

UNIVERSITY OF LATVIA

Daiga Ērgle

**THE IMPACT OF GAMIFICATION ON
EMPLOYEE ENGAGEