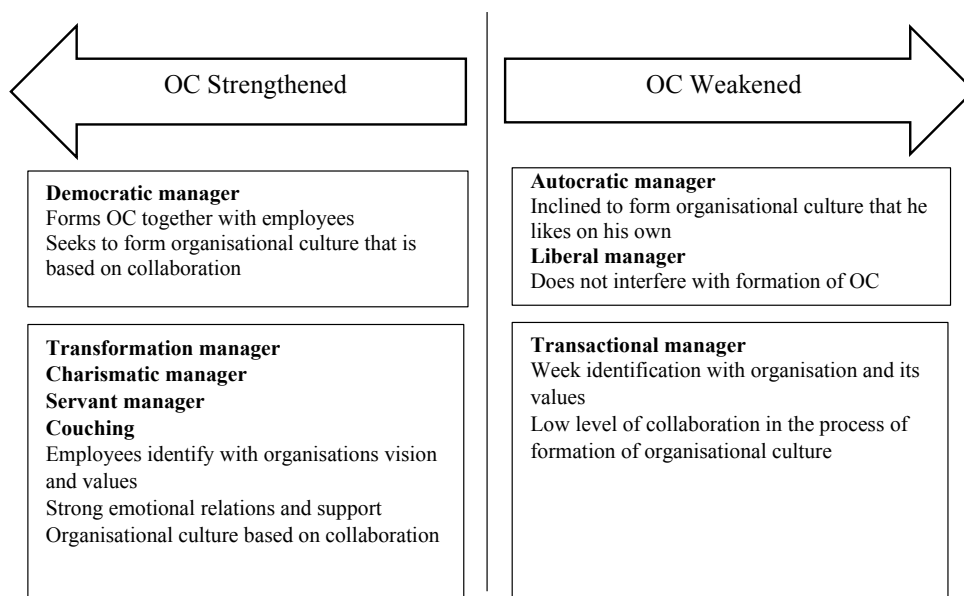
Servant leadership. These managers lead employees by serving them, the clients and society, main traits of the servant leaders are ability to listen, calm down, understand, persuade, conceptualize, manage, empathy, insightfulness, orientation to community building and growth of others (Barbutto et al. 2010). J. P. Tanno, D. K. Banner (2018) sees the servant leadership style as a logical continuation of transformational leadership style – in the case of transformational leadership the emphasis is on the leader, in case of servant leadership its on the followers (Haar, Brougham, Roche, Barney 2017). Servant leader tries to create an organisational culture that is beneficial to his subordinates, not paying too much attention to his personal needs, the value system also reflects the interests of employees, goals are achieved by providing what the employees need. Servant leaders are great listeners and teachers, the style itself has some similarities to the democratic style, but one has to wait for the results a bit longer.

R. Washington et al. (2006) analysed the relation among the values of servant leaders (empathy, honesty, competence) and determined that subordinates positively evaluated managers with servant leadership style and their traits (Avolio, Walumbwa, Weber 2009). Servant leaders are different from leaders with other styles in a way, that they view their subordinates not as a means to achieve the goal, but instead seek to satisfy their needs and motivate them by showing respect.

Coaching. With coaching the goal is to facilitate everyday activities of employees, manage not by administrating, but by listening, supporting, advising, suggesting, creating environment in which employees themselves find a way to increase productivity. According to M. A. West (2011), coaching requires skills of listening, providing feedback and reaching the agreement on tasks. This leadership style is directed towards employee's professional development, when the manager suggests and helps to find the solutions for the tasks that were set (Cavpyk, 2009). Manager helps in the development of creativity of employees, encourages unconventional perspective on problems and their solution. S. Dhomme, S. P. Hall (2012) thinks that communication and teaching are the keys to the success of this leadership style. Coaching treats the employees of an organization as its main asset and guaranty of success, this style of leadership is directed towards human resource in all its

levels, it creates an exceptional organizational culture, that accepts teamwork, sharing of management functions but keeping the subordination intact.

Based on the analysis of leadership styles and organizational culture, we depict the influence of leadership styles on organizational culture in Figure No. 1.



Source: created by others based on the theoretical analysis

Fig. 1. Influence of style of leadership on the formation of organisational culture

In Figure No. 1 we depict the impact of leadership styles of managers on the strength of organisational culture. Democratic, transformational, charismatic, coaching and servant managers will strengthen organisational culture, provide subordinates with clear goals and motivation. Managers with these styles of leadership form organisational culture together with employees, motivate them to identify with the vision of the organisation and its values, organisational culture will be based on collaboration. Autocratic, liberal and transactional styles of leadership, meanwhile, are more likely to weaken organisational culture because there is not enough collaboration, or the manager does not get involved in the process of formation of organisational culture at all. In essence, organisational culture can be learned by the employees and managers play a vital role in this process – they determine the values, act as an example of ethics and a role model of acceptable behaviours in the organisation, this is a way how organisational culture becomes stronger.

Research methodology

For the research a semi structured interview was prepared, interviews were conducted meeting with each of the managers in person. One interview took between thirty and fifty minutes, eleven managers of different levels from various types of organisations participated in the research, the experience in management field was between three and thirty years. Two managers were from very small enterprises, two – from small enterprises, three – from big companies and four – from medium size companies. The research was carried out in 2020 during the month of January and February.

Table 1

Demographic characteristics of managers

No.	Code of expert	Type of activity	Managerial experience years	Gender	Level of management	Number of employees	Size of organization
1.	M1	Manufacturing	30	Male	Highest	5	Very small
2.	M2	Service	16	Fem.	Highest	21	Small
3.	M3	Public administration	20	Fem.	Middle	255	Big
4.	M4	Commerce	24	Male	Middle	5	Very small
5.	M5	Service	3	Male	Middle	188	Medium
6.	M6	Manufacturing	14	Male	Highest	1500	Big
7.	M7	Healthcare	8	Male	Highest	50	Medium
8.	M8	Education	29	Fem.	Highest	70	Medium
9.	M9	Service	32	Male	Highest	12	Small
10.	M10	Education	11	Fem.	Highest	80	Medium
11.	M11	Commerce	21	Male	Highest	260	Big

Source: created by the authors based on research data

Results of the research

We asked the managers *What kind of character traits are important for the manager? Can you describe how do you manage? Do you know any leadership styles?* From the answers it was clear that most of the managers are well educated and know enough about leadership styles. All the participants have university education, how they mentioned themselves they are reading professional literature and sometimes attend various courses on the topic of management. It is interesting to note, that some of the managers stated their opinion on what kind of leadership style

they think they have and provided explanation of why they think like that. For example, M4: “I think, that for me as a manager, it is important to be flexible, to create relationships, responsibility, empathy and sociability. I try to be honest and fair both to myself and others, to understand the reasons of inappropriate behaviour of my subordinates. I think that the main styles of leadership are cooperative, liberal, democratic. But I do not shy away from transformational style of leadership as well.” Probably this manager exhibits these traits when interacting with employees as he is working in a small organisation with only three people, so the responsibility for the results rests on his shoulders, also to hear out the opinion of few employees is not so difficult.

Manager M5 describes his leadership style as: “There are many traits that I can attribute to myself, I could set out those traits, that I personally seek to improve upon. One of the most important things I try to do is to make people around me better, so everyone around must keep up. Every employee must understand that the work has to be finished to the end, I will not let it go otherwise, we will come back to it again and again until I find out what exactly is preventing the worker to fulfil the task. On the other hand, I always try to praise workers for each completed task or idea generated, that is to use praise instead of a “whip”, and I could say it allows to achieve a very good result. When I need to express criticism, I try to keep it constructive, to explain my point of view, why a certain way is better for the whole organisation.” Even though the manager didn’t name a concrete leadership style, this looks quite close to transformational leadership. From the interview there was an impression, that the manager really tries to improve himself and encourages his subordinates to choose the activities that suit them, to be innovative, try out different experiences and strive for results. Similarly, manager M6 said: “Respect, openness, working hard and need for self-improvement, trying to achieve more are the main traits I would ascribe to myself. Open and honest leadership, ability to teach and learn, to develop relationships and partnerships is the key to success.” This manager has a lot of experience in the managerial field, is working with international markets, so he is well acquainted with newest tendencies in management and emphasises the role of learning, so we can see the traits of transformational and coaching style here. Meanwhile manager from the public administration organisation M3 straight away identified: “Coaching is closest to my leadership style.” He mentioned that in his line of work most of activities are highly regulated, there are a lot of rules, but, according to him, manager must help his subordinates to have a broader perspective on various situations. He chose the coaching style of leadership because he encourages his subordinates to attend courses and take interest in various fields to improve themselves.

“Democracy. Freedom of speech. Respect. I try not to be the one to tell what to do, instead I try to encourage to find a solution. I think it is better to wait for an employee to make a mistake and then discuss it together, then just strictly telling the employee what and how to do it” – this is how manager M7 describes his style. This is common for transformational style of leadership, the manager trusts his employees, is not scared by the chance they will make a mistake. We do not know if the subordinates feel the same about making mistakes, but we should note, that it is not common for a manager to have this approach. Manager M8 describes his leadership like this: “Responsibility, respect of each employee, customer, student, fairness, pride of one’s work, decisiveness, willingness to improve, creativity, strategic thinking... I am a democratic leader (not autocratic!).” It is interesting to note, that while taking about leadership styles, the manager so emotionally expressed his dissociation with autocratic style, it might be there were some remarks made regarding his leadership style before, or that this style is totally unacceptable to the manager. Manager M9 emphasises these aspects of leadership: “Higher requirements to myself than to my subordinates, personal example is the most important thing. Tolerance, patience.” It is hard to assign a leadership style just based on these words, but it might be democratic style of leadership. Manager M2: “I don’t even know what my leadership style is. I try to listen, advise, help my subordinates. Some of them need very concrete directions, otherwise they pretend not to understand how to work, especially those who are temporary seasonal workers.” Clearly seasonality has an impact on leadership process, seasonal workers are treated differently than the regular ones, otherwise we could say that this manager has probably has a democratic leadership style. Manager M10 stated, that “I work from my heart, my doors are always open to my employees. I am always ready to help and to motivate, praise, but, if a task is not fulfilled, I try to understand why it happened first, and then have a serious talk. But it doesn’t happen very often, I have a very good team assembled.” This manager speaks about her organisation and employees with a lot of passion and emotion, expresses a lot of positive thoughts about work, commitment even love to work and children, so most likely we could attribute coaching and transformational styles to her leadership. Manager M11 decided, that “most likely I have a transactional style of leadership, because of the specifics of my work, there is a need for highly specific knowledge for the workers, so I can’t allow, that everyone would work differently, decide on their own and devise their own way of selling – this would not be understood by our suppliers, we have contracts you know. But I try to be as friendly as possible.” During the interview there was a friendly atmosphere, sometimes the workers would ask a question, communication appeared to be sincere and to the point, so it is highly likely that the manager was correct when assigning a transactional style of leadership to himself. Manager M1 told, that “style of leadership depends on the workers as well, I can negotiate, take consultations, but the final decision is mine to make. I am an autocrat; I think there is no other way in a factory.” So, one of the managers is proud to be an autocrat and doesn’t see anything bad in it, he thinks, that this allows a small manufacturing company to compete in the global market, as the manager noted “we are very well known in Europe, but not in Lithuania.”

To summarize we can look at the leadership styles that could be attributed to the managers based on the interview.

Table 2

Summary of leadership styles

No.	Leadership style	Frequency
1.	Autocratic	1
2.	Coaching	3
3.	Liberal	1
4.	Democratic	2
5.	Transactional	1
6.	Transformational	5

Source: created by the authors based on research data

As we can see, among the participants of the interview coaching and transformational styles of leadership are the most frequent. A question could be raised, do the managers really lead that way, or are they just familiar with the recommendations of the past decades on how to lead properly? As it was notes, all the managers were educated, so it is highly likely, that the styles they chose help them to lead and achieve organisational goals. Only eleven managers were surveyed, but the general trend is quite positive, lets us hope that the achievements of management science will be more and more applied in practice not only in the rest of the world but in Lithuanian organisations too. The more advanced the management will be, the higher the satisfaction of the employees with the organisations they work in.

Managers approach to formation of organisational culture

During the interview, we asked managers about formation of organisational culture: is it important to form organisational culture; if not, why? How do you form organisational culture? What are the stages of this process? What are the ways to form organisational culture and who is responsible for that?

Organisational culture on itself is not the way that is needed by the management of organisation and its other workers, it needs to be created. All of the respondents noted that it is very important to shape organisational culture in a wright way: “Yes, it is important. It has the impact on the individual, his motivation” (manager M8); “It is important to create and maintain it, it is one of the most adequate methods to achieve the goals” (manager M6); “I think, that even in such a small collective it is possible to form and use at least some parts of organisational culture, it makes organisation distinct, gives meaning and pride in ones work, improves the relations among colleagues” (Manager V4); “Creates cooperation and “face” of an organisation” (Manager M3). Others just mentioned, that without a doubt it is important to form organisational culture.

To the question, how do you form organisational culture and who is responsible for that, managers had various answers, from stating that there is no separate person responsible for that, to giving examples of how they do it themselves. Manager M9 noted what is important: “stability, continuity, personal example, like if a manager does not quarrel with the customers, this sets an example of how other employees should treat customers as well.” Manager M8 told that “director of the school and team leaders are responsible for creation of a modern educational environment, collaboration, teamwork, creation of positive microclimate, formulation and fulfilment of organisations vision, general strategy and goals.” Manager M10: “We follow the new trends and try to implement them in such a way that teachers, students and parents would form a strong community.” Manager M7 told that: “There is no distinct practice for that in organisation. But such things as teamwork, independent decision making, responsibility, respect for colleagues, patients and their relatives are encouraged.” So, the managers state the essential things, that are followed in their organisation, but there is no clear definition of who and what should be done, that a suitable organisational culture would be formed. Manager M6 mentioned, that organisational culture is formed “through everyday work with colleagues and subordinates, through clear communication and freedom to actualize oneself by attaining organisational goals.”

Manager M2 expressed such an opinion: “We try to create a friendly atmosphere, so that people would want to work.” Manager M5 thinks that “there is no system of forming organisational culture, and no one person responsible for that. I personally form it during meetings, by giving 5-10 minutes to talk, share my thoughts on organisational culture. Personal example of a manager is also very important, how he acts, how his actions confirm his words. I also try to develop individual traits of my subordinates, their understanding of self and the world, even though it might sound mundane.” Manager M4 states, that “no one is responsible for the formation of organisational culture. Organisational culture forms on its own.” For manager M1 it was “hard to say, everything through the development and implementation of new technologies.” Manager M11 mentioned, that “in most cases management tells what is important, how to act in unforeseen circumstances. They give a lot to charity each year, create traditions, respect employees.”

Even though the managers expressed a lot of nice thoughts about development of relationships, attention to employees, goals etc., no one could determine the stages of formation of organisational culture, rules, procedures or similar things. In essence it is more of an improvised process, managers act in a way how it feels wright to them. Even though before, the managers mentioned, that it is very important to create organisational culture, in reality we can see, that it is created fragmentally, without a clear plan or a system. Educational organisations were the most advanced in this sphere, but even there was no mention of stages of organisational culture formation.

When asked, what is the most important thing in the formation of organisational culture, the answers were quite similar – responsibility of the manager and personal example. Manager M8: “Everything is important: attitude of the manager, strategies, innovations, motivation of people.” Manager M9: “Personal example and integrity, understanding of goals and tasks.” Manager M7 mentioned that “general understanding of organisational culture” is important. Manager M6 noted: mutual respect and responsibility, sincere, open communication, teamwork, learning every day.” “Example of the manager is really important”, - both managers M11 and M2 agreed. Manager M5 quite similarly also emphasised “attitudes of managers and their personal example”, manager M10, stressed, that “it is important how manager thinks, what kind of employees he hires and then, how he takes responsibility.” To manager M4 “it is most important to know, what we are trying to achieve with the formation of the organisational culture and to find the wright methods for that.” Manager M3 mentioned the importance of “clear values and acting upon those values.” Manager M1 mentioned, that “employees understand organisational culture through the benefits, if there are orders and they are getting paid, then that means that the organisational culture is created well.”

Even though, as it was mentioned, the organisations lack system, rules and procedures of organisational culture formation it is pleasant to note, that all of the managers in one way or another understand their own responsibility and the importance of their personal example. It is likely that they are trying to me good managers and by doing that they inspire others to do their job well too, in some cases they even change convictions of the employees and share values with them. The problem is that in a lot of organisations those values are just formalised and shared through a website, but not implemented and acted upon in the everyday life on an organisation.

Conclusions

1. The analysis revealed the role of a manager in the process of forming organisational culture. There are many factors, that influence the formation of organisational culture, but everything starts with the creation of organisation, when the owners of that organisation set out clear values, goals, vision, mission and then continues by keeping up traditions through various periods of development of the organisation. Employees of all levels play an important role in the creation of organisational culture, adding their own contribution. But the most important person in the process of organisational culture formation is the manager, as he has the highest capacity to shape the organisational culture and adapt it to changing needs and challenges. Managers with a different style of leadership form organisational culture in a different way, in organisations with a dominant autocratic, liberal and transactional styles of leadership organisational culture is weakened, and strengthened if dominant leadership styles are democratic, charismatic, transformational, serving and coaching.

2. Among the managers that participated in the research, transformational, coaching and democratic leadership styles were the most prevalent, these leaders are oriented towards teamwork, help for subordinates, they can critique constructively, direct subordinates to the wright direction and hear them out. All of the participants of the research mentioned that it is very important to create organisational culture in a wright way, but some of them also admitted, that they don't find enough time for that as it would be needed. Mostly, the process of formation of organisational culture is fragmented, without having a clear plan how to do it, exception managers in education activities. A comforting fact is that all the respondents understand the importance of organisational culture and the need for its formation. A clear plan and precise, targeted action would allow managers to form and maintain a better, more suitable for organisations needs and goals organisational culture.

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SUSTAINABILITY THEORY AND GREEN PUBLIC PROCUREMENT: IMPLEMENTATION IN LATVIA

Inese Pelsa, University of Latvia
Signe Balina, University of Latvia

Abstract. Over the last 20 years, the concepts of sustainability and sustainable development have become increasingly popular, playing a key role in science, society, national development scenarios and entrepreneurs in the organization of production processes. Given that public procurement in the European Union accounts for around 14% of gross domestic product (GDP), it is increasingly important to make this procurement sustainable in order to ensure that the market develops in a sustainable direction. Taking into account the European Commission's 2014 Directive on Public Procurement, public procurement needs to include the application of the most economically advantageous tender principle, as well as the possibility to apply environmental requirements at different stages of procurement, as well as to reject an inadequately low price.

Green public procurement (GPP) is procurement where environmental requirements are systematically integrated, from the assessment of needs, the development of a detailed technical specification and the development of an assessment procedure, to the achievement and monitoring of results. A very important aspect of GPP is life cycle costs, which means that not only the price of the product is considered, but also maintenance and disposal costs.

The aim of the study is to analyse GPP contributes to sustainable development. The study analyzed the literature on sustainable development, on green public procurement, and on the role of the state in ensuring sustainable development. In 2015, United Nations member states adopted the 2030 Agenda for Sustainable Development, which set 17 goals for sustainable development. The study reveals that GPP is one of the most important tools for ensuring the achievement of sustainable development goals, especially the 12 goals "Ensure sustainable consumption and production".

Keywords: *green procurement, sustainability, sustainability theory.*

JEL code: H57, O44

Introduction

Over time, people's needs have changed, from basic food needs to self-assertion. To the 19th century there has been a rapid development of industry, which has ensured the provision of an ever higher level of comfort to solvent consumers. The development model of the consumer society ignores the fact that production that consumes resources and degrades the environment and provides a way of life in the richest countries of the world is not possible on the planet. Even now, when the desired level of consumption has been reached in only a relatively small number of countries around the world, not all the planet's ecosystems are able to absorb the pollution caused, as in the case of climate change caused by greenhouse gas emissions. There are not enough resources on Earth to sustain current levels of consumption in Western Europe and North America in the long term, not to mention that such consumption could be provided to all the world's inhabitants.

The term 'sustainability' has its origins in Latin, where it means 'bottom-up support'. So - to preserve, provide food or maintain some vitality. In 1987, the United Nations World Commission on Environment and Development issued the concept of "Our common future" for sustainable development, which was then used at the 1992 Rio Conference. In 1995, in Oslo sustainable development concept was defined.

In 2010, the EU adopted the Europe 2020 strategy, which was a key step in promoting sustainable development and made the green economy as one of the most important drivers. Given the high levels of public spending, which make up a significant part of the economy, public procurement can provide a sustainable impetus to the market to encourage the production of innovative products and achieve environmental goals (Lundberg, S., et al., 2015). Public authorities have a very important role to play in promoting sustainable development, as many institutions, companies and the general public follow the trend of public authorities and, for example, can persuade them to apply the principles of sustainable development (Day, 2005). According to the European Commission, public procurement accounts for 14% of GDP in the EU. Testa et al indicates that GPP has increased in recent years. It is essential that the application of GPP in new sectors has increased in recent years, thus expanding its application and developing new procurement practices (Cheng, W., et al., 2018). EU municipalities are identified facing challenges for sustainable development, such as sustainable procurement and the promotion of consumption and production through the provision of sustainable products and goods. Another challenge is the eco-label, which would make sure that the purchased product meets the requirements. When buying food is an important criterion for organic production, and it is all based on respect for fair trade and ethical issues, so that the customer can trust the supplier that the delivered product will meet the requirements (Belgica, P.B., Jose, B.C.M., 2018). GPP is a market-based instrument to stimulate and ensure a change in customer choice and to change producers' production habits.

The potential of GPP is that suppliers and manufacturers are given clear incentives to gradually change their production processes, innovative and sustainable approaches (Bratt, C., et al., 2013). When conducting public procurement, it is very important to develop a strategic procurement policy, evaluating the areas that are primary in order to promote the integration of environmental and social aspects and at the same time promote the welfare of the society. The paper analyzes the role of green public procurement in ensuring sustainable development.

Literature Review

In the first half of the 20th century, it became clear that the main problem is the consequences of one's own actions, i.e. risks (production risks) - wars, uneven economic development at the expense of other countries and nations, limited natural resources, ecological problems. There was more and more talk about sustainable development, how to balance production, consumption, environmental aspects. Sustainability, as a generally accepted and recognizable concept, has existed since 1955, when the Russell-Einstein Manifesto spoke of an attitude that could ensure political responsibility for future generations or guarantee future generations a chance to exist at all (Butcher, 2005). 1972 was a turning point, as the Club of Rome issued a report entitled "Limits to Growth", which modeled possible development scenarios with a computer and emphasized the importance of the concept of sustainability. The conclusions were not encouraging: modern civilization has growth limits set by nature itself, and people, if they want to survive, have to think about the boundary beyond which unforeseen consequences begin. (Meadows, D.M., et al., 1972)

The issue of sustainable consumption has become relevant in the last 25 years, as more and more policy makers and scientists have turned to it. The Brundtland Commission, fully known as the World Commission on Environment and Development (WCED), issued a report in 1987 entitled 'Our Common Future', in which concepts such as 'environment' and 'development' were seen as interrelated, stressing that this political cooperation is needed first and foremost, as global processes can only be influenced jointly. For the first time in history, the report formulated the above-mentioned definition of sustainable development: "Sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (United Nations, 1987). The United Nations Conference on Environment and Development, also known as the Rio Summit, the Earth Summit, was held in Rio de Janeiro in 1992. The conference adopted

a number of important documents that paved the way for the signing of the Kyoto Protocol in 1997, incl. The Rio Declaration on Environment and Development, the Forest Principles and, most importantly, the United Nations Agenda 21. The main document of the United Nations Conference on Environment and Development, Agenda 21, or the Rio Declaration on Environment and Development, was adopted as a joint action plan involving the United Nations, governments and individual local groups involved in human rights and addressing environmental interactions. In 2002 in Johannesburg held World Summit on Sustainable Development, where "poverty eradication, changing unsustainable patterns of production and consumption, and protecting and managing the natural resource base of economic and social development are overarching objectives of and essential requirements for sustainable development" (United Nations, 2002). ". In 2012, 20 years after the Rio Summit, the United Nations Conference on Sustainable Development Rio + 20 was held, where specific measurable goals for achieving sustainable development were adopted. In 2015 adopted Sustainable Development Goals (SDGs) Goal 12 calls to "ensure sustainable consumption and production.

The Organization for Economic Co-operation and Development (OECD) made "green growth" its 2011 slogan (Lorek, S., Spangenberg, JH., 2014). In 2012, at the United Nations Rio + 20 Conference on Sustainable Development, one of the most important issues discussed was the importance of a green economy for sustainable development (Barbier, 2012). With the growing interest in sustainable development, the challenges and challenges of sustainable development are being addressed guidance specialists are evaluating supply chains, as well as researchers are involved in researching this issue. (Craig R. Carter, Dale S. Rogers, 2008). Preuss emphasizes in his research that the aim of his research is to make a significant contribution to the development and improvement of knowledge, so that public authorities focuses on activities that ensure sustainable development (Preuss, 2009). One of the key words for the successful implementation of sustainable consumption is to increase consumption efficiency and get rid of resource and energy use rules as much as possible (O'Rourke, D., Lollo, N., 2015). O'Rourke and Lollo (2015) emphasize that developed countries, given their economic performance, are most responsible for the most significant environmental impacts of consumption. Giulio, Fischer et al. (2014) emphasizes that, in order to ensure sustainable development, consumption and sustainability must be seen together and cannot be limited to consumption and product choice. Given the significant share of public procurement in GDP, GPP is mentioned as a very important tool for sustainable consumption development policy (Nissinen et al., 2009). As noted by Evans et al. (2010) the main concept of GPP is the integration of environmental requirements into the procurement of products and services. The methods of the research are qualitative analytical, graphical. The study analyzed the literature on sustainable development, green public procurement, the role of the state in ensuring sustainable development. Scientific publications, policy-making documents, a book were analyzed.

History of sustainability and sustainable development

Human needs have changed over the centuries priorities starting with the basic need for food and shelter, ending with the need after self-affirmation and recognition. With the rapid development of industry in the 17th and 19th centuries, hence the possibility of providing some level of comfort for solvent consumers, there was a requirement to provide such living conditions that would be possible regardless of the environment - the so-called external factors or risks. These external conditions have long been a major obstacle to the physical existence and development of a society that can be considered safe and lasting. However, in the first half of the 20th century, it became clear that the main problem was the consequences of man's own actions, i.e. risks (production risks) - wars, uneven economic development at the expense of other countries and nations, natural limited resources, ecological problems. This change in public perception should be considered as the moment when it began to take shape the concept of sustainable development. Sustainability as a generally accepted and recognizable concept has existed since The Russell-Einstein Manifesto of 1955 (Butcher, 2005) there was talk of the need for an attitude that could ensure political accountability to future generations or be able to guarantee future generations the possibility of existence. The simplest definition explains the concept as "Improving the quality of life of ecosystems within regenerative capacity".

The concept of "sustainable development" creation is largely related to the 20th century identified development constraints. About perception shifting and focusing on the interrelationship between environmental, economic and social well-being the moment of connection is considered by many to be 1962, when Carson R. published a book "Silent Spring" about the rapid increase in pesticides in agriculture is associated with damage to animals and human health (Vakerneidzels, M., Riss, V., 2000). The authors argues that he denies the meaning of the statement "the purpose justifies the means" by documenting the original intentions of the LSD the real harmfulness of the positive effects on nature and people. The first half of the seventies was marked by many events that contributed to the formation of the concept of sustainable development and the strengthening of principles, incl. Stockholm Conference 1972; publication of the book "Small is Beautiful" by the British economist Ernst Friedrich Schumacher (the role of decentralization and technology in development); R. Roger and R. Piano publication of the principles of sustainability entitled "Statement" in 1975.

The concept of sustainable development was included in the "Global Conservation Strategy" report issued by the Union for the Conservation of Nature and Natural Resources In 1980. Today, for the first time, the world's most widely used definition of sustainable development published in 1987 by the United Nations (UN) in the report of the Commission for the Environment and Development "Our common Future" (United Nations, 1987). The United Nations Conference on Environment and Development (UNCED), also known as the Rio Summit, Rio Conference, Earth Summit, Eco '92) was convened 1992 in Rio de Janeiro. The conference was a number of important documents have been adopted, paving the way for the signing of the Kyoto Protocol In 1997, incl. The Rio Declaration on Environment and Development, the Forest Principles and, most importantly, the United Nations action plan or Agenda 21 (United Nations Sustainable Development, 1992). The main document of the United Nations Conference on Environment and Development Agenda 21 or the Rio Declaration on Environment and development issues was adopted as a joint action plan involving the United Nations, governments and individual local groups involved in addressing the interplay between humanity and the environment. The paper looked at four aspects: social and economic conditions; resource conservation and use issues; strengthening the role of certain social groups; enforcement mechanisms. After the Rio conference in December of the same year was established by the United Nations Sustainable Development Fund. The United Nations Commission on Sustainable Development, which the main task was to follow Agenda 21 fulfill the defined conditions.

Definitions of sustainability, sustainable development, dimensions and goals

A clear definition of sustainable development in the modern sense is provided by the so-called Brundtland Commission in 1987: "Sustainable development is development that meets the needs of the present, without prejudice to the possibility of meeting future needs" (United Nations, 1987). Often sustainability is understood only in ecology context, but should be understood as a social, interaction of economic and environmental factors, because nowadays it is impossible to separate these concepts or to imagine that a change in one factor may not influence the other factor different manifestations. In the 21st century, with the strengthening of globalization trends, culture is recognized as an essential element for a full existence. EU study "Sustainable development in a diverse world" even considers that the coexistence of different cultures is the basis for development, as it allows traditions to be preserved as a key the link between a healthy past and a possible one the future. The

balanced coexistence of all these values, without developing one at the expense of the other, would be considered correct or simply a logical development formula. The concept of "sustainable development" was most widely discussed at the UN Conference on Environment and Development (UN Conference on Environment and Development), held in 1992 in Rio de Janeiro. The conference discussed the definition of sustainable development, sustainable development enabling conditions, opportunities for assessing sustainable development, etc. Theses on the concept the essence of "sustainable development" is summarized in the Rio Declaration "Creating new levels of cooperation between countries, as well as between societies and peoples new and equitable global partnerships" (United Nations, 1992). However, it is important that the Rio Declaration does not provide a clear interpretation of the sustainable definition, but 27 principles that are significant for sustainable development.

In 1995, in Oslo the concept of Sustainable Development was defined as "use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations" (Giulio et al., 2014). The Organization for Economic Co-operation and Development (OECD) made a significant contribution to the development of "green growth", which in 2011 made "green growth" the motto of the year (Lorek, S., Spangenberg, J.H., 2014). A significant milestone was in 2012, when one of the most important aspects of the United Nations Rio + 20 conference was The United Nations Rio + 20 Conference on Sustainable Development in 2012 focused on the role of the green economy in ensuring sustainable development (Barbier, 2012). The Declaration on the Sustainable Development Goal developed by the European Commission sets out 10 basic principles for promoting sustainable development: promotion and protection of fundamental rights, justice between the generations open and democratic society, citizen involvement, involvement of business and social partners, policy coherence and governance, policy integration, best practice use of available knowledge, the precautionary principle and the polluter pays principle (European Parliament, 2005). A.R. Pierce in interpreting the concept of "sustainable development" and with them content analysis of the related comments, has concluded that the concept of "sustainable interpretations are based on one of four groups of development sustainability variables (Pierce, Defining Sustainability: A Content Analysis Comparison of Definitions From the Literature., 1997) According to A.R. Pierce, in the group "human-related" can combine its concept "Sustainable development" interpretations, which mention the human being as the most important variable life, human present or future needs, human cooperation, human participation, present or next generation, etc.

The above definitions emphasize that sustainability problems would not determine the existence of a human system. Achieving sustainable development requires a balance between ecosystems, economic and social systems lifting capacity. The three pillars that make up sustainable development are the environmental, social and economic dimensions (Cannibals with forks: the triple bottom line of 21st century business). According to the Rio Declaration of the UN Conference on Environment and Development, sustainable development is integration and synergies between the environmental, economic and social dimensions (United Nations, 1992).

From an ecological perspective, sustainable development, in which the economy and technology are part of the impact, is a necessary element in a broad context. The other two parts - social development and democratic politics, as well as free and creative cultural development - are equal. These three dimensions also determine the direction of sustainable development. In some sources, environmental (ecological) aspects are considered to be in fact the only elements of sustainable development, incl. EU funds planning and supervised. A clear example of interpreting "sustainable development" as a guide mainly on economics is offered by R. Goodland R. and G. Ledec G. interpretation - "sustainable development is a social and structural transformation of the economy a model that optimizes the currently available economic and social benefits without exposing potential similar benefits in the future" (Goodland, R., Ledec, G, 1987).

This somewhat abstract and theoretical definition, however, determines the necessary conditions for the common evolution of man and nature. From this it is possible to draw conclusions about the conditions necessary for sustainable prosperity and sustainable technology.

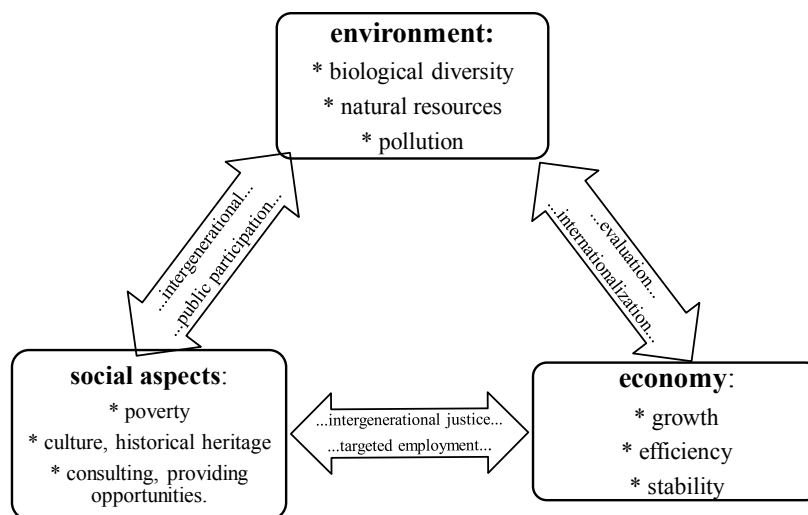
By tweaking this definition, we come to four strict requirements such as:

- 1) dematerialization of production,
- 2) reduction of the degree of materialization of consumption,
- 3) elimination of the "rebound" effect,
- 4) long-term population reduction.

All this can be made even more effective if the overall environmental stress caused by human activities is eliminated. Sustainability is a value-based goal, in the process of which it is necessary to consider the interaction of the environment, technology, politics, social sphere, economy and organization. Sustainability requires that we create a community or society in such a way that it is in harmony with nature; domination over nature is the wrong path. Sustainability requires a significant reduction in the use of the world's natural resources and the sharing of these resources with individuals, communities, peoples and generations in order to ensure maximum benefit and dignity for all.

When looking at the dimensions of sustainable development, the world is dominated by two similar ones, but still different approaches - some sources (e. g World Bank, OECD, as well as Munasinghe M., J.F. Shogren, etc.) sees sustainable development as a three-dimensional process, but part - as a four-dimensional process (EC, J. Spangenberg). In addition, the UN, which is in fact the creator of the concept of 'sustainable development', in some sources sustainable development considered as a three-dimensional process (Rio Declaration) and in others as a four-dimensional process (UN Commission on Sustainable Development) indicators for measuring sustainable development.

However, it is important that indications of the three influencing and characterizing sustainable development interconnected dimensions are not clearly stated in the Rio Declaration. Carefully after getting acquainted with the principles of the Rio Declaration, the authors has found that almost everyone from Rio The 27 principles of the Declaration relate to each of these three dimensions, and essentially within them in principle, even other dimensions can be identified. For example, Principle 2 of the Declaration contains indications on the role of the state in ensuring sustainable development, from which it can be concluded that for example, that the Rio Declaration sets out the political dimension of sustainable development.



Source: created by author's on the basis of M. Munasinghe's publication "Environment Economics and Sustainable Development"

Fig. 1. The concept of sustainability economics, according to M. Munasinghe

Three-dimensional (environmental, economic and social) approach to sustainable development agrees with World Bank, OECD, etc. organizations and institutions, as well as authors such as, for example, M. Munasinghe. In addition, M. Munasinghe explored these three dimensions and calls for the development of a completely new scientific discipline for the management of sustainomics (Munasinghe, 1993), Figure 1. According to Munasinghe, the environmental dimension of sustainable development includes factors such as: biodiversity, the volume of natural resources and the level of pollution. Economics dimension is characterized by growth, efficiency and stability. In turn, viewed in the social dimension poverty levels, culture and potential. In each of the three sustainable development dimensions, according to M. Munasinghe, require a wide variety of scientific disciplines attention as well as comprehensive knowledge and skills. J. Spangenberg, on the other hand, believes that sustainable development is characterized not by three, but by four dimensions (Spangenberg, 2004). J. Spangenberg points out that in order to analyze the various dimensions of sustainable development, first of all need to clearly define their boundaries, and, in his view, this is possible in the case of sustainable development dimensions of capital stock types. According to J. Spangenberg, the environmental dimension is capital of natural resources and includes all geological and biological processes except those controlled by man. The social dimension is man-made (not social) capital, and so on includes individual values such as skills, passion, experience and social attitudes. In turn, the economy (man-made capital), according to J. Spangenberg rather than at the same level as the other three dimensions described above dimension, but a sub-dimension of them, the separate separation of which is mainly necessary its significance and people's perceptions of it. Pierce (1997) in interpreting and with the concept of "sustainable development" content analysis of the related comments, has concluded that the concept of "sustainable interpretations are based on one of four groups of development sustainability variables:

- Human related;
- Resource related;
- Related to the economy;
- Related to ecosystems.

According to A.R. Pierce, in the group "human-related" can combine its concept "Sustainable development" interpretations, which mention the human being as the most important variable, human life, human present or future needs, human cooperation, human participation, present or next generation, etc. In the group "resource-related" - those interpretations in which as the most important variable is named environmental or natural resources, renewable or non-renewable resources, stocks, etc. In the group "related to ecosystems" - the interpretations in which the most important the variable is ecosystems, animals, environment, nature, biomass, environmental resources, climate, food, etc. In turn, in the group "related to the economy" - the interpretations in which the most important variable named economy, economic development, economic prosperity, economic systems, income, etc. The authors considers that A.R. The concept of "sustainable development" classification, individual groups of sustainability variables to each other overlaps - for example, the group "resource-related" overlaps with the groups "ecosystems", "human", as there is no resource in the world that does not exist either natural or man-made. Therefore, the authors of the interpretation of the concept of "sustainable development" offers to classify into three groups:

- interpretations oriented to the environment;
- economic-oriented interpretations;
- human-centered interpretations.

In the group "interpretations oriented to the environment", the authors proposes to include the concept of "sustainable development interpretations", which focus on sustainable development, conservation of natural resources, maintenance of biological diversity, prevention of pollution etc.. The group "interpretations oriented to the economy", in turn, includes them interpretations that emphasize the need for financial or material benefits. In the group "human-centered interpretations" it is possible to combine those interpretations in which emphasizes the importance of social justice, including justice within and between generations generations, justice within and between social groups, etc.

In 2015, the United Nations General Assembly adopted a resolution Transforming Our World: A Sustainable Development Agenda for 2030, or Agenda 2030 (United Nations, 2015). It sets out 17 Sustainable Development Goals (SDGs) and 169 sub-targets to reduce global poverty and poverty. global development is sustainable. SDG is balanced in three dimensions: economy, social aspects and the environment. The SDGs are relevant to all countries and can only be achieved by joint efforts, at the same time part of the SDGs is largely in line with the challenges and goals of the national level. Given the relatively wide range of topics covered by the SDGs, countries choose the most relevant goals for them to focus on by 2030, according to the priority goals to be achieved at the national level, thus adapting the SDGs to their needs and incorporating national and societal SDGs into national development planning. Higher-performing countries take the initiative to promote the development of other countries, reduce poverty and play a key role in promoting sustainable development. To build a success the concept

of sustainable development of the concept is important to involve scientists, leaders and entrepreneurs, and that is why conferences and forums are held to look for the best, most appropriate solutions.

The Agenda 2030 envisages that the whole society, incl. - citizens, business, politicians, national associations, the United Nation and other institutions. The European Union has already begun work on the next programming period, with Agenda 2030 as the framework. The 12th aim of Agenda 2030 is Ensure sustainable consumption and production patterns (United Nations, 2015).

Sustainability and green public procurement, implementation in Latvia

Nowadays, in order to make rapid changes in consumption and production, the state has a vital role to play in it. Public procurement is one of the key economic activity of governments (Brammer, S., Walker, H, 2011). It is important, how governments take advantage of this opportunity. In order to be able to carry out this process of change more successfully, large consumers, including guidance and public authorities that can influence manufacturers to produce more environmentally friendly and sustainable products (Bratt et al., 2013).

One of the big problems faced by public procurement is the principle of the lowest price, where the customer chooses the lowest price as one of the main criteria. Consequently, other criteria, such as the environmental aspect, are not fully assessed. Sustainable procurement does not focus as much on price as it does on environmental and social requirements (Rietbergen, M.G., Blok, K., 2013). GPP is a tool for public authorities that have saved sustainable consumption and financial support, especially given the total life-cycle cost of the contract, not just the purchase price.

Nissinen et al. (2009) points out, that GPP is a very important tool for the development of the sustainable consumption. As indicated by Carter and Rogers (2008), increasingly, to address sustainable development challenges, both management professionals and researchers are addressing supply chain challenges. According to Lundbergs Marklunds et al. (2015) public spending plays a very important role in the economies of many countries around the world and can influence the share of production and consumption through procurement, and it is GPP that is one of the driving forces behind reducing environmental impact. Day (2005) points out that, even if the public chooses green procurement, public authorities must set an example in green procurement and have a positive effect on raising public awareness. O'Rourke and Lollo (2015) emphasize the need to increase consumption efficiency in order to develop sustainable consumption.

GPP is a market-based instrument to stimulate and ensure a change in customer choice and to change producers' production habits. The potential of GPP is that suppliers and manufacturers are given clear incentives to gradually change their production processes, innovative and sustainable approaches (Bratt et al., 2013).

According to Lundberg Marklund et al. (2015) that public spending (procurement) is a significant part of the economy that can have a very significant impact on production and consumption. GPP is one of the driving forces behind reducing environmental impact. Cheng, Apolloni et al. (2018) mentions that the introduction of GPP has expanded significantly to include more and more new industries and there is a growing trend towards GPP. In its study, Belgica (2016) assessed the potential problems and challenges faced by European Union municipalities in implementing sustainable procurement. The biggest challenges are the eco-label, fair trade.

Although the definitions of GPP vary slightly from country to country, the main idea is a demand-driven policy implementation tool to achieve and ensure that environmental objectives are met (Witjes, et al., 2016). Also, one of the goals of GPP is to promote the use of environmentally friendly products and services in public procurement. GPP is based on the government's willingness and ability to purchase sweat-friendly products, which must be included in all sections of the procurement process to reduce negative environmental impacts (Cheng et al., 2018).

The EC definition of GPP is as follows “a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycle when compared that would otherwise be procured” (EC (2008) 400, p.4). Some similar definition can find on OECD documents. One of the most important basic concepts of GPP is the inclusion of environmental criteria in public procurement, when purchasing environmentally friendly products and goods (Evans et al., 2010). Testa et al. (2011) emphasizes that the effective implementation of GPP is very closely linked to investment in technological innovation, which is one of the driving forces. One of the findings of EOCED (2015) is that EU countries, in order to promote and develop economic growth, address environmental and social issues, deliberately old procurement, including these requirements in procurement. From a legislative point of view,

In 2014, the Council of the European Union adopted two Directives that include requirements for public procurement. The new framework included changes to simplify and streamline the procurement process. Directive requirements includes the inclusion of environmental requirements in procurement, as well as the assessment of life-cycle costs, not just the lowest price offer, which has long been a barrier to the integration of innovative environmental criteria into public procurement.

Cheng, Apolloni et al. (2018) points out that one of the most important tools in GPP is the life -cycle costing approach, as life - cycle costing can be used to meet environmental requirements, as well as to determine economic benefits, energy consumption and CO2 reduction. Life-cycle costs are also very important for manufacturers, as they have the potential to reduce production costs, as this approach allows costs to be identified at all stages of production when assessing costs from cradle to grave.

GPP is one of the key drivers for sustainable development, as public procurement accounts for around 14% of GDP and it is public and municipal procurement that can be concentrated on both environmental and social issues and on promoting change in the production process of companies.

In 2017 In 2017, the Cabinet of Ministers approved the Cabinet of Ministers Regulations No. 353 on the application, supervision, control of green public procurement. The regulations define 7 mandatory groups of goods and services, as well as 15 voluntary groups to which GPP applies (Cabinet of Ministers, 2021). In 2020, amendments were made to the Cabinet of Ministers not. no. 353 reviewing GPP requirements in 9 product and service groups, as well as creating new GPP requirements for leisure and sports infrastructure and cloud services. In Latvia, the development of GPP has been wave-like and it can be seen that as soon as GPP Requirements are set as mandatory, there will be an increase in GPP. According to the data of the Procurement Monitoring Bureau of the Republic of Latvia, the development of GPP in Latvia in 2015 in financial terms accounted for 18.9% of all public procurements. In 2018, this share reached 18.3%, but in 2019 17.3%. It is important that when analyzing GPP by the number of procurements, a positive upward trend is observed from 4.3% in 2014, to 13.2% in 2019. This means that more and more GPPs are carried out according to their number, but financial fluctuations are characterized by the fact that the share of GPPs is more than 60% made up of procurement of construction works. Consequently, if GPP is not used in construction procurement, it also has a significant impact on the overall share of GPP.

According to Testa et al. (2016), knowledge and information play a very important role in the successful implementation of GPP. In 2018 was made the questionnaire to get out what factors influence development of GPP in Latvia's municipalities (Pelsa, 2018). Out of 109 local governments, 55 local governments (50.4%) answered the questionnaire questions on the application of GPP and invitations. The main categories where they applied GPP are: 26% catering services, 14% office paper, 13% printing devices and computers. All these categories are mandatory for applying GPP regarding Cabinet of Ministers Regulation 373. The survey also showed that only 21% have voluntarily applied GPP themselves to reduce their environmental impact and purchase a more environmentally friendly product, while 41% indicated that they apply GPP because it is required by the Cabinet of Ministers. It proves the importance of state regulation for state and local government

institutions to make strategic and smart procurements, also contributing to the achievement of other goals, such as CO2 reduction. 34% of respondents indicated that the biggest obstacle to the application of GPP is the insufficient budget for procurement. This proves that local governments still focus on the principle of the lowest price and are not able to calculate long-term cost savings by applying life cycle cost analysis, which is one of the most important factors in green procurement.

Cheng, Apolloni et al. (2018) emphasizes the crucial role of procurement in ensuring that GPP efficiency is effective in the procurement evaluation criteria by determining the appropriate distribution of points. It is also mentioned that in the current situation the application of GPP in the EU is voluntary, but in the future the application of GPP should be mandatory. In order to promote the implementation of the European Green Deal, the European Commission announced in early 2020 that it is currently developing mandatory minimum GPP criteria that EU Member States will be required to apply in public procurement. In the case of Latvia, if GPP is set as mandatory in 7 groups of goods and services, then it is applied. The list of GPP mandatory groups needs to be extended in order to facilitate the wider application of GPP.

Conclusions

1. The concept of "sustainable development" creation is largely related to the 20th century identified development constraints about perception shifting and focusing on the interrelationship between environmental, economic and social well-being.
2. The United Nations World Commission on Environment and Development adopted the concept of sustainable development "Our Common Future (1987)". On the basis of this concept, the United Nations Conference on Environment and Development in 1992 (Rio de Janeiro) defined the concept of sustainable development was defined at an international event in 1995 in Oslo. Definition of sustainable development "use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations".
3. When looking at the dimensions of sustainable development, the world is dominated by two similar ones, but still different approaches - some sources (e. g World Bank, OECD, as well as Munasinghe M.) sees sustainable development as a three-dimensional process, but part - as a four-dimensional process.
4. In 2015, the United Nations General Assembly adopted a resolution Transforming Our World: A Sustainable Development Agenda for 2030, or Agenda 2030. It sets out 17 Sustainable Development Goals (SDGs) and 169 sub-targets to reduce global poverty and poverty. global development is sustainable. SDG is balanced in three dimensions: economy, social aspects and the environment. One of the most effective means of achieving SDG targets, especially 12th target "Ensure sustainable consumption and production patterns" is GPP.
5. The state can promote the inclusion of environmental and social criteria in its procurement, thus also changing demand and promoting changes in production processes, offering more sustainable products and services on the market. The application of GPP in the EU is currently voluntary. At the beginning of 2020, the EC issued a statement to promote the implementation of the European Green Deal, the development of mandatory minimum GPP criteria, which EU Member States will have to apply in their mandatory public procurement.
6. In the Republic of Latvia, the development of GPP has been wave-like and it can be seen that as soon as GPP Requirements are set as mandatory, there will be an increase in GPP. In the case of the Republic of Latvia, if GPP is set as mandatory in 7 groups of goods and services, then it is applied. The list of GPP mandatory groups needs to be extended in order to facilitate the wider application of GPP.
7. Governments still focus on the principle of the lowest price and are not able to calculate long-term cost savings by applying life cycle cost analysis, which is one of the most important factors in green procurement. GPP needs to be used more smartly and more widely to address environmental and social issues and to build public welfare.

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ASPECTS OF PUBLIC ADMINISTRATION IN LATVIA DURING COVID-19

Elina Petrovska, University of Latvia
Gundars Berzins, University of Latvia

Abstract. Governments are facing a major challenge in tackling COVID-19 while remaining in charge. One of the support tools used by the head of government and his/ her team is support and advice provided by the centre of government. The aim of the article is to assess the relevance of managerial (provision of governance) and operational functions (ensuring the operation of the Cabinet of Ministers) of the centre of government of Latvia and to conduct a literature review on complexity theory as well, since the centre of government acts in an open and complex system. Based on literature review findings, authors concluded that complexity theory can be used to assess the centre of government in public administration system. In order to evaluate the relevance of functions, public administration employees from public administration institutions in Latvia were surveyed. The results of the survey made it possible to identify the importance of particular functions within institutions of the centre of government.

Keywords: *public administration, centre of government, complexity theory, COVID-19.*

JEL code: H83, H11

Introduction

COVID-19 has changed not only our daily habits over time, but also the way we work. One of the sectors that needed to quickly adapt to COVID-19 was the public sector. Given that the public sector is widely interpreted as it includes many different institutions from the local government level to the state level, this paper assesses the relevance of managerial (provision of governance) and operational functions (ensuring the operation of the Cabinet of Ministers) of the centre of government (CoG) in Latvia.

In the fight against COVID-19 a key role is played by the CoG (OECD, 2020, p. 1), as it is responsible not only for overseeing and ensuring governance of overall policy-making but also for communication, exchange of information among different levels of government, providing the head of government with the information necessary for making decisions and explaining to the public the essence of the decisions taken by the government. The assessment of provision of governance and ensuring the operation of the Cabinet of Ministers is important; the focus of the CoG on the performance of these functions not only provides information on whether the function has been performed, but allows us to conclude how topical it was during COVID-19.

As the CoG is considered as a part of public administration “that provides direct support and advice to the Head of Government” (OECD, 2014, p. 4) and reports directly to the highest decision-making body (Alessandro, Lafuente et al., 2013) in the field of finance, politics, justice and ensuring the operation of the Cabinet of Ministers, the authors of the paper conducted a survey in the following CoG institutions of Latvian public administration - Ministry of Justice, Ministry of Finance, State Chancellery and Cross-sectoral Coordination Centre.

From a theoretical point of view, the CoG is considered using various theories that are used in the analysis of public administration. The CoG is characterized by an open and complex systems influenced by environmental events. This is the reason why a CoG is theoretically assessed using systems theory, contingency theory, and complexity theory. Given that the study on the management and support functions of the Cabinet of Ministers was carried out at a time when the country was imposing COVID-19 restrictions and the CoG had to perform its functions in a difficult environment, the authors carried out an additional review of the literature on complexity theory. The corresponding theory examines the ability of a system to self-organize in complex and chaotic conditions (Murray, 2008). Despite the fact that complexity theory is widely used in the analysis of various complex systems, the authors, analysing various databases, did not get confirmation that a particular theory was used in the context of a CoG. Thus, it can be stated that the analysis presented in the paper contributes to the development of the complexity theory.

To explore the synergy between complexity theory and practice, a further literature review was conducted to assess the importance of certain managerial and operational functions of the Cabinet of Ministers in the context of COVID-19 at the CoG in Latvia. To achieve the goal, the authors put forward the following research questions on management and an analysis of the relevance of the functions of ensuring the work of the Cabinet of Ministers and analysis of the complexity theory:

- Are the provision of governance and ensuring the operation of the Cabinet of Ministers at the CoG equally important during COVID-19?
- Can complexity theory, based on its scientific framework, be used to assess the processes taking place in the CoG during COVID-19?

Literature Review

The attitude towards the CoG can vary depending on the system of government, administrative traditions, main government institutions and institutions with strategic functions. Despite this particular division, the CoG can be defined in both an expanded and a narrower sense. In a narrow definition, the CoG consists of institutions directly subordinate to the highest governing body (for example - the prime minister), while in the broader definition, the CoG consists of other institutions, even if they are not directly subordinated to supreme governing body (Alessandro, Lafuente et al., 2013, p. 9). It should be noted that the CoG is a virtual “collection” of various institutions of government, headed by the prime minister, the president, etc. The theoretical basis of this study is based on the narrow definition of the Latvian CoG - study focused on public administration institutions that provide support to the head of government, develop financial policies, ensure the rule of law, and policy monitoring.

How does the CoG relate to complexity theory? In the context of COVID-19, the CoG could not avoid adapting to new conditions dictated by environmental events. To respond adequately to these new circumstances, CoG was forced to develop a new understanding of the interrelationships in decision making. In this context, complexity theory would be the most appropriate of the theories because, despite the complexity of circumstances (system’s complexity), it creates a need for simplicity or “creates its own demand for simplicity” (Hartwell, 2017, p. 175) and “provides a framework for understanding how an organization” (Lemon, Macklin, 2021, p. 222) should operate in its environment (including in a new environment – authors note) and how an organization is formed as a system (Lemon, Macklin, 2021).

Complexity theory is a special “form of scientific thinking that” (Little, 2008, p. 22) is sometimes seen “as a metaphor” (Smith, 2005, p. 25). Since its application approaches are based on different fields of science - mathematics, natural sciences, behavioural sciences, etc., it is characterized by different research approaches (Pascale, 1999; Brodbeck, 2002). It should be noted that complexity theory is “widely discussed” in the social sciences (Ladyman, Lambert et al., 2013, p. 35). Complexity theory allows one to “understand and manage public services more efficiently” (Oakden, Walton et al., 2021, p. 182) when the environment is constantly changing due to uncertain external conditions.

Complexity theory has an interdisciplinary approach that provides facts about the development of an organization and in which various interaction processes associated with the components of a particular system - an organization - are studied and analysed. After reviewing various studies and publications on complexity theory and its complex systems, the authors were faced with the opinion that a “system forms out of

many components” (Whitty, Maylor, 2009, p. 305) and complex system forms when a new system arises or when new parts are formed that are dependent (Andersen, 2019). Analysing an interdisciplinary approach in the context of organizing a CoG in an environment (i.e., complex and open), we can conclude that its system is capable of changing both inside and outside, taking into account external and internal environmental factors.

Based on a review of the complexity theory literature, the authors highlight several statements about the use of complex theory that are applicable to the system of the CoG (see Table 1).

Table 1

The nature of the use of complexity theory

Author	Characteristics
Yolle	Includes various active densities to ensure continuous operation of its field of operation (Yolle, 2019)
Little	Sees complex models that combine different systems (components) (Little, 2008, p. 22)
Grobman	“relates non-linear dynamical systems” (Grobman 2006, p. 352)
Smith	Describes, explores the system as a whole (not a part of it) (Smith, 2005)
Letiche	Forms a new concept that focuses on the process (Letiche, 2000)
Pascale	Provides information about changes, stability and organization in the “social and natural systems” (Pascale, 1999, p. 237)
Mathews	Conceptualizes the “paradoxes confronting organization theory and analysis” (Mathews, 1999, p.439)
Pearce	Examines system processes and procedures (Pearce, 1994)
Pippenger	Applies a network constructing technique (Pippenger, 1978)

Source: author's developed based on a literature review

Given the nature of the use of the complexity theory, the authors came to the conclusion that, despite the fact that the CoG is an element in public administration, the system in which it is located should be constantly (continuously) revised and, if necessary, be prepared to adapt not only to new situation, but also be able to work in challenging environmental conditions, such as those created by COVID-19.

Despite the complex system of the CoG and the environmental conditions affecting it, the CoG must be able to ensure the quality of its functions. The functions of the CoG are described using four blocks: (1) Steering Overall Policy Making (National Strategic Planning, Planning and Budgeting Synchronization, Policy and Legislation Coordination); (2) Managing Performance and Programs (Performance Management, Government Program Management); (3) Reinventing Government (Institutional Governance and Efficiency, Strategic Government Human Resources Management, Service Delivery Improvement) and (4) Supporting the Cabinet (Cabinet Administrative Support, Government Communication) (Booz & Company, 2010, p. 2). Because the four distinct blocks contain several variables — strategy content and processes, human resource management, organizational culture, and leadership styles (Boyne, 2003, pp. 371-372) (managerial competencies) - a CoG requires the interaction of various processes.

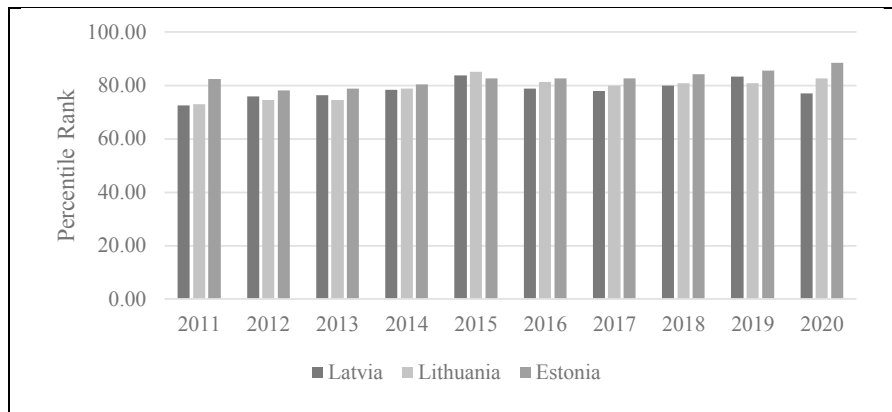
Regardless of its variables, the task of the CoG is to create such interactions that develop a new product that shapes the long-term development of the country and increases the well-being of the population. Interaction is often viewed from a horizontal and integrated approach, as it helps to maintain the consistency of the CoG in its policies (Lafuente, González, 2018, p. 10) and to perform its functions. It should be noted that performing functions to achieve goals can be a complex process - the system has the ability to adapt to different situations and it “is a set of interacting elements” (Karpa, Akimova et al., 2021, p. 59) that creates different interaction models and new properties, but public administration itself is hard, therefore, in difficult circumstances (for example, during COVID-19), it can become passive (Strużyna, Marzec et al., 2021) in achieving its goals in order to survive.

Research results and discussion

The “Government at a Glance” edition (published every two years) by the Organisation for Economic Cooperation and Development (OECD) has been covering the topic of a CoG for several years. Since 2015, “Government at a Glance” publications have analysed CoG’ much more (OECD, 2015; OECD, 2017; OECD, 2019; OECD, 2021), for example, publications include survey data, on the role of CoG (CoG’s response to COVID-19, the CoG’s willingness to implement the UN Sustainable Development Goals, the role of the CoG in open government etc.). The OECD distributes various key responsibilities of the CoG: (1) preparation of Cabinet meetings; (2) policy co-ordination across government; (3) strategic planning for the whole government; (4) communication government messages (to the public); (5) monitoring the implementation of government policy; (6) strategic planning; (7) relations with Parliament, etc. The OECD maintains opinion, that “... the role of the CoG is to control the quality of evidence” (OECD, 2015, p. 94). As noted by the OECD (2013, p. 193), performance can be assessed using information (indicators) on the results of government policies or about general information on inputs and outputs, etc.

So, the CoG performs functions that are largely related to the effectiveness of public administration as a whole. What does influence the efficiency in the systemic environment of the CoG? There are several possible answers. There may be some imbalances in the system, for example, in terms of the distribution of state power (Metelenko, Pashko et al., 2021, p. 6), which affects efficiency. On the other hand, this can be influenced not only by the quality of public administration, for example, when the public evaluates the work of public administration in the development, implementation and monitoring of policies, but also public confidence in government, public administration. In turn, coordinated interaction between various functions of public administration is important for effective and efficient management of processes in the system (in this case, in the institutions of the CoG apparatus), since one of the key performance indicators is the effective and efficient management of institutions (Shateava, Tsybulnyk, 2020). So, the effectiveness of public administration is related to the effectiveness of the government. Evaluating the World Bank data on public administration efficiency (see Figure 1) for the period from 2011 to 2020 in the Baltic countries, the following conclusions can be drawn:

- Latvia's performance in the group of three countries did not show the highest performance in any year and only once surpassed Estonia, which has the best performance among all the Baltic countries;
- Once in the period from 2011 to 2020, Estonia was not in first place among the Baltic countries;
- Latvia and Lithuania have moderate differences in public administration performance indicators from 2011 to 2019, with the extension of the COVID-19 situation, the indicator becomes significantly different for each country, while Latvia retains the last place, and Estonia - the first.



Source: author's construction based on World Bank data source about Government Effectiveness

Fig. 1. Government Effectiveness in the Baltic States

Since the government effectiveness indicator is directly related to governance (management of the policy planning system) and support for the activities of the Cabinet of Ministers (issues of strategic interaction and cooperation, organization of government work), a study was carried out on the importance of the above mentioned functions in the face of COVID-19.

The survey of the CoG was carried out in the first half of 2021. The survey was conducted in conditions created by COVID-19, which means that respondents assessed the relevance of the functions at that time, based on their unique situation. The results of the survey were - 38% of the respondents from the Latvian CoG - the Ministry of Finance, the Ministry of Justice, the State Chancellery and the Cross-sectoral Coordination Centre. The survey asked to rate functions on a scale from 1 to 10, where 1 was a function that was not important at this time at all, and 10 was a function that is very important.

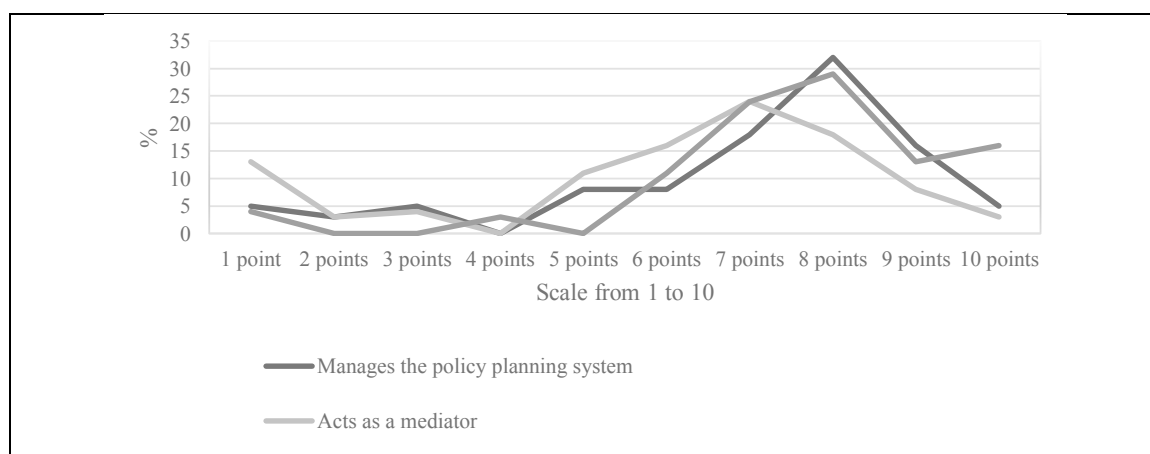
The selection criterion is considered as limitation of the study because:

- The respondents were selected on the basis of information available on the Internet about the structure, functions and contact details of these institutions, including information on the position held;
- There was no access to the job descriptions for the selected employees to define specific functions, as the information is not publicly available;

The authors believe that, despite the workload of the CoG during COVID-19, a fairly large number of respondents were participated in survey (a total of 87 employees of the CoG).

The respondents provided their views on the following functions of the CoG:

1. Provision of governance:
 - Managing policy planning system;
 - Acting as a mediator;
 - Advising the head of government, his/ her office and other public administration staff.
2. Ensuring the operation of the Cabinet of Ministers:
 - Providing strategic communication of the government;
 - Coordinating the preparation of Cabinet meetings;
 - Cooperating with line ministries.

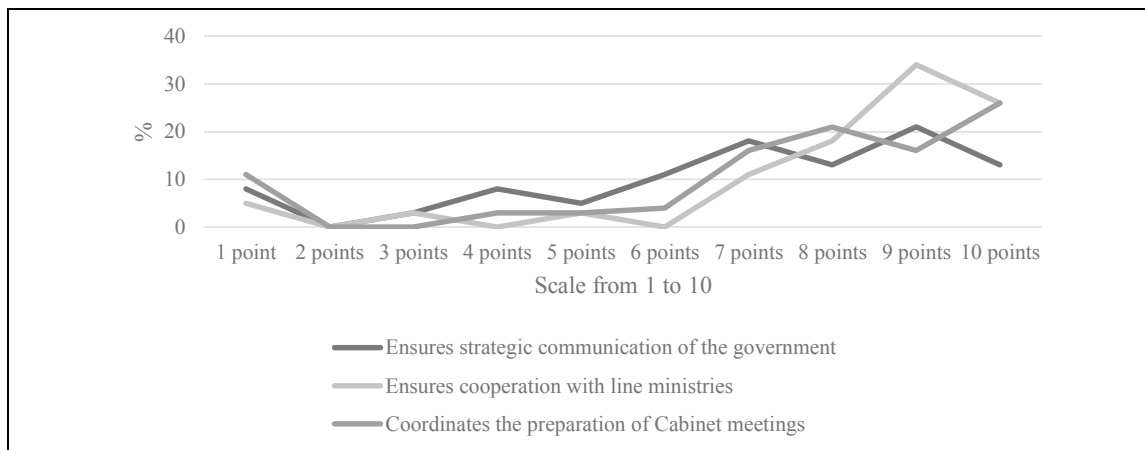


Source: author's construction based on authors' survey

Fig. 2. Provision of Governance

Assessing provision of governance (see Figure 2) on the issue of mediation, the survey data revealed that the mediator function may not be typical for all surveyed CoG institutions, as it was marked on a scale from 1 to 5 in 31% of cases although 42% of respondents rated it as important (on a scale from 7 to 8). The most rated function (16%) with the highest points possible – 10 was advising the head of government, his/ her office and other public administration staff; this function also dominated as the most important among the functions of provision of governance, as it was rated by 58% of respondents on a scale from 8 to 10 points. Despite the fact that 5% of respondents rated management of the policy planning system as 10 points, while 48% respondents rated it on a scale from 8 to 9. Figure 2 data reveals that the advisory function

dominates among the provision of governance functions at the top of the scale (from 8 to 10) and the role of the mediator had the lowest rate at the top of the scale.



Source: author's construction based on authors' survey

Fig. 3. Ensuring the operation of the Cabinet of Ministers

Analysing the functions of ensuring the operation of the Cabinet of Ministers (see Figure 3), cooperation with line ministries received the highest rating on a scale from 8 to 10, reaching 78%. The specificity of the CoG is that each of its departments or units, taking into account institution's tasks, has its own specific functions, for example, coordination of the preparation of Cabinet meetings is mainly carried out by the State Chancellery. Despite the fact that 11% of respondents rated the importance of coordination of the preparation of Cabinet meetings by 1 point (see above example about function distribution at the CoG), it has a relatively high rating, because on a scale from 8 to 10 it is estimated by 63% of the respondents. Such a large number of respondents (63%) can be explained by the fact that each state institution, in accordance with its competence, prepares conclusions, assessments and other information for the Cabinet meetings as necessary.

An interesting picture emerges when assessing the importance of ensuring strategic communication of the government - its importance is assessed by almost every value included in the gradation scale, except for 2 points; at the same time, on a scale of gradations from 8 to 10, it has the lowest rating (47%) among all functions in Figure 3. The data obtained may indicate the fragmentation of the implementation of the function and the problems of the implementation of the main principle in strategic communications - a unified statement and explanation of the problem on the part of public administration. It should be noted that the conclusions of the study of strategic communications conducted in 2020 (Palkova, 2020) showed the following (in relation to public administration):

- "incomplete strategic communication" (Palkova, 2020, p. 37);
- "state institutions are not ready to act together in a crisis situation" (Palkova, 2020, p. 37).

In addition, it should be noted that co-operation and coordination functions in CoG during COVID-19 are important as the one of the CoG's institution has a special inter-institutional coordination group under its responsibility to work together to limit the spread of COVID-19. Overall Figure 3 data showed that cooperation with line ministries is at the top of the scale (from 8 to 10) and strategic communication function had the lowest rate at the top of the scale.

Conclusions, proposals, recommendations

The main research findings, proposals and recommendations are the following:

1. The results of the study showed that provision of governance and ensuring the operation of the Cabinet of Ministers during COVID-19 are important with slight difference. Ensuring of operation of the Cabinet of Ministers received higher results from the respondents on a scale from 8 to 10 than provision of governance. So the conclusion should be drawn that during COVID-19 CoG institutions focus more on cooperation and coordination functions. Assessing answers of respondents in all six functions together, it was possible to conclude that the three most important functions were – cooperation with line ministries (78% on a scale from 8 to 10), coordination of preparation of Cabinet meetings (63% on a scale from 8 to 10) and advising the head of government, his/her office and other public administration employees (58% on a scale from 8 to 10).
2. Assessing provision of governance and operation of the Cabinet of Ministers it could be concluded, that the processes taking place at the CoG during COVID-19 can be assessed through the prism of complexity theory, as its implementation combines different dynamic systems that need to find a new way (concept) to adapt to new changes while remaining in their natural system, i.e. in the public administration' system. The authors believe that the continuation of other studies of the CoG within the framework of the complexity theory will contribute to the development of this theory.
3. Authors advise to conduct in-depth research on the effectiveness of the CoG in COVID-19 with a focus on the CoG's ability (i.e., evaluating inputs and outputs) to achieve the purpose of the functions entrusted. The authors also believe that in the light of the results of the survey on the provision of strategic communication, the performance of this function should be assessed separately, in the context of government effectiveness.

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THE IMPLEMENTATION OF THE UN GLOBAL COMPACT ACTIONS AGAINST CORRUPTION IN THE PRACTICE OF LITHUANIAN ORGANIZATIONS

Ilvija Pikturnaite, Klaipeda State College of Applied Sciences
Jurgita Pauzuoliene, Klaipeda State university of Applied Sciences

Abstract. The importance of anti-corruption actions is explicitly highlighted in UN Sustainable Development Goals, the Tenth Principle of the UN Global Compact, International and national legal acts. Governments, companies, UN agencies and civil societies join their forces for learning, dialogue, and action. All companies need robust anti-corruption measures and practices to protect the interests of their stakeholders and their reputations. The aim of this article is to investigate the implementation of the UN Global Compact actions against corruption in the practice of Lithuania organizations. It is very important to identify practical actions which business companies can execute in their anti-corruption fight. Theoretical analysis of UN Global Compact Management Model and other documents revealed that business companies can carry out a variety of practical activities that can be attributed to categories of commitment, defining, assessment, implementation, measurement, communication. A qualitative method of document analysis was used to collect empirical data: the organizations' social responsibility reports, their statements about corruption prevention initiatives and actions were analysed. The study analyses the social responsibility reports of 25 members of the UN Global Compact in Lithuania. Based on findings it must be assumed that companies need methodological assistance from institutions ensuring prevention of corruption and reporting on practice.

Key words: *corruption, global compact, organizations, reporting, sustainable development goals.*

JEL code: D73, D2, Q01

Introduction

Corruption is defined as the abuse of entrusted power for private gain (Communication from the Commission to the European Parliament, 2011). Corruption shall mean any behaviour of any person employed in public and the private sector, exceeding one's authority, behavioural standards established in legal acts or company's internal rules, in the pursuit of private or other persons' advantage thus causing harm to the interests of the State or individual natural or legal persons (Anti-corruption Handbook for business, 2018). Corruption takes many forms, such as bribery, trading in influence, abuse of functions, but can also hide behind nepotism, conflicts of interest, or revolving doors between the public and the private sectors. Corruption acts as a drag on economic growth, by creating business uncertainty, slowing processes, and imposing additional costs (European Commission 2021). It erodes trust, weakens democracy, hampers economic development, and further exacerbates inequality, poverty, social division and the environmental crisis. Exposing corruption and holding the corrupt to account can only happen if we understand the way corruption works and the systems that enable it (Transparency International the Global Coalition Against Corruption, 2021). Corruption comprehends and encompasses many types of behaviour, such as bribery, extortion, cronyism, misuse of information, abuse of discretion. These behaviours can take place by way of different activities such as appointing personnel, procuring services, controlling, and regulating activities such as issuing permits and licenses, constructing things etc. Many of these occur concurrently in different sectors such as health, energy delivery, tax administration, justice etc., and in different places, such as regions, localities, or specific workplaces (Graycar, 2015). Corruption effects are serious and widespread.

The phenomenon of corruption is analysed by many scientists (Graycar, Sidebottom, 2012; Ackerman, Truex, 2012; Iyanda 2012; Graycar, 2015; Slamkov, Bilalli-Zendeli, 2016; Kozlowski, Kozlowska, Swirska, 2016; Mackey, Vian, Kohler 2018; Kohler, Dimancesco, 2020) as well as national and international legislation highlighting the negative effects of corruption on countries in certain areas of society. It is emphasized that corruption has a major impact on economic and social development (Dimant, Tosato 2017; Kohler, Dimancesco, 2020), violates the rule of law (Begovic 2005). European Commission (2021) has emphasized anti-corruption as a key element contributing to attaining the growth, jobs, and investment priority. According to the Lithuanian Map of Corruption (2020), Lithuanian's place corruption on the 5th place among the most acute problems (in a list of 18 problems), after low-wages, health care system, rising prices, and unemployment as 35 percent of the residents indicated corruption as a very serious problem. Perception of the corruption as the acute problem has not changed significantly in comparison to 2019 but is diminishing in a long-term perspective. Among all respondents groups four institutions were listed as the most corrupt: health care institutions, courts, Seimas and municipalities. Corruption of corporate executives was mentioned as a very serious problem (The Lithuania Map of Corruption, 2020). Scientists (Iqbal, Seo, 2008; Ackerman, Truex, 2012; Kozlowski, Kozlowska, Swirska, 2016) have already noted the negative impact of corruption on citizens' satisfaction and trust in the government, its institutions, and its leadership. Gonzalez-Perez, Leonard (2017) remark that corruption interferes with sustainable development, skews competition, obstructs economic growth, incurs severe legal penalties, affects reputations, and undercuts liberal economic mechanisms. According to Kohler (2011), Kohler, Dimancesco (2020) corruption fuels inequity as it skews how resources are distributed and creates barriers to public health services and goods. Corruption can allow the wealthy to accumulate more wealth while the most disadvantaged suffer. In short, corruption hurts health outcomes and it is the poor who are affected the most. Corruption is a misuse of power and position and has a disproportionate impact on the poor and disadvantaged (Business against corruption a framework for action, 2011).

The 2030 Agenda (Transforming our world: The 2030 agenda for sustainable development) clearly recognizes that the rule of law and development have a significant interrelation and are mutually reinforcing each other. As countries around the world are investing increasing efforts to live up with the expectations placed on them by the 2030 Agenda, the crucial importance of anti-corruption on sustainable development is appreciated more than ever. The importance of particular anti-corruption actions is explicitly highlighted in Sustainable Development Goal 16 (further – SDG), which requires States to “promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels”, through reducing illicit financial flows, strengthening the recovery and return of stolen assets, substantially reducing bribery and corruption, and developing effective, accountable and transparent institutions at all levels. Goal 16 plays an instrumental role in ensuring an integrated approach towards development. Focused on addressing governance deficits and challenges posed by profound social transformation, it tackles the root causes for many development issues covered under other sustainable development goals.

The Tenth Principle of the UN Global Compact states that “Businesses should work against corruption in all its forms, including extortion and bribery.” UN Global compact call on companies to develop policies and programmes to address all forms of corruption; inviting companies to join peers, governments, UN agencies and civil societies to realize a more transparent global economy. UN Global Compact (2021) accentuate that new and tougher anti-corruption regulations continue to emerge worldwide. All companies need robust anti-corruption measures and practices to protect their reputations and the interests of their stakeholders (UN Global Compact, 2021). Companies, governments, UN agencies and civil society should provide a platform for learning, dialogue, and action; encourage companies to implement the 10th Principle and 16th Sustainable Development Goal; work in collaboration with other organizations to avoid duplicate efforts and scale up impact through initiatives

on Anti-Corruption Collective Action. Also, companies are encouraged to look at the Communication on Progress and other sustainability reports of competitors to help determine the best ways to benchmark their own performance (Business against corruption a framework for action, 2011). So, the importance of anti-corruption actions is actively promoted in international and national law. International and national public administration and civic institutions provide methodological recommendations for the implementation of anti-corruption actions. However, there is no empirical research on how business organizations succeed in implementing these recommendations, which activities are practiced more intensively, and which are weaker. Therefore, this article is aimed at answering relevant scientific *problematic questions*: what actions can organizations take in the fight against corruption? What practical anti-corruption activities are implemented by business companies?

The aim of this article is to and investigate the implementation of the UN Global Compact actions against corruption in the practice of Lithuania organizations.

Methods: literature review, synthesis, qualitative research documents' content analysis.

The theoretical framework of anti-corruption practice while implementing Global Compact and SDG

Business companies face different forms of systematic (grand), petty (household) corruption and corruption between business entities (Anti-corruption Handbook for Business, 2018). Businesses face high and interrelated ethical and business risks and potential costs when they fail to combat corruption in all its forms effectively (Business against corruption a framework for action, 2011). The results of sociological research show that the problem of corruption is widespread in the private sector and it significantly damages the sector (Anti-corruption Handbook for Business, 2018): the actions and decisions of corrupt leaders and lower-level managers of business organisations are most often detrimental to organization owners, and when the public becomes aware of such cases, huge damage is caused to the organisation's reputation, the restoration of which requires a lot of time, efforts, and cash resources. Overall corruption impedes business growth, escalates costs, and poses serious legal and reputational risks. It also raises transaction costs, undermines fair competition, impedes long-term foreign and domestic investment, and distorts development priorities (UN Global Compact, 2021). Corruption hampers investment as foreign and native investors also understand that corruption can negatively impact value and pose financial, operational, and reputational risks to their investments. So, corruption is a considerable obstacle to economic and social development around the world. International organizations (UN Global Compact, 2021) and scientists (Gonzalez-Perez, Leonard, 2017) indicates corruptions' negative impacts on sustainable development and particularly affection on poor communities. Corruption is a misuse of power and position and has a disproportionate impact on the poor and disadvantaged (Business against corruption a framework for action, 2011). Till 20th century fighting corruption, establishing, and implementing sanctions and penalties for corrupt practices were usually considered the sole domain of public authorities. But on 24 June 2004, the first Global Compact Leaders' Summit announced that the Global Compact, the world's largest corporate sustainability initiative, had adopted a 10th Principle against corruption: "Businesses should work against corruption in all its forms, including extortion and bribery" (Reporting guidance on the 10th principle against corruption, 2009). This principle derives from the United Nations Convention Against Corruption (further – UNCAC), which was the first legally binding international anti-corruption instrument. The UNCAC contains 71 Articles and requires all Member States to implement measures for preventing and criminalizing corrupt acts (United Nations Convention against Corruption, 2004). As Gonzalez-Perez, Leonard (2017) indicated, adoption of 10th Principle was due to increased proactive measures of civil society including the private sector to fight corruption. It was the response of the business community and other non-state actors sent a strong worldwide signal that the private sector and other non-state-actors share responsibility for eliminating corruption and stand ready to play their part. The 10th Principle point out that Global Compact participants should not only avoid bribery, extortion, and other forms of corruption, but also must develop policies and concrete programmes to address it. Also, companies are challenged to join governments, UN agencies and civil society to realize a more transparent global economy (Reporting guidance on the 10th principle against corruption, 2009). As the vast majority of United Nations Member States are parties to the Convention (UN Global Compact, 2021; United Nations Convention against Corruption, 2004), they take commitment to implement preventive measures, criminalization and law enforcement, international cooperation, asset recovery, and technical assistance and information exchange, while fighting different forms of corruption, such as bribery, trading in influence, abuse of functions, and various acts of corruption in the private sector. The Anti-Corruption working group of experts from companies, business associations, civil society, international organizations, academia, and Global Compact Local Networks (UN Global Compact, 2021) works hard to facilitate cooperation and align efforts between global actors and initiatives to increase impact and avoid activities duplication. The Anti-Corruption Working Group tackled a wide variety of issues, including fighting corruption in the supply chain, implementation of the UNCAC and other conventions, preventing corruption in sport sponsorship and hospitality, anti-corruption risk assessment and reporting, anti-corruption Collective Action, implementing whistle-blower programmes, implementing investor-Corporate engagement on anti-corruption. The third meeting of G20 Anti-Corruption Working Group reached consensus on High-level Principles on Preventing and Combating Corruption in Emergencies, the Accountability Report 2021, and the Action Plan 2022-2024.

The importance of anti-corruption actions is explicitly highlighted in UN Sustainable Development Goals. Goal 16, which requires States to "promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels", through reducing illicit financial flows, strengthening the recovery and return of stolen assets, substantially reducing bribery and corruption, and developing effective, accountable and transparent institutions at all levels (Transforming our world: The 2030 agenda for sustainable development, 2015). Goal 16 plays an instrumental role in ensuring an integrated approach towards development. Focused on addressing governance deficits and challenges posed by profound social transformation, it tackles the root causes for many development issues covered under other SDGs. Despite efforts of numerous tools and resources, many businesses still struggle with the integration of anti-corruption measures into their day-to-day operations. Reporting guidance on the 10th principle against corruption (2009) observed that even among Global Compact participants, the 10th Principle on Anti-Corruption is often identified as the most difficult to implement: many companies do not report yet on the 10th Principle in the mandatory annual Communication on Progress (COP).

After nearly two decades of huge attempts to fight corruption, it is necessary to evaluate the business case against corruption. To fight global problem not only public authorities, but business companies must join their forces with governments, community-based organizations, NGOs and other businesses (Business against corruption a framework for action, 2011). It is very important to identify practical actions which business companies can execute in their anti-corruption fight. Business companies while being part of the problem, can also be part of the solution (Business against corruption a framework for action, 2011). The guide "Business against corruption a framework for action" (2011) provide reasons for companies for having zero tolerance for corruption: it undermines the integrity of all involved and damages the fabric of the organizations to which they belong, potentially decreasing morale (and therefore productivity); it is also in a company's business interest to ensure that it does not engage in corrupt practices. All companies, large and small, are vulnerable to corruption, and the potential for internal damage is considerable. The reality that laws criminalizing corrupt practices may not always be enforced – though enforcement is increasing – is no justification for accepting (or perpetuating) corrupt practices. To fight corruption in all its forms is simply the right thing to do, whether or not people outside an organization ever see the results. Investors are increasingly considering environmental, social and governance issues,

including the implementation of anti-corruption measures, material to their investments (Reporting guidance on the 10th principle against corruption, 2009). While Anti-corruption Handbook for business (2018) affirm that in the long run business companies implementing anti-corruption measures acquire a greater competitive advantage against the rest of the market participants thus protecting and even improving their image, attracting more investments, and establishing long-term relations with reliable business partners.

The analysis of practical steps to fight corruption can be based on reviewing of Management Model. The UN Global Compact suggests to its participants that they consider using the UN Global Compact Management Model in fighting corruption and implementing the 10th Principle (see Table 1) (Business against corruption a framework for action, 2011). Published in partnership with Deloitte, an international accounting and consulting firm, it guides companies through the process of formally committing to, assessing, defining, implementing, measuring, and communicating a corporate sustainability strategy based on the Global Compact and its Ten Principles. United Nations Convention against Corruption (2004) also noted that “one company’s actions, while critical, are not enough to end corruption”. It is indicated that collective action allows companies to achieve significant results like: consolidate knowledge and financial and technical resources to achieve greater impact; create solutions that are perceived as more credible, acceptable and are more sustainable; help to ensure fair competition and a level playing field for all stakeholders; create a more stable and enabling business environment; complement existing anti-corruption efforts in vulnerable regions and sectors, where industry or government-led regulations are not robust. Companies can join in Collective Action by different forms (UN Global Compact, 2021) which varies from certifying business coalitions and implementation of principle-based initiatives between many participants and implementation of anti-corruption education and training or making anti-corruption declarations in particular company. Reporting guidance on the 10th principle against corruption (2009) indicated seven basic or fifteen desired reporting elements which can be reported in communication on progress: commitment and policy (publicly stated formal policy of zero-tolerance of corruption; statement of support for international and regional legal frameworks, such as the UN Convention against Corruption; carrying out risk assessment of potential areas of corruption; detailed policies for high-risk areas of corruption; policy on anti-corruption regarding business partners); implementation (actions taken to encourage business partners to implement anti-corruption commitments; management responsibility and accountability for implementation of the anti-corruption commitment or policy; human Resources procedures supporting the anti-corruption commitment or policy; communications (whistle-blowing) channels and follow-up mechanisms for reporting concerns or seeking advice; internal accounting and auditing procedures related to anti-corruption; participation in voluntary anti-corruption initiatives); monitoring (leadership review of monitoring and improvement results; dealing with incidents; public legal cases regarding corruption; use of independent external assurance of anti-corruption programme). Resembling steps of stages can be found in Anticorruption Handbook for business (2018), which was composed by Special Investigation Service of the Republic of Lithuania and other Lithuanian agencies, in order to assist Lithuanian business organizations in creation of the anti-corruption business environment (to enhance business transparency and responsibility, to encourage the taking of active measures in combating corruption, to advise on identifying corruption risks, measures to be taken and implemented for management of the risks, to share specific practical examples of corruption-related offences, etc.). It is worth mentioning, that framework depicts Management Model as a cycle of continual improvement, embodies idea as an unbroken circle, rather than as a more linear path (companies should, yearly or more regularly, re-commit themselves to the process and follow each of the steps) (Business against corruption a framework for action, 2011). Companies are encouraged to constantly refine their management processes and procedures and to view their actions, as circumstances and company leadership may change. Anti-corruption Handbook for business (2018) notes that it is important to create an approach to the anti-corruption programme as a part of constant improvement, caused by changing external and internal factors in the company. It should be noticed that analysed documents list the similar steps titles still there are discrepancies: some practical actions are assigned to different steps. Table 1 identifies particular practical actions which can be made by business companies in implementing 10th principle in accordance with Management model.

Table 1

Management Model to implement practical steps for prevention of corruption

Step of MM	Practical actions
Commit	<ul style="list-style-type: none"> • Leadership commitment about not engaging in and zero tolerance for corrupt practices. • Not sending mixed signals. • Mainstream anti-corruption policies into its everyday operations. • Provide / define strict of anti-corruption measures.
Assess	<ul style="list-style-type: none"> • Assess and re-asses the risks and opportunities in financial and extra-financial terms. • Know risks and prepare for them. • Recognize opportunities to improve business.
Define	<ul style="list-style-type: none"> • Define / set high but realistic goals to adhere to the 10th Principle against Corruption. • Determine indicators, which will be used to measure progress and to determine whether a particular policy or programme is successful. • Construct and adopt strategies and policies to achieve goals (internal ethics code, standards, anti-bribery programmes and their compliance with external regulations)
Implement	<ul style="list-style-type: none"> • Implement training and follow-up actions on implementing principles and codes into the action. • Engage with their business partners and supply chain and empower them to address corruption related issues. • Ensure that appropriate systems, internal communication plans and reporting mechanisms, reporting procedures are in place.
Measure	<ul style="list-style-type: none"> • Measure and monitor impacts and progress in areas of key indicators of success or failure. • Use monitoring information in continual reassessments of their management systems. • Amplify their successes and replace policies that do not work in their context of operation.
Communicate	<ul style="list-style-type: none"> • Communicating to stakeholders on all company transactions. • Make the programs known to employees.

Source: composed by author's quoting on: Reporting Guidance on the 10th Principle against corruption, 2009; Business against corruption a framework for action. 2011, p. 10-11; Anti-Corruption Handbook for business, 2018

While Anti-corruption Handbook for Business (2018) offers that declaring commitment can be implement through various measures regarding zero tolerance for corruption, for example, Anti-Corruption Policy, Gifts Policy, Policy for Avoiding Conflicts of Interest and Ethical

Codes, which constitute an integral part of organizations' internal rules of procedure. Reporting Guidance on the 10th Principle against corruption (2009) indicate, that a publicly stated policy is a more powerful and precise expression of an organization's zero-tolerance commitment as it allows no room for misinterpretation. Anti-Corruption Declarations are short-term, project- or transaction-specific statements of intent to ensure compliance with anti-corruption commitments (UN Global Compact, 2021). Risk assessment is the starting point for setting anti-corruption priorities; it might be coordinated and implemented as a general part of the risk review (Reporting Guidance on the 10th Principle against corruption, 2009). A risk assessment looks at business activities, location of business activities, industries, local business conditions and customs, identifies corruption risks inherent in those activities, and attempts to estimate the likelihood of the occurrence of the risks and their impact on the organization (Anti-corruption Handbook for Business, 2018). While assessment of risk it is important to analyse business environment based on the principles of strategic planning (including the analysis of external and internal factors as well as the analysis of threats and opportunities in the organisation). The analysis should be followed by the selection of most appropriate corruption prevention measures for dealing with the problems identified during the analysis. Also, Anti-corruption Handbook for Business (2018) identify that it is necessary to implement investigation of tolerance of the employed staff for the corruption and unethical behaviour, assessment of honesty and loyalty of prospective employees. The necessity of anti-corruption education for staff and reporting mechanism is mandatory. But business companies should also have codes of ethics and conduct, policy for managing conflicts of interest, gifts and representation policy, policy for charitable donations, sponsorship, and lobbying (Anti-corruption Handbook for Business, 2018). Detailed policies are needed to give specific guidance to employees on how to act to follow organization's anti-corruption policy and how to counter specific forms of corruption and also there should be a policy extending its anti-corruption commitment to business partners (Reporting Guidance on the 10th Principle against corruption, 2009). Education and training can be conducted as part of Collective Action and are critical to raising awareness and building capacity to fight corruption (UN Global Compact, 2021). Along with regular monitoring, which manifests through identification and implementation of specific measures, the management should initiate a formal evaluation of the programme. Anti-corruption handbook for business (2018) offers to implement the adequacy assessment (content and model) and compliance (efficiency) assessment and offers to use Transparency International has a Self-Evaluation Tool and an Assurance Framework, which defines an external review methodology. Both documents are available on Transparency International website. The self-evaluation-based analysis may also be an alternative to an external evaluation of the efficiency of the organisation's anti-corruption programme. For the communication / transparency and accountability to public it is offered to disseminate information on the anti-corruption programme under implementation, its progress and the measures applied the organisation on its Intranet page, it may also use handouts, e-mail messages as well as staff training aids and programmes; organisations should prepare reports which would specify their anti-corruption practice, measures and progress, any cases of corruption or incidents.

Summarizing the analysis, it can be noted that various methodological publications provide detailed guidance to business companies on how to achieve sustainable development goals and prevent corruption. Business companies can carry out a variety of practical activities that can be attributed to categories of commitment, defining, assessment, implementation, measurement, communication.

Research methodology

The research aims to identify the practical anti-corruption actions of Lithuanian socially responsible organizations, which have joined the UN World Agreement. A qualitative method of document analysis was used to collect data: the organizations' social responsibility reports, their statements about corruption prevention initiatives and actions were analysed. The document content analysis method as a research method is particularly applicable to qualitative case studies – intensive studies producing rich descriptions of a single phenomenon event, organization, or program. It is important to note here that qualitative research requires robust data collection techniques and the documentation of the research procedure (Bowen, 2009). Detailed information about how the study was designed and conducted is provided below.

Global Compact participants are required to report in their COP against Basic Reporting Elements (Reporting Guidance on the 10th Principle against corruption, 2009). Business against corruption a framework for action (2011) encouraged companies to look at the Communication on Progress and other sustainability reports of competitors to help determine the best ways to benchmark their own performance. Anti-corruption Handbook for business (2018) notes that the Global Reporting Initiative (GRI) may be applied in annual reports on anti-corruption initiatives. GRI is a widely used standard for the provision of reports related to social and ethical issues, including corruption-related aspects. 31 Lithuanian organizations are currently party to the UN Global Compact (31 organizations is general population of the study). Six organizations have not submitted social responsibility reports. Thus, this study analyses the social responsibility / sustainable development reports of 25 members of the UN Global Compact in Lithuania (the study sample is 25 reports). Organizations titles were codified by numbers (1, 2, ..., 25) to ensure anonymity. Practical anti-corruption actions were identified by searching for keywords: corruption, forms of corruption, bribe, bribery, prevention, anti-corruption policy, education on anti-corruption. The identified activities and examples provided in the reports were assigned to certain categories of corruption prevention. Such analysis identified better developed and less-covered areas of UNSCR 16 and Principle 10.

The practical anti-corruption activities of Lithuanian organizations

Theoretical framework analysis revealed that there are such anti-corruption activities and their reporting categories: commitment, defining, assessment, implementation, measurement, communication.

Commitment in all analysed methodological document is comprehended as indispensable condition for starting point of fighting against corruption. Clear leadership is essential if a company wants to ensure that it and its agents are not engaging in corrupt practices. It is important that the top management not send mixed signals. Lithuanian organizations statements of commitment to fight corruption is presented in second table (Table 2).

Table 2

Lithuanian companies' commitment to fight against corruption

Category	Statements of reports
Commitment	Organizations declare implementation of the 16th SDG (1; 6; 9; 11; 16; 19; 21; 25)
	Organizations follow Principle 10 of United Nations Global Compact: "Businesses should work against corruption in all its forms, including extortion and bribery". (3; 9; 12; 13; 15; 18)
	Company participates in initiative "Baltoji banga" (it's aim is to promote transparent Lithuanian business practice) (23)
	Organization follow the GRI 205: ANTI-CORRUPTION standard recommendations (Reporting requirements) (2; 4; 21)
	Organization follows the implementation of the ISO 370001 Anti-Corruption Management System standard (6)

Source: composed by author's quoting on Lithuanian organizations social responsibility reports

According to statements provided in Table 2 it can be argued that the businesses' commitment to avoid corruption is very moderate: 19 companies provide short and incomplete sentence about implementation of particular international or national act or standardization regulation. Although three organizations claim to follow GRI 205: Anti-Corruption standard recommendations, but still no particular examples of commitment are provided. The most important role of combating corruption falls on the management of the organization, the example of which, active involvement and commitment, ensures the creation of an effective anti-corruption programme and its consistent implementation at the organization. So, to decrease corruption phenomenon, it is necessary to practice and obviously demonstrate managements' commitments.

Assessment of risks and recognizing opportunities to improve activities is a second step in anti-corruption management practices. Table 3 presents of Lithuanian socially responsible companies reports' statements which identify practice of assessment. In the result of document analysis only several statements of four companies were identified as attributing to category of assessment. Companies indicate that they are applying anti money laundering and prevention of terrorist financing measures assessment, have a procedure of declaration of private interests or simply note that they assess risks when doing business. Thus, the analysis revealed that the criterion of assessment is weekly met in the anti-corruption practices and reports of organizations. Such situation can be explained that assessment of business environment, activities, processes and procedures, employees and supply chain is time and attempts consuming and requires deep knowledge. But the assessment of risks and understanding of context is crucial for finding improvement opportunities and fighting corruption. As there is so little information in the reports about implementation of assessment of risk it can be assumed that companies need the methodological assistance from institutions ensuring prevention of corruption.

Table 3

Lithuanian companies' assessment of risks and identification of opportunities

Category	Statements of reports
Assess	Company's procedure for anti- money laundering and terrorist financing is periodically reviewed and updated. ... (7)
	..., all employees are required to complete a signed declaration of professional and private interests and to disclose all potential sources of conflict. If the information declared reveals possible links of interests between employee, his / her relatives and the Institution, such employees would be prohibited from working in the area [...] involving a potential conflict of interest. (10)
	Existing and new anti-money laundering measures are being developed taking into account: legal acts regulating the prevention of money laundering and terrorist financing in the Republic of Lithuania, FATF (Financial Action Task Force), EU, UN, US legal requirements (21).
	Assess the risk of corruption when doing business (5)

Source: composed by author's quoting on Lithuanian organizations social responsibility reports

The third criteria is defining. Companies should have anti-corruption policies, strategies, and particular measures for ethical and transparent everyday practice. Lithuanian socially responsible companies' reports' statements which identify practice of defining is provided in Table 4. Analysis of the reports revealed that half of Lithuanian socially responsible organizations (13 of 25) provide some data about defining of anti-corruption means. Six companies have defined corruption in their ethical standards. Four companies have Corruption prevention programs. One company identify having procedure of declaration of private interests and procedure of assessment of interests' conflicts. One company state that it had introduced anti-corruption policies and programs within organization and business operations. One company has clear Ethics code and anti-corruption policies, including transparent procurement procedure. Summarizing the findings, it can be stated that the defining criterion is only partially met in anti-corruption practices and reports, but without specific examples. However, having specific anti-corruption goals, means, indicators is crucial for successful elimination of corruption possibilities. As theoretical analysis revealed, business companies should also have codes of ethics, policy for managing conflicts of interest, gifts and representation policy, policy for charitable donations, sponsorship, and lobbying. Detailed policies are needed to give specific guidance to employees on how to act to be in compliance with organization's anti-corruption policy and how to counter specific forms of corruption and also there should be a policy extending its anti-corruption commitment to business partners (Reporting Guidance on the 10th Principle against corruption, 2009).

Table 4

Lithuanian companies' statement about defining of anti-corruption

Category	Statements of reports
Define	Organizations have a Corruption Prevention Program (2, 4; 6; 14)
	Introduce anti-corruption policies and programs within organization and business operations (5)
	To maintain the highest level of ethics and avoid any violation of private and public interests, all employees are required to complete a signed declaration of professional and private interests and to disclose all potential sources of conflict (10)
	The company has a clear Ethics code and anti-corruption policies, including transparent procurement procedures (8)
Corruption is defined in company's Ethical standard (1; 4; 6; 8; 13; 21)	

Source: composed by author's quoting on Lithuanian organizations social responsibility reports

Implementing is next step in managing model and important criteria of possible practice. Table 5 provides Lithuanian companies reports statements about different activities which can be attributed to implementing. Although implementation could seem natural step and criteria in anti-corruption activity it was found that only six companies provide some statements and evidence about it. Two companies state that they are implementing trainings and education of employees on corruption prevention topic. Other three companies note their strive to assure following of anticorruption requirement through their internal environment and supply chain and organize anti-corruption events for community. One company notes about having system to report malpractices. Basing on these findings it must be concluded that the provision of examples of the implementation of anti-corruption activities is week and insufficient to disseminate good practices. Implementing of trainings and follow-up actions on implementing principles and codes, engaging with business partners and supply chain and empower them to address corruption related issues, ensuring appropriate systems of reporting mechanisms and reporting procedures are critical to raising awareness and building capacity to fight corruption.

Lithuanian companies' implementation of anti-corruption activities

Category	Statements of reports
Implement	Training on the topic of money laundering and terrorist financing is organized for the staff of the Management Company at least once a year by the specialist from the Financial Crime Investigation Service or a compliance officer (7)
	Every year [...] Company holds anti-corruption training sessions, during which professional lecturers with a legal background provide employees with new information on the prevention of corruption, teach them to recognise the features of potentially illegal actions of partners or other members of society, and remind them of the importance of stopping any possible corrupt external action immediately, and of reporting to the competent authorities and the management (10)
	Company maintains and regularly monitors the system [...] that allow employees the possibility to report safely and anonymously any malpractices (8)
	Company strive that anti-corruption policy requirements of this Code would be followed by all our suppliers, contractors, subcontractors, user, consultants, agents and others (1)
	We strive to build stable and trust-based relations with employees, suppliers, clients, the community, and the public institutions. We are leading by example to promote fair competition, and to foster an ethical business culture (9)
	Institution organizes events on civic participation, prevention of corruption for youth and students (17)

Source: composed by author's quoting on Lithuanian organizations social responsibility reports

The fifth category is measurement. Measurement and monitoring of impacts and progress are essential if companies are to be effective in combating corruption. While defining goals, companies are encouraged to set key indicators they will use to measure success or failure. Lithuanian socially responsible organizations reports' statements on measurement are provided in Table 6. Only four statements of four companies could be included in the measurement category (but it must be mentioned that three of these four statements were included in other categories). Monitoring of impact and progress were practiced by maintaining and monitoring system of employee reporting malpractices and counting complains, monitoring of business relationships and money transactions, improving applied measures. So, it can be indicated that measurement is also weekly implemented and reported practice of Lithuanian organizations in anti-corruption implementation. Not implementing measurement or unrevising information cannot create development and constant improvement.

Table 6

Lithuanian companies' measurement of impact and progress

Category	Statements of reports
Measure	Company maintains and regularly monitors the system [...] that allow employees the possibility to report safely and anonymously any malpractices (8)
	No complaints on violation of anti-corruption rights were filed (5)
	Monitoring of business relationships and monetary transactions (21)
	Existing and new anti-money laundering measures are being developed considering legal acts regulating the prevention of money laundering and terrorist financing in the Republic of Lithuania, FATF (Financial Action Task Force), EU, UN, US legal requirements (21).

Source: composed by author's quoting on Lithuanian organizations social responsibility reports

The last, sixth criteria for assessment of reports is communication. Of course, theoretical analysis revealed the variety of information transmission platforms (intranet page, handouts, e-mail messages, staff training aids and programmes and other), but this research analyses only reports. Firstly, it should be mentioned that three companies haven't even mentioned any anti-corruption concerns or aspects in their reports. Statement concerning communication are provided in Table 7.

Table 7

Lithuanian companies' communication on anti-corruption practice

Category	Statements of reports
Communicate	Training on the topic of money laundering and terrorist financing is organized for the staff of the Management Company at least once a year by the specialist from the Financial Crime Investigation Service or a compliance officer (7)
	Every year [...] Company holds anti-corruption training sessions, during which professional lecturers with a legal background provide employees with new information on the prevention of corruption, teach them to recognise the features of potentially illegal actions of partners or other members of society, and remind them of the importance of stopping any possible corrupt external action immediately, and of reporting to the competent authorities and the management (10)
	Company maintains and regularly monitors the system [...] that allow employees the possibility to report safely and anonymously any malpractices (8)
	We strive to build stable and trust-based relations with employees, suppliers, clients, the community, and the public institutions. We are leading by example to promote fair competition, and to foster an ethical business culture (9)
	Company strive that anti-corruption policy requirements of this Code would be followed by all our suppliers, contractors, subcontractors, user, consultants, agents and others (1)
	Institution organizes events on civic participation, prevention of corruption for youth and students (17)

Source: composed by author's quoting on Lithuanian organizations social responsibility reports

As there were no communication examples in the reports, the statement in the table relate to the provision of anti-corruption information to employees, suppliers, stakeholders, and the public (the same statement as for implementation criteria were used). Two companies' communication was related to training of employees, two examples were also provided on communication systems and relationship, three examples can be assigned to communication with stakeholders and supply-chain. Still such number of examples is not sufficient, as scientific literature review revealed that communicating to stakeholders on all company transactions ensure that the risks for corrupt involvements are minimized and other benefits like transparency, accountability, change and innovations are achieved.

Conclusions

1. Corruption is a considerable obstacle to economic and social development around the world. Corruption comprehends and encompasses many types of behaviour, such as bribery, extortion, cronyism, misuse of information, abuse of discretion. The 2030 Agenda of Transforming our world, clearly recognizes that the rule of law and development have a significant interrelation and are mutually reinforcing. As countries around the world are investing increasing efforts to live up with the expectations placed on them by the 2030 Agenda, the crucial importance of anti-corruption on sustainable development is appreciated more than ever. Also, the UN Global Compact, the world's largest corporate sustainability initiative, had adopted a 10th Principle against corruption. Despite efforts of numerous tools and resources, many businesses still struggle with the integration of anti-corruption measures into their day-to-day operations. Summarizing the analysis, it can be noted that various methodological publications provide detailed guidance to business companies on how to achieve sustainable development goals and prevent corruption. Business companies can carry out a variety of practical activities that can be attributed to categories of commitment, defining, assessment, implementation, measurement, communication.

2. Social responsibility reports of 25 members of the UN Global Compact in Lithuania were analysed to reveal practical activities of socially responsible organizations in anti-corruption area. Basing on the results it can be argued that the businesses' commitment to avoid corruption is very moderate: 19 companies provide short and incomplete sentence about implementation of particular international or national act or standardization regulation. Although three organizations claim to follow GRI 205: Anti-Corruption standard recommendations, but still no particular examples of commitment are provided. The analysis revealed that the criterion of assessment is weekly met in the anti-corruption practices and reports of organizations: only four companies provide statements in reports. Companies indicate that they are applying anti-money laundering and prevention of terrorist financing measures assessment, have a procedure of declaration of private interests or simply note that they assess risks when doing business. Analysis of the reports revealed that half of Lithuanian socially responsible organizations (13 of 25) provide some data about particular defining of anti-corruption means. Seven companies have defined corruption in their ethical standards / codes. Four companies have Corruption prevention programs. One company identify having procedure of declaration of private interests and procedure of assessment of interests' conflicts. One company state that it had introduced anti-corruption policies and programs within organization and business operations. Although implementation could seem natural step and criteria in anti-corruption activity it was found that only six companies provide some statements and evidence about it. It must be concluded that the provision of examples of the implementation of anti-corruption activities is weak and insufficient to disseminate good practices: two companies state that they are implementing trainings and education of employees on corruption prevention topic; other three companies note their strive to assure following of anticorruption requirement through their internal environment and supply chain and organize anti-corruption events for community; one company notes about having system to report malpractices. Only four statements of four companies could be included in the measurement category. Monitoring of impact and progress were practiced by maintaining and monitoring system of employee reporting malpractices and counting complains, monitoring of business relationships and money transactions, improving applied measures. So, it can be indicated that measurement is also weekly implemented and reported practice of Lithuanian organizations in anti-corruption implementation. Basing on these findings it must be assumed that companies need the methodological assistance from institutions ensuring prevention of corruption and reporting on practice.

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SIZE OF FISCAL POLICY INSTRUMENTS USED DURING COVID-19 CRISIS AND POSSIBLE FUTURE CHALLENGES

Ilmars Rimsevics, University of Latvia

Abstract. COVID-19 pandemic arrived unexpected. Full blown twin (epidemiological and economic) crisis travelled the world. Policy makers had to come up quickly with containment and mitigation measures of pandemic and fiscal and economic stimulus measure activities in order to reduce the damages created by the crisis. Governments prepared sizable fiscal stimulus packages in order to cushion the dramatic economic consequences and central banks acted pre-emptively and provided extra liquidity with different Quantitative easing programs and financial stability support measures for the financial sector. Paper discusses evolution of different crises management scenarios during several previous crises. The economic crises of such magnitude requires fast and coordinated monetary and fiscal policy actions. Just assigning massive amounts of money through various channels of economy to stimulate economic activity does not guarantee success and the immediate recovery. When monetary policy is close to or at the zero-lower bound (ZLB), the role of the fiscal policy with all its instruments becomes more important and requires much closer analysis of the use of instruments in the tool box. The problem arises with diminishing fiscal space and future cost of resources. Thus, the aim of this paper is to analyze the size, the role and the use of automatic stabilizers, semi-automatic stabilizers and various fiscal discretionary measures in the selected OECD countries during the crisis. Paper concludes that despite huge and unprecedented amounts of resources allocated through various fiscal instruments, there is only small correlation between the size of the various fiscal stimulus instruments, including automatic stabilizers, used and the speed of recovery and attainment of the output of pre-crisis levels. Since substantial fiscal space has been used up in the first two years of the COVID-19 crisis and ultimate amount of the fiscal resources is limited more thorough analysis is required to determine the factors, which shape faster economic recovery. Therefore, continuing spending huge amounts of fiscal resources and reducing the fiscal space further every year, without recognizing the main reasons of slower recovery, could be challenging in the future and would require tough fiscal and structural reforms measures.

Keywords: *automatic stabilizers, discretionary spending, monetary policy, fiscal policy, public debt.*

JEL code: E52, E62, E63, H12, H68

Introduction

The Great Depression of 1929-1933 provides a good insight how the crisis was mismanaged and how different stakeholders were acting during the crisis. “This period has provided economists with a comprehensive research laboratory to study the interrelationships between economic policies and institutions and economic development” (Bernanke, 2000). The Great Financial crisis (GFC) of 2008-2010 shows that the lessons of the Great Depression, when the central banks did not take an active role and policy stance, have been taken into account. However, still there was no consensus reached during GFC, as to how far governments e.g., in euro area could go in their fiscal support. It was observed that in the euro area countries policy makers’ attitude towards fiscal support was mixed and was not fully coordinated and complimented. Fiscal activism and loosening of fiscal policy was still considered unnecessary and risky (ECB, 2008a). The EU Commission also continued to monitor closely national fiscal space and budget deficits, and even launched a number of reprimands in the context of the so-called Excessive Deficit Procedure (EDP) (ECB, 2010). COVID-19 crisis is a good example how to coordinate both policies, recognizing that fiscal policy has the leading role.

Since fiscal policy plays the leading role, but fiscal resources and fiscal space is limited, the aim of this paper is to study effectiveness of fiscal measures in bringing back economies to the pre-crisis GDP levels. Paper will look for the further improvements of fiscal and monetary policy coordination, recognizing that there could be the times when monetary policy is close or at the zero-lower bound (ZLB) levels, and the central banks have smaller manoeuvring space to act efficiently. Thus, targeted, timely and well established fiscal policy with automatic, semi-automatic stabilizers and various discretionary spending instruments could be of essence, in order to expeditiously and smoothly stabilize economic situation. After we would conclude that due to reduced efficiency of the monetary policy, fiscal policy has to assume the leading role, we have to ascertain whether large amounts of automatic stabilizers and discretionary spending guarantee faster recovery and regaining the levels of pre-crisis GDP.

Task will be performed by comparing fiscal stimulus assistance provided and the respective GDP growth recovery levels achieved at the same time period in the sample of the selected OECD countries.

The paper contributes to the academic literature by providing additional analysis of the use and efficiency of automatic stabilizers as the fiscal instruments in the respective budgets or budgetary laws, empowering governments to act without additional political approval to tackle economic downturn, as well as additionally reflect on the potential benefits of earmarking economic preconditions and the discretionary spending measures as semi-automatic stabilizers to be used without additional budgeting due process at the times of crisis in order to speed up the recovery.

The topicality of this paper is related to the leading role of the fiscal policy in the COVID-19 crisis. However, the amount of fiscal space in various forms and instruments has been gradually used up during the first two years of COVID-19 crisis and several countries at the end of 2021 still have not reached pre-crisis GDP levels. Thus, leading to the conclusion that larger amounts of the fiscal stimulus packages do not safeguard the success and faster recovery, but reduce fiscal space and are creating future challenges of managing the size of the debt and carrying out unpopular structural reforms.

Literature Review

Academic literature shows that there is profound evolution of economic and strategic reasoning how to tackle economic and financial crisis. Bernanke (2000) provides us with an excellent introduction in to historical events of Great Depression of 1929-1933. At the 90th birthday of Milton Friedman, Bernanke’s speech reveals some additional elements of Great Depression mismanagement (Bernanke, 2002). Davis (1971) reflects an additional facts and situations of how the Great Depression was made even more severe.

Cooperation between monetary and fiscal resource management institutions was not perfect in the previous financial crises. GFC of 2008-2010 already demonstrates much closer cooperation between the fiscal and monetary policies than during Great Depression. However, one can see evolving discussion about the limits of the fiscal policy inside the euro area (ECB, 2008b; 2009; 2010).

Elmendorf and Furman (2008) reveal an interesting debate of the might of monetary policy and the possibility to activate the role of the government in crisis management and the role of automatic stabilizers long before GFC unravels in September of 2008. Like the Blanchard and Summers (2020) paper about “Automatic Stabilizers in a Low-Rate Environment” is also published in February 2020, before Pandemic is announced by World Health Organization in March 2020. Benmelech and Tzur-Ilan (2020) in their Covid-19 crisis analysis emphasize that governments and central banks have used the tools and instruments of unprecedented nature and amounts and tried to establish determinants of the best practices using both fiscal and monetary policies and warns that credit ratings of the countries are of the utmost importance during the

crisis. Bouabdallah et.al. (2020) stresses that in countries with a single monetary policy, governments, through their specific, tailor-made, timely and time-limited fiscal policies, need to play an active role in addressing and inherent macroeconomic risks and characteristics and later on also makes clear references to the size of the automatic stabilizers in euro area economies and possible implications for recovery of the respective countries. Evaluating the effectiveness of fiscal measures, it is important to analyse and study the possible composition of the fiscal stimulus package (Corsetti and Muller, 2008) and what happens when central banks have exhausted almost all options and monetary policy interest rates are at or close to the lowest possible threshold, the so-called zero-lower bound (ZLB). Haroutunian et.al. (2020) provides overview what are the Covid-19 implications for the fiscal policies. Haroutunian et.al. (2021) recognises that at the current juncture when monetary policy has limited options and effectiveness, fiscal policy is the most suitable instrument providing the right remedies for the pandemic economic consequences through the automatic stabilizers and discretionary fiscal measures. Debrun et.al. (2008) provides us with the note of caution, stating that automatic stabilizers are not magic wand. The large size of the government could not increase the scale of automatic stabilization once government size reaches certain threshold. Buti (2020) provides euro area crisis resolution road map, pointing out to the several important factors to avoid in order to sooner reach pre-crisis GDP levels and compares current pandemic crisis with GFC of 2008. He also stresses that during GFC the monetary policy was only “game” in town, whereas at the start of Covid-19 the European Central Bank (ECB) and the European Commission have acknowledged and underpinned undisputedly the need of the fiscal expansion. It is clearly visible in the following announcements (Economist, 2020) and by ECB president (Weber, 2021).

Great Depression, Great Financial Crisis and COVID-19 Crisis

Last century with the Great Depression of 1929-1933 and the beginning of this century with the GFC of 2008-2010, have provided opportunity to study thoroughly major financial and economic crises and to see the evolution of economic reasoning of how to tackle serious economic downturns. “The collapse of the stock market, queues for bread, the “race” of bank depositors to banks and giant currency speculation was a global phenomenon”, former US Federal Reserve (FED) Chairman Ben S. Bernanke writes in the preface to his essay book “The Great Depression”. “This period has provided economists with a comprehensive research laboratory to study the interrelationships between economic policies and institutions and economic development” (Bernanke, 2000).

Benmelech and Tzur-Ilan (2020) in their COVID-19 crisis analysis refer to the IMF chief economist (Gopinath, 2020) who calls this crisis the mother of all crises. This twin (epidemiological and economic) crisis affects all countries at the same time, providing unique opportunity to compare how various countries under the same epidemiological challenges are utilizing their respective financial resources and whether larger resources deployed warrant faster recovery.

The US Federal Reserve in early 2020, when the World Health Organization (WHO) had not yet declared a pandemic, acted decisively. FED reduced refinancing rate by 50 basis points on 15 March 2020 (De Santis and Van der Veken, 2020), without waiting for the actual onset of downside risks and the situation deteriorating further. To be fair, the WHO had already announced to the world on 11 March 2020 that pandemics had begun. Federal Reserve “this time was all in” (Bloomberg, 2020).

Analysing the actions in the European Monetary Union, we can also see that the ECB acted just as decisively. As early as 18th of March, 2020, the Governing Council of the ECB decided to launch a completely new Pandemic Emergency Purchase Program (PEPP) worth € 750 billion, with a monthly purchases of public and private sector securities. At the same time, a number of other very important decisions were taken, which provided even better rules for financial system participants and access to the ECB's resources.

The growth forecast scenarios were reviewed again and again and new decisions were taken to stabilize economic growth (Lagarde, 2020). The ECB took a new decision to purchase an additional € 600 billion of securities in June 2020, and at the end of the year, on 10 December 2020, the Governing Council decided to purchase an additional € 500 billion of securities under the PEPP program. The total amount of instruments to be purchased had already reached € 1,850 trillion and interest rates had been reduced to historic lows ever set by the Governing Council. FED and ECB had reached, what is known in the academic literature as, the zero-lower bound (ZLB), at which further monetary easing by central banks becomes difficult and less effective.

Therefore, in contrast to the previous crises (Buti, 2010) national fiscal policies gradually started to play an increasingly more important role. Bouabdallah et.al. (2020) further emphasizes that in countries with a single monetary policy, national governments, through their specific, tailor-made, timely and time-limited fiscal policies, need to play an active role in addressing inherent macroeconomic risks despite the fact that fiscal activism was criticized during the GFC.

At the beginning of the COVID-19 crisis, national governments also acted swiftly. In many countries, economic support programs have emerged as a horn of plenty. No one questioned whether these programs were necessary or whether they would produce results. The rich countries set an example and the others tried to follow them, as far as they could.

One of the most important EU fiscal policy decisions was approved immediately in March 2020, allowing countries to disregard the provisions of the debt limits set in Growth and Stability Pact (GSP). At the same time, the ban on national governments granting aid to companies was frozen (European Council, 2021). In the first months of the COVID-19 crisis, more than \$ 10 trillion dollars were pledged to fight the crisis (Cassim, et.al., 2020).

The most important thing to note in the context of the EU's economic recovery is the fact that the COVID-19 crisis revived the long-standing but unfinished topic of dialogue between the EU countries on the creation of a legal framework for the EU debt financing. The COVID-19 crisis served as a catalyst for more than a decade lasting EU cross-border negotiations whether the EU can borrow on its own in the financial markets and that all countries will be jointly responsible for repaying this debt in the future. The EU Council adopted this historic decision, approving the € 750 billion New Generation EU (NGEU) program, on 20 July 2020.

For the first time, the EU issued common bond obligations to finance the grants to Member States and to address their challenges. Whether a comparison with Hamiltonian moment in 1790 in the US, when different US states agreed on the common debt, was justified (Greer, 2020) will be seen in the future, as there is still a wide-ranging debate about the future fate of the common debt and the arrangements of repayment. It is seen with the naked eye that the support activity in managing this crisis is really large and comprehensive, both in monetary and fiscal policy field. Total amount of fiscal resources assigned to-date to tackle the crisis induced by pandemics is 17 trillion dollars (IMF, 2021). There is no longer any discussion of whether too little or not has been done. The main discussion today is how effective monetary and fiscal policy have been. Which of the policies - monetary or fiscal policy is more effective under certain circumstances. Which of the policies is preferred during the financial and economic crisis. Whether there are unlimited financial resources and unlimited fiscal space. All these issues are closely linked to the analysis of efficiency of the use of available resources. Why after two years of COVID-19 crisis the results are mediocre and only half of the OECD sampled countries have regained the pre-crisis GDP levels as will be seen in the next part of the paper.

Interplay of Monetary and Fiscal Policy

Although the possibilities of monetary policy have not been fully exhausted, the interest rates are at their historically lowest level and, thus, manoeuvring space is very limited. Therefore, fiscal policy should play a leading role. The second question that arises at the beginning of the debate is whether the transmission channels of monetary policy are not blocked and will be able to operate efficiently and fully if the participants in the financial system are themselves in financial difficulties and unable to transmit the needed money to economic actors i.e., to natural and legal persons. During the GFC of 2008-2010 central banks provided significant support for the stabilization of the financial sector in order to safeguard smoothly functioning transmission mechanisms of monetary policy.

Analysing effectiveness of monetary and fiscal policy mix and the respective instruments, it is equally important to conclude whether the epidemiological crisis is causing demand or supply shocks, or both. And that is why (Guerrieri, 2020) raises the question: “do we mainly experience a demand shock or a supply shock?”. Only by making this comprehensive diagnosis of the consequences of this crisis, we can apply or prescribe the right medicines, otherwise treating the wrong causes and effects, ignoring the elements of the supply-side crisis, printing money and allocating huge additional fiscal resources to the system by increasing purchasing power demand and increasing consumption, we can contribute to the rise of inflation with all the other consequences (Baungsgaard and Symansky, 2009).

Baungsgaard and Symansky (2009) point out in their IMF Staff Position Note that monetary policy does not allow for a full response to large demand shocks and the additional time needed for the full fledge of discretionary fiscal policy. Therefore, automatic stabilizers, even though they are only by-products of previous decisions and do not provide targeted support needed to stabilize a particular macroeconomic situation could be very useful. Nevertheless, fiscal policy based on the principle of allocating "discretionary" fiscal instruments should be dominant. Haroutunian et al. (2021), complementing the notion of importance of fiscal policy during the COVID-19 crisis, stating that households and businesses should be addressed directly, bypassing the long monetary policy supply chain, which has a broad and vague objective.

Central banks are able to respond quickly to changing economic conditions during economic downturns (Boushey et al., 2019), but at the same time, monetary policy has a large time lag, as it takes quite a long time for market participants, businesses and individuals to get used to the new monetary conditions and choose to borrow already for lower and more favourable interest rates (Friedman 1963; Havranek and Rusnak, 2013). In contrast, the rapid and targeted use of fiscal stimulus instruments can be immediately reflected in consumer behaviour and stimulate reduced purchasing power.

Although thoughts on the effectiveness of monetary policy are divided and fiscal policy emerges at the forefront of recent crises, it is important to realize that the most effective fiscal policy is directly related to monetary policy and when monetary policy is accommodating and provides a good base for the governments to borrow at the favourable interest rates (Corsetti, 2008). Blanchard (2020) acknowledges that in fact by 2008-2009 addressing the macroeconomic challenges of the 2008-2010 GFC was largely on the shoulders of monetary policy, and fiscal policy support was formal, perhaps changing the structure of expenditure and taxation during the crisis, but not specifically targeted and directly linked to macroeconomic stabilization indicators. Fiscal automatic stabilizers operated independently, without further analysis and earmarking for specific support programs today named as semi-fiscal automatic stabilizers.

Composition of Available Fiscal Instruments

It is important to emphasize that fiscal stimulus and support measures differ in nature, availability, allocation and the speed of impact. For the purposes of this analysis, it is necessary to distinguish between several types of fiscal instruments. The first could be automatic stabilizers, i.e. funds already committed and earmarked during the annual budget approval and continuing to be used in the event of a crisis. Thus, providing necessary countercyclical measures against the crisis. The second group of instruments is so-called "discretionary fiscal stimulus measures" or new and fresh borrowed fiscal resources to be used to finance all needs arising due to the crisis. In order to address crisis problems and speed up allocation of discretionary spending during the crisis, discussion about automatic stabilizers, semi-automatic stabilizers and discretionary spending has emerged with a new breath.

1. Automatic stabilizers

First impression of automatic stabilizers might be misleading, because these funds stabilize conditionally, and they can stabilize only a small part of aggregate demand. Therefore, more precise definition would be the budgetary resources that have already been assigned and trying to stabilize the economic downturn. The word “*automatic*” is stressing immediate access to the money in budget, because it has already been approved. Automatic stabilizers deal much better with shocks of the declining private consumption than with the shocks of declining investments and exports.

Budget expenditure and revenue side funds are considered to be automatic stabilizers of fiscal policy. During the crisis, allowing the "automatic stabilizers" of fiscal policy to work is already largely resolving the issue of timeliness, targeting and temporariness. At times, the question of the usefulness and effectiveness of the use of fiscal "automatic stabilizers" on the expenditure and revenue side needs to be answered. Namely, will maintaining different types of spending and reducing or deferring taxes contribute to an even faster recovery of purchasing power and economic growth than borrowing in the markets, or by combining the two components of automatic stabilizers to accelerate the recovery of demand?

Automatic stabilizers are in place while other specific economic support measures are still being discussed. Stabilizers are an integral part of any crisis. With one reservation. If the government either does not want to increase the budget deficit or the government has difficulties of financing the budget deficit.

However, it turns out that automatic stabilizers are not magic wands with an unlimited ability to prevent the effects of the crisis. Firstly, it is important to emphasize that not all automatic stabilizers are equally effective in minimizing the effects of the crisis. The ability of automatic stabilizers to restore or stabilize demand depends to large extent on the behaviour of economic agents (individuals and businesses) in relation to the available liquid resources and borrowing opportunities in the market. Automatic fiscal stabilizers are forecasted to constitute about one-third of the large budget deficit in 2020 (Bouabdallah et al., 2020).

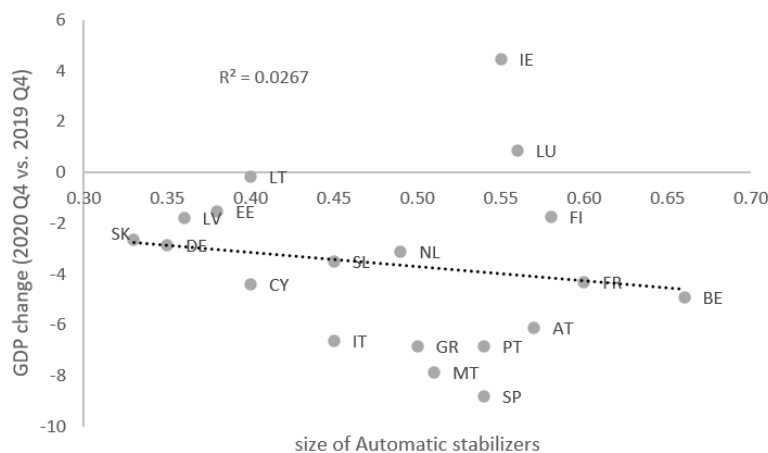
The variety and size of 'automatic stabilizers' in the European Union's financial area raises questions about the different potential effects of different stabilizers on the pace of economic recovery. Whether the presence of automatic fiscal stabilizers in national budgets ensures a faster economic recovery from the economic crisis remains subject of the further study. And if larger size of automatic fiscal stabilizers ensures a faster recovery, is it appropriate to further increase the presence of automatic fiscal stabilizers in national budgets and will an even greater presence in budgets ensure a faster and more successful recovery from future crises.

The large difference between the size of automatic fiscal stabilizers can be explained by several factors such as tax to GDP ratio, progressivity of the income taxes as well as the amount of social security packages.

In countries that maintain a larger general government sector, taxes on GDP are correspondingly higher, and in times of crisis, this provides an opportunity to provide a continuous and consistent level of income to more public sector employees through larger automatic fiscal stabilizers. Thus, maintaining higher purchasing power than in countries, where the government sector is smaller and a smaller amount of money

is redistributed through the government budget. However, according to Debrun (2008), once reaching certain limit of the government size, larger size of government does not warrant the effectiveness of automatic stabilizers.

If the consolidation of budget expenditures does not take place as a result of which the initially allocated budget funds are reviewed and reduced, then it can be considered that these automatic budget stabilizers start operating immediately, supporting the measures specified in the budget law. The average rate of automatic stabilizers in the European Monetary Union is 0.49, compared to the US, where this ratio is only 0.34 (Deroose et al., 2008). Surprisingly, this figure has hardly changed in ten years in EMU and remains at 0.48 (Bouabdallah et.al., 2020). Automatic stabilizers provide a small respite while seeking the appropriate additional funding (internal or external borrowing) and allowing not reducing or consolidating the expenditure side of the budget. Thus, preventing further negative pressure on demand, further reducing of consumption, investment and economic growth. Further analysis of the size of automatic stabilizers and their role in stabilizing the macroeconomic situation does not approve the hypothesis that larger automatic stabilizers warrant faster recovery from the initial shock (Figure 1).



Source: Eurostat, IMF 2020 and authors' calculations

Fig. 1. Relative GDP change vs the size of automatic stabilizers

The estimated size of automatic stabilizers varies from 0.66 in Belgium to 0.35 in Slovakia. But Figure 1 clearly shows that there is no correlation between the size of automatic stabilizers and faster GDP recovery. Automatic stabilizers for US are much smaller than in euro area and that explains more sizeable reliance on the use of discretionary measures.

2. Semi-automatic stabilizers

Even long before the GFC, recognizing the important role of automatic stabilizers in stabilizing the crisis situation, there were elevated interest on how to increase the potential size of an additional automatic stabilizers or invent separate budget class of so-called semi-automatic stabilizers in order to prevent and mitigate the consequences of the sudden crisis even more efficiently and faster.

In addition to the conventional automatic fiscal stabilizers, the provision of additional semi-automatic government funding, which takes a longer time to coordinate and go through legislative process, could be established. Thus, under pre-agreed economic indicators, allowing the necessary resources to be channelled to relevant social or business groups. Therefore, in anticipation of this possible political "stall", the first ideas of targeted and timely allocation of funds in addition to the automatic stabilizers emerged with new spark at the beginning of this century (Blanchard, 2000), promoting the discussion how to secure and provide the necessary stabilization funding even faster.

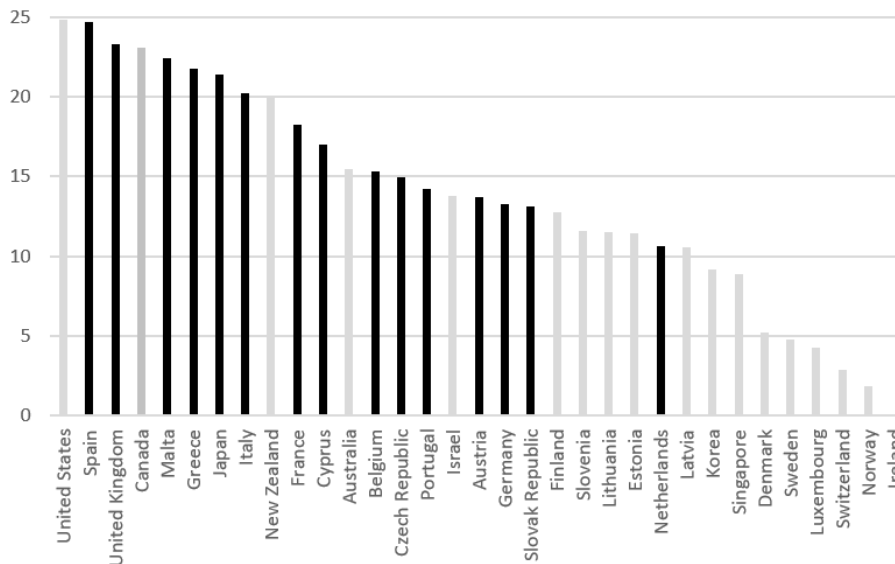
For more than 20 years, the possibility of further stimulating measures to cushion the economic downturn through the use of so-called semi-automatic fiscal stabilizers has been under discussion. These quasi-automatic stabilizers would allow the Ministry of Finance to allocate automatically the additional fiscal resources needed to finance the specially agreed programs in the event certain measurable economic data would demonstrate the fall of certain indicators under the radar and pre-agreed level e.g., GDP would fall by more than 10% in the previous quarter or the unemployment rate would exceed 10%. Under these circumstances, Minister of Finance, could be authorized, without further approval, to launch the appropriate fiscal stabilization programs of the economy. Thus, effectively transposing the part of discretionary policy into automatic or semi-automatic stabilization spending. Extension of unemployment benefits, providing immediate funding for low income people, extending current benefit scheme (if unemployment persists for even longer time above certain level), various health and food provision programs for the qualified households, well design public works programs and to create special long term infrastructure development and building programs in case crisis strikes the country and certain predefined threshold is reached (Boushey, et. al.,2019).

Therefore, in order to speed up the relevant decision-making if crisis strikes, academic and financial analyst discussion progressed naming several areas of possible discretionary spending, which could be prepared in advance and would not require additional debate. Blanchard and Summers (2019) expands on the various tax and revenue measure use, asking also very important question: are automatic stabilizers just a bridge or permanent arrangement of discretionary spending during the crisis. Question will always remain for how long these semi-automatic stabilizers will be in force and whether they do not constitute the risk of inflationary pressures in the future (Baunsgaard and Symansky, 2009). For some countries, e. g. Germany, short time work schemes and wage subsidy items have been budget expenditure items for a long time and only the criteria and timing for triggering the launch of these programs had to be set. This means that they are not completely re-allocated at the discretion of the government as a completely new expenditure item, but as an item that does not require further substantive discussion and a separate political decision, but only the necessary resources.

3. Discretionary fiscal resources

Covid-19 crisis arrived uninvited. People were dying and governments had to act immediately. The discussion about speed of decision making to grant necessary funds and to accept political decisions about necessary financial measures was and still is of great importance. Discretionary fiscal resource assignment and spending has been at the centre stage of the Covid-19 crisis. These are the fresh new resources, governments mobilized in order to resolve epidemiological problems of pandemic and also to support economic activity through preserving consumption, investing in infrastructure projects, paying various furlough, wage subsidy, monthly allowance payments etc. Almost two years in the COVID-19 crisis and having witnessed the fourth wave of the pandemic in November 2021, and the fifth at the beginning of 2022, it is important to sum up what are the amounts of money spent so far and whether there is still fiscal space remaining.

According to the IMF World Economic report (IMF, 2021) data, amount of the discretionary fiscal measures and other support instruments used since the start of the pandemic are continuing to grow. The total amount provided and committed to tackle the COVID-19 crisis in the world as of 1st of October, 2020 was 11.7 trillion US dollars. In April 2021, the amount had risen to 16.03 trillion dollars and as of 1st of October, 2021 it was almost 17.0 trillion dollars. Has larger size of the fiscal resources borrowed and spent warranted faster recovery? Figure 2 shows that the answer is - no. It is a bit surprising at the first glimpse. Thus, allowing to conclude, that more is not always more. With smaller amount of fiscal discretionary spending and borrowing, it is possible to reach pre-crisis GDP level of 2019Q4 sooner. According to the IMF World Economic Outlook forecast published in October 2021 (IMF, 2021), only in 2022, all countries in the OECD country sample will finally will achieve pre-crisis GDP level. Countries with the black bars still have not regained the GDP levels of 2019Q4, despite the fact that fiscal stimulus packages have been larger. Thus, indicating that there is further worked required to establish the reasons.



Source: IMF WEO, 2021; author's calculations
 Notes. Gray: GDP in 2021 higher than GDP in 2019. Black: opposite.

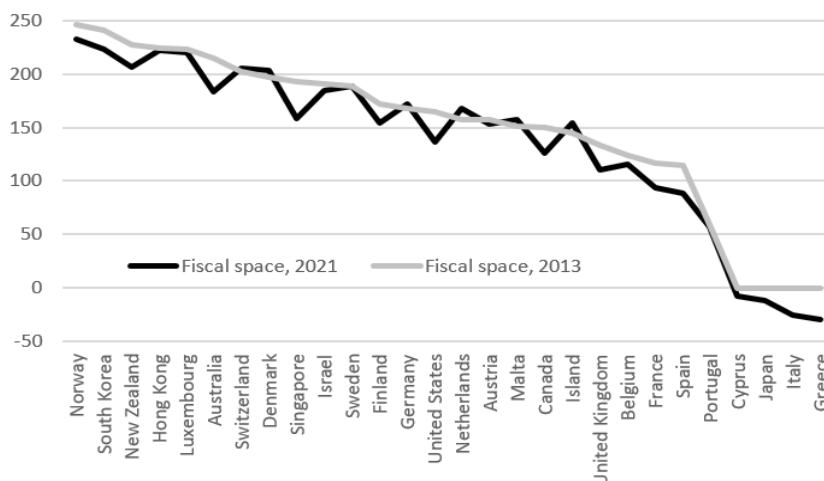
Fig. 2. Public debt increase vs economic recovery in 2020 and 2021

Fiscal Stance, Space and Buffers

The EU Commission's decision in Spring of 2020 to freeze the restrictive provisions of the Growth and Stability Pact (GSP), at least until the end of 2022, allowed many countries significantly increase their budget deficits by conditionally freeing up fiscal space and carrying out borrowing domestically and internationally. However, this did not provide any additional extra benefits to the countries, already heavily indebted, to borrow indefinitely on the financial markets at favourable interest rates. Good investment grade rating is still among the preconditions needed to warrant the borrowing quickly, despite the fact that fiscal discipline rules have been lifted. The size of external debt, is and will be one of the key factors in overcoming the crisis and Figure 2 reinforces this argument.

It is becoming increasingly clear that one of the most important preconditions for overcoming the crisis is an anti-cyclical fiscal policy in the good times, i.e., fiscal buffer building for the next crisis freeing up fiscal space in the good times for the next crisis.

Analysing the effectiveness of fiscal policy, there is a common understanding among policy makers as well as among EU bureaucrats that fiscal policy support needs to be very timely, well-targeted and temporary (ECB, 2008b; 2009). Before COVID-19 crisis it had been difficult or almost impossible to compare economic policies of the respective countries and to find out the factors why some of them perform better than others. The COVID-19 crisis provides a unique opportunity to compare the effectiveness of resources used, given that the crisis began simultaneously around the world in March 2020, when it was officially announced by World Health Organization (WHO, 2020).



Source: Moody's Analytics 2014 and author's calculations

Fig. 3. Change in the potential fiscal space from 2013-2021

The outstanding public debt picture in Figure 3 draws an additional attention to the size of the fiscal space i.e., distance to the debt limit and possible repercussions in the future. The theoretically sustainable debt levels have been calculated by Moody's Analytics (Ostry et. al., 2015). During last eight years' countries have conducted their respective fiscal policies. Most stressful have been last two years with COVID-19 crisis management. Majority of the countries have reduced their fiscal space from the 2013 levels. Some countries e.g. Cyprus, Japan, Italy and Greece, theoretically have exhausted their fiscal space. During COVID-19 crisis use of fiscal resources has reached historically the highest levels of debt relative to GDP in many countries. Analysing the most recent data (IMF, 2021) it is obvious that hypothesis that larger amount of fiscal stimulus packages provides faster recovery, does not hold. This raises a question of how effectively these resources have been used. Why one country injecting huge fiscal resources recovers slower than the other, where the resources provided and allocated to regain the pre-crisis GDP level, are smaller and economic recovery and growth is faster, despite the fact that monetary policy conditions and fiscal support measure rules are virtually the same. What are the factors that determine efficiency and effectiveness and contribute to the return of economic growth and unemployment to pre-crisis levels? Sapir (2020) has reflected on some of the factors to overcome the crisis. But the list certainly is not exhausted.

Conclusions, proposals and recommendations

1. Available fiscal support instruments could be divided into three parts: automatic stabilizers, semi-automatic stabilizers and discretionary fiscal spending. The amount of total (automatic stabilizers and discretionary) fiscal spending increased substantially during the Covid-19 crisis.
2. There is no relationship between the size of total fiscal (automatic stabilizers, discretionary resources) spending and the speed of economic recovery from the Covid-19 crisis in a sample of OECD countries.
3. Public debt to GDP ratio increased substantially during the Covid-19 crisis in most of the countries. In many countries with the steepest public debt rises, economic recovery is taking place later than in countries with smaller increases in public debt.
4. Covid-19 crisis continues for two years and currently is in its fourth wave. Substantial fiscal space has been used by many countries. If crisis continues to unravel further in the future and fiscal space continues to shrink and servicing costs of the outstanding debt will rise, countries must analyse the effectiveness of utilizing available resources in the future and other factors influencing growth and speedier recovery.
5. Credit ratings, outstanding public debt level and available fiscal space plays crucial role during the crisis. Therefore, during the expansionary phase of a business cycle countries must carry out countercyclical measures and build the fiscal buffers for the future crises.

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USE OF ARTIFICIAL INTELLIGENCE IN MARKETING COMMUNICATION OF LATVIAN COMPANIES

Jelena Salkovska, University of Latvia
Anda Batraga, University of Latvia
Liene Kaibe, University of Latvia
Maija Delle Cace, Riga Stradins University

Abstract. Technological developments and generational change in society have also contributed to the development of artificial intelligence in various fields, including marketing communications. The aim of the research is to study the attitude of Latvian consumers towards the use of artificial intelligence in marketing communication, as well as to develop proposals for the improvement of Latvian companies' marketing communication by using artificial intelligence. Methodology/methods: In order to achieve the objective of the research, the method of qualitative and quantitative research has been used: referential analysis, expert interview, and online interrogation of the residents of Latvia. The results of the research show that Latvians have a positive perception of the use of artificial intelligence in marketing communication, and its purposeful and well-thought-out use increases the efficiency of marketing communication in Latvian companies and has a positive effect on the image of companies.

Keywords: *marketing communication, artificial intelligence, consumers, companies.*

JEL code: M31

Introduction

The concept "artificial intelligence" is common in everyday life; more new solutions, discoveries and continuous progress in this field are reported, experts do not hesitate to call artificial intelligence the most significant technological discovery of the time being. The development of artificial intelligence has had a significant impact on the activities of various industries, including marketing communications.

As the amount of information increases, companies need to think about how to use the information about the customers in full, to communicate with them, to provide personal service and to facilitate conversation. The challenge is how to be comprehensive while offering personal communication at the same time.

Interest in artificial intelligence and its role in people's daily lives has also increased in science. In the early 1990s, less than 1% of scientific publications and around 3% of conference proceedings were available on artificial intelligence out of all 7 materials in the Scopus database. In 2018, there were already 3% of publications and conference materials - 9% of all scientific materials. The number of publications has tripled in 20 years.

In Latvia, artificial intelligence is discussed only in a comprehensive format, or by analysing specific cases in which artificial intelligence has been introduced, such as, for example, the introduction of the first virtual assistant "UNA" in customer service of the Enterprise Register of the Republic of Latvia. There is a couple of recent scientific studies on the use of specific artificial intelligence solutions, especially virtual assistants, in various fields, such as customer service, available.

The aim of the research is to study the attitude of Latvian consumers towards the use of artificial intelligence in business marketing communication and to develop proposals for improving the marketing communication of Latvian companies in the context of the use of artificial intelligence, based on theoretical findings on the use of artificial intelligence in marketing communication and expert interviews.

A hypothesis has been put forward for the research: Latvian residents have a positive perception of the use of artificial intelligence in marketing communication, and its use increases the efficiency of marketing communication of Latvian companies and positively affects the image of companies.

The following tasks have been set to achieve the objective:

1. To study the theoretical and practical possibilities of using artificial intelligence in marketing communication;
2. To develop a consumer questionnaire and to conduct an interrogation, finding out the attitude of the residents of Latvia and their knowledge about the use of artificial intelligence in corporate marketing communication;
3. To find out the opinion of experts, professionals in the field about the role of artificial intelligence in marketing communication in Latvia and the perspectives of its use in the future;
4. To summarize the obtained data and, as the result of the analysis, to draw conclusions and to put forward proposals for the integration of artificial intelligence in marketing communication of companies in Latvia.

Period when the research was conducted: from January to March 2020, with a collection of literature and Internet resources from February to May, and consumers' interrogations and expert interviews from April to May.

As Dora E. Bock and co-authors argue in their paper, if artificial intelligence is set to automate services, their availability and to provide access to the smart systems and algorithms that create and personalize crucial information across different data sets and devices, then the providing of services is to face major changes (Bock, Wolter and Ferrell, 2020). The authors agree that artificial intelligence will lead to significant changes in service providing and marketing communications in the future.

Literature Review

In order to process large amounts of data, to better understand the needs of the audience and to enable to develop communication that targets individuals rather than the masses, artificial intelligence is used in marketing communications. To substantiate the problem of this study, the authors used internationally recognized sources *Quality-Access to Success*, John Wiley & Sons, *AMCIS 2019 Proceedings*, *Entrepreneurship*, different practices for the use of artificial intelligence: *Marketing Science*, *International Journal of Technology Marketing*, *Journal of Marketing*, *Designs*, *Journal of Creative Communications*, *Marketing Intelligence & Planning*, *Business Horizons*, *IT Professional*, *International Journal of Information Management*, *Journal of Business and Industrial Marketing*, as well as other sources: *Data Science Central*, *Journal of Services Marketing*, *Journal of Services Marketing*, *European Journal of Marketing*, *International Journal of Electronic Business*.

Artificial intelligence is used in various fields, in the financial sector, in manufacturing and also in marketing. This technology is able to replicate and imitate human behaviour, and its possibilities are endless. The authors undoubtedly agree that since artificial intelligence is focused on self-learning, with the help of which it can maintain functionality and perform tasks without human intervention, artificial intelligence is also being effectively integrated into marketing activities (Tchelidze, 2019; Sterne, 2017).

The importance of artificial intelligence in marketing has been greatly enhanced by the large amount of online data. The enormous potential of artificial intelligence in digital marketing is created by neural networks and the ability to “self-learn”. Artificial intelligence has the potential to learn deeply the data, and it offers a variety of analysis tools. It gives online traders the opportunity to learn customers’ digital reactions and behaviour, based on the data collected. In addition, this advanced technology forecasts the expected results and helps digital traders to forecast the consumers’ intentions about their future consumption (Tchelidze, 2019; Ryan, Siau, 2019)

The content analysis, carried out with artificial intelligence, can be much more open compared to manual and computerized approach that helps to distinguish the structure and meaning of content. Artificial intelligence helps researchers to select content, to define categories, and to identify causative relationships between the categories. In marketing research, this aspect of content analysis provided by artificial intelligence would be useful in the researches related to complex and changing content, such as customer feedback text analysis (Büschken, Allenby, 2016; Lee, 2014; Lee, Bradlow, 2011) or trying to understand how consumers view brands based on the use of snapshots (Nam, Joshi, Kannan, 2017).

Targeting and market segmentation is one of the first most important steps in creating a successful marketing campaign. In the article “24 Applications of Statistical Modelling”, published in Data Science Central, Vincent Granville describes market segmentation as follows: “Market segmentation, also known as customer profiling, is a marketing strategy that involves dividing a broad target market breakdown into consumer, business subgroups, or countries that have or are considered to have common needs, interests, and priorities, and then developing and implementing strategies to target them. Market segmentation strategies are typically used to identify and further define target customers, as well as to provide additional data on elements of the marketing plan, such as positioning, to achieve specific objectives of the marketing plan. (Granville, V., 2015).” (Sterne, 2017).

Artificial intelligence systems monitor messages from social media and website users that relate to a specific topic or keyword, such as a company or product name. These news and comments about the brand could say something positive or negative. For medium and large brands, this data could contain hundreds or even thousands of messages every day. In order to classify them as positive or negative, a person has to go through each of them and classify each one according to its context. Artificial intelligence analysis algorithms are useful to perform this task automatically (Perakakis, Mastorakis, Kopanakis, 2019).

Using an intelligent monitoring tool, social media traders are able to perceive each competitor and customer social media message. Thus, it is possible to identify the complaints of the present customers of the competitors and effectively offer alternatives to the customer, submitting the complaint. One should also take into account that not all social media monitoring tools will effectively monitor the competitors’ activities, so a social media specialist has to integrate artificial intelligence as well. Using artificial intelligence, marketing specialists can identify changes associated with launching new competitors’ products. Such an improved monitoring enables to get prepared to prevent changes and to retain customers. In ideal situation, artificial intelligence enables to do so by monitoring online activities. For example, online communities where companies engage their customers in the search for ideas include the use of various social media tools, such as webinars. Future great ideas are set out here, and it is therefore very important to monitor such discussions. Messaging that takes place every day, which is endless in fact, is a great source of information. The advantage of smart tools for monitoring such activities is that marketing specialists will not miss any single conversation that take place online. Insights from online conversations not only help identify shortcomings in competitors’ strategies, but also enable marketing specialists to learn about the future great ideas. By applying machine learning techniques used in smart monitoring tools, companies can engage in global negotiations (Perakakis, Mastorakis, Kopanakis, 2019).

In the context of public relations, artificial intelligence has the potential to automate and perform various tasks. These tasks include writing data-based stories, organizing and updating media lists, helping with crisis management, audio conversion and transcription into text, tracking and forecasting media trends, and monitoring and managing social media (Panda, Upadhyay, Khandelwal, 2019).

Using the resources of marketing information systems is crucial for ensuring the success of an organization and should be an integral part of strategic planning process (Amaravadi, Samaddar, Dutta, 2006).

Artificial intelligence helps marketing specialists satisfy the demand for individualized experience. (Dimitrieska, Stankovska, Efremova, 2018).

Linda W. Lee and co-authors (Lee, Dabirian, McCarthy, Kietzmann, 2020) have stated that, first of all, one of the main advantages of content analysis that artificial intelligence provides over manual and computerized approaches is the nature of the data to be analysed. The ability of computing and learning content analysis with artificial intelligence makes it suitable for processing “big data”, which has extremely large volume, variety and speed (Dabirian, Kietzmann, Diba, 2017; Dabirian, Paschen, Kietzmann, 2019; Gandomi, Haider, 2015; Paschen, Kietzmann, Kietzmann, 2019).

In 2007, Bayan Abu Shawar and Eric Atwell (Shawar, Atwell, 2007) discussed the expedience of virtual assistants in various areas of life, such as education, replication of information, business, or e-commerce. The use of artificial intelligence and other innovative technologies in the field of finance is actively studied by the authors Svetlana Saksonova un Irina Kuzmina–Merlino (Kuzmina–Merlino, Saksonova, 2018; Saksonova, Kuzmina–Merlino, 2019).

Shopping software can make purchasing decisions that are optimal for their users’ requirements, preferences and budgets (Sadeddin, Serenko, Hayes, 2007). As the result, retailers and manufacturers, possibly, will no longer advertise their products to people whose decisions are often influenced by both emotional reactions and brand loyalty (Klaus, Zaichkowsky, 2020).

Based on the findings of scientific and theoretical research, which is used as a basis for further research, as they confirm the argumentation related to topicality, functions, advantages and disadvantages, the authors conducted a practical study, in scope of which the attitude of Latvian consumers towards artificial intelligence in marketing communication has been revealed.

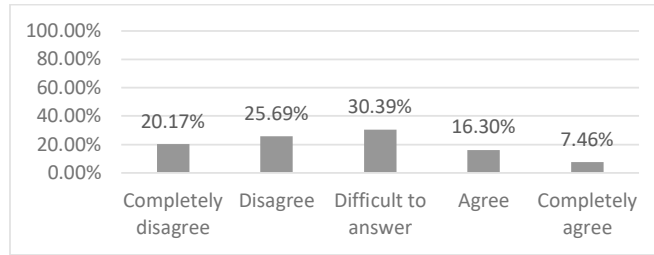
1. Artificial Intelligence in Latvia and Attitude Towards It

In the study of the authors, in order to achieve the objective of the study, quantitative and qualitative research method was used. The online consumer interrogation was designed to find out the role of artificial intelligence in the daily communication of Latvian consumers with the providers of goods and services and to assess public attitudes and views on the use of artificial intelligence when companies communicate to their customers. A total of 392 valid responses have been received from the respondents. The majority of respondents (60%) represent the millennium and the “Z” generation, most respondents were aged 18 to 29 - 122 respondents (31%) and 30-39 - 114 (29%).

Expert interrogation was conducted as a method of qualitative research. The representative of the first public administration institution in Latvia that uses artificial intelligence in its activities in the format of a virtual assistant – chatbot – Vikija Bergmane, rapporteur of the customer service department of the Enterprise Register of the Republic of Latvia, Telma Gaule, project manager of the public relations agency “Réputé”, and Ilze Vaidere, social media project manager of the digital advertising agency “Wrong Digital”, have been interviewed.

46% of respondents disagree with the statement “Companies in Latvia use artificial intelligence sufficiently” (Fig.1) and 30% can neither agree or disagree, which means that the majority are convinced that Latvian companies use artificial intelligence too little. The inability to answer convincingly indicates a lack of information, as a result of which consumers cannot express their thoughts about what they do not know

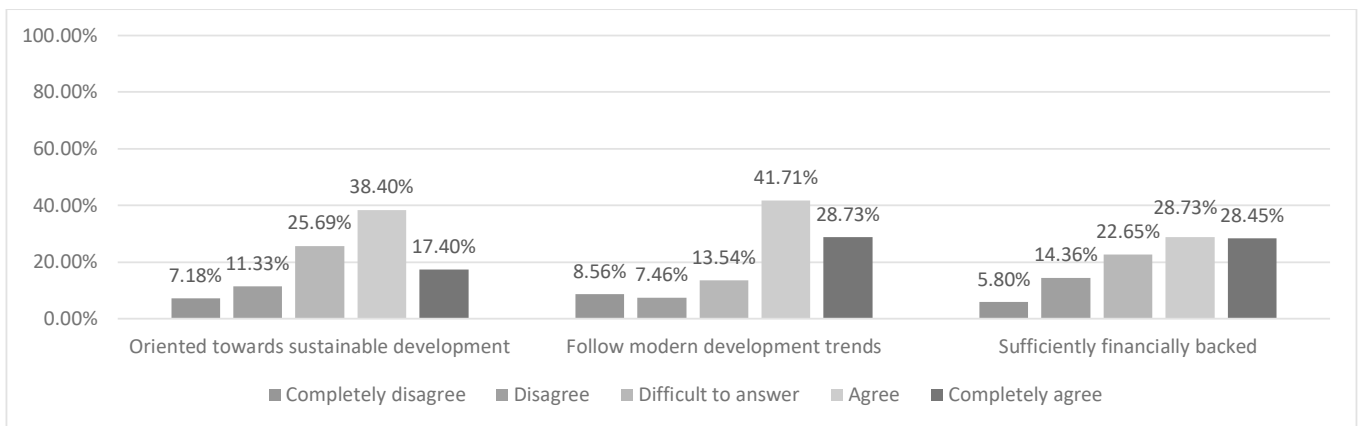
and are not sufficiently informed - 46% of respondents completely disagree or disagree with the statement that companies in Latvia sufficiently reflect the use of artificial intelligence in their marketing communications and 23% have no distinctive opinion.



Source: author's construction based on survey, n = 392

Fig. 1. Respondents' assessment of the sufficiency of use of artificial intelligence in Latvian companies

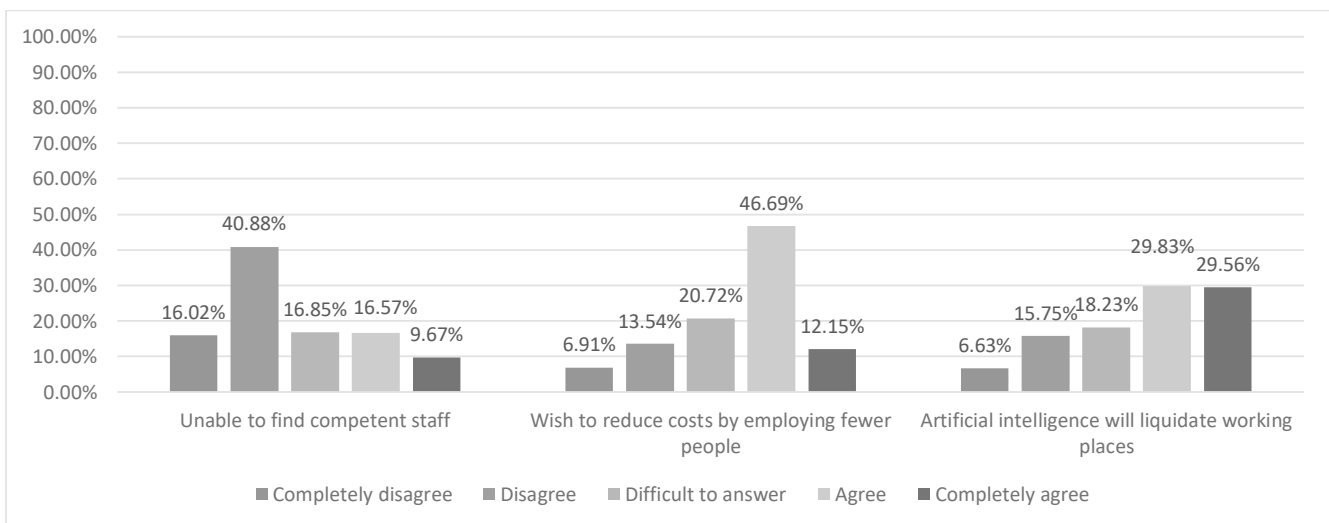
The majority of respondents (71%) agree that in Latvia, artificial intelligence is used by the companies that follow modern development trends and innovations (Fig. 2), and in order to be able do so, the companies need to be financially backed, according to 57% of respondents. (Fig. 2.). Responses on sustainable development show a similar result - more than half (55%) of the respondents agree or completely agree that in Latvia, artificial intelligence is used by companies that are oriented towards sustainable development (Fig. 2).



Source: author's construction based on survey, n = 392

Fig. 2. Respondents' assessment of companies in Latvia that use artificial intelligence

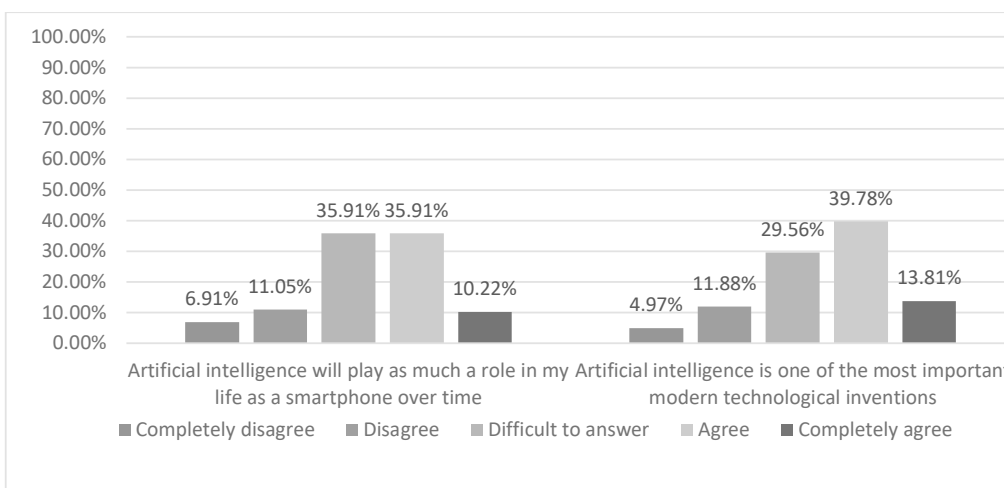
Given the common societal assumptions and opinions on technology, including the impact of artificial intelligence on business structure and working places, the interrogation also included a question that expresses respondents' views not only on artificial intelligence, but also on the workforce. 57% of respondents do not agree that the reason for the introduction of artificial intelligence in Latvia would be the inability of companies to find competent staff (Fig. 3). 59% of respondents agree or completely agree that artificial intelligence in Latvia is used by companies that wish to reduce costs by employing fewer people. 60% of respondents agree with the statement that artificial intelligence will liquidate working places. This means that, although looking back at the answers considered above, which showed that respondents are aware that the introduction of artificial intelligence requires resources, they still think that by introducing artificial intelligence the companies can employ fewer people and thus save money.



Source: author's construction based on survey, n = 392

Fig. 3. Respondents' assessment of the workforce in companies in Latvia that use artificial intelligence

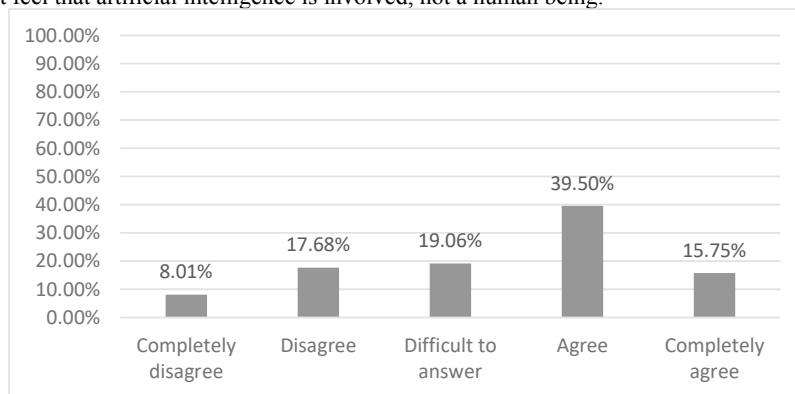
Almost half of the respondents (46%) agree or completely agree that artificial intelligence will play as important a role in their life as a smartphone over time (Fig. 4). 36% of respondents are not sure about the answer. 54% have answered in the affirmative that artificial intelligence is one of the most important technological inventions of today, but 30% are not sure about it.



Source: author's construction based on survey, n = 392

Fig. 4. Respondents' thoughts on the future role of artificial intelligence

The experts interviewed by the authors believe that there is a diverse, uncertain attitude towards artificial intelligence in Latvia, largely due to negative attitudes caused by the concerns pertaining to data security and integration of artificial intelligence in the performance of duties executed by a human when liquidating working places. The consumers in the interrogation said it was important for them to know when and how companies use artificial intelligence in their marketing communications (Fig.5), and the social media project manager of a digital advertising agency asserts that a successful artificial intelligence solution is the one the presence of which cannot be felt by the consumer. According to the authors, it is another challenge for companies to inform the public that artificial intelligence is used, but when consumers are in contact with it, they do not feel that artificial intelligence is involved, not a human being.



Source: author's construction based on survey, n = 392

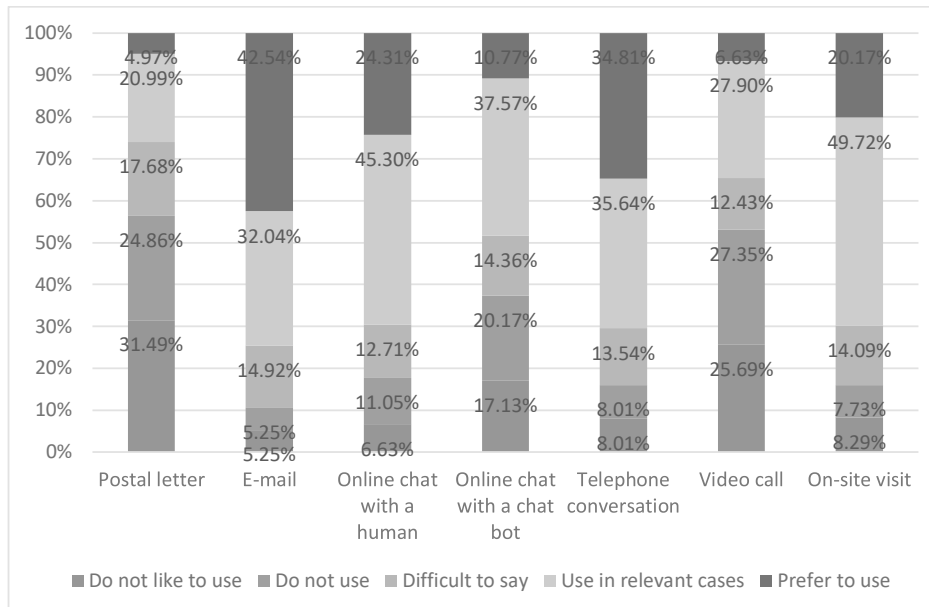
Fig. 5. Respondents' wish to know if the company uses artificial intelligence

Overall, there is confusion among consumers both about the understanding of the concept of artificial intelligence and its practical use in consumers' everyday life. At the same time, consumers believe that artificial intelligence will make their daily lives easier, and they already actively and willingly use it on a daily basis, but are not sure whether it will really play as important a role in everyday life as a smartphone (Fig. 4).

The study has revealed that the respondents are convinced that companies in Latvia do not use artificial intelligence sufficiently or that those who do so do not sufficiently reflect it in their communication channels and media. According to the authors, this shows that Latvians are happy to use and would use the functions of artificial intelligence, and this is a positive indicator for the companies in Latvia that are thinking about the use of artificial intelligence solutions in their marketing communication.

2. Artificial Intelligence Tools in Marketing Communication

The experts interviewed in the authors' study are cautious about the implementation of artificial intelligence, emphasizing that while artificial intelligence can solve many issues, such as providing customers, including Generation Z, the desire for speed, personalization and accessibility, the companies with such solutions should not hurry and do it judiciously in order so as not to spoil the company's image, as well as people's associations and attitudes towards artificial intelligence, which could make it difficult for other companies to gain consumers' confidence by implementing artificial intelligence solutions in their marketing communications.



Source: author's construction based on survey, n = 392

Fig. 6. Respondents' most preferred ways of communication with companies

The results on the most preferred types of communication show (Fig. 6) that companies need to focus on the introduction of artificial intelligence in the communication channels that people already use - e-mail, online chat, telephone conversation. In addition, on-site visits to consumers' favourite shops can be replaced by video format communication, which appears to be around a third of respondents agree to use.

The consumers have been asked to indicate the cases when the consumers would like to use a product or service in marketing communication of which artificial intelligence is used, and the result was:

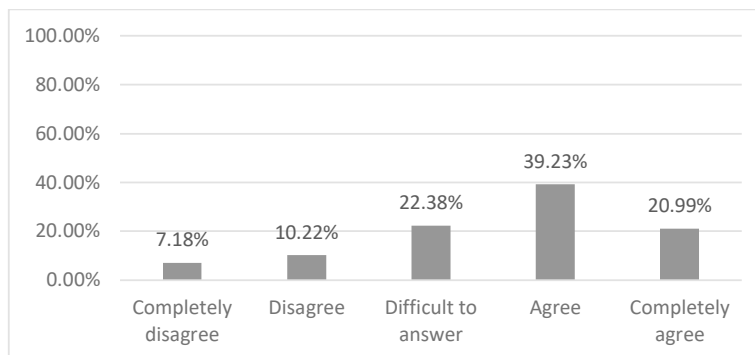
1. The company offers a discount that was calculated, based on the previous purchase history (67%);
2. The company offers a better (personalized) offer for an existing or a new service, product, based on the changes in current needs or opportunities (57%);
3. The company provides personalized recommendations for the products you would like to purchase based, on previous purchases (47%);
4. The company offers to a new customer the solutions that best suit its wishes and abilities (45%);
5. The company develops a personalized product or service advertisement that reflects individual values and interests (34%).

Accordingly, the idea of companies using artificial intelligence to develop discounts, special and personalized offers is the most appealing to the consumers.

Artificial intelligence should have all of the mentioned functions, but it seems that consumers value some of them more than others. The most important functions for the consumer in marketing communication are the ability to determine causative relationships, find the most important things, get information, learn, develop, solve problems, react flexibly to changes and avoid mistakes. Society sees artificial intelligence as an assistant to accomplish what is difficult or impossible for a human, such as not to make mistakes. The authors also see that people could trust to artificial intelligence in solving various problems, and this would already be a challenge for companies - to provide artificial intelligence solutions that, despite the lack of emotions, would be able to solve consumer problems correctly.

3. Advantages and Disadvantages of Artificial Intelligence in Latvia

The consumer interrogation has revealed that the society willingly uses technology and in the future would also use various advantages provided by artificial intelligence (Fig. 7), which are related to corporate marketing communication. Asking experts what the attitude of consumers is, the rapporteur of the customer service department of the Enterprise Register of the Republic of Latvia, chat bot coach Vikija Bergmane, states that "users have different attitudes, but mostly users understand that it is artificial intelligence and not a live human" and in many cases the users express the opinion that the solution is unsuccessful. Telma Gaule, project manager at Réputé, agrees that the attitudes of the consumers of artificial intelligence solutions implemented in corporate marketing communications are "very different - there are people who like artificial intelligence solutions, there is a part who do not like, for example, due to the concerns that they take over the work that could be done by an additional employee and being concerned about the security of their data". Ilze Vaidere, the social media project manager of the digital advertising agency Wrong Digital, in turn, addresses the issue from the other side: "If artificial intelligence is used wisely, then the consumer will not feel it at all. The consumer should not feel that it is seeing an automated and optimized content. On the contrary, it must be tailored and as personalized as possible."



Source: author’s construction based on survey, n = 392

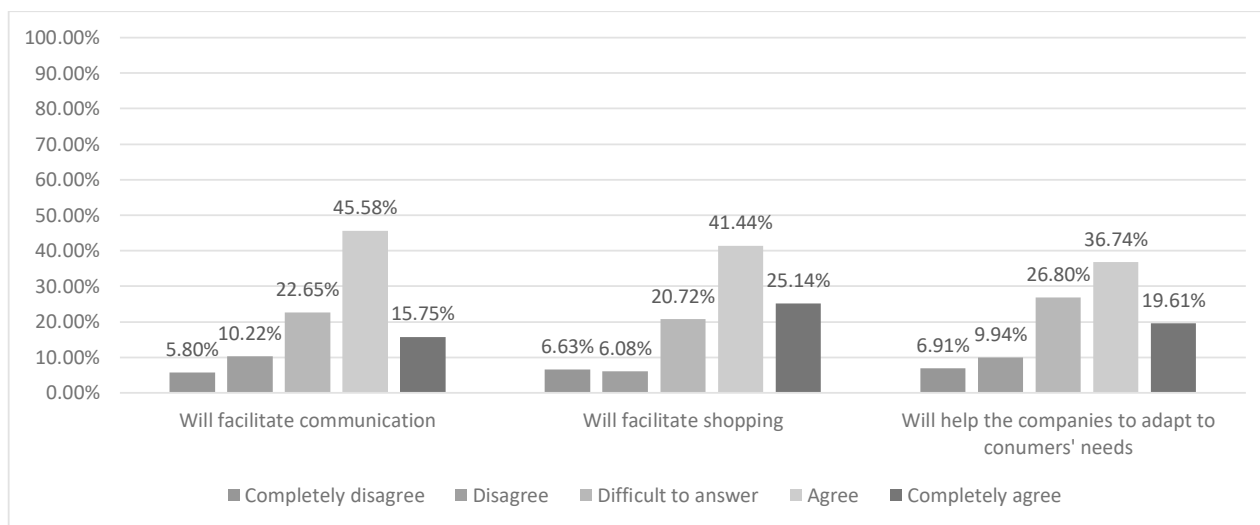
Fig. 7. Evaluation of respondents’ attitudes towards the use of artificial intelligence

When studying consumers’ future forecasts, the majority of respondents agree that the use of artificial intelligence in future marketing communications will facilitate and various customer communication with companies (62%), significantly facilitate shopping, receiving services (66%), and help companies adapt to consumer needs by offering such products. and services that are relevant to the consumer, reducing the number of messages that are not relevant to the consumers (57%) (Fig. 8).

The main benefits that the respondents expect from corporate marketing communications using artificial intelligence are:

1. 24/7 availability (e.g., the ability to get answers to your questions online 24/7) (66%);
2. Faster problem solving (60%);
3. Relevance to my preferences (what is relevant to me is offered or reported through advertisements) (46%);
4. Less likely to encounter human error - less impact of the human factor (35%);
5. There is no need to worry about the provision of private information if it is processed by a computer instead of a human on the company’s side (25%).

Consumers wish to take advantage of artificial intelligence, and this enables companies to improve their marketing communications by using specific tools in line with consumer preferences.



Source: author’s construction based on survey, n = 392

Fig. 8. Respondents’ assessment of the benefits of artificial intelligence in future marketing communication

Experts assessing the use of artificial intelligence in marketing communication: the representative of the Enterprise Register of the Republic of Latvia mentioned the possibility to communicate with the institution around the clock and on weekends, the representative of the public relations agency talked about quick answers, individualized communication, lower probability of human factor errors, but the representative of digital advertisement agency stated that a company that uses artificial intelligence in its marketing communication better sees interrelations and trends, customer problems, as a result of which it can more effectively improve the product or service it offers.

In the expert interviews a question was also asked about the potential risks and problems that may be encountered in introducing artificial intelligence in marketing communications. The representative of the Enterprise Register of the Republic of Latvia expresses the possibility that in future artificial intelligence “could become smarter than a human and a human would no longer be able to control it”, as well as security aspect, because there are still no institutions in the world that would control the creation of artificial intelligence, managed its security etc. The representative of the field of public relations draws attention to the fact that currently in Latvia many artificial intelligence solutions used in marketing communication are not fully developed, and, as the result, they can create and, in the author’s opinion, already create a negative experience for the customers of the companies and negatively affect the image of artificial intelligence. The digital agency’s project manager is of the opinion that over time, over-reliance on data can lead to the loss of brand value, individuality and personality.

Conclusions

1. The hypothesis that the residents of Latvia have a positive perception of the use of artificial intelligence in marketing communication and its use increases the efficiency of marketing communication of Latvian companies and has a positive effect on the image of companies has been confirmed.
2. Latvians actively use artificial intelligence solutions now (60%), trusting the companies that provide them, and will willingly use them in future.
3. The companies that use artificial intelligence in their activities create the image of an innovative (71%), sustainable (55%) and financially backed company in the eyes of society, and it is the financial aspect that most often hinders the implementation of artificial intelligence solutions in corporate marketing communication.
4. Consumers (46%) believe that Latvian companies use artificial intelligence too little, and there is an erroneous assumption among the consumers that artificial intelligence will allow companies to save by employing less labour (59%), which is necessary to ensure a continuous improvement of artificial intelligence.
5. Consumers prefer to use e-mail (43%) or telephone (35%) to communicate with companies, but are also prepared to use video calling where appropriate (28%).
6. Latvian consumers expect that artificial intelligence will facilitate communication with companies, shopping (62%), receiving services (66%) and ensure more appropriate delivery of advertising messages (57%).
7. Consumers would like to receive discounts based on previous purchases (67%), personalized offers depending on changes in current needs or opportunities (57%) and personalized recommendations for repurchasing or in purchasing similar products (47%).
8. The main expected benefits for consumers from the use of artificial intelligence in business marketing communications are accessibility (66%), speed (60%) and relevance (46%), as well as personalization.
- 9.

Proposals, Recommendations

1. **Company management and human resources managers** should select appropriate employees for the implementation of artificial intelligence in the company's marketing communications and train them or hire additional staff. It is necessary to promote the understanding of all company's employees of the operation of artificial intelligence and its specific functions in the company's marketing communication and interaction with other business units, so that artificial intelligence solutions fulfil their function in marketing communication and achieve the business and other objectives.
2. **Company management and accountants** should evaluate the capacity of the financial resources available to them prior to the implementation of artificial intelligence to be able to ensure the continuous activity of the workforce and other related resources for the maintenance and continuous training of artificial intelligence, and the artificial intelligence would be a stable solution in the long term.
3. **Marketing department managers, together with company management**, should choose the solutions that are the most appropriate and in line with the company's business and marketing strategy and objectives, in order not to get confused in wide range of artificial intelligence services and to ensure that the with the implemented artificial intelligence solutions problems would be solved rather than new problems appear.
4. **Marketing specialists together with the heads of other departments** should ensure the integration of artificial intelligence so that it works in interaction with the other marketing communication and business directions in the company, interconnecting databases, planning tools, etc., to that the company obtains useful information that can be practically used in its operations.
5. Representatives of companies – **marketing specialists and data analysts** – in Latvia should conduct consumer researches related to the use of artificial intelligence and the relationship with the field represented by the company in order to obtain more information about the need to implement artificial intelligence and the most appropriate opportunities in their marketing communication.
6. **Corporate marketing experts** in Latvia need to develop ideas related to providing a unique consumer experience and personalization, becoming pioneers in this direction and promoting a positive corporate image and reputation in the eyes of the society.
7. If a company does not have the opportunity to implement artificial intelligence in its operations, **marketing specialists** should consider the possibility to provide communication with the customers in the form of a video call to promote interactivity, accessibility and more personal communication and resolve conflicts more effectively.
8. When implementing artificial intelligence solutions in Latvia, one of the main objectives of **the heads of companies and marketing departments** in Latvia should be to ensure accessibility, speed, relevance and personalization for consumers, so that the customers are satisfied and use the implemented solutions willingly.

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TENDENCIES OF ADULT EDUCATION IN LATVIA REGIONS IN 2002-2020

Biruta Sloka, University of Latvia
Ilze Buligina, University of Latvia
Juris Dzelme, University of Latvia
Ginta Tora, University of Latvia

Abstract. Adult education is of utmost importance in the present demographic situation in Latvia with a steady increase of the share of elderly population. It is critical to involve in the labour market those elderly persons who are interested to continue working and who are in the position to contribute to the labour market. For this reason regular update of their knowledge and skills are of great importance. Lifelong learning of this part of the population, including a potential change of qualifications, is an important measure for strengthening the social resilience. Adult education, retraining and continuous updates of skills and knowledge is part of the concept of the “silver economy”. In many countries “silver economy” is becoming more and more mainstream. More effective involvement of entrepreneurs and other social partners in the use of work-based vocational training in adult education and retraining is support for the “silver economy” and investment in social resilience. The “silver economy” is more effective, if it is combined with interaction between generations. The aim of the paper is to analyse the situation of involvement of the population of Latvia in adult education and suggest several possible solutions for its improvement. Research methods: analysis of scientific publications, analysis of tendencies of involvement of the population in adult education. It can be concluded that various forms of education, knowledge and skills exchange could be used together with formation of attitudes and motivation. The possibilities of administrative and social support and the new forms and ways to solve the problems of fast changing societies can have a meaningful impact on the social resilience of the adult population.

Keywords: *adult education, labour force survey, social resilience, silver economy.*

JEL code: J24; J82; J88; Q35; I24

Introduction

In order to raise the level of public well-being and quality of life, a complex approach should be developed and modern solutions should be found to strengthen social resilience capacity in Latvian society through lifelong learning opportunities. Adult education is an integral part of lifelong learning, not linked to a particular age stage, but related to the desire of a person to continue the education process - after completing or leaving initial education in order to acquire new or improved knowledge, skills and competences for increased competitiveness in the labour market and self-development. It includes also all kinds of non-formal education and professional craftsmanship activities. Similarly, knowledge, skills and competences can be acquired in the workplace. For statistical data collection and comparability of target groups in the European Union, the age period from 25 to 64 is used most frequently analysed.

Adult education should be integrated with information communication technology (ICT) solutions, digitisation, extending cooperation between groups of society, different generations, regions, etc. Lifelong learning, adult education, retraining are key for the development of the “silver economy”. Social resilience and adult education are particularly relevant in times of crises (epidemics, finance, etc.) and in overcoming their effects. Various solutions are needed to better develop cooperation between state, local government and NGOs. Lifelong learning and adult education might be facilitated by exploring intergenerational cooperation. Lifelong learning and adult education, including the change of qualifications, are also factors strengthening the social resilience. As noted in the World Economic Forum 2020, 42% of skills and retraining are expected to change by 2022. Thus, continuous training and retraining represent one of the main needs and challenges of our era. The system needs to be flexible, so that adult education, lifelong learning is accessible to everyone, regardless of residence or age. In order to promote employment of the elderly, the availability of formal, non-formal and vocational training and the possibility to cooperate with higher education institutions, should be developed for the reduction of skills’ mismatches of this group of the labour force. The aim of the paper is to analyse the situation of the involvement of population of Latvia in adult education and suggest several possible solutions for its improvement. Tasks: analyse scientific findings on aspects influencing adult education; analyse the involvement of the inhabitants of Latvia in adult education and the main tendencies in this process. Research methods used in the research: analysis of scientific publications, analysis of tendencies of involvement of the population in adult education.

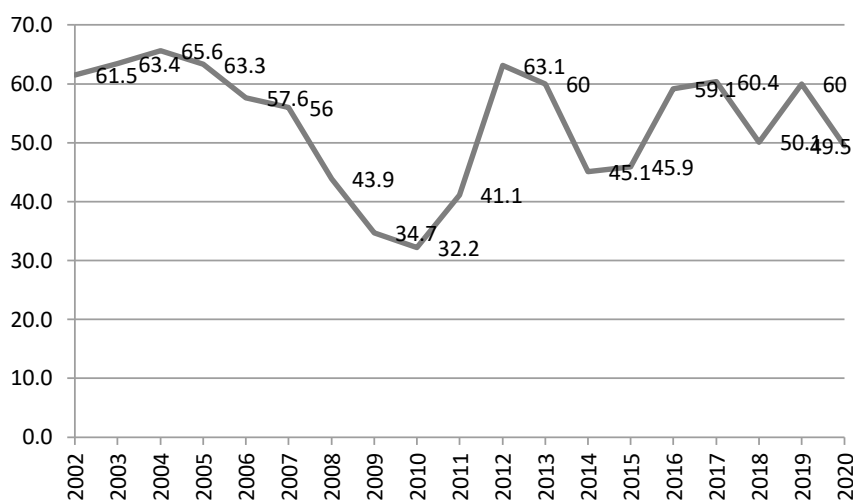
Literature Review

Many countries have policies of involvement of the elderly people in economy and use different innovative approaches in its realisation (Crossen-White, et al, 2020; Scott, 2021; Grah, et al, 2021). Economics of the ageing is evaluated by different aspects (Meiners, 2014) paying attention to the elderly as consumers. Baltic countries have a high share of elderly people, and these countries are looking for the best possible solutions for their involvement in economy (Aidukaite and Blaziene, 2021). Researchers have analysed Chile experience and challenges in the involvement of seniors in economic activity (Leporati, et al, 2021). Ireland has remarkable experience discussed in international scientific publications (O’Brien, 2018) with several innovative findings. Researchers have analysed new approaches in adult education using online training (Di Silvestro and Nadir, 2021) and other innovative solutions (Hyde, 2021). Researchers have also evaluated returns of investment on adult education (Kim, Belzer, 2021; Wang, et. al, 2021). Experience of France could be useful for other countries (d’Albis, Badji, 2021). Activities in lifelong education have been investigated already for more than several decades (McGrath and Deneulin, 2021) making available research on different aspects in adult education (Ekwealor, 2021; Badunencko, et al, 2021). Many countries have varied experiences with different priorities and different adult education organisation including Czech Republic (Karger, 2021) with several findings useful for practical use in other countries. Adult education success is investigated in scientific research projects (Gutiérrez-Carvajal, et al, 2021; Costa, et al, 2021). Adult education programs in many cases have several innovative approaches which could be used also by other countries (Mavropoulos, et al, 2021; Papadima, 2021). Climate changes are on research agenda also in adult education (Pattison, et al, 2021). Certain findings are useful for practical application in other countries, including Baltic countries (Aidukaite and Blaziene, 2021). The investigation of the different possibilities of administrative and social support could help to find new forms and ways to solve the problems of fast changing social situation. Information of society, using mass media, social networks and other tools, based on Internet, become very powerful (Kahneman and Tversky, 2000; Kahneman, 2011; Kandel, 2018; Kandel, 2016; Karnitis, et al, 2021; Becker, 2009). Thorough investigation of motivation and ideology is discussed and suggested as necessary (Rotenberg, 2017; Rotenberg, 2012; Rotenberg, 2009; Schedrovitsky, 2019; Dzelme and Linde, 2012; Dzelme, 2018a; Dzelme, 2018b) but still is under the consideration. Support for the “silver economy” is important for the countries with high share of elderly people, such as the Baltic countries. These countries are looking for best possible solutions for the involvement of older people in the economic processes. Care could be taken with interpreting terminology: “adult education” as it is used in international documentation. For example, in OECD “Adult education level” -this indicator looks at adult education level as defined by the highest level of education completed by the 25-64 year-old population. There are three levels: below upper-secondary, upper secondary and tertiary education. Upper

secondary education typically follows completion of lower secondary schooling. Lower secondary education completes provision of basic education, usually in a more subject-oriented way and with more specialised teachers. Accessibility of general adult education with restructuring of adult education governance in Denmark could serve as a relevant case study useful also for other countries (Rasmussen, Lolle, 2022). The indicator is measured as a percentage of the same age population; for tertiary and upper secondary, data are also broken down by gender (OECD, 2021). “Across OECD countries, governments are seeking policies to make education more effective while searching for additional resources to meet the increasing demand for education” (OECD, 2010) and it is suggested to pay more attention to adult education. The World Economic Forum has stressed the issue related also to adult education and has accepted the document – the so called White paper – “Accelerating Workforce Reskilling for the Fourth Industrial Revolution - An Agenda for Leaders to Shape the Future of Education, Gender and Work” (World Economic Forum, 2017). OECD on regular basis analyse aspects of adult education, as well as education systems, education reforms, and adult skills included in Survey of Adult Skills (PIAAC) (Liu, 2018) – the survey data are analysed for informed decision-making. Research findings as well as the actual implementation measures of adult education in countries world-wide are discussed on regular basis at international conferences – in 2020 it was 14th International Conference on Adult Education and Lifelong Learning (ICAELL, 2020). For such conference informative support was rendered also by the European Commission (EC, 2021) and other key stakeholders.

Research results and discussion

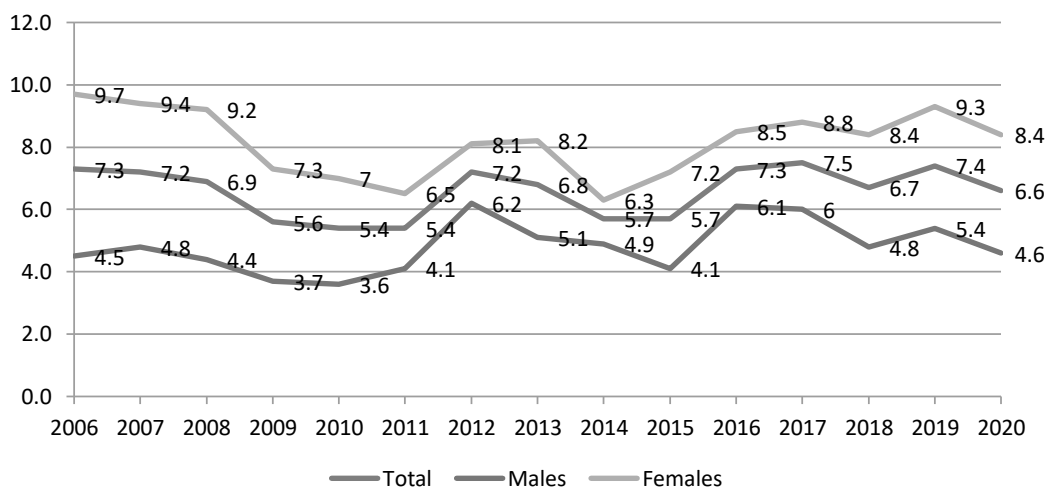
Data of involvement of inhabitants in Latvia in additional education is fluctuating in the analysed period: data in 2002-2020 are reflected in figure 1.



Source: author’s construction based on Official Statistics Portal, based on Labour Force Survey

Fig. 1. Population aged 15 – 74 years by additional education – participated in courses, seminars or training (thsd) in Latvia in 2002 – 2020

The highest level of participation in additional education in 2004 and 2005 was linked with new demands and new possibilities appearing after joining the EU (see Figure 1). Significant part of the population participated in additional education even during the very difficult period from 2008 till 2011, when economic crisis created many problems for education. Additional education was the means to overcome the economic difficulties by job-related (professional) training, courses, seminars - in 2012 and 2013 second highest level of participation in the additional education.



Source: author’s construction based on Official Statistics Portal, based on Labour Force Survey

Fig. 2. Share of population in Latvia aged 25-64 years participating in adult learning by highest educational level attained and sex (Labour Force Survey) (per cent) in 2006-2020

The female majority (see Figure 2) indicates the priority of the social orientation of additional education, since females are more linked with social problems and the sustainability and stability of society. Creation of local ecosystems, solidarity and social interaction is the real answer

to the increasing complexity and inequality. Females traditionally are the guards of the children, of the home and of the local environment. We can find this tradition in many folk songs and fairy tales, not only in Latvia, but Latvian folk songs about mother and about nature as representing female powers are very popular. These traditions should be used in education according to the ideas, fixed in the introduction (Preamble) of the main law, Constitution of the Republic of Latvia ("Satversme"): "Latvia's identity ... has been shaped by Latvian and Livonian customs, the traditional Latvian way of life and moral convictions".

The data of the Labour Force survey indicating the purposes for a person attending training courses outside the regular education system is reflected in table 1.

Table 1

Purpose for a person attending any training, courses, seminars (for work or overall interest) outside the regular education system within the last 4 weeks in 2019

Purpose	Frequency	Percent	Valid Percent	Cumulative Percent
Mainly job-related (professional)	43436	76.8	76.8	76.8
Mainly personal/social	13111	23.2	23.2	100.0
Total	56547	100.0	100.0	

Source: author's construction based on Labour Force Survey

The additional education, mainly personal and social, is a significant and relevant part of the education system. The personal and social additional education represents 23.2% of all additional education, but it solves - important social tasks supporting traditional values, first of all such values as the solidarity and the ethos of work and family (see Table 1). The job-related (professional) additional education is only one part of a sustainable education system, more linked with economics. The other part of the additional education, personal and social, becomes more important during the changes of social structure and values of the society.

Our investigation shows the increasing impact of the social problems. Isolation of people grows during the pandemic Covid19. Sustainability of society should be supported by more attention to safety, including cybersecurity, and mental health care problems. Involvement in education and other social activities, linked with education must help to solve not only the economic problems, including "silver economy", but must strengthen social contacts between all generations and all groups of the society. Different forms of education, knowledge and skills exchange could be used together for the formation of attitudes and motivation, first of all solidarity. The most helpful for the creation of sustainability are mainly personal oriented, social forms of additional education, which should be supported by NGO, local communities and state. Creation of local ecosystems, based on the activities and decisions of the local communities must be supported by involvement of different parts of education system. The social orientation on the inclusion of all groups of society, all ages and all regions will help to reduce inequalities and poverty. Special attention needs to be paid to the vulnerable groups of society, youth at risk (NEET) and seniors. Support for "silver economy" with participation and cooperation between youth and seniors can solve many of the social and health problems, since the digital skills of youth will interact with the rich life experience of seniors. The involvement of NGO could be supported by appropriate infrastructure, financial and administrative assistance for the additional education.

Table 2

Purpose for person attending any training, courses, seminars (for work or overall interest) outside the regular education system within the last 4 weeks in 2019 in regions

Purpose for training	Statistical region of populated area						Total
	Riga	Pieriga	Vidzeme	Kurzeme	Zemgale	Latgale	
Mainly job-related (professional)	23847	3196	2769	4972	3086	5566	43436
Mainly personal/social	7312	980	1307	1875	617	1021	13112
Mainly personal/social (share in percent)	23.5	23.5	32.1	27.4	16.7	15.5	23.2
Total	31159	4176	4076	6847	3703	6587	56548

Source: author's construction based on Labour Force Survey

The existing inequality between different regions is an increasing problem of the society in Latvia and many other countries. Regarding additional education a prominent inequality is the disproportion between job-related (professional) and personal (social) additional education in the regions of Latvia (see Table 2). Significantly lower level of personal and social additional education in Latgale region is linked with lower economic development and orientation to the economic problems. Interaction with Riga and Pieriga regions influences social activities in Zemgale region. Many social needs of the inhabitants of Zemgale region can be solved in Riga. Another reason of inequality is language and culture diversity in Latgale and Zemgale regions. Inhabitants of Vidzeme and Kurzeme regions are more united from cultural and linguistic aspects and more interested in mutual cooperation and personal orientation towards additional education.

According to the Workforce Survey, which is binding on EU countries, the proportion of people (25-64 years of age) participating in adult education during four weeks preceding the survey was 7.4% in 2019 (5.6% in 2014). Young people participated more actively in training (25-34 years) - 13% (10.4% in 2014). On the other hand, the participation of pre-retirement-age residents was significantly lower - only 3.4% in 55-64 years were involved in training (2.2% in 2014). Men in this group are less than women - 5.4% and 9.3%, respectively (4.9% and 6.3% in 2014). Looking at adult activity in education during the year (2016), 47.5% of those surveyed (32.4% in 2011) have studied in formal education and/or participated in non-formal education activities. Participation in educational activities was mainly in the context of work (83.1%), in order to improve their work skills and promote career opportunities. As a result, 52.5% of respondents have not participated in educational activities (Cabinet of Ministers, 2021). In Latvia, employers' spending on training compared to other EU countries, is low, according to the share of training spending in all labour costs in companies - 0.8% in Latvia, 1.7% on the EU average (e.g. in Denmark - 2.7%, in France - 2.5%). At the same time, 48.7% of municipalities do not target local government budget funds for the implementation of adult education (Cabinet of Ministers, 2021).

The solution of increasing social problems, linked with reducing safety and increasing inequality will be possible with the aid of personally oriented additional education. Acquaintance with art and culture, different social contacts in the course of education and training process could help to improve the overall quality of life, to reduce mental and economic problems.

According to the results of the investigation some recommendations could be proposed. Additional education could be useful to increase societal sustainability. Involvement in education and other social activities, linked with education help to strengthen social contacts between all generations and all groups of the society. Increased safety in social contacts, including cybersecurity, mental health care and solidarity could be important for an inclusive, sustainable society. Mainly personal oriented and social forms of non-formal education might be investigated and supported as helpful tools for the creation of stability and sustainability in society. Digitalization of many services and of contacts between people raises the significance of digital literacy and cybersecurity. Different forms of education could be used to improve the digital literacy and increase solidarity of people, using virtual contacts together with physical contacts. The additional education could be proposed as a useful tool to organize special care for youth not in education, employment or training (NEET) together with seniors. The mainly personal oriented and social forms of non-formal education could be proposed as a tool for local communities, state and non-governmental organisations (NGO) to solve social problems. The main values, represented in the Constitution of Latvia, are similar and mostly coincide with the values supported in all democratic states. These values, such as "freedom, equality, solidarity, justice, honesty, and the ethos of work and family" should increasingly be supported by the education system addressing various target groups.

Demographic change determine decisions across Europe at local, regional and national levels, aimed at developing an environment that supports active and healthy ageing, improves independent life and well-being for older people, and creates a society for all ages.

Conclusions, proposals, recommendations

1. Adult education is becoming more and more important in many European countries where the share of older population is increasing. This determines the need to increasingly involve this part of the population in the labour market processes.
2. More effective involvement of entrepreneurs and other social partners in offering vocational training and up-skilling for adults should be promoted; all forms of up-skilling and retraining should be increased, thereby promoting also the re- entering of low-skilled workers and job seekers in the labour market.
3. Additional education in all regions of Latvia are more related to job (professional) skills development, however, there is a marked difference among the various regions of Latvia as to the involvement in non-formal education for personal and social development. This finding suggests a certain correlation to the economic development and challenges of the region that determines the choice for education and training.
4. Improving the knowledge and skills of the workforce, as well as involvement in non-formal (adult) education reduces social exclusion in different groups and regions of society, improves the quality of life.
5. In adult education, lifelong learning, cooperation with the younger generation within the local community has so far been underestimated as the path of building an inclusive civil society and a "silver economy".
6. Strengthen the involvement of employers in the implementation of education, with particular attention to skills development and upskilling in working environment for all target groups, Including elderly adults, should be promoted.
7. Cooperation with relevant sectoral ministries, social partners and the involvement of trade unions in the implementation of education, especially adult education, has a key role to play in the reduction of social group exclusion process and supports homogenous societal integration.
8. 'Silver economy' as a concept should be made more prominent in social media, policy and public discussion – as an underestimated resource with a potential to increase the overall social welfare.

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FRAMING IN MARKETING - HOW NUDGES CAN INFLUENCE INDIVIDUAL EATING DECISIONS

Rauna Strunskā, University of Latvia
Vadims Danovics, University of Latvia

Abstract. Eating decisions are cognitively demanding choices that everyone has to make multiple times a day. To simplify this decision-making process, people resort to rules of thumb and heuristics – but these are subject to cognitive biases, are not rational, and are therefore susceptible to manipulation. This paper examines the complex interplay between biases, nudging, and marketing measures in nutrition: four types of biases that can be influenced by nudges are presented; based on this, relevant marketing measures are presented using practical examples. These human inadequacies, such as not being able to estimate portion and package sizes, underestimating food quantities, and misjudging nutrient content and quality, require special sensitivity in the design of obesity preventing nudges. Marketing measures must therefore be designed to be particularly easy to understand and acceptable to consumers. Framing nudges must make decision-making processes clear, easy to grasp, and simple to achieve changes in dietary habits.

Keywords: *Marketing, nudging, obesity prevention, cognitive biases, framing.*

JEL code: E71

Introduction

In 22 out of 34 OECD countries, the number of obese people exceeds 56% of the population, a global trend that is increasing (OECD, 2019). The rising number of obese children is also a challenge: Excessive weight in adolescence increases the likelihood of being overweight or obese in adulthood. Obesity caused by increased body fat is a risk factor for many health problems such as high blood pressure, high cholesterol, diabetes, cardiovascular disease, respiratory diseases such as asthma, musculoskeletal diseases such as arthritis, and can contribute to the development of some cancers (OECD, 2019; WHO, 2021).

To tackle this global problem, many countries have initiated prevention measures proposed by governments, industry or individuals, such as public awareness campaigns, physical activity and sporting events, advertising restrictions or bans and restrictions on the sale of certain foods, and taxation or labelling schemes. Nudges, ‘encouragements’ that, among other things, make it easier for people to make healthy food choices, are increasingly being used to fight obesity.

The aim of this paper is to consider the use of framing in marketing as a nudging tool for coping with obesity. It answers the question of how the nudging tool framing can be used in marketing measures and shows numerous practical examples from research of the past years. Therefore, four types of cognitive biases that favour nutritional aspects and food choices are considered: The status-quo bias, the underestimation and dimensioning bias, as well as the labelling bias. These selected factors influence framing and thereby the ability to market specific foods – knowing about such cognitive biases is eminent for designing appropriate marketing interventions with the help of nudges. It is precisely those cognitive biases and heuristics that are manipulated by nudging and can thus influence eating decisions. Knowledge of such cognitive biases is not only relevant for companies when designing products and campaigns, but also for consumers, who can increase their knowledge of nutritional values and product presentation and thus make informed adjustments to their eating decisions. Moreover, marketers and advertisers may find this paper’s findings equally useful as behavioural economists and researchers investigating practical impacts of nudging eating decisions.

The whole topic nudging is still relatively new and under research, and individual studies have examined the potential uses of framing in parts; these were bundled and considered in this paper and presented as an exploratory literature review based on secondary qualitative data. The extensive literature of the past twelve years on nudging was selected based on their relation to biases, framing, and behavioural effects of marketing measures, as well as their (study-proven) practical relevance – all this with a very strong reference to nutrition and food. Hence, resources were evaluated based on the following criteria: A) How current is the source? B) Does the research topic of the source align with the author’s research question?, and C) Is the source credible? Databases such as Elsevier, Springer, Wiley, and Google Scholar were used. Sources used were written by experts and pioneers in their academic fields and published in refereed international publications for (behavioural) economics, health, nutrition, and marketing psychology, as well as on professional organizational sites such as the World Health Organization (WHO) or the Organization for Economic Co-operation and Development (OECD) – all of this in order to gain a deeper understanding of the use of nudges in marketing and to crystallize tools useful for incorporating framing effects. Previous research has focused mainly on nudges in general and rarely considered their potential applications in marketing, let alone in the marketing of food.

One shortcoming of the concept of framing is that it is a form of soft nudging: The packaging, presentation, and marketing of food can be seen as a form of consumer manipulation that consumers can learn to circumvent with training. If one wants to bring about a real change in eating habits, such soft measures would not be enough – government intervention such as monetary incentives may also be needed to persuade consumers to take certain actions. It is also important to consider how the combination of soft measures such as framing nudges and harder nudges in the form of government intervention may work. Industry and government could work hand in hand to mitigate the global spread of obesity.

Literature Review

Nudging is widely discussed in literature and has been the subject of many studies. The starting point for this paper is the book *Nudge* by Sunstein and Thaler (2008), as it is the origin of both the instrument of nudging and the related socio-economic and scientific debate. Because Sunstein and Thaler do not focus their book on preventive measures of obesity, it is necessary to sift through additional sources on biological, medical, and behavioral economics. In particular, for the use of nudges in nutrition and obesity prevention, studies provide insights into consumer behavior and the motivations behind it (for example, Young, Nestle, 1995, 2012; Nestle, 2003; Chandon, 2012; Wansink, Chandon, 2014; Roberto, Kawachi, 2014). Since this paper focuses on biases and their use for marketing efforts it is important to note that a nudge uses empirically proven biases and heuristics, but not financial incentives to influence decisions – this is especially relevant for combining marketing measures and nudges as pricing is not seen as a nudge. Thus, a nudge does not affect immediate preferences such as money or status, but rather attributes that individuals place less value on, such as default options or placements (Grüne-Yanoff, Hertwig, 2015). Because human decisions are often influenced by framing, Sunstein and Thaler see changing decision architecture as a way to help people make better decisions (Baldwin, 2014). It is important that nudges do not affect individuals who do not want to use them while allowing those who do use them to make the best and least harmful decision possible in the situation (Vallgarda, 2011). Any decision influence must also be reversible (Grüne-Yanoff, Hertwig, 2015).

To date, few papers deal exclusively with cognitive biases and the use of framing in marketing food hence this paper analyses and summarizes different research findings, and presents those relevant to the use of framing. Aspects such as labelling (Piniewski et al., 2013; Nikolaou et al., 2014; Spanos et al., 2014; Carter, 2015) have been widely investigated so far. However, the use of certain biases in eating decisions

(Roberto, Kawachi, 2014; Ordobayeva, Chandon, 2015) as well as the effects of convenience (Wansink, 2010; Wansink, Chandon, 2014) and default options (Hansen et al., 2019) are relatively not researched as deeply. Moreover, marketing-related aspects such as package design (Chandon, 2012), product sizing (Sharp et al., 2014), and product placement (Bucher et al., 2016; Hollands et al., 2019) need some more attention.

Research results and discussion

1. Which Cognitive Biases Influence the Use of Framing

Every day, a person makes countless decisions. The mass of information to which he is exposed is so great that he cannot grasp the totality of this complex and diverse data. That is, humans are not necessarily incapable of making decisions based on their lack of knowledge, but rather lack the cognitive capacity to comprehend and analyze all the options for making a decision (Moseley, Stoker, 2013). To simplify decision-making processes, individuals apply heuristics that help them to reduce the complexity of the environment; if these solidify over time, individuals act automatically and behave with limited rationality. Humans direct their attention to important or novel things and make decisions based on habits, rules of thumb, and emotions. Since, in such situations, making a decision is more important than maximizing the benefits of that decision, a person bases its decision not on all available information, but on those that lead to a result that is acceptable for the moment. This exposes him to cognitive biases and heuristics. In the area of nutrition, an individual is particularly susceptible to such decision anomalies, as many eating habits are routine and thus automatic, without reflection (Roberto, Kawachi, 2014). As a result, people may unconsciously eat about 15-20% more or less food without realizing it – this unnoticed percentage alone can mean a weight fluctuation of about three kilograms per year (Wansink, Chandon, 2014). There are a number of relevant biases and rules of thumb that similarly unconsciously influence an individual's decision making. As knowing and understanding such influencing factors is crucial for developing appropriate nudges and associated marketing-related efforts, selected ones are presented below.

1.1. Status Quo Bias

Food is usually portioned and thus sized which results in a standardization of food intake. However, most default settings promote unhealthy eating behaviors: A low-calorie side dish to the burger, such as salad instead of fries, has to be explicitly requested in restaurants; likewise, one has to ask for a smaller portion if the offered one in the menu seems too large. Such behavior is most often prevented by status quo bias, as an individual remains with the default option given out of convenience (Roberto, Kawachi, 2014). Standard options require consumers to actively change their meal choices and assume extensive knowledge of nutritional values of many foods in order to evaluate the menus offered. This is accompanied by increased cognitive effort in assessing calorie density and intensive examination of the nutrient content of individual foods. Choosing a menu with a given food composition is thus cognitively easier because it requires fewer decisions and is thus often perceived as easier – one less decision to make.

1.2. Underestimation Bias

When making food decisions, many people rely on 'their eye', i.e. on visual impressions. Especially with regard to portion sizes, misperceptions can occur, which lead to the underestimation bias. The reason for this is that human perception of objects follows an inelastic power function (Ordobayeva, Chandon, 2015). As a result, the magnification of a package is perceived biased and the larger the portion becomes, the less growing it appears to the observer. This distorted perception of larger packages and portions leads people to consume larger amounts of food without being aware of it. Such erroneous judgments do not depend on body mass or knowledge of nutrition and occur to scientists as well as restaurant patrons or customers in the supermarket. One way of circumventing the underestimation bias is to evaluate the individual components of a meal: If you look at steak, salad, and potatoes separately, you perceive the respective size of the food more correctly and are therefore more likely to estimate the calorie content correctly. People who consistently follow this strategy prefer smaller portions and thus eat less (ibid.).

Large portions also have social aspects: On the one hand, larger portions are associated with wealth and high social influence in many countries, and on the other hand, children are often taught that they must eat their plates empty at all costs (Chandon, 2012). Enlarged portions also shape social norms by suggesting that certain rations are an appropriate size. Moreover, due to the anchor heuristic, people often estimate a large portion as smaller and consume more (Roberto, Kawachi, 2014; Wansink, 2010). These factors increase the amount of food eaten and can affect people's weight.

1.3. Dimensioning Bias

Another bias resulting from visual misperceptions is the dimensioning bias: If the packaging changes in terms of height, width, or length, people find it difficult to estimate this change (Chandon, 2012; Ordobayeva, Chandon, 2015). If the size of a chocolate bar is changed into only one dimension, for example, length, it is easier for viewers to estimate the amount of chocolate than if the bar changes into multiple dimensions (for example, length, height, and width). The fact that dimensional shifts into one dimension are easier to detect than shifts of several different dimensions is due to the fact that people use additive rather than multiplicative rules for measuring changes (Wansink, Chandon, 2014; Ordobayeva, Chandon, 2015). This creates opportunities to exploit the dimensioning bias: If a company wants its customers to consume less by downsizing – making product units smaller – it must shrink its product packaging in all three dimensions, since people cannot correctly assess such changes; if, however, it is in the interest of companies to retain their customers by supersizing – greatly increasing the size of their portions – a change in the product packaging in one dimension is sufficient for the customer to perceive it and the resulting advantage for him (ibid.).

1.4. Labelling Bias

However, not only the mere shape, but also the design of the packaging can be perceived in a distorted way. Particularly in the case of unfamiliar, new food or in the absence of nutritional information, people resort to the packaging and its design for orientation (Chandon, 2012). In the context of misinterpretation of quantity and nutritional information, this is referred to as labelling bias. Labels such as 'small', 'medium', or 'large' affect perceptions of portion size; though, these claims vary from product to product. Ordobayeva and Chandon (2015) cite the different labelling of French fries at McDonald's and Burger King as an example: A medium portion of fries from McDonald's is equivalent in weight to a small portion at Burger King. Nevertheless, the designation has an effect on eating behavior: A portion labelled as 'small' conveys to the consumer that they have eaten less; this may lead to increased food intake. Statements such as 'without sugar' or 'less fat' also influence the consumer's perception: Food is categorized on the basis of existing perceptual elements – in this context one speaks of the categorization effect – and conclusions are drawn from one characteristic to the entire product (Chandon, 2012). The result is health halos, where consumers perceive unhealthy foods as healthy: Labels such as 'low-fat' are associated by consumers with a reduced calorie content and consequently they consider it appropriate to eat a larger portion without having a guilty conscience; in this context, health halos have an effect independent of gender, BMI, or a person's eating behavior (Wansink, Chandon, 2014). Similarly, highlighting healthy ingredients can change calorie perceptions. An example of this is Subway, which advertises fresh, healthy ingredients and is generally perceived as 'healthy'. This leads consumers to believe that Subway's food is lower in calories than that of another fast food restaurant, which is why the amount of food consumed at the supposedly healthy alternative is higher in total than at its counterpart perceived as unhealthy (Chandon, 2012; Ordobayeva, Chandon, 2015). It gets tricky when healthy and unhealthy foods are mixed, as this creates negative-calorie illusions: People consider a burger with lettuce to be healthier and lower in calories than a burger without lettuce (Chandon, 2012). This is because people think in terms of health – with salad falling into the 'healthy' category – rather than adding up the calorie content of the meal. In particular, this effect is strong in people who are dieting (ibid.). Negative-calorie illusions increase the amount of food consumed because people believe they are eating a health-conscious, low-calorie diet and are therefore justified in eating larger or more portions.

The presented biases (which are just a represent only a relevant selection) reinforce each other; in their respective effects they intertwine and thus hold the potential for making less than optimal food choices. Over a longer period of time, the sum of these can lead to increased calorie intake and thus weight gain, which in turn can cause health problems and even obesity over the years. Knowledge of factors influencing individual eating decisions and the resulting consequences on consumers can be used to apply nudges in preventing the further spread of obesity.

2. Marketing Food with the Help of Framing and Nudges

It is not only important that information is provided – the way in which it is presented is also crucial: "This steak contains 20% fat" evokes different associations than the statement "This steak consists of 80% low-fat meat" (Grüne-Yanoff, Hertwig, 2015). An example of framing is the aforementioned different advertising of meat in stores. Framing, the shaping or designing of a decision situation, refers to the deliberate formulation or presentation of information that elicits certain reactions in individuals and activates values or behaviors (Moseley, Stoker, 2013; Lehner et al., 2015). Thus, people's decisions can be influenced or changed.

Information about the nutrient and calorie content of foods can be conveyed in this way. The nutrient information must be available, visible, and informative (Carter, 2015); this is true for labelling of food packaging with nutritional information or menu labels in restaurants. Labelling is considered a nudging tool that can alter the obesogenic, obesity-promoting environment without limiting consumer choice (Nikolaou et al., 2014). Recently, in addition to kilocalorie and nutrient information on product labels, consideration is being given to indicating how much effort would be required to burn back the amount of energy ingested (Kersh, 2015); one might know this from figures saying that eating a certain dish takes a certain amount of doing something to burn off the calories consumed. This could increase consumers' knowledge and make them more aware of ingredients and their nutritional value. Even a ten percent change in the amount of calories or exercise can lead to a weight gain or loss of around 14 kilograms per year for a person of normal weight (Piniewski et al., 2013).

Another nudging tool is the use of visual stoppers: Food can be divided into several smaller individual packages within a pack such as stacked chips, where a red stopper can be inserted after a certain number of chips, or in restaurants the waitress cannot clear the leftovers (Ratner et al., 2008; Spanos et al., 2014; Wansink, Chandon, 2014). This allows the consumer to keep track of the amount of food consumed, thus avoiding overeating. In addition, the consumer is given a break from eating, during which he or she can consider whether he or she is still hungry and wants to continue eating. Using external cues of satiation, e.g. a mountain of gnawed bones on the plate or a small pile of empty plates can provide a visual cue to the amount of food that was consumed, therefore stop further eating (Wansink, 2010). Such a deliberate pause and the associated cognitive effort provide the opportunity to interrupt automatic and thoughtless actions and create a new decision-making situation (Ratner et al., 2008). A similar overview of the quantity of food is provided by cues about the portions contained in a package. Spanos and Kenda (2014) had subjects eat pizza in a study and found that less was eaten when the package said "contains four servings" than when the package said "contains two servings." From this it is concluded that the name and portioning of a food has an influence on how much of the same a person consumes. Again, the framing information determines the amount of food.

Simplification can also be assigned to framing. Here, information is presented in such a way that it corresponds to the processing capacity and the decision-making process of individuals, i.e. it is presented simply, clearly and unambiguously (Lehner et al., 2015; Wang et al., 2015). Simplification is not only useful for complex products or services, such as financial or investment decisions – a simple, clear presentation of nutritional information should also be aimed for in the labelling of food products. Claims such as "whole grain product" can be unclear if it is not known at what point a cereal product is considered a whole grain product (Ratner et al., 2008). Most ingredients and amounts are stated numerically; this means they are abstract and change meaning depending on context. An example is the representation of a daily nutrient intake showing percentage of nutrients such as salt, sugar, or fat in table form which makes it difficult for consumers to understand and interpret. Roberto and Kawachi (2014) advocate the use of pictograms or categorization by words such as 'good' or 'bad' that are clear and understandable. A negative example is the Facts Up Front initiative, where labels on food packaging are overloaded with numerical information, requiring high cognitive effort from consumers (ibid.). Another example of a failed illustration is the four-part division in MyPlate, an initiative of the U.S. Department of Agriculture (choosemyplate.gov): The campaign suggests that a meal must consist of the components proteins, fruits, vegetables, and grains (plus optional dairy) – but in America the three-part illustration of vegetables, proteins, and grains is preferred. This non-standard illustration of nutrients leads to cognitive dissonance and increased mental effort (Sharp et al., 2014). A more understandable and simpler representation is the keyhole symbol used in Norway, Sweden, and Denmark. The plain green sign of a keyhole conveys nutritional information to consumers without requiring them to have knowledge of nutrition or make a special cognitive effort (Wang et al., 2015). The success of the symbol speaks for itself: It has been used for more than 20 years and is recognized by 90% of consumers (ibid.).

Nutrition traffic lights, such as those in England or Ecuador, represent another simple representation, enabling information processing at first glance, promoting automatic associations and thus allowing a clearer understanding of nutrient and calorie content (Liu et al., 2013; Roberto, Kawachi, 2014). Thorndike et al. (2014) examined the long-term effects of nutrition traffic lights: Over a two-year period, foods from a cafeteria were labeled green (healthy food), yellow (less healthy food), or red (unhealthy food). To enhance the effect, changes were made to the decision architecture after three months: Green-labeled foods were placed more visibly and made more accessible, whereas red products were stored less prominently. Sales of unhealthy, red-labeled food and beverages decreased, while those of healthy, green-labeled foods increased. This study argues that change is possible using the Small Steps approach: Small changes in diet that are maintained for a while lead to both cost and weight reduction. This observations held over the 24-month period is seen as evidence that such interventions can lead to long-term changes in eating behavior (ibid.). The results of the study were the same among all observed ethnic groups and social classes, from which the authors conclude that such changes in decision architecture affect people of different cultural and educational backgrounds equally, ultimately leading to opportunities for obesity reduction. Cioffi et al. (2015) also demonstrated sustained reductions in unhealthy food and beverage sales in a similarly designed longitudinal study over a three-year period. Nikolaou et al. (2014) and Wisdom et al. (2010) demonstrated in studies that providing nutrition and calorie information reduced the amount of food and high-sugar beverages individuals consumed. In addition, label uptake was high in all studies, making this nudge a low-cost, effective means of curbing obesity.

Conclusions, proposals, recommendations

This paper has shed light on the use of the nudge tool framing in marketing with the goal of obesity prevention. For this purpose, four different cognitive biases of framing were first presented: The status-quo bias, the underestimation and dimensioning bias, as well as the labelling bias. Then, influencing factors and consequences of eating decisions were considered, which can be influenced by different marketing measures. The findings of this paper demonstrate that:

1. Human decision making regarding food is not rational, but is shaped in large part by heuristics, which are heavily influenced by marketing efforts and shape decisions for or against certain foods.
2. Hence, increased awareness for human decision-making and their underlying motives is crucial.
3. Results indicate that sticking to default options is mainly caused by the status-quo bias in order to facilitate daily food choices.
4. Status-quo biases are one of the main factors which can be manipulated by nudges, leading to effects such as smaller portion sizes or reduced calorie intake.

5. Moreover, health halos can change the perception of certain foods, leading to distorted awareness regarding healthy food decisions, and a higher amount of calories eaten.
6. As people are poor at estimating portion sizes and quantities (due to the underestimation bias) they therefore are susceptible to changing portion and package sizes which is influenced by the dimensioning bias.
7. Attempts to counteract human biases through changed portion or package size, and labelling to highlight nutrient content do not always work as hoped, as the presentation and information content of such packages and labels can cause more confusion than benefit. The findings of this research paper hence suggest that marketing measures must be sensitively adjusted to avoid manipulating consumers.
8. The marketed messages must be simple and easy to understand so as not to cause cognitive overload.
9. Any framing nudges must be designed straightforward in order to bring change to peoples' dietary habits.
10. A high degree of customer acceptance is desirable if certain framing measures are to be used successfully. Thus, further research should examine ways of manipulating default meal options in such a way that they are both simple and effective.

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COMMUNITY BRANDING IN THE DAWN OF A SUSTAINABLE FOURTH INDUSTRIAL REVOLUTION

Iulia Ticau, Bucharest University of Economic Studies
Adrian Cioranu, Bucharest University of Economic Studies
Vlad Stoicescu, Bucharest University of Economic Studies

Abstract. The purpose of this study is to develop a theoretical model linking technology with communities and their values, by creating a sentiment that appeals to the modern travellers, which would become new (temporary) residents within those communities. This model is referred to herewith as "Community Branding". The methodology used is the empiric research coupled with the proposal of a model that can be adopted by any community. Our theoretical model is built on six main pillars, which, if properly engaged, are able to contribute to a region's economic growth. The model becomes thus a practical reference, a blueprint that should enable further economic progress at the microeconomic and macroeconomic level, building on pre-existent community values amplified by the contribution of travellers sharing similar values. Our paper attempts to contribute to existent theories in tourism research, by clarifying definitions and providing new perspectives. We propose Community Branding as being a causal condition for attracting "digital nomads" and finally increase the reputation of a geographical location

Keywords: *Community Branding, digital nomads, 4IR, marketing.*

JEL code: M31, O18, O30, Q56, R11

Introduction

Being fostered by innovation, the Fourth Industrial Revolution (4IR) marks significant developments for the history of humanity, underpinned by continuous advances of a series of life-changing technologies: Artificial intelligence (AI), Virtual Reality (VR), the Internet of Things (IoT), Autonomous Vehicles, Cloud services and Blockchain. Transformations of numerous industries are already noticeable, creating new possibilities in terms of human interconnection, changes in business models, technology disruptions, reshaping of production processes. At the same time, institutions and governments suffer changes together with education systems, transportation, and virtually all other sectors of the economy.

Marketing has always been a vehicle to communicate to the masses. Key defining aspects were extracted from targeted communities for the specific purpose of tailoring a message that suits a widened area of personalities and strengthens the targeted group within their core values. One of the most concerning aspects of the 4IR is the evolution of marketing to tender to specific needs of individuals, in the most granular details, by means of AI and the complete digitalisation of communication via the infrastructure developed over the past decade.

Past industrial revolutions have contributed to economic development; however, they have led to the deterioration of the planet. Earth's four out of nine 'Planetary Boundaries' have already been crossed, such as climate, biodiversity, land-system change and biogeochemical cycles, showing limited resources availability and an unhappy state for our Planet's health. (Steffen *et al.*, 2015)

The matter has ramifications in societies that struggle for sustainable development with regards to maintaining their cultural identity. While weighing the benefits of the digital environment, we should note that cultural values seem to wear, mainly due to high barriers of ageing communities to access the digital realm. Derex and Mesoudi, 2020 explain the social dynamics that lead to innovation, by accumulating beneficial data and transmitting it to future generations. However, this dynamic seems halted today by the transition to digital realms.

We recognise the importance for mechanisms offered by 4IR to create a sustainable revolution, maximising social and environmental impact. The potential of 4IR technology to deal with global challenges in terms of climate change, inequality or nature losses is considerable, however this has not been addressed to the fullest extent by the academic literature.

By means of our research, we address the issue of communities taking charge of sustainable development to make them attractive to travellers, that would become new (temporary) residents. We propose a correlation between nostalgia, one of the main instruments employed by the marketing discipline, and the 4IR artisans. Theorising that the 4IR is built by "digital nomads", financially capable consumers with the freedom to "work from anywhere", we will build a theoretical model to aid corporations into determining public administrators, via NGOs and the local business community, to exploit the local values as branding mechanisms. Summing up this theoretical model as a *Community Branding (CB) effort*, our aim is to develop a novel tourism segment that ultimately results in permanent or temporary-cyclical population growth in the most attractive locations that use the discovered methods.

We, therefore, consider that the contribution of 4IR towards sustainability matter is very significant and propose *marketing* as being a capable force towards delivering the compelling information. We will illustrate this connection through CB that, by bringing together individuals following the same scope, has the ability to create the necessary loyalty, trust and the "word-of-mouth" effect that every new revolutionary trend needs to become successful. We stand to embrace global cultural diversity and the dynamics associated with it, employing it as a method to promote new experiences.

Global mobility is now becoming very expensive, as the novel coronavirus pandemic has pushed travel prices up. While people will continue to travel, their stays are expected to be longer. Also, the destinations must cater to next-generation demands, such as cultural distinctiveness, technological excellence, and environmental prestige. We will treat this current as a new form of tourism, in a "cultural theme park" concept to be detailed within this paper.

The paper will therefore present some of the critical environmental issues that the 4IR is able to address, followed by the influencing power effect of the community towards promoting and implementing a sustainable revolution with the purpose to attract the modern travellers, that would become new (temporary) residents, increasing the economic performance of the local society. By consequence, economic organisations should be involved in the effort to consolidate communities as welcoming environments for the mobile workforce, directly participating into infrastructure development and remodelling their DNA to act as remote societal agents themselves. The effort would be kept on a sustainable track by NGOs, participating in the organisational design as "brand ambassadors" for corporations and as "societal watchdogs", protecting community values and health. By accomplishing a theoretical bind between the aforementioned concepts, we intend to mould the prototype for the "Community Branding" concept as an evolution from de "employer branding" blueprint that organisations have traditionally adopted in their designs.

Literature Review

The industrial revolution is at the forefront of the rapid progress across the industries, beginning with the First Industrial Revolution (1IR) in the late 18th century. Whereas the 1IR relied on steam power and mechanization, the Second Industrial Revolution (2IR) brought a phase of rapid standardization and industrialization, in the period preceding the start of World War I. The Third Industrial Revolution (3IR), which started in the 1950's with the introduction of the first computers, continued with significant technology advances, notably semiconductions, personal computers, and the internet. The Fourth Industrial Revolution (4IR), emerging from the Third, revolves around the application of information and communication technologies beyond the industry, to the wider activities of the society (Groupops, 2021).

The 4IR is already making considerable changes in both personal and professional lives. The business environment is being impacted by the advancing technologies at a considerable rate, with all the areas shifting to digitalized structures of various degrees. Literature highlights that the 4IR can eliminate numerous barriers while the advances it brings, such as co-creation, scalability, and essential changes in the level of information achieved by consumers, are leading to wealth of societies (Akbarpour *et al.*, 2020). Calderoni *et al.*, 2019 define the beginning of a new chapter for the business models area, by relying on three significant influencing powers: increased communication, artificial intelligence, and decentralized production.

By creating a strong linkage between consumer and producer, a new infrastructure can be defined as a Plug and Play infrastructure (PnP). It is essential to recognise and provide valuable actions to facilitate this infrastructure (Calderoni *et al.*, 2019). Allal-Chérif, Yela Aránega and Castaño Sánchez, 2021 study the digital link between producer and their primary resources, advocating the benefits of matching human resources to organisations via artificial intelligent instruments that guarantee retention and efficiency, starting from employer branding tactics and matching personalities to lucrative assignments. Vlačić *et al.*, 2021 research the deployment of "artificial agents" that mimic individual behaviour to cater to specific interests while De Bruyn *et al.*, 2020 elaborate on the subject of neural networks with their ability to correlate highly complex functions between the input (market data) and output (granular targeting strategy).

Marin and Nilä, 2021 highlight the marketing heritage of employer branding, conducting a study of LinkedIn transactions between recruiters and what is now their "market" rather than pool, with aid from marketing experts. In a framework of digitalising structures and increases in AI, marketing area is significantly developing as an autonomous replicable mechanism, recognised in more numerous and diverse circumstances than the sale of products and services for economic gains. Marketing "sells" an organisation's prestige to potential employees for an excellence driven staffing effort, as Mölk, 2018 describes.

Ultra González, Camarero and San José Cabezudo, 2021 will be conclusive for the transition from "organisations marketing to individuals" to "communities marketing to organisations", as their theoretical model attenuates the pandemics tourism crisis by keeping interest alive to potential clients via the digital realm, intensely promoting destinations and building their brand for them with hopes of a "return to normal".

A guaranteed effect of building desire for temporary unattainable items is gaining traction, building a brand community. Brand communities, as "specialized, non-geographically bound communities", are based on a common set of social relationships among admirers of the same brand (Muniz and O'Guinn, 2001, p.412). The concept emphasizes the importance of consumer-to-consumer communication, rather than the company-to-consumer relation. (McAlexander, Schouten and Koenig, 2002).

The significant impact created by the effect of brand community on marketing performance has been observed in prior research (Forunier and Lee, 2009). Precisely, investing in brand community has led to increased brand loyalty and creates a "world of mouth" effect. The shift from a material economy to an economy based on information systems and interactive communication has developed the concept of Online Brand Communities (OBC) (Fernandez, 2010), which is an essential factor in today's marketing strategy. An OBC has the same characteristics as a brand community. However, it takes place in an online setting, engaging members to continuously interact with the help of the internet (Fuller, Jawecki and Muhlbacher, 2007).

Members in an OBC are primarily connected by the brand itself. The brand exists and persists because of the relationships created between the members (Jang *et al.*, 2008). Research identified three key markers of members that increase community creation (Muniz and O'Guinn, 2001):

- Consciousness of kind - individuals expressing strong feelings of connection with the brand and community and a sense of belongingness to a certain social category (Algesheimer, Dholakia and Herrmann, 2005)
- Shared rituals - members build up and share the same culture, set of values, behaviours, and attitudes within the community (Casaló, Flavián and Guinaliú, 2008)
- Moral responsibility – members express commitment to other members and the group as a whole (Casaló *et al.*, 2008), trying to keep old members and attract new ones while developing a trustful brand consumption experience (Muniz and O'Guinn, 2001).

Keeping in mind the characteristics of brand community, we turn our attention towards a related however not the same concept, that of Community Branding. This new and innovative concept emphasizes the importance of giving a given location a brand, for finally increasing the perceived value of that location (Why Community Branding is Important - HAVEN, 2021).

If we are to explain in simple terms, we should start from the significance of the term "brand", which stands for a set of values and beliefs associated with a company or entity (Kotler, Armstrong and Opresnik, 1980). To illustrate our explanation, we can draw attention towards the case of Lamborghini and its fidelity upon luxury and exclusivity, which influenced people's perception upon carmaker's brand. At the same time, Toyota defined its brand more under the "affordability" criteria, one of the reasons why the Japanese carmaker releases some of its vehicles under the more premium brand Lexus. Similarly, CB can be defined as being a set of values and beliefs associated with an area, a geographical or a smaller community sphere (Web Design Vancouver & Digital Marketing Agency, 2018). CB is about creating and upholding a positive image about a location, influencing individual perceptions, and attracting more tourists (Web Design Vancouver & Digital Marketing Agency, 2021). For example, the image of the American Dream associated with New York city has led to enormous increases of region's reputation, interest in the area and finally economic growth.

Rasoolimanesh *et al.*, 2021 confirm that tourism is kept alive by the "window shopping model" while also noting the continuing financial decline of the industry. Tourism and travel will have to recover from the ongoing financial decline, exacerbated by the Covid-19 crisis, by factoring the losses into operational costs, and raising the prices. Predictably, two potential outcomes are relevant for this study:

- tourism and travel are to become unaffordable for leisure; and
- leisure will be exchanged for pseudo-business travel, as a motivational factor for paid employees with a higher income.

Higher income employees will opt for a longer stay in a location they "digitally window shopped" before. With travel being the cost barrier and not accommodations or other living arrangements, their stay being motivated by employers. It has been observed that the main "players" of the 4IR are the digital nomads, a modern term referring to a social phenomenon (Muller, 2016).

We are advancing at warp speed in this 4IR context, with both the adoption, and the expansion, of such technologies exponentially accelerated by the Covid-19 pandemic - and applied more and more to the wider activities of the society. In this context, we cannot but think of the "digital nomad" concept, which has become more and more pregnant, and visible, around the world. Digital nomads referred to individuals, irrespective of the age group, that enjoy the flexibility to work or study remotely and use technology to enable them to do so from any location. Digital nomads do not become attached to any particular place, and rather shift the place they work from. Coining the term "digital nomad" owes to Makimoto and Manners, 1997.

It is important to note that a growing number of expats are digital nomads, aside from the employees with a flexible enough schedule that can work without their physical presence being essential in the office (Forbes, 2021). Many countries across the world started adopting, since the Covid-19 pandemic started, specific and friendly conditions that target this category of workers, establishing visas and fiscal stimuli (Chevtavaeva *et al.*, 2021). In doing so, the governments' assessment was that a more relaxed work visa program would benefit the local economy

on the short, medium, and long term, by attracting an immediate injection of capital at a time when the revenues from tourism are decreasing steeply.

The interest in the visa programs, many of which were set up in tourist hotspots in central America (i.e. Costa Rica, Barbados) and in Asia (Thailand, Indonesia), has picked up quickly, although some legal requirements proved more rigid, with the governments struggling to adjust fast a legal framework that is by definition a fairly slow mechanism (Digital Nomad or Remote Work Visa in Costa Rica, 2021; Au, 2020). Such legal considerations are particularly important when it comes to paying taxes and to avoiding double taxation (Tyutyuryukov and Guseva, 2021).

Digital nomads represent professionals who conduct work via the Internet to have a lifestyle of constant traveling (Schlagwein, 2018). They can be perceived as a result of increased digitalisation and mobility opportunities, creating a network of information-communication society (Kuzheleva-Sagan and Nosova, 2017). They usually prefer coworking areas, leading to an increase of some cities as coworking hotspots, such as Bali, Indonesia or Chang Mai, Thailand (Prabawa and Pertiwi, 2020; Best Places for Digital Nomads, 2021; Sukma and Ratih, 2020). In the context of COVID-19, many cities have seized the opportunities in pushing tourism development by attracting digital nomads. Estonia created a digital nomad visa' to allow nomads to work remotely from their country for a maximum of one year, using telecommunications technology (E-residency, 2020). Similarly, Barbados's government highlights the importance of digital nomads and offers the possibility to work remotely from the island by promoting the „12-month Barbados Welcome Stamp” (Carrington, 2021).

Attracting digital nomads on the Romanian territory is still an unexplored and under-theorised phenomenon, as it is their importance for the tourism sector. The increasing AI and digitalised structures encourage remote work, creating a significant business opportunity for Romania, especially during pandemic times.

The CB model is detailed in the following section, which provides a graphical representation, together with clear explanations of the elements of the model proposed.

Research results and discussion

The Community Branding Model

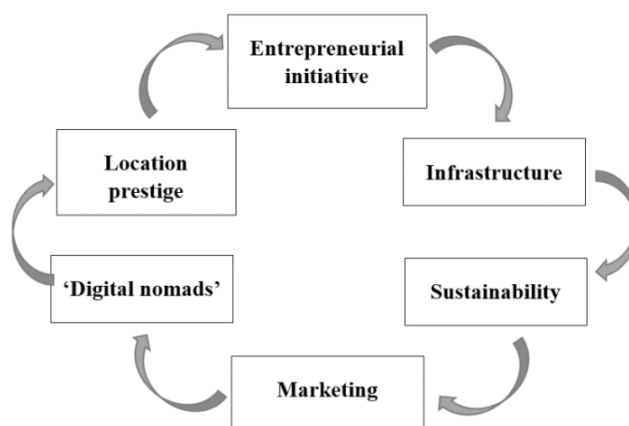
As further detailed in this paper, the following six elements are required to make the community branding model sustainable:

1. Entrepreneurial initiative
2. Infrastructure
3. Sustainability
4. Marketing
5. Digital nomads
6. Location prestige

The model has a built-in self-improving process, which would act as a catalyst, if there is a trigger. The trigger is the entrepreneurial initiative, which may be from a public, private, or public-private. Without the necessary infrastructure, which includes high-speed internet, hospitality, and accessibility, the branding model cannot become sustainable. Sustainability resonates with the feeling exhibited by those who will be attracted to the given destination because of similarity of values and beliefs. Marketing is required to make known to the public the location, benefits, and to attract them by providing the full context, including any administrative and fiscal benefits, as applicable.

The digital nomads are in fact those who will echo the sustainability values, while looking for the place and infrastructure that will allow them to fulfil the material needs of the new work reality. Finally, the increased prestige of the location will be the ultimate gain for the stakeholders at all levels: local, community, and region.

For a better understanding of the proposed approach, we have designed a representative diagram (Fig.1), illustrating the flow of the main pillars of “The Community Branding Model” previously discussed:



Source: author's own representation

Fig. 1. The Community Branding Model

Entrepreneurial initiative and organisation design

The literature review scientific evidence is overwhelming in favour of entrepreneurial efforts to acquire the absolute best workforce, determining factor for competitive advantage (Marin and Nilă, 2021) Employer branding tactics have equalled marketing efforts for products and services in the organisation design, as most companies come to face the reality that the consumers and employees show congruence in brand communities. (Oltra González, Camarero and San José Cabezudo, 2021; McAlexander, Schouten &Koenig, 2002)

Building successful brand communities requires a positive internal attitude towards the items on sale. Would there be better brand ambassadors than a worldwide spread workforce sharing the organisations' cultural diplomacy, concentrated within the mission, vision, and values? Organisation design is now benefiting from global presence in all markets, having both the product/service and the employer brand unpacked from a travellers' backpack.

While we would better qualify this dynamic as incidental, most organisations opted to adopt this design and mule the benefits, clearly qualifying their effort as an initiative to expand their horizons within the most aggressive crisis these current generations are facing. Building brand communities, though, is by no means sufficient for this organisation design trend to become the new norm, though.

We propose the community branding model, based on the employer branding marketing tactic already consecrated within organisational design models, to include a real and thorough corporate social responsibility principle to the evolving phenomenon. Our proposal is to concurrently impact both the positive image of the organisation within its globally spread presence, and the communities where the organisation makes its presence felt by proxy (employees and consumers alike).

Infrastructure

Digital and physical infrastructure play a role in accommodating this model. There is consistent advancement made by the 4IR in the business environment, by eliminating barriers and increasing work efficiency (Akbarpour *et al.*, 2020). The new way of doing business is characterized by increased communication, Artificial Intelligence usage and decentralized production. (Calderoni *et al.*, 2019). Data fluency is therefore the foundation for the model, as the “work from anywhere” concept is mostly dependant on efficient communication and data transfers. However, infrastructure investments are governmental attributes and advancements in budgetary allocations are slow, unless there is a strong demand. Such demand would fall under the CSR effort of corporations that must make their presence felt at governmental levels, guaranteeing growth based on infrastructure investments and involving local NGOs, mass-media and the local community in a fully transparent effort. The end goal is to build on preserving the cultural heritage and/or natural attractions that spun the demand for the location in the first place.

Artificial Intelligence, process automation, technological advancements must be present in the community brand, via the organisations’ efforts, to promote a healthy environment for limited productivity and sufficient time to take in the benefits. Schools, hospitals, public services must be sufficiently developed to cater to digital nomads throughout their journey. Having the nomads as employees, organisations may find incentives to actively participate in determining local administrators to improve compliance with global standards and regulations, using a soft power.

Sustainability

Having a better insight on travel preferences within their employee base, large organisations can predict the top destinations and future trends, treating the regions where nomads migrate to as their remote offices and caring for those locations. Cultural, natural, climate and resources preservation in these locations should become part of the organisation concerns, as the migration effect starts out from the attraction these attributes generate in the first place.

Consumers and employees view the organisation, and its impact on their living environment, in the same way. Modelling the organisation to preserve the environment where it flourishes is only natural for their future existence. It is essential for the sustainability strategy to be aligned with structures and competencies of the organisation, in order for the process to be successful (Gutterman, 2020). In today’s world, organisations failing to ensure a balance between profit and the preservation of the resources employed in profit is doomed to fail, as the employer brand thins out to redundancy and its output becomes unwanted by the market.

Marketing

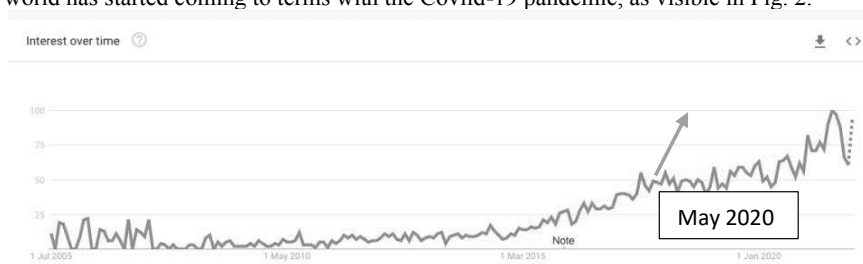
The effort must be split between the local government and the organisation/community to properly market the locations they jointly want to build a brand for and emphasising advantages of. That would stimulate both locals and travellers to take part in this newly developed community and ensure technological advancements that gather more potential participants.

Marketing is the optimally chosen tactic for this common effort, as promoting natural and cultural advantages of a location where people want to build a community leaves no room for exploitation of these resources that have been promoted as the principal advantages in the first place. Brand loyalty and the ‘word of mouth’ effects are key elements delivered by building communities, enhanced by the technological advances of today (Fournier&Lee, 2009). The shared effort will ensure regional growth for the local government, but it will also concentrate (new) residents in the regions that the organisation design included and found to be most attractive, ultimately decreasing the effort of managing a global community to a few key regions.

This dynamic closes a full circle started from the current decentralising events started by the global pandemics, over time recentralising the organisation effort to more compact regions where it gained the most positive results. The dynamic might seem redundant on a small scale and if the model is not replicated to more organisations that each end up by caring for their specific regions, stemming sustainable growth worldwide.

Digital Nomads – the market

According to Google Trends, 2021 searches for the term “digital nomad” have sharply accelerated starting in May 2020. This correlates with the period when the world has started coming to terms with the Covid-19 pandemic, as visible in Fig. 2.



Source: author's query on trends.google.com

Fig. 2. Digital Nomad search trends on Google

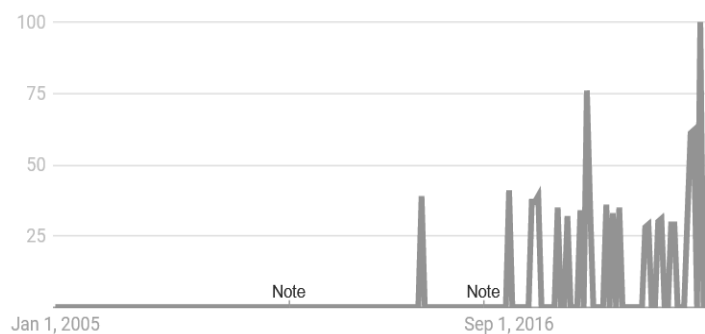
Not surprisingly, the same Google Trends, 2021 analysis reveals that the global distribution of the searches for “digital nomad” is virtually non-existent in Africa, China, and large parts of central-Asia, as visible in Fig. 3. This correlates with the national culture of the countries concentrated towards remote working and the wide-spread availability of technical infrastructure necessary to support online activities, such as stable and fast internet connections.



Source: author's query on trends.google.com

Fig. 3. Digital Nomad interest by region on Google

At local and even rural level, authorities have taken steps to foster remote working (Soroui, 2021), to attract such “nomads” and benefit from this increasing working trend. We should note that there is also a link to sustainable travel and development that one should make when it comes to assessing the full impact of remote-working. However, since this falls outside the scope of our paper, we will mention the aspect without fully analysing these considerations.



Source: author's query on trends.google.com

Fig. 4. Digital Nomad interest in Romania on Google

Visible in Fig. 4., we opted to single out Romania for a regional study, seeing how the interest peaked in leaving the office for productivity. The monthly search on Google for digital nomad appears to be out of sync with the trend from figure 3, where early adopters are visible. Romania is, though, showing a rather constant rate of interest since 2016, peaking 2021. The topic searches picked up after 2016 in Romania, after legislation came into place to regulate telework, as specific legislation for remote work only came into effect due to the pandemic quarantine and thus, we can hypothesise that the same cycle of events acted as a catalyser for the “work from anywhere” phenomenon worldwide.

Location Prestige – the Community Brand

With entrepreneurial initiative, efficient infrastructure, sustainable development policies agreed between all stakeholders, proper marketing tactics to attract the most productive residents (permanent or transitory), the organisation design stands to benefit from a positive and replicable model of evolution. CSR evolves to lucrative strategy from the current greenwashing efforts that only touch base with the negative influences that economic dynamics have on local environments.

Having real positive influence in social evolution, organisations will have already shown a mutual care giving state shared with their market, avoiding the convex curve of their product/service life due to dishonest practices, as more organisations have begun to fall in this occurrence. Prolonging the life of the organisation by honest and constructive practices will transform the organisation into a pillar of the community and part of its brand.

Moreover, employer branding will revolve around the positive environment built by the organisation and it's design, that involves multicultural preservation and environmental protection, in locations spread over the world, with each location transferring their brand attributes to the core values of the organisation. In a fully dynamic world, where access to any part of the world is an issue of affordability and technological barriers have fallen, the future community is based on transitive values that circulate themselves via cultural diplomacy, carried by brand ambassadors from location to location with the sole purpose to stimulate positive and sustainable evolution.

The prestige is to be gained equally by:

- the organisation, that spreads its design to include the environment it exploits for revenue;
- the local government, that provides the infrastructure to accommodate the organization;
- the stakeholders (local and transitory community) that become deeply involved and rooted in the environment that supports their progress.

Conclusions, proposals, recommendations

The present study is aimed at bringing consistent value to the current research by introducing a novel concept, that of Community Branding. Inspired by the traditional employer branding tactics, we turned our attention towards the route of developing a region's brand in order to attract what we call today “digital nomads”. As a result of in-depth analysis, we have discovered a circular flow of six main pillars, able to bring consistent economic changes.

1. Firstly, entrepreneurial initiative was recognized as a starting point for the proposed process. Being either public or private, entrepreneurial efforts are a key player for bringing valuable workforce and changing organisational designs.
2. Creating initiatives towards increasing community branding is directly connected to an organisation's perceptions and internal attitudes.

3. Technological advances brought by the 4IR represent a mediating factor for the development of our model. We consider digitalisation, Artificial Intelligence (AI) and physical infrastructure as being essential elements for advancing towards the next era of doing work, towards the ‘work from anywhere’ concept, that is able to increase professional performance while also preserving cultural heritage.
 4. In today’s fast-developing and over-crowded markets, worldwide population started to express strong feelings towards sustainability issues. We intended to create a sustainability-oriented model, that would match values and beliefs of our targeted population.
 5. Our main communication and promotion method is through marketing and its best usage, by implying both government and organisational efforts.
 6. Increased location prestige is our final goal to be attained.
- It is our recommendation that marketing strategies should be implemented as proposed in this model in a mixture of mutual care, freedom of choice and empathic self-interest, which will generate economic growth and benefits at the local and regional level. Thus, the libertarian paternalism principle that inspires the constructive dynamic results in incremental nudges towards progress for all stakeholders.

As an endpoint, all the previously presented actions are made possible through Community Branding Model and can lead to developing a sustainable revolution. We intend to increase local economies and attract both public and private organisations to invest and develop the right infrastructure for the new era of doing work. The dynamics of our developed model contribute to the revival of the tourism industry after the COVID-19 crisis, by bringing new perspectives and targeting a completely different population segment compared to traditional tourism, an industry that we found to be on the verge of failure due to the accumulated losses over the span of the Covid-19 global pandemic.

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THE FAST MOVING CONSUMER GOODS IN THE CONTEXT OF THE COVID 19 PANDEMIC

Andzela Veselova, University of Latvia

Abstract. 2020 and 2021 were some of the most turbulent and unpredictable years in modern history. Focus undoubtedly was on the impact that COVID-19 has had on consumer attitudes and behaviors.

The Fast moving consumer goods (FMCG) industry is undergoing a significant transformation in response to the demand for more convenience, the COVID-19 pandemic, and changes in customer behavior. The major FMCG industry trends that address these changes involve sustainable solutions for product development and packaging, improving customer experience, and implementing digitalization.

Fast-moving consumer goods refer to products that are sold at a low cost and relatively fast. These are products regularly purchased in large retail stores, showing relatively short expiry dates. Examples of FMCG include non-durable products, such as toiletries, over the counter medications, and packaged foods.

The aim of research to study basic principles and tendencies of fast-moving consumer goods in the context of covid 19 pandemic based on theoretical aspects, draw conclusions and elaborate proposals. The tasks of the research are the following: 1) provide the explanation of fast-moving consumer goods; 2) to describe secondary data from a conducted survey by Nielsen; 3) come to conclusions and offer recommendations for the improvement of the fast-moving consumer goods perspective. Methodologically, the research is based on analysis of the relevant literature and the secondary data.

Can conclude that to offer better experiences to their customers and gain a competitive edge, FMCG companies seek omnichannel sales and e-commerce in addition to deploying big data analytics and Artificial Intelligence (AI) solutions, among others.

Keywords: *COVID-19 pandemic, customers, fast-moving consumer goods.*

JEL code: D12, D40, N84

Introduction

The COVID 19 pandemic is having a significant impact on business across the globe, including fast moving consumer goods (FMCG) and retail. Consumer preferences have been evolving amid the pandemic, and it is expected that certain trends will continue even after the COVID 19 pandemic.

Kumar, Patra (2011) pointed out that the main features of FMCGs include: cheap in terms of cost, frequent buying, low effort to choose (products with strong brand loyalty) (Kumar, Patra, 2011). There are many famous brand names in this sector that people use them every day. When people go shopping these fast moving consumer goods are the main items which are bought. FMCG products are the quickest products that leave the supermarket shelves, so these goods are regarded as fast moving (Leon, Leslie, 2006).

Examples of FMCG include non-durable products, such as toiletries, over the counter medications, and packaged foods. These products have a short shelf life as a result of high demand or because they quickly deteriorate (Pileliene, Grigaliunaite, 2017).

According to Klosiewicz-Gorecka (2016) fast moving consumer goods refer to consumer products that sell fast and have a relatively low price. Virtually everyone in developed countries, as well as developing countries, use fast moving consumer goods on a daily basis (Klosiewicz-Gorecka, 2016). These goods are purchased on a small scale and are usually made at grocery stores, produce stands, drug stores, discount department stores, and warehouse outlets, for example (Alessa, Alotaibie, Elmoez, Alhamad, 2021).

The difference between fast-moving consumer goods and other types of products this how regularly buy them after the previous purchase. Of course, there is no hard-and-fast rule because some of these items have longer shelf lives than others do, and some people tend to buy in bulk (Chaturvedi, 2018).

The aim of research to study basic principles and tendencies of fast-moving consumer goods in the context of covid 19 pandemic based on theoretical aspects, draw conclusions and elaborate proposals. The tasks of the research are the following: 1) provide the explanation of fast-moving consumer goods; 2) to describe secondary data from a conducted survey by Nielsen; 3) come to conclusions and offer recommendations for the improvement of the fast-moving consumer goods perspective. Methodologically, the research is based on analysis of the relevant literature and the secondary data.

Literature Review

Consumer goods are products purchased for consumption by the average consumer. They are divided into three different categories: durable goods, nondurable goods, and services. Durable goods have a shelf life of three years or more while nondurable goods have a shelf life of less than one year. Fast moving consumer goods are the largest segment of consumer goods. They fall into the nondurable category, as they are consumed immediately and have a short shelf life.

Though fast moving consumer goods are very relevant, there are challenges that companies involved in this market face. Some of the biggest challenges that these companies face include: (Abushaikha, 2018)

- Online shopping. Purchasing products online is an ever-growing trend. It's much more convenient for consumers, and it also provides consumers with more options than they could find at a local grocery store or pharmacy.
- Ensuring product availability. Companies must ensure that they have products available when consumers need them. This can be a challenge because it can be difficult to predict when certain products will be in high demand. Though many fast moving consumer goods follow a relatively distinct purchasing pattern, there can be ebbs and flows.
- Determining selling prices. Pricing for fast moving consumer goods is a very detailed process. Companies need to ensure that they are setting prices so that they are affordable for consumers, yet that they are high enough so that they are making a return on investment.

According to Jayanthi, Rajendran (2014) in order for companies to meet the challenges, they should implement the following strategies:

- Building brand awareness. Consumers are more likely to purchase fast moving consumer goods from companies that they are familiar with.
- Establishing trust. Consumers want to ensure that they are purchasing products from business' that they can rely on; that offer the products they are looking for, have a wide selection, and sell them at affordable prices. Companies should seek to establish the trust of consumers.
- Incentives. Consumers are more likely to shop at a retailer that offers incentives; a gift card for a certain amount after spending a specific amount, for example.
- Competitive prices. One of the main characteristics of fast moving consumer goods is their fairly low prices. Companies should ensure that they are selling their products at prices that are competitive with other retailers.

Fast moving consumer goods refer to consumer products that sell fast and have a relatively low price. Virtually everyone in developed countries, as well as developing countries, use fast moving consumer goods on a daily basis. These goods are purchased on a small scale and

are usually made at grocery stores, produce stands, drug stores, discount department stores, and warehouse outlets, for example (Kondej, 2018).

Fast-moving consumer goods (FMCG) raise environmental and social sustainability challenges (Wilkerson, 2017). They also face issues on consumer protection and safety in the single market. The EU wants to ensure that goods, services and business models become more sustainable and that consumers are better protected.

Khalil, Villace (2020) pointed out that the Proactive Living trend will result in consumers making changes to their diets with a focus on moderation and abstaining as they look to make instant health improvements, whilst Rediscovering Health means more focus will be placed on immunity as consumers continue to be concerned about longterm and serious health problems. Innovation will be wanted to maximize health, with the *Menu for Me* trend showcasing how consumers increasingly want personalized and customized health solutions, such as nutrition genetic-testing. At the other end of the spectrum, trend highlights how the healthiness of eating and drinking occasions can vary and the best way to respond to this is through better-for launches that are seen to offer taste and nutrition at the same time. With all aspects of health-related trends, the easier consumers are able to incorporate products into daily diets, the more likely they will continue to purchase in the longer term (Khalil, Villace, 2020).

2020 was one of the most turbulent and unpredictable years in modern history. Focus undoubtedly will be on the impact that COVID 19 has had on consumer attitudes and behaviors, understanding the longitude of these trends and how they will evolve in a period of hopeful recovery. As with every year, health will be a major driver of consumer attitudes and innovation in the market over the next period. However these concerns have intensified over the last period as consumers have re-evaluated their diets and lifestyles and how vulnerable they are to illness. The implications of COVID 19 in consumer attitudes could be in several ways.

Consumers continue to become more risk-averse, concerned about a variety of issues and the day-to-day and long-term implications of this. Concerns over issues such as global supply chains, food safety, and the longevity of a recession will drive the Safe and Secure trend, with consumers placing maximum emphasis on value and trust. Worry about the environment will also drive The Earth is Clear trend, with consumers feeling that the environment is at a tipping point and that potential damage done is something that will impact on quality of life for current and future generations. As such, consumers will take a proactive and collective approach to addressing environmental concerns. This is something that will also result in the continued growth of the flexitarian movement, something highlighted in The Power of Plants trend. Indeed, concerns about health, sustainability, and animal welfare will result in consumers seeking out plant-based alternatives (Kulchitaphong, Chaiyasoonthorn, Chaveesuk, 2021).

Taking a look at COVID-19 and its effect on the fast-moving consumer goods (FMCG) industry, it is likely that losses could be made in one way or another. A labour force that is at high risk of contracting COVID-19 has a major impact on the food supply chain, which inevitably affects retailers. Although manufacturers are doing the utmost to keep their work spaces hygienic and COVID-19 free, they have no control over what happens outside of the workplace with their workforce.

According to Mathur (2011) nearly everyone in the world uses fast moving consumer goods (FMCG) every day. They are the small-scale consumer purchases we make at the produce stand, grocery store, supermarket, and warehouse outlet. Examples include milk, gum, fruit and vegetables, toilet paper, soda, beer, and over-the-counter drugs like aspirin. FMCGs account for more than half of all consumer spending, but they tend to be low-involvement purchases (Mathur, 2011). As mentioned above, fast-moving consumer goods are nondurable goods, or goods that have a short lifespan, and are consumed at a fast pace.

According to Kumar, Patra (2011) fast-moving consumer goods have such a high turnover rate, the market is not only very large, it is also very competitive (Kumar, Patra, 2011). The leading FMCG companies have the ability to produce the goods that are in highest consumer's demand at the same time, and increase trust and loyalty towards their brands (Klein, Schmitz, 2016). The FMCG environment is highly competitive as FMCG companies are always on the hunt for the next great product discovery or innovation in order to meet consumer's needs. Some of the leading key players of the FMCG environment include Nestle, Procter&Gamble (P&G), Unilever, PepsiCo and the Coca-Cola Company. All of them operate internationally and have to try to meet country-specific requirements regarding product packaging and labeling. Their million dollar brands can be found in many households. In order to keep consumers as regular buyers, companies try to develop loyalty and trust towards their brands. Ariel, Gillette, Pampers and Pantene are considered to be among the most famous brands of P&G (Statista, 2021).

Trihatmoko, Napitupulu, Pumamassari, Kumiawanto (2018) pointed out that FMCGs are sold in large quantities, so they are considered a reliable source of revenue. This high volume of sales also offsets the low profit margins on individual sales as well. As investments, FMCG stocks generally promise low growth but are safe bets with predictable margins, stable returns, and regular dividends (Trihatmoko, Napitupulu, Pumamassari, Kumiawanto, 2018).

Shoppers across the globe increasingly purchase things they need online because it offers certain conveniences—from delivering orders right to the door to broad selection and low prices—that brick-and-mortar stores can't (Schmiedebach-Ullner, 2019).

E-commerce is reshaping the global retail market. Since the turn of the century, online shopping has boomed as internet access has reached all corners of the world and smartphones have quickly become an intrinsic part in the lives of billions of people. While global behemoths like Amazon and Alibaba are well known around the world, the rise of e-commerce is providing exciting growth opportunities for hundreds of thousands of companies in all shapes and sizes (Kumar, Agarwal, Saraswat, 2021). E-commerce has opened up a whole new shopping world, providing hundreds of millions of consumers with access to much greater assortment and value opportunities, and helping to satisfy their increasing demand for convenience. 2018, e-commerce across multiple categories like Fashion, Electronics, FMCG and others account for about US\$2.8 trillion, some 10% of the global retail market (Nielsen, 2018).

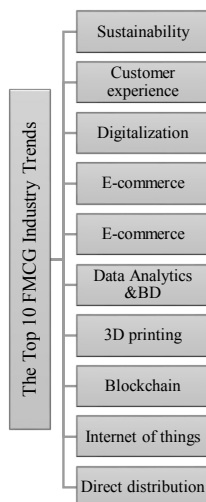
According to Nielsen data, the e-commerce boom has so far favoured the travel sector, as well as apparel and electronics retailers. And despite the global buzz, e-commerce currently contributes less than 7% of the global fast-moving consumer goods (FMCG) market, which is US\$4 trillion values. One key reason for the slower uptake of online FMCG has been the logistical challenges associated with ensuring fresh and perishable products arrive to the consumer in top condition. Additionally, in advanced markets, especially those with dense populations such as Germany, many FMCG products are readily available in close proximity to consumers at brick-and-mortar stores. However, with increasing consumer demand for convenience, and better technology and other enabling conditions, online FMCG growth is accelerating across the globe:

Nielsen's Future Opportunities in FMCG E-commerce study estimates four times faster than offline sales. Compared with other global markets, South Korea and China demonstrate the highest uptake of online FMCG, where e-commerce has already reached 18% and 16% market share of their respective FMCG markets. By 2022, FMCG e-commerce will be in excess of US\$400 billion and comprise 10%-12% of all FMCG sales globally (Nielsen, 2018).

Although a highly unlikely scenario, if the current global growth rates for online and offline FMCG remain constant, online sales will exceed those from bricks-and mortar stores by 2037a. There is a greater likelihood of convergence between offline and online commerce with concepts such as click and collect and alternative delivery solutions introduced by businesses. E-commerce growth varies around the world. In some

countries, it’s taking off, while it’s stagnating in others. Emerging technologies, macroeconomic conditions, cultural differences and many other factors are influencing the evolution of e-commerce at the market level. Understanding which factors are driving or holding back ecommerce growth, and how these factors interrelate at a market level, gives us great insights into where current and emerging opportunities lie. And what is becoming increasingly clear, for most FMCG brands, future success will be significantly determined by how successful they are online (Nielsen, 2018). The FMCG industry is undergoing a significant transformation in response to the demand for more convenience, the COVID-19 pandemic, and changes in customer behavior. The major FMCG industry trends that address these changes involve sustainable solutions for product development and packaging, improving customer experience, and implementing digitalization (Trihatmoko, 2020).

StartUs Insights is an innovation intelligence company on the mission to map the world’s information on innovation, emerging companies, and technologies. For research on the Top FMCG Industry Trends & Startups, analyzed a sample of 3.011 global startups and scaleups. The result of this research is data-driven innovation intelligence that improves strategic decision-making by giving you an overview of emerging technologies & startups in the FMCG industry. These insights are derived by working with Big Data & Artificial Intelligence-powered StartUs Insights Discovery Platform, covering 2.093.000+ startups & scaleups globally. The platform quickly delivers an exhaustive overview of emerging technologies within a specific field as well as identifies relevant startups & scaleups early on. In the Fig.1, can see an overview of the Top 10 Industry Trends & Innovations that impact FMCG companies worldwide. Moreover, the FMCG Innovation Map reveals 20 hand-picked startups, all working on emerging technologies that advance their field.



Source: author’s construction based on StartUs Insights,2020

Fig. 1. The Top 10 FMCG Industry Trends

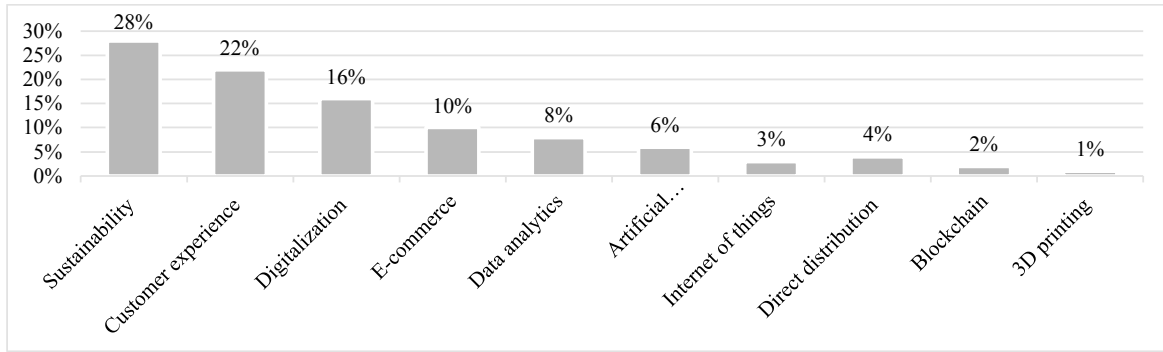
FMCG companies seek omnichannel sales and e-commerce in addition to deploying big data analytics and Artificial Intelligence (AI) solutions, among others. The Internet of Things (IoT) sensors and devices and 3D Printing technology further enable FMCG companies to focus on direct distribution to meet the growing customer expectations.

The Covid-19 pandemic has heightened the consumer’s awareness of health and wellness. There is a growing demand for natural and organic brands with consumers paying more attention to sustainability across the value chain, and choosing brands that align with their lifestyle and personal goals, such as cruelty-free and vegan products.

Consumers are also demanding digital-first experiences, alongside relevant and engaging communication. This will result in the FMCG sector using data insights to continuously improve on customer experiences by making more personalized products, and delivering engagingly and interactively (Wilkins, Ireland, 2020).

Driven by lockdown restrictions, e-marketplaces, and online purchasing will continue to grow even post Covid-19. Purchasing flexibility and omnichannel shopping are fast becoming the new norm. Omni-channel retailing, a multichannel approach to sales, provides the customer with a seamless experience whether they are shopping online from a mobile device, a laptop, or in a store. Only when a customer has gathered as much information about a product from a variety of sources to support their purchase decision, will they then decide to buy. Thus, digitalisation becomes more and more important to capture market share.

Lockdown restrictions and social distancing have led to a shift in shopping patterns. Consumers have reduced the frequency of shopping trips and have opted for increased average basket size to avoid public places. With reduced foot traffic in actual stores, the level of impulse buying has been affected. In addition, average household disposable income has been negatively impacted by Covid-19 with the knock-on effect of consumers trading down to less expensive products and seeking value-for-money products. This increase in price sensitivity will result in discounters coming into their own as consumers will expect a better assortment in terms of size and improved quality. Digital transformation is of paramount importance for FMCG companies allowing them to produce and distribute products efficiently using new technologies (Kumar, Agarwal, Saraswat, 2021). Top 10 FMCG Trends and innovations in 2021 can see in Fig.2. Startups and scaleups work on technological solutions to meet the growing consumer demand for convenience, sustainability, and engaging experiences.

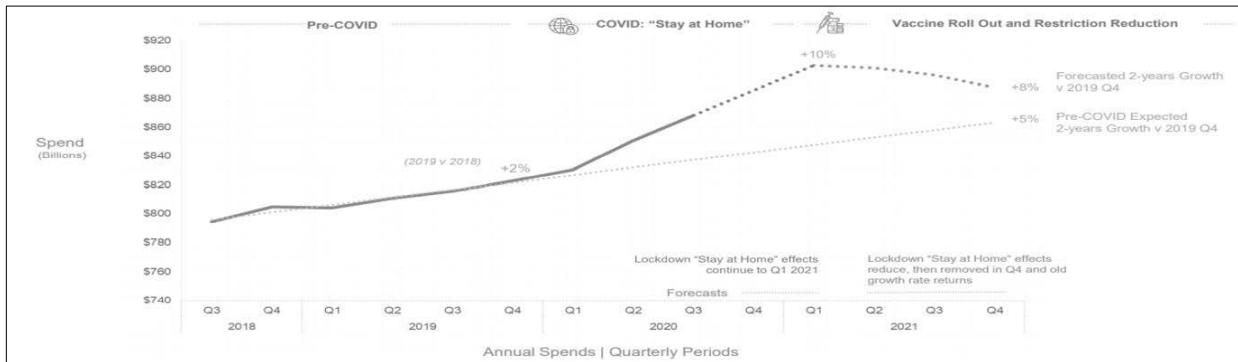


Source: author's construction based on StartUs Insights, 2021

Fig. 2. Top 10 FMCG Trends and innovations in 2021

The permeation of smartphones globally also pushes the digitization and growth of eCommerce, driving companies towards implementing technologies such as AI, Big Data, IoT, Blockchain, and 3D Printing. FMCG brands adapt product development, manufacturing, and packaging to meet consumer demand for sustainable processes and improved convenience. Online shops open new avenues for data management and analytics that further increase revenues for FMCG companies. For example, a growing number of brands directly distribute and sell to their customers via online channels which reduces transportation and logistics costs. Global take-home FMCG value growth set for “peak” growth early in 2021. Decline then as restrictions are lifted across the year (see Fig.3).

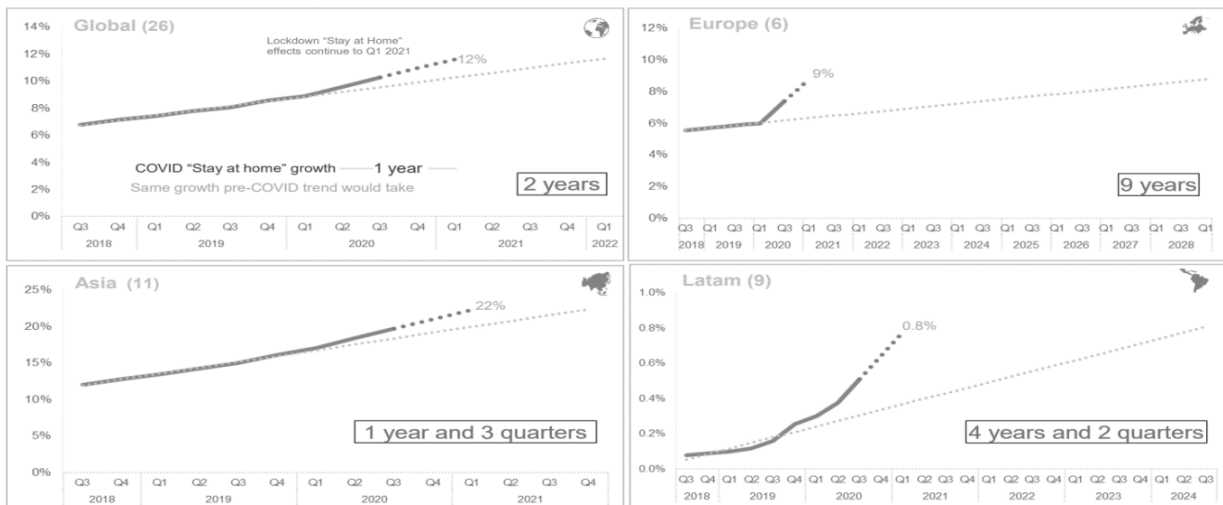
Covid-19 has accelerated most of the FMCG industry trends bringing forward digitalisation, health, and environmental consciousness. With the outbreak of Covid-19, food and household goods manufacturers saw significant growth in revenues in 2020 with revenues increasing by 18% and 4% respectively, on a global basis. In addition, the food and personal care e-commerce segment grew by more than 40% in 2020. It is expected that this segment will continue to grow in the next five years, but growth rates will slow after the acceleration experienced in 2020 (BDO, 2021).



Source: author's construction based on KANTAR, 2021

Fig. 3. Actual and Forecasted Take-Home (excluding Fresh Food) FMCG Sales across 27 Countries

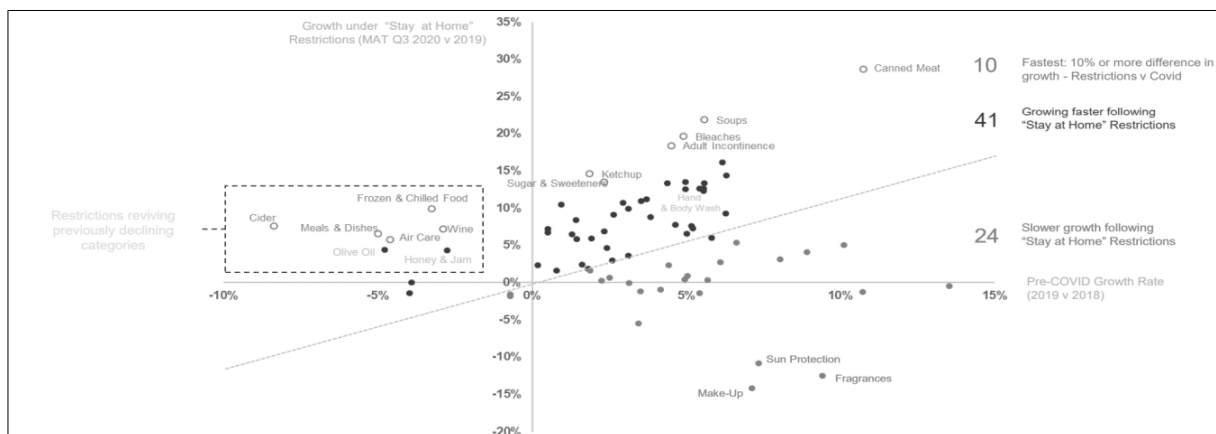
Post-pandemic working from home, vaccine rollout plans, recessionary impact, and changes to restrictions. This scenario slowly takes the “staying at home” gain away, while adding the old trends. Fig. 4. shows actual and forecasted share of e-commerce channel within total FMCG by region.



Source: author's construction based on KANTAR, 2021

Fig. 4. Actual and forecasted share of e-commerce channel within total FMCG by region (across 26 countries)

The most accelerated retail trend- online grocery shopping in Europe. This is another signal of the West beginning to follow the trends coming from the East. However In the long-term, online is the place where the majority of grocery shopping. Expect some decline in share 2021 year. Fig.5. shows indicator "To stay at home vs Pre-COVID annual USD value take-home growth by FMCG category".

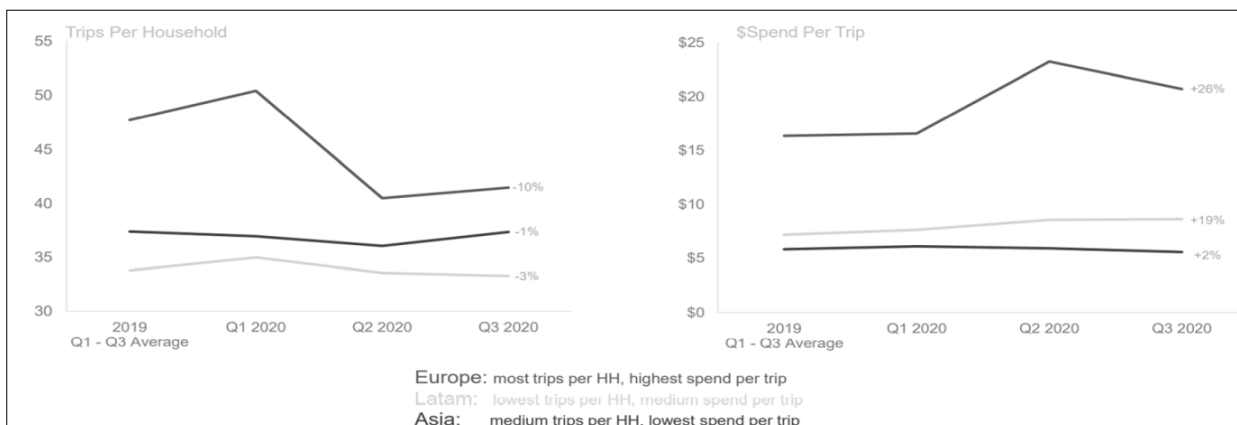


Source: author’s construction based on KANTAR, 2021

Note: Fastest growing category Flour not shown pre-COVID growth 27%, ‘Stay at Home’ growth 33% Frozen and Chilled Food fastest growing category in terms of actual spend.

Fig. 5. Stay at home vs pre-COVID annual USD value take-home growth by FMCG category across 26 countries

Many category growth and declines are obvious. Some though are less. One of the phrases used many times has been how the pandemic has accelerated existing trends. What is particularly interesting here are the cases of how the pandemic has revived categories. Probably these categories are the most vulnerable when “normality” returns. The two fastest-growing brands (both made by Reckitt) are ones unsurprisingly - Dettol (fastest growing +52%) and Harpic +29%. Fastest Growing FMCG Brands (Take-Home) across 25 countries (MAT Q3 2020 v 2019). Hygiene routines, of course, have dramatically changed over the last year. This is likely to reduce in the future but will remain considerably higher than pre-COVID. Household spend has been less than before. In fact, many households have been saving money in general as travel – work and holiday - costs, in particular, have been reduced. Unlikely that they will spend big as the unemployment and economy fears will increase caution. Fig.6. demonstrates trip frequency and spend per trip by quarter take-home total FMCG by region.



Source: author’s construction based on KANTAR, 2021

Note: %: Q3-2020 v 2019 Average

Fig. 6. Trip Frequency and Spend Per Trip by Quarter Take-Home Total FMCG by Region

Everywhere people shop less and buy more per trip. The behavior is unlikely to revert to the previous level. General shopping plans will be more flexible – less planned.

The after-effects of the pandemic – how the economy recovers especially – are going to stay with us for the next few years at least. Households will shop less frequently. They will compensate by buying and spending more per basket (most extreme behaviour will occur in Europe) to increase overall in-home FMCG spend by typically circa 10%. Both small and large out-of-home food and drink purchasing will reduce. More expensive meals in cafes and restaurants will be the primary driver of the overall household decline in total expenditure. Take-away will grow – fuelled by better delivery options - but not significantly enough to compensate for loss in eating and drinking out overall. Many people and especially the most vulnerable to the virus will shop for groceries using the internet for the first time. Food products will grow the most as out-of-home occasions come in-home. Snacking is the fastest growing meal occasion. Simple and easy to prepare gains more traction given overall cooking workload increases.

Hygiene in the home significantly increases. This is maintained over time Hence unprecedented growth in products that can kill the virus occurs – particularly hand soap and sanitizers, bleach and surface cleaners.

According to the Kantar Worldpanel, FMCG online sales account 2019 for 7.6 % of all FMCG in the United Kingdom, 6.2 % in France and just 2.4 % in Spain. This puts European countries far behind their Asian counterparts. In South Korea (20.3 %) and China (15.2 %), the shares are much higher (Botting, 2020).

FMCG statistics for Europe look better when looking at the share of FMCG in total e-commerce. There, Germany came to 8.7% in 2019, an increase of 16% over the previous year. This equates to sales of 5.2 billion euros, making FMCG the fastest-growing category in German e-

commerce. In other European countries, too, fast-moving products are one of the fastest-growing categories in online retailing. This can be explained by the fact that the other categories previously grew rapidly and FMCG has some catching up to do here (Botting, 2020).

One reason for the still relatively weak demand of FMCG online in Europe is the deep-seated habit of consumers, who buy everyday items spontaneously without much planning. A limitation of purchasing such products online is the lack of the possibility to check the freshness of the products before purchasing (Valaei, Rezaei, Bressolles, Dent, 2021).

The same can be observed in European countries. According to a recent Bitkom survey, **3 out of 10 consumers in Germany now (also) order their food online**. Before Corona, only 7% of those surveyed said they used online services such as rewe.de or bringmeister.de – since the pandemic, the figure is now 19%. The sale of food in April 2020 had doubled compared to the previous year (Botting, 2020).

While online trade in food appears to be declining post-lockdown, a few studies indicate that more consumers will be willing to order FMCG online in the future. A study by McKinsey, for example, showed that a large proportion of digital first-time users will remain online. As in China, where Alibaba dominates FMCG online sales with its different marketplaces, **marketplaces are an important sales channel for fast-moving products in Europe**. (Botting, 2020).

Amazon is the leading marketplace for FMCG in the UK. IDG predicts that, by 2021, the online grocery market in the UK will have grown by 68%, with Amazon Fresh being a key driver. In France, a similar picture is emerging: Amazon is one of the leaders in personal care, but when it comes to food and drink, the picture is quite different. Here, the marketplace is far behind classic bricks-and-mortar retailers, who have enjoyed **great success and gained popularity with their Click & Collect service**. The French supermarket chain E.Leclerc, for example, has left Amazon far behind in the online sale of food, thanks in part to its many DRIVE pick-up points. Marketplaces are therefore an option for many FMCG categories, but not (yet) for food.

Another possibility is direct sales from manufacturers of fast-moving products. The top 30 German e-commerce companies in the FMCG sector therefore also include some manufacturers such as Nespresso or Yves Rocher. Good marketing and good service are an important prerequisite here. If direct sales are too far-reaching, however, it may be enough for FMCG manufacturers to sell directly on marketplaces. Manufacturers can set the market price of their products and stop automated price adjustments on these platforms, which will provide a better insight into their customers' profiles (Botting, 2020).

The consumer goods and FMCG market continuously adapts to evolving consumer demand and trends. Digital innovation, the coronavirus pandemic, and an increased focus on sustainable and healthy habits have been just some of the biggest influences on the consumer goods market in recent years. Digitalization has put the customer in the drivers seat and enables endless comparison and scrutinizing of products on the spot. Consumer goods companies must optimize their marketing strategies and brand awareness to maintain customer loyalty in this competitive market. The pandemic altered how consumers shop and became a huge market disruptor; cleaning products, shelf-stable food and beverages, and toilet paper became hard to come by within days in some regions. Additionally, the role of sustainability is having a growing impact on the consumer goods market; there is an increasing demand for more sustainably and ethically produced products across the whole consumer goods spectrum.

Conclusions, proposals, recommendations

1. Fast moving consumer goods are also really important to the functioning of a modern society, and it is important that people have access to them. Understanding these goods from a marketing perspective is vital to jobs in marketing and advertising, especially when these goods are what is being advertised.
2. In fast-changing FMCG markets, new brands and varieties may appear regularly, and this may influence consumers' decision-making. Thus, it is essential that firms conduct market research each time they want to ascertain the consumer trade-off preferences for a specific product. In order to make the optimal marketing mix decisions, firms need to identify the criteria used by consumers to determine perceived value for a particular product. Furthermore, firms should consider the demographic profiles of their target customers, using categorisations such as income and household size
3. Understanding future market trends is essential for FMCG businesses to make critical, near-future decisions when it comes to new-market penetration, market expansion and product development. Only when upcoming market trends are appreciated can revenue-focused strategies be developed.
4. Although health, risk aversion and value will be dominant traits governing consumer attitudes and behaviors over the next time period, consumers will continue to seek out new and premium food, drinks, and flavors.
5. Along with shifting demographics, small towns and mid-density cities will emerge, creating new FMCG markets. Population densities will create more rural cities with an increasing urbanization of these inhabitants, many of which have the same access to technology and the same consumer behaviors as their urban counterparts. These new frontiers on the FMCG horizon will witness new trade centers and improved infrastructure.
6. There will be a greater emphasis on health and wellness products, many of which combine research on nutrition and longevity with traditional, ancient therapies.

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THE ROLE OF RELATIONSHIP MARKETING IN THE CONTEXT OF BUILDING CUSTOMER SATISFACTION

Andzela Veselova, University of Latvia

Abstract. Nowadays, the classical marketing management approaches established in 1960s and 1970s of the 20th century, have notably changed. New reality imposes new conditions for interaction, the society keeps developing and people keep accumulating knowledge and experience, the availability of information and the speed it is obtained rockets into the sky. Relationship marketing helps to establish a long-term relationship with the customers. The main aim of relationship marketing is to create a strong bond between the customer and the brand or product, which can help in achieving expected success in business.

The aims of the research include analyzing the implementation of relationship marketing in the context of retail sales, identifying the shortcomings and provide recommendations for the improvement of relationship marketing in the context of customer satisfaction basing on theoretical grounds and case study in the field. The tasks of the research are the following: 1) describe the relationship marketing and its differences from the traditional marketing; 2) carry out the survey to find out particular questions regarding the relationship marketing among *Rimi* customers; 3) come to conclusions and offer recommendations for the improvement of the relationship marketing. Methodologically, the research is based on analysis of the relevant literature and the questionnaire as the quantitative research method.

The study concludes that the constant complexity of marketing activities leads to the need to find new, more efficient tools. One of such tools is relationship marketing aimed to achieve long-term privileged relationship among all stakeholders interested in the company and to increase the competitiveness of the business in the market. Thus, the success in achieving certain level of loyalty of the parties leads to the stable income in long term.

Keywords: *marketing, relationship, customers, satisfaction.*

Jel code: M31

Introduction

The relationship marketing concept emerged within the fields of service marketing and industrial marketing (Christopher, Payne, Ballantyne, 2012; Gummesson, 1999; Kim, 2014; Berry 1983) viewed relationship marketing as a strategy to attract, maintain and enhance customer relationship. Gummesson (2015) defined the term as a strategy in which the management of interactions, relationships and networks is a fundamental issue. According to Grönroos (1994), the aim of relationship marketing is to establish, maintain, and enhance relationships with customers and other partners, at a profit, so that the objectives of the parties involved are met. Rapp and Collins (1990) suggest, similarly, that its goals are to create and maintain lasting relationship between the firm and its customers that are rewarding for both sides. This is achieved by a mutual symbiosis and fulfilment of promises (Ndubisi, 2004). In other words, a key objective is to foster customer loyalty, which Oliver (1999) defined as a deeply held commitment to re-buy or re-patronize a preferred product or service in the future despite there are situational influence and marketing efforts having the potential to cause switching behavior (Oliver, 1999).

Relationship marketing is the management of a long-term reciprocally productive relationship with main partners in the market: customers, suppliers and distributors (Greig, 2020).

The relationship market marks the change of paradigm in terms of thinking on reciprocal dependence and cooperation instead of thinking mainly about competition and conflict. Long-term relationship is very important in the context of competitiveness (Palmatier, Dant, Grewal, Evans, 2006). Strategically, relationship marketing aims to build long-term relationships, keeping the customers and partners, which is not as expensive as the attraction of new ones. It is the aspect of customer relationship management aimed to ensure the loyalty of the customers. Loyal customers tend to spend more money – they trust the seller, therefore they probably choose more expensive products and services (Payne, Christopher, Peck, 1995). The shift to relationship marketing creates the appropriate conditions to increase the profitability of the company. Therefore, all effort is worth creating the conditions that would increase customer loyalty.

Due to the standardization of products and unification of services leading to repeated purchase decisions relationship marketing proves to be an appropriate and modern strategy. The only way to keep the customers is the individualization of relationships, which is possible on basis of the potential development of long-term interaction. (Möller, Halinen, 2000). In this context, the relationship becomes the most important resource of the company along with the material, financial, human resources, and other. (In a result of efficient interaction, a relationship becomes a product that integrates intellectual and information resources – the most important factors of the market relationship. Mutual communication between the customer and the company is essential in building a good relationship. The Internet, social media, as well as information transferred between the customers directly, can help boost the business and establish a close relationship between the company and the customer. It is rather important to be aware that relationship marketing is not a method to increase short-term sales.

The aim of the relationship marketing is to keep existing customers instead of attracting new ones. The origins of relationship marketing roots back to industrial marketing, where it was considered an alternative to traditional marketing, since the specifics of organizational interaction required another paradigm than dominating one in the consumption market (Smith, 2011). In 1983, this concept was firstly mentioned by Leonard Berry, the former president of the American Marketing Association, in the context of marketing of the services aiming to describe a new approach in marketing dedicated to the long-term involvement of the customers. Ten years later the relationship market finally gets into the consumers' markets (Berry, 1983).

The aims of the research include analyzing the implementation of relationship marketing in the context of retail sales, identifying the shortcomings and provide recommendations for the improvement of relationship marketing in the context of customer loyalty basing on theoretical grounds and case study in the field. The tasks of the research are the following: 1) describe the relationship marketing and its differences from the traditional marketing; 2) carry out the survey to find out particular questions regarding the relationship marketing among *Rimi* customers; 3) come to conclusions and offer recommendations for the improvement of the relationship marketing. Methodologically, the research is based on analysis of the relevant literature and the questionnaire as the quantitative research method.

Literature Review

Relationship marketing ensures long-term, close and emotional bonds between companies and their customers. It helps to build loyalty among the customers, who make repeated purchases with the same brand and recommend it to their friends, family, colleagues, and others. In addition to increasing sales and profit, which is the main reason for business, deep and trustful relationship with the customers provides other advantages.

In relevant literature the term marketing has different meanings and explanations. Several authors, for instance, Möller K., Halinen A. define relationship marketing as a practice for customer keeping. According to Möller K., Halinen A. "Relationship marketing is a practice to create a

long-term reciprocally beneficial relationship with main partners interacting in the market: consumers, suppliers and distributors aiming to establish a long-term privileged relationship” (Möller, Halinen, 2000).

Close economic, technical and social bonds with partners reducing the costs of deals and saving time converts business deals from debate to routine procedure. (Ndubisi, 2007). The relationship marketing strives to active creating of a unique company aiming for marketing involvement system as final result. Marketing interaction system includes the company and all other groups interested in company’s work: consumers, employees, suppliers, distributors, retailers, advertising agencies (Lindgreen, Beverland, 2004).

Kotler P., Keller K. L. define relationship marketing as a concept and business strategy aimed for long-term business development based on “customer-oriented” approach (Kotler, Keller, 2016). The strategy is based on progressive use of management and information technologies that help to gather the information on company’s customers in all stages of taking purchase decisions (attraction, keeping, loyalty), acquires knowledge from information and applies it in business interests, creating a reciprocally beneficial relationship with the customers. While the traditional marketing applies such strategies as ads and campaigns, relationship marketing aims to constant improvement of the bonds and established relationship with the customers. (Baba, Năstase-Anysz, 2020). According to marketing specialists, relationship marketing can easily achieve competitive advantages in comparison to business marketing (Addison, Lingham, Uslay, Lee, 2017). One more difference between the business marketing and relationship marketing consists of the fact that business marketing is not aimed to customer loyalty and repeated purchases of the same customer, meanwhile the relationship marketing is (Baran, Galka, 2017). Besides, relationship marketing claims loyal customers are worthier for the business than newly attracted customers, meanwhile, business marketing focuses on increasing sales.

The aforementioned leads to the conclusion that relationship marketing is a concept of marketing management based on establishing long-term reciprocally beneficial relationship with main partners of the company: customers, suppliers, distributors, employees etc. Hunt, S., Arnett, D., Madhavaram, S. (2006) considers relationship (communication) with customers the object of marketing management. At the same time, not only sales and marketing managers, but also other employees must focus on management of interaction with customers. Table 1 displays the most popular definitions of relationship marketing. Most of these are later applied by several authors in order to explain the characteristics of relationship marketing (Hunt, Arnett, Madhavaram, 2006).

Table 1

Definitions of relationship marketing

Authors	Definitions	Basis of classification
Berry, 1983	Relationship marketing means attraction of customers, maintenance and development of the relationship with consumers	Consumer partnership
McKenna, 1991	Relationship marketing – boosting the customer’s role in process and transition from consumer manipulations to the creation of true interest (communication and exchange of knowledge)	Consumer partnership
Bickert, 1992	Database marketing focused on promotion aspects related exclusively to support the databases.	Database marketing
Vavra, 1992	Relationship marketing is analysed exclusively as a bond with the customer or a contact after a completed deal.	Consumer partnership
Doyle, Roth, 1992	The aim of the relationship marketing is to “win” the business consumer, developing long-term loyalty.	Consumer partnership
Shani, Chalasani, 1992	Integrated striving to establish, maintain and develop a network with particular consumers in order to achieve mutual benefits through interaction and individualize long-term relationship.	Consumer partnership
Peppers, Rogers, 1993	Focusing on individual marketing that includes the creation of databases for long-term customer relationship.	Database marketing
Porter, 1993	Relationship marketing is a process, where both parties – the buyer and the seller – create efficient, comfortable, inspiring and ethical relationship; personal, professional and beneficial relationship for both parties.	Coverage of all relationship
Grönroos, 1994	Marketing is elaborated in order to define and create, maintain and develop beneficial relationship with consumers and other partners aiming to achieve the goals of all interacting stakeholders basing on exchange and completed obligations and responsibilities.	Coverage of all relationship
Ballantyne, 1994	Relationship marketing – creation, development and maintenance of value exchange among involved parties, meanwhile the exchange relationship constantly develop in value added chain.	Coverage of all relationship
Gordon, 1998	Relationship marketing is a continuous process of defining and creation of new values together with particular customers, receiving and sharing benefits from these activities among the participants of the interaction.	Coverage of all relationship
Gummeson, 1999	Marketing based on relationship, networks and interaction aimed to long-term reciprocally beneficial relationship with particular consumers; the value is developed together by the involved parties.	Coverage of all relationship
Sheth, Parvayar, 2000	Continuous participation in common and partnership activities and programmes with intermediaries and end users in order to create and develop common economic value and reduce costs at the same time.	Coverage of all relationship
Bruhn, 2003	Relationship marketing relates to all activities aimed to analyse, plan, implement and control the measures that initiate, stabilize, strengthen and renew business relations with the interested parties of the corporation, mainly consumers, as well as create reciprocal value in the course of the relationship.	Consumer partnership
Malhotra, Uslay, Bayraktar, 2016	Relationship marketing means all marketing activities aimed to establish, develop and maintain successful exchange of relationship.	Coverage of all relationship

Source: author’s construction based on literature analysis

The definitions prove that despite the non-conditional significance in terms of consumers that appears in almost every definition, the dominating role is taken over by the interpretations of relationship marketing. These interpretations are based on diverse market interactions and creation of common value.

According to the definition by Bruhn, M. the emphasis is put on the coordinating component of marketing, its focusing on creation of reciprocal value during the interaction of several stakeholders. (Bruhn, 2003). Grönroos K. in his turn, postulates as follows: "... Marketing is elaborated in order to establish, maintain and develop relationship with consumers and other partners aiming to achieve common goals and profit" (Grönroos, 2017). In this interpretation all activities are aimed to relationship, and the range is wider than the relationship with consumers. The aforementioned definitions reveal the gradual development of the interpretation regarding relationship marketing: from the former narrower database interpretations first comes the focus on relationship with end users and then to many relationship of the company in the market. Exist different marketing paradigms. In sum, each paradigm has its focus. For instance, the neoclassical paradigm is aimed to sales process, meanwhile relationship marketing paradigm focuses on establishing reciprocally beneficial relationship and its maintenance. Method often applied to specify the differences of the relationship marketing is the comparison with the traditional marketing. First attempt to compare the traditional marketing of the deal and relationship marketing offers the differentiation of approaches related to customers (see Table 2).

Table 2

Comparison of the deal marketing and relationship marketing

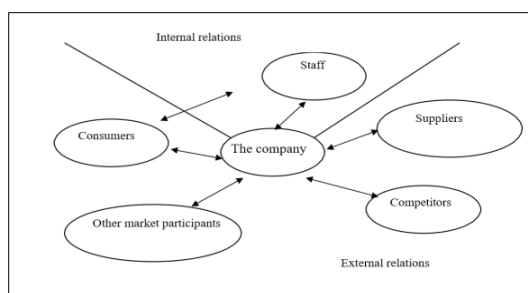
Deal marketing	Relationship marketing
Focusing on sales only.	Orientation to customer keeping.
A single contact with the customer.	Continuous contact with the buyer.
Focusing on product qualities.	Focusing on customer's value.
Short-term scale of activities.	Long-term activities.
Limited interest in customer service.	High value of customer service.
Limited commitment to satisfy the needs of the consumers.	High demands in satisfaction of customer's expectations.
Quality as the main interest of the production bond (staff).	Quality as the responsibility of all departments (staff).

Source: author's construction based on Payne, Christopher, Peck, 1995

The main characteristics of the relationship marketing displayed in Table 3, most clearly uncover the context of the relationship with consumers, which emphasizes the prevalence of the latter among other types of interactions of the company. Relationship marketing provides the company with several advantages. Firstly, the costs are reduced, especially the costs for the attraction of new customers. Secondly, the number of purchases and sales increases, since the loyal consumers increase their expenses and the total profit surpasses the discounts aimed to this category of consumers.

The loss of such a segment means the loss of relatively significant profit. Thirdly, relationship marketing ensures the existence of the main group of consumers that guarantees the market for the testing or introduction of new products or offers with less risk, thus reducing the uncertainties for the company in general (Delene, 2020). Finally, the company obtains the barrier for competitors, keeping a stable basis of customers, and a stable basis of satisfied customers is the keyword to keep the employees of the company. The main qualities of relationship marketing are as follows (Christy, Oliver, Penn, 2010): 1) Focusing on partners and customers instead of products of the company; 2) Emphasis on keeping customer cohort and maintaining the relationship with it instead of attract new customers; 3) Relying on teams made of employees from different departments; 4) Relying is not related to verbal persuasion, but on listening and research.

The system of relationship marketing includes: the company, customers, employees, agents, suppliers of products and raw materials, distributors, traders, Marketing agencies and all with whom the company has established a beneficial relationship. The interaction of the relationship in relationship marketing are displayed in Fig. 1.



Source: author's construction based on Vavra, 1992; Lacey, Morgan, 2009

Fig. 1. Relationship interaction in relationship marketing

Wray, Palmer, and Bejou, (1994) uncover several main mistakes in the application of the marketing techniques:

- Introducing relationship marketing techniques before the elaboration of consumer-oriented strategy;
- Introducing relationship marketing techniques before the relevant organizational changes;
- Assumption of "the more techniques, the better".

Relationship can be examined from the perspective of process or the perspective of strategy. From the perspective of process, different levels of relationship can be viewed as component stages of the consumer relationship building process. Marketers need to attract transactional consumers, convert them to repeated or loyal consumers, and then develop them into relational consumers (Waha, Singh, Tyagi, Singh, 2020). However, it is also critical for marketers to realistically recognize the possibility for building a certain level of relationship by analysing the product/market position and consumer characteristics. A "higher-level" relationship is not always feasible or even desirable. From the marketer's point of view, a relationship marketing endeavour can be very costly. Relational consumers may not represent profitable customers. From the consumer's point of view, the relationship may not always be desirable. Relationship building entails data collection. This data collection may be viewed by customers as an invasion of privacy (Tripathi, 2021). Marketers must realize that there may be a limited relationship level, which

is feasible given the specific market and consumer group (Thaichon, Liyanaarachchi, Quach, Weaven, Bu, 2019). Thaichon, Liyanaarachchi, Quach, Weaven, Bu (2019) focused analysis on the strategic point of view and submit that different levels of relationships exist and different relationship building approaches are suitable for different markets.

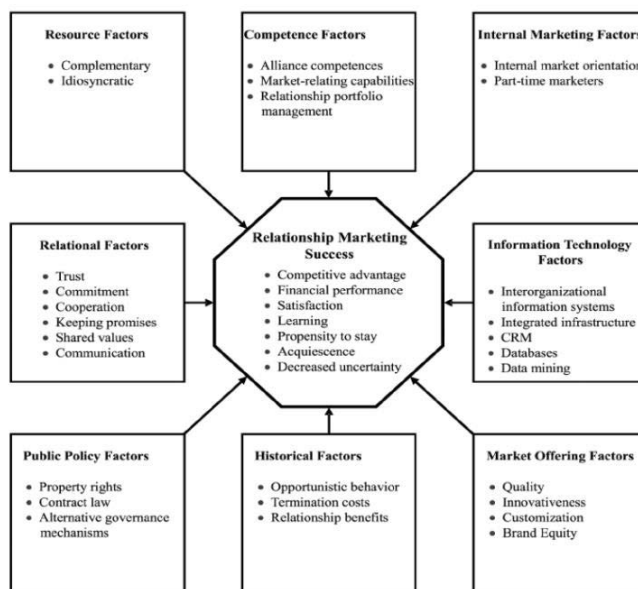
Consumer relationships fall along a spectrum from no relationship to high commitment and emotional bond. Transactional consumers shop around. They follow a full decision-making process where they gather intelligence from which alternatives are generated and evaluated to choose the appropriate product. They welcome and actively search competitor information, and do not limit their searching scope (Thaichon, Ratten, 2020). Repeat consumers, also referred to as loyal consumers by many practitioners, repeat their purchase from a particular retailer but are open to other offers. For convenience and cost savings, they undergo a reduced decision-making process by trusting the retailer to fulfil their purchasing goal. Relational consumers have established non-contractual commitment for a brand/retailer and usually show emotional or social bonds. The decision-making process is minimized as most relational consumers simply make their purchasing choice without gathering intelligence to generate alternatives. They ignore competitor information by not even looking at their advertisements (Cahill, 1998)

Consumers differ in ways they value long-term relationships. Companies need to put in practice marketing approaches (transactional or relational) according to their customers’ orientations (Jackson, 1985). Transactional consumers have low relationship orientation and put higher emphasis on short-term benefits. Repeat or loyal consumers recognize the benefits, such as reduced transaction costs and loyalty program incentives, from familiarity with a particular marketer. They show a medium level of relationship orientation. Relational consumers highly value long-term relationship and collaborations. They are motivated to engage in B2C relationships in order to reduce both choice and risk (Sheth, Parvatiyar, 1995). Consumers, depending on their relational orientation, will differ in the relative importance of their overall satisfaction or their trust and commitment towards marketers (Garbarino, Johnson, 1999). Research shows that for the low relational customer, overall satisfaction is the primary mediating construct between the component attitudes and future intentions. For the high relational customer, trust and commitment, rather than satisfaction, are the mediators between component attitudes and future intention (Gummeson, 2015). Transactional consumers may return to a retailer when they are satisfied with previous experiences. Repeat consumers return for favourable evaluation and tangible rewards. A favourable evaluation may be based on the belief or trust that the retailer provides satisfactory offerings. Relational consumers return because of their commitment. Their relationship can make them overlook the little things that go wrong (Cahill, 1998).

Prioritizing of customer relationship. According to aforementioned the main difference between relationship marketing and traditional marketing consists in deviation of marketing focus and influence from the particular relations of the buyer and the seller (Brown, 2000). At the same time, the main field of interest in relationship marketing and marketing in general sense is still “consumer-supplier” relationship (Möller, Haline, 2000). At the same time, Christopher, Payne, Ballantyne (1991), emphasized benefits from the extending of main focus of marketing, claiming that consumers and consumer relationship will always be in focus in terms of marketing goals.

One more difference between the traditional marketing and partner marketing is the way the customers are perceived and evaluated. Despite the declared attention focus on consumers, traditional marketing is more and more charged for treating customers as “pawns” in the context of competition. In reality, such an approach aims to increase the market share, short-term financial benefits and boost the results of activities.

The priority goals of the experts in traditional marketing is to “catch” non-personalized customers, often steal customers from the competitors and use these resources in implementation of short-term goals of the company (Alam, 2012). At the same time, the target segments in the traditional market are personalized enough according to the to the admissible proportion of costs related to the individualization of consumer attitude and forecasted increase of sales. Figure 2 shows the factors accounting the success of relationship marketing.



Source: author’s construction based on Christopher, M., Payne, A., Ballantyne, D., 2012

Fig. 2. Factors accounting the success of relationship marketing

There are a lot of different factors impacting relationship marketing. Each group of the factors contains different aspects. For instance, the market offer factors include quality, innovations, brand capital etc. The historical factors include benefits of the relationship, relationship factors include trust, responsibilities, communication etc.

Relationship marketing can be used by all kinds of the companies, both big and small. Even in case if the marketing team of the company is very small, the basic methods can still help to hear the customers.

The time just after the founding of the company most probably is the only stage to turn to marketing activities and attraction of new customers. After that, the keeping customers’ loyalty often becomes as important as the attraction of new customers.

Oliver (1999); Bejou, Ennew, Palmer (1998) and Ndubisi (2007), have shown that there is a relationship between the relationship quality with customer loyalty, they concluded that the relationship quality of the customer - seller is an essential prerequisite for successful long-term relationship (see Fig.3.). It has been argued that for loyal buyers, companies must invest in building customer relationship and intimacy, build relationship and intimacy will also lead to a stronger loyalty.



Source: author's construction based on Thaichon., Ratten, 2020

Fig. 3. Framework of Thinking for successful long term relationship

Based on research Wray, Palmer, Bejou (1994), Smith (2011), Delene (2020), Thaichon, Ratten, Weaven (2020) showed that there is a relationship between relationship marketing with customer loyalty mediated by relationship quality (trust and satisfaction).

There are several possibilities of strengthening the relationship with particular circle of customers. It should be verified, if the management of the company is aware of the target audience: the company is where are its customers; the company ensures outstanding customer service. Few methods that could help to establish the relationship with the customers and maintain it are listed below (Sheth, Parvatiyar, 2000):

- Communication – regular communication with customers is critical.
- Offer of awards – company must create a loyalty program.
- Planned activities – the company must show its customers they are valuable.
- Contents that customers can use – Marketing by e-mail.

Research results and discussion

The author created survey where participated 418 respondents. The survey took place from 15.10-15.11.2021. The research object chosen by the author is the largest retail network *Rimi* Latvia. *Rimi* Baltic is one of the largest retailers in the Baltic States. It operates four chains that are favourite among customers – *Rimi* Hyper, *Rimi* Super, *Rimi* Mini and *Rimi* Express. Since 2020 *Rimi* also has an e-store in all three Baltic Countries. The company employs over 12000 people across the Baltics. *Rimi* vision “We make every day a little easier”. *Rimi* mission “We create the shopping experience of tomorrow. We drive healthy and sustainable choices that improve people’s lives and society. Every day.”

Rimi Latvia is one of the leading food retailers in the country. As of November 2021, in Latvia more than 120 *Rimi* shops were open to customers. *Rimi* Latvia is the employer of more than 5 000 persons. *Rimi* Latvia has several types of shops: 38 *Rimi* Hyper; 32 *Rimi* Super; 55 *Rimi* Mini; 8 *Rimi* Express; in total 133 shops (*Rimi*, 2020).

In 2020, the turnover of retailer SIA *Rimi* Latvia increased by 29.3 million EUR, reaching 946,5 million EUR. The retailer closed financial year 2020 with profit of 30.4 million EUR. “The increase of the turnover during report year was possible due to the internal consumption in Latvia and transformed, modernized shops as well as the development of e-commerce segment (Lursoft, 2021). The eventual total questions related to the 5 dimensions. Christopher, Payne, Ballantyne (2012) (see tab 3). In the questionnaire completed by customers, for the trust dimension, for communication, commitment and conflict handling, for loyalty.

Table 3

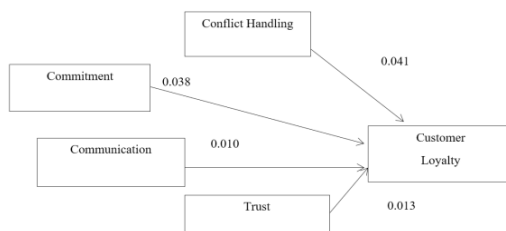
Determinants of customer satisfaction

Dimension	Questions
Commitment	the Company is flexible when its services are changed the Company makes adjustments to suit my needs the Company is flexible in serving my needs the Company offers personalized services to meet customer need;
Communication	information provided by the Company is always accurate. the Company makes and fulfils promises; the Company provides information when there is new banking service; the Company provides timely and trustworthy information;
Customer loyalty	the Company that first comes to my mind when making purchases decision on bank services Considering the Company as first choice among other banks in the area; a
Conflict handling	the Company tries to solve manifest conflicts before they create problems; the Company tries to avoid potential conflict; the Company has the ability to openly discuss solutions when problems arise
Trust	the Company’s promises are reliable; employees of the Company show respect to customers; the Company fulfils its obligations to customers the Company is consistent in providing quality service; the Company is very concerned with security for my transactions; I have confidence in the Company’s services.

Source: author's construction based on Gummesson, E., 2015

The number of respondents in the survey – 327. All items were measured by responses on a 5 point Likert scale of agreement with statements, ranging from 1 (strongly disagree) to 5 (strongly agree). Multiple regression analysis was performed to predict the relationship between the four “underpinnings” of relationship marketing and customer loyalty, in this context. Demographic data showed that graduates accounted for 43 % of all respondents, a slight majority of respondents were female: 58% to 42 % male. Just less than three quarters (73 %) were under 40 years of age. 40 % for between 6 -10 years, and only one in five (20 %) had been customers for 5 years or less. Loyalty is thus the starting point for

relationship marketing, or at least inertia. Figure 4 shows a schema relating the four research constructs to the dependent variable, customer loyalty. Data was collected through a field survey of retail customers *Rimi* Latvia.



Source: author’s calculations based on survey results

Fig. 4. Customer loyalty dimensions

The descriptive statistics of the variables and reliability estimates are shown in Table 4. The author used 5 point Likert scale of agreement with statements, ranging from 1 (strongly disagree) to 5 (strongly agree).

Table 4

Main indicators of descriptive statistics and reliability estimates

Dimensions	Cronbach’s a	Standard deviation	Mean
Customer loyalty	0.95	0.75	3.98
Trust	0.85	0.54	3.96
Communication	0.79	0.63	3.88
Commitment	0.85	0.74	3.66
Conflict handling	0.75	0.65	3.72

Source: author’s calculations based on survey results, evaluation scale 1-5, where 1-strongly disagree; 5-strongly agree

The internal consistency of the research instrument was tested by reliability analysis. Therefore, and given the representativeness of the sample, it is fair to conclude that Latvian retail company customers tend to be loyal if the company is: able to handle conflicts well, trustworthy, reliable and efficient in communicating to customers and committed to service. The positive sign of the estimates shows that the greater the extent of these underpinnings, the higher the level of customer loyalty. All elements of the research proposition are thus firmly supported. To sum up the findings: the greater the trust in the bank, the higher the level of the bank’s commitment, the more reliable and timely its communications and the more satisfactorily it handles conflicts, the more loyal its customers will tend to be.

The results of the regression analysis summarised in Table 5 shows that trust, communication, commitment, and conflict handling contribute significantly to customer loyalty ($F = 21.13$; $p, 0.001$) and predict 29 % of the variation found. They also show a significant direct relationship between all five “underpinnings” and customer loyalty at 5 % significance level. The author used 5 point scale of agreement with statements, ranging from 1 (strongly disagree) to 5 (strongly agree).

Table 5

Relationship between relationship marketing underpinnings and customer loyalty

Variables	t-value (p-value)	Beta coefficients
Conflict handling	2.050 (0.042)	0.152
Trust	2.469 (0.014)	0.187
Communication	2.565 (0.011)	0.185
Commitment	2.080 (0.039)	0.154

Source: author’s calculations based on survey results

Notes: $R^2 = 0.286$; $F = 21.13$; Sig. $F = 0.000$

Trust is an important ingredient in firm-customer relationship and ultimately in the development of satisfaction and loyalty, in *Latvia* and elsewhere. Therefore, *Rimi* should strive to win customers’ trust. The ways in which this can be achieved include the giving and keeping promises to customers, showing concern for the security of transactions, providing quality services, showing respect for customers through front-line staff, fulfilling obligations, and acting to build customers’ confidence in the bank and its services. As for commitment as a critical factor in building customer loyalty, consisting in this study of accommodating to customers’ needs, tailoring products to requirements, and being generally flexible in their customer relationship. *Rimi* should recognise the potency of service commitment in keeping loyal customers, and act accordingly. They must show genuine commitment to customer relations. Effective communication predisposes customers to stay with a provider of retail services. Loyalty can be nurtured by providing timely and reliable information, for example about the uses and benefits of new retail services or about the status of transactions. It can also be reinforced by the provision of honest information on what the *Rimi* is doing about existing problems and what it does to forestall potential ones. Lastly, customers tend to be loyal to *Rimi* that handle customer complaints (which will always happen, regardless) and other conflicts satisfactorily. It is therefore important that effective conflict resolution mechanisms are not only in place but are proactive, so as to pre-empt potential sources of conflict and address them before problems become manifest. Effective reactive solutions should also be marshalled decisively and in time to resolve problems and protect customers from avoidable losses. Sometimes, what may cause a customer to defect is not so much the occurrence of a problem as how it is handled. *Rimi* should be willing to discuss problems openly with their customers.

Theoretically, the outcome of this research provides empirical evidence for the influence on customer loyalty of four underpinnings of relationship marketing: trust, commitment, communication and conflict handling. This study adds value to the literature by empirically linking a more comprehensive list of determinants to the dependent variable. It builds on past studies in this area, which had either investigated an incomplete list of potential underpinnings (Ndubisi, 2004; Tripath, 2021) or related them to relationship quality (Shani, Chalasani, 1992) and customer satisfaction (Sheth, Parvatiyar, 2000) without taking into account the ultimate goal of any service provider, which is to build loyal customers.

As for the practical implications of the study, a first conclusion is that *Rimi* wishing to retain and develop satisfied and loyal customers should be trustworthy and committed to the service ethics, should communicate timely and accurately, and must resolve conflicts in a manner that will eliminate unnecessary loss and inconvenience to customers.

Conclusions, proposals, recommendations

1. Relationship marketing is one more support that helps to keep existing customers and increase sales.
2. Depending on the industry and particularities of the company the efficiency of establishing strategies for relationship marketing can differ.
3. A positive role for relationship marketing is to make sure that strategies do not lead to undesirable effects that can engender negative experiences. Relationship marketing strategies should be especially concerned with the effects on consumers' expectations.
4. *Rimi* must know its customers, personalize the offers and work on long-term relationships that will provide long-term benefits.
5. Marketing specialists of *Rimi* should continue to offer information for consumers so that they can gain some expertise. It is the role of marketing relationships to educate consumers and provide the necessary information for people to make appropriate choices.
6. *Rimi* now emphasizes the customer. Today's firms need to understand the realistic and emotions of consumers, their culture and provide maximum customer value along with relationship marketing according to the situations.
7. It has been suggested that loyal customers are valuable communicators of favourable word-of-mouth about organisations or products to which they feel loyal. They can attract new customers for the *Rimi* and may even increase their own consumption collectively to the benefit of its sales, revenue and profit. Loyalists can also serve as useful sources of new product ideas.

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DETERMINING VALUE PROPOSITION IN THE CONTEXT OF AVIATION INDUSTRY STRATEGIC MANAGEMENT

Olga Zervina, Transport and Telecommunication Institute
Yulia Stukalina, Transport and Telecommunication Institute

Abstract. Aviation Management involves a variety of different concepts and scopes, which determine the way a strategy of an aviation enterprise is formulated. In the agenda of sustainable growth, the development of a competitive strategy is closely related to building capabilities that empower the company to generate value for all stakeholders: customers, shareholders, business partners, etc. Value shift is one of the mainstream trends in today's economy. A commitment to sustainability calls for paying more attention to the environment protection and low resources consumption, as well as strong human rights standards set the course for diversification and tolerance. The aim of the research was to identify and categorize the values expected from an aviation enterprise by potential customers. To accomplish this aim, the authors conducted a survey among one hundred students from a university of transportation; for conducting the survey a special webpage was created with the interface including training and survey parts. Based on the obtained results, values were classified and an original taxonomy of values was created. The developed taxonomy is supposed to be used for identifying the value shifts and trends in the process of decision-making, thus enabling senior managers to understand how to cultivate more customer value and integrate this information into the overall company's strategy aimed at accomplishing competitive advantage in the air transportation domain.

Keywords: *Aviation Management, sustainability, value, taxonomy, universalism.*

JEL code: N7, M19

Introduction

Today, the Aviation Industry faces many challenges (IATA, 2021; ICAO, 2019), Covid-19 outbreak affects it to a very big extent (ICAO, 2020a; 2020b). Experts predict that the next 30 years are expected to be even more uncertain due to various effects that may have impact on the sector. To prepare for the upcoming challenges, the following factors (drivers of change) should be taken into consideration by aviation managers: social, political, technological, environmental, and economic (IATA, 2018). This calls for revising business models used by aviation companies, which are aimed at accomplishing SDG – Sustainable Development Goals (The Sustainable Development Goals Report, 2021). In accordance with achieving SDGs, the focus must be put on such aspects as safety, affordability, accessibility, efficiency (ICAO, 2019).

Re-evaluation of existing business models is closely linked with re-examining and updating strategies to be implemented in the global environment. A competitive strategy allows the company generating value for its stakeholders, customers being primary and most important of them. Due to the turbulent business environment value shift is becoming one of the mainstream trends in the modern economy, Aviation Industry being no exception.

The aim of the research was to identify and categorize the values expected from the aviation enterprise by potential consumers. The research questions were formulated as follows:

- What factors should be considered when identifying value proposition in the air transportation domain?
- How can values expected from the aviation enterprise by potential customers be categorized?

The methodology of the paper includes 1) analysis of ICAO/IATA official documents, theoretical sources and research papers; 2) a survey that embraced one hundred respondents. Based on the obtained results, values in the aviation domain were analyzed (to determine if they belonged to individual or group values), classified, and an original taxonomy of values was created. The developed taxonomy – as structured information – would allow categorizing values in order to perform a fine-grain analysis in the aviation domain, which aviation managers could use for effective decision-making.

Literature Review

The concept of strategic management was introduced aiming to assist in establishing a company's strategic course and aligning operational processes with that direction (Drucker, 1993; Mintzberg et al., 1998; Aaker, 2007; Ansoff, 2007). Strategic management can be defined as the strategic decision-making process aimed at accomplishing and maintaining sustainable competitive advantage (Porter, 1998; Thompson and Strickland, 2010; Koontz and Weihrich, 2010; Frynas and Mellahi, 2011; Harrison and St. John, 2014).

Strategic management is important for all industries offering a structured (and systematic) analysis approach to decision-making (Jeffs, 2008; Frynas and Mellahi, 2011; Hill and Jones, 2012). Strategic analysis process concludes with the formulation of a set of priorities, goals/objectives, and a set of actions the company should take (Hill and Jones, 2012); the process results in the creation of a strategy – a long-term plan that integrates these goals/objectives and supporting actions into a consistent whole (Lynch, 2018).

Aviation strategic management is not a universally accepted discipline with a precise definition. Phillips (2006) proposed the following definition – the study and practice of general business processes used to achieve targeted objectives in the Industry. This definition is centered on accomplishing specific industry-related goals identified in a strategic plan of an aviation organization.

The main stakeholder groups in the Industry include: 1) airlines; 2) airports; 3) manufacturers; 4) Industry-related institutions (Vespermann and Holztrattner, 2010). (Rumpf, 2019) provides a more detailed categorization of air transportation stakeholders: 1) airports; 2) airlines; 3) institutional bodies (international governmental agencies/IATA, ICAO and national government agencies (US Federal Aviation Administration, UK National Air Transport Service, etc.); 4) interest groups/lobbies (labor unions, tourism interests, environmental groups, business groups, etc.); 5) manufacturers; 6) consumers (passengers and freight).

So, the Aviation Industry involves a variety of different concepts and scopes, which determine the way a strategy is formulated. Developing a strategy, an aviation company has to consider numerous factors that could be united under the notion of sustainable development. It is determined by the growing demand for original and sustainable solutions in the context of attaining Sustainable Development Goals (The Sustainable Development Goals Report, 2021), since aviation is regarded as a driving force of global technology development and innovations.

Flouris and Oswald (2006) classify aviation strategic plans using three broad groups: industry-level strategies, state-level aviation strategies, and corporate-level strategies (Figure 1).

1. State level strategy: set by the Government (scope – governance, air transport policy)
2. Industry level strategy: set by Civil Aviation Authority (scope – safety, security, environment, economics)
3. Corporate level strategy: set by airports/airlines/aviation businesses (scope – stability, growth, renewal)

Fig. 1. Different levels of aviation strategy

The paper focuses on the issues associated with the development of corporate-level strategies, which are intended for different aviation businesses, such as airlines, airports, ground service companies, etc. A corporate-level strategy should be synchronized with the state-level strategy and industry-level strategy. State governments set national priorities and distribute resources to reach development objectives and meet people's expectations; Civil Aviation Authorities are responsible for realizing and accomplishing the priorities and expectations (ICAO, 2016).

In the agenda of creation of a corporate-level strategy, decisions on the goals, related objectives, and development opportunities of the company are made, taking into account the interests of the above stakeholders, which ensures the balance of development and sustainability. Development of a competitive strategy is associated with building capabilities that enable an aviation enterprise to create value for customers, shareholders, and society in general (Nag et al, 2006). Thus, for aviation businesses, it is vital to determine proper value propositions (Michael and Papiomytis, 2017). In the face of growing competition, value proposition in the aviation domain is increasing and fast becoming a strategic priority.

Value proposition can be considered to be a powerful means of capturing ideas for a product or service, assisting to model this product or service to successfully communicate what companies will offer to consumers (Wormald, 2013). Value proposition is in the center of a new business opportunities model, being an accumulation of benefits – values – an enterprise provides (Osterwalder and Pigneur, 2010). According to the research conducted by Mootien et al. (2019), which is based on the analysis of official IATA documents and expert interviews, major issues to be addressed when creating value proposition in the Aviation Industry are categorized into the following groups: 1) economic; 2) environmental; 3) legal; 4) political; 5) social; 6) technological. These issues – or influential factors – should be taken into account when identifying value propositions in the Industry.

Identifying and generating value for consumers is an indispensable prerequisite for long-term business success (Graf and Maas, 2008). But the following questions arise:

- What values matter to customers in the air transportation domain?
- Is it possible to categorize them in terms of particular semantic categories to facilitate the process of decision-making?

As stated by Michael and Papiomytis (2017), there are three big value categories in the Aviation Industry – financial, operational, and passenger experience; the passenger being considered as the focal point for assessing how to deliver the best value. The three value categories are closely related to the influential factors discussed above; they can be further divided into sub-groups based on the semantic analysis outcomes.

Below, the results of the semantic analysis of values distinguishing groups are presented.

Research design, results, and discussion

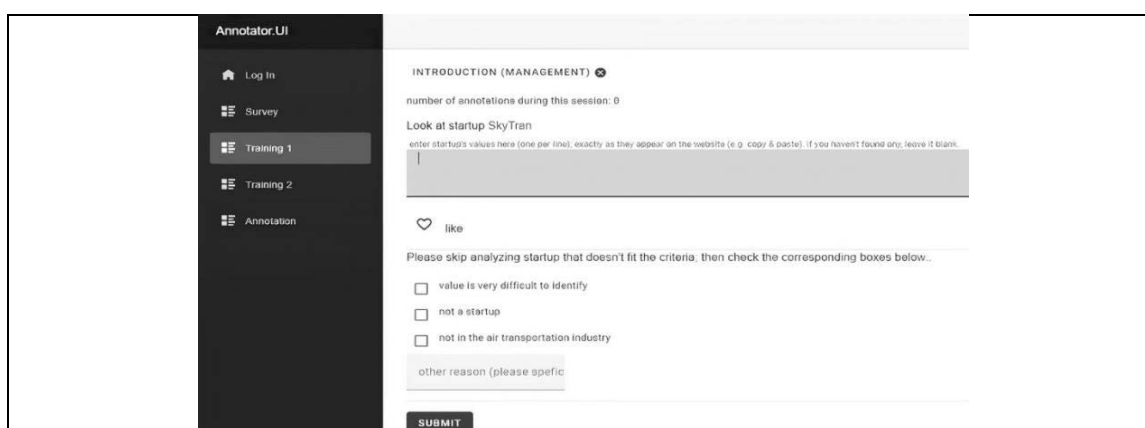
Experiment design

To identify values in air transportation and categorize them, there were recruited 100 students from a university of transportation, representing a variety of related but distinct disciplines and/or professions in the transportation industry: Aviation Management, Information Technology and Logistics. The age of the participants fluctuated from twenty to forty-two. More than a third of the participants had more than five years' experience in a variety of professional jobs, including thirteen aircraft mechanics, fourteen middle managers, and twenty-one programmers. The majority (sixty-five) participants had vague prior knowledge of value proposition conception but said they had never thought of a model of it.

However, thirty-five respondents said they had completed marketing and management classes where value proposition was used as a study material. No-one claimed to be able to provide expertise about air transport management or marketing.

Before the survey was started, the respondents were provided with a 10-minute training. They were explained what value proposition is as a notion and values as a part of it. The authors did not aim to request a deep and thorough understanding of marketing and strategic context of value proposition by respondents, so not to interfere with their perception of values as consumers.

To conduct the survey, a webpage was created by the authors with the interface including training and survey parts as reflected in Figure 2.



Source: <http://tiv.s3-website-us-east-1.amazonaws.com/>

Fig. 2. The webpage with training and survey procedures

The respondents were asked to identify values which they expect from the air transportation; they were not restricted in their vocabulary and there was no time limit.

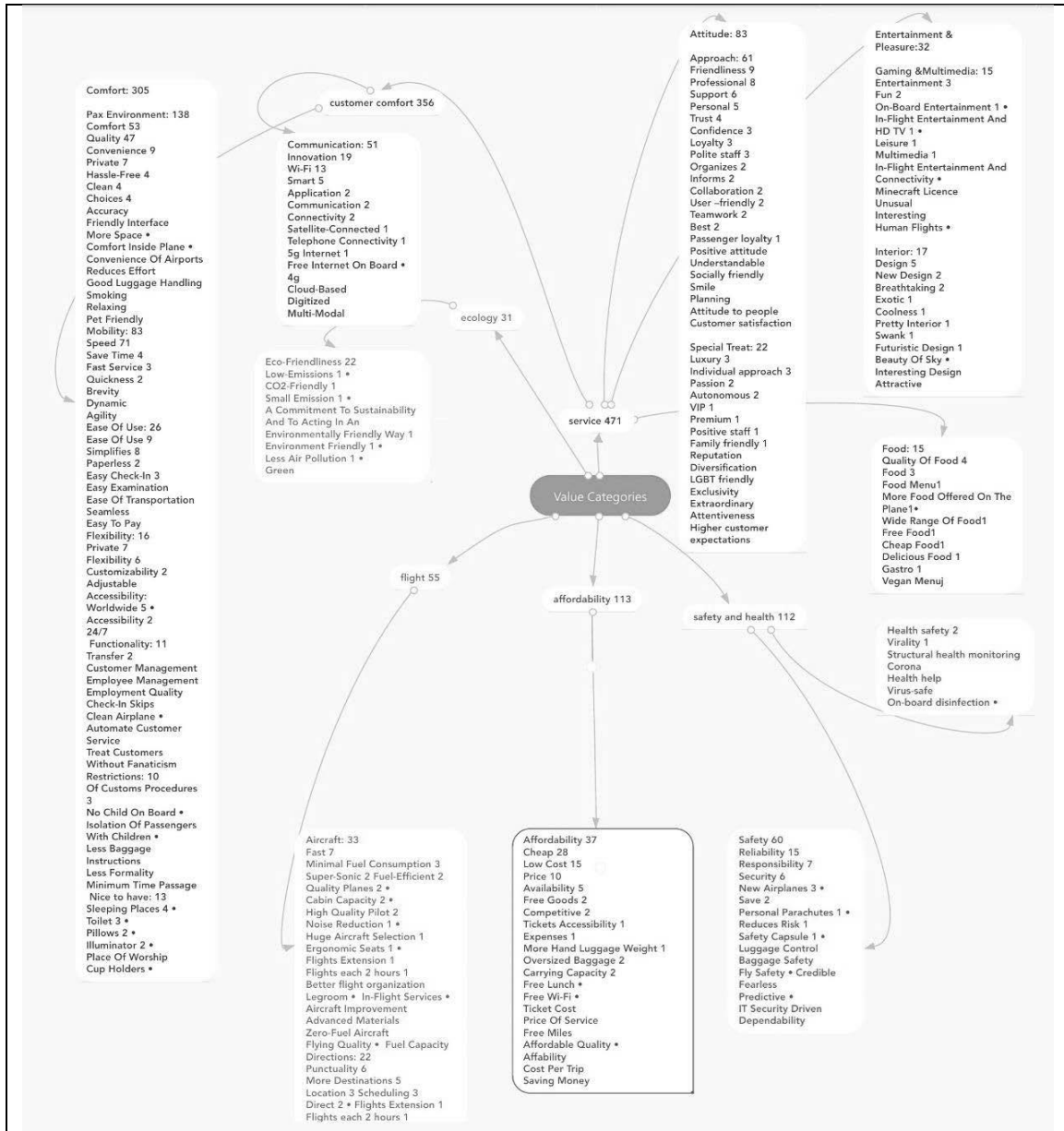
After the survey was completed, the dataset of values was generated. To categorize and provide a hierarchical format to the data, values were classified and an original Air Transport Value Taxonomy (ATVT) was created based on the first version of an ATVT that was introduced in a pilot study performed by Zervina et al. (2020).

To understand if the value shift towards sustainability has been occurring, the authors semantically distinguished individual and group values in the taxonomy and calculated the percentage of the corresponding segment.

2. Results

There was collected a total of 782 value entries, resulting in 241 semantically distinguished values.

An updated version of Air Transport Value Taxonomy (ATVT), where values were categorized according to their semantic characteristics, is presented in Figure 3.



Source: author's construction based on the survey results

Fig. 3. Air Transport Value Taxonomy (ATVT)

The semantic analysis of values that distinguishes group and individual values disclosed that group values consist 4.5% of all the values, which is reflected in Table 1.

Table 1

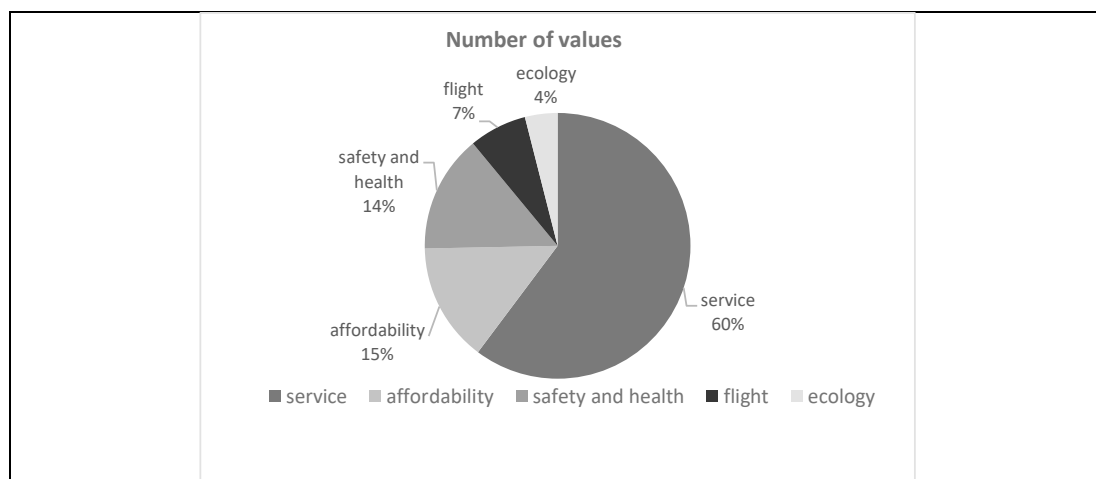
Individual and Group values examples and ratio

Good-for-you (individual) values	Good-for-all (group) values
Private 7	eco-friendliness 22
Flexibility 6	low-emissions 1
Customizability 2	co2-friendly 1
Adjustable	small emission 1
Worldwide 5	a commitment to sustainability and to acting in an environmentally friendly way 1
Accessibility 2	environment friendly 1
24/7 1	less air pollution 1
Transfer 2	green 1
Customer Management 1	minimum fuel consumption 1
Check-In Skips 1	fuel efficient 1
Clean Airplane 1	zero-fuel aircraft 1
Automate Customer Service 1	fuel capacity 1
Treat Customers 1	socially friendly 1
Without Fanaticism 1	LGBT friendly 1
Less Formality 1	
Minimum Time Passage 1	
Total: 747	Total: 35

Source: author's construction based on the survey results

Thus, the initial ATV Taxonomy categorization included five groups: Ecology; Service; Flight; Affordability; Safety and health.

Numerically, *service* category with 471 entries is the most popular among respondents, and *ecology* category with 31 entries is the least popular, which is reflected as a percentage in Figure 4.



Source: author's construction based on the survey results

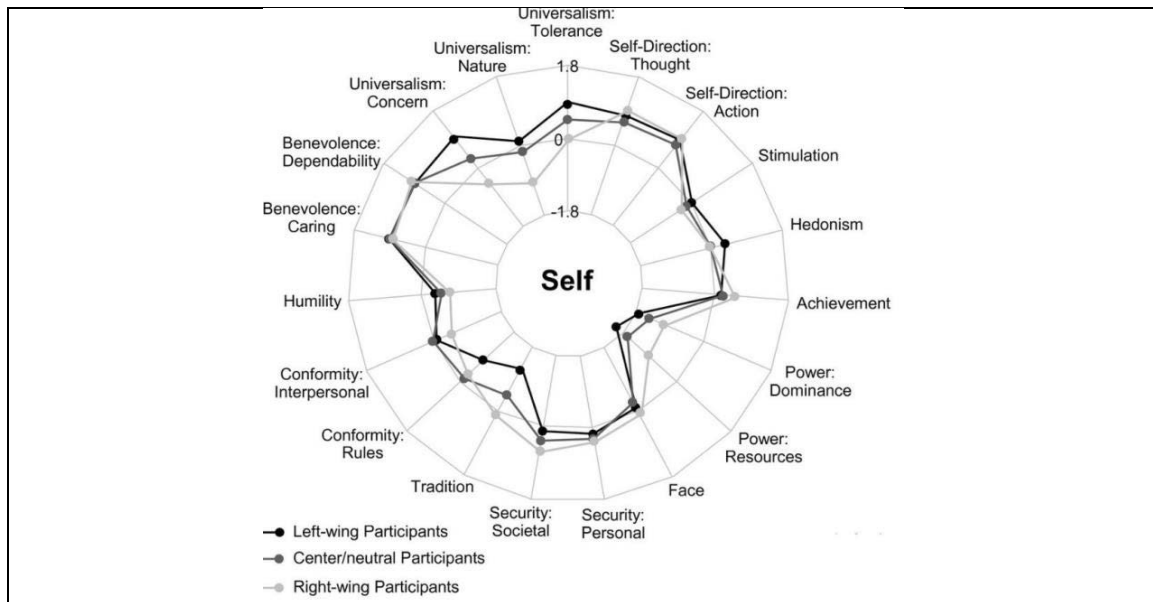
Fig. 4. Number of values as a percentage by classes

Similar studies have been conducted, and the findings of these studies are discussed and compared with the current research findings in Section 3.

3. Discussion

Despite the fact that the majority of respondents were young people who are defined by their preaching of values such as concern for society, minorities, and the environment, the percentage of respondents who shared group values was rather low. Of course, one may argue that this proportion is greater than zero. However, there has been no research into aviation values, and so there is no possibility to compare it against it.

There are more general studies (Schwartz, 2012) that define universalism as “understanding, appreciation, tolerance, and protection for the welfare of all people and for nature, then the results of these studies indicate the modest role of group values (universal) for respondents”. For instance, in 2019 160 Austrian university students reported their political orientation and completed a value survey for themselves (Gluck et al, 2019). Figure 5 provides the results of the survey with *universalism* included.



Source: Gluck et al. (2019)

Fig. 5. Value orientations (as reported by left-wing/center-neutral/right-wing participants for themselves)

Despite the different survey methods and specific (aviation) versus general (self) domain, the results were similar. The difference in survey methodology underscores the importance of similar findings. In the case of a survey of the values expected from aviation, the respondents themselves formulated the values, not referring them to one or another semantic category previously formulated by the interviewers, for example, “ecology”. Therefore, the respondents could not form an opinion under the influence of the names of the categories. They might not mention group values at all.

In the case of a survey of Austrian students in 2019, respondents expressed in advance their attitude to the already formulated values, one of which was universalism. What could have influenced their choice of answers, made them think about how to evaluate socially approved concepts.

Analysing the most popular classes of values, individual and hedonistic values illustrate the prevalence of individual and even hedonistic values above individual. The most popular class of values is service, which consists 60% of all the values with the sub-classes like comfort, communication, and entertainment and pleasure.

Perhaps the value shift from individual to group values is not yet so obvious. The next studies can be aimed at elucidating the dynamics of the transition from individual values to group values: is such dynamics really traced and how it will manifest itself in the future.

Conclusions, proposals, recommendations

The following conclusions can be drawn based on the summary of key findings.

1. The analysis performed in the paper demonstrates that current challenges faced by aviation companies (including the COVID-19 pandemic) call for revising their strategies that would make them more competitive in the uncertain global environment. A competitive strategy comprising Sustainable Development Goals (SDGs) would enable an aviation enterprise to generate value for consumers, as value shift is becoming one of the mainstream trends in the Aviation Industry. Numerous influential factors should be considered when identifying value proposition in the air transportation domain – economic, environmental, legal, political, social, and technological.
2. The research results also show that it is possible to identify a wide range of values using a semi-automated survey mechanism. Values can be categorized in terms of particular semantic categories to facilitate the process of decision-making. Values can be categorized semantically and numerically into a taxonomy. A hierarchical taxonomy structure allows determining value shift and trends. A semantic analysis identifies that individual values significantly predominate group values.
3. The taxonomy developed by the authors in the frame of the conducted research is supposed to be utilized for identifying the value shifts and trends in the process of decision-making, thus empowering senior managers to understand how to nurture more customer value and integrate this information into the company’s strategy aimed at accomplishing competitive advantage in the air transportation domain. So, the proposed taxonomy could be regarded as one of decision-making tools for mapping out best possible alternatives.
4. The following limitations relate to this research: English as a non-native language of respondents, the scope of discussion as it is restricted to analyze two subcategories of values only – individual values and group values. So, future research is recommended to address the limitations of the study.

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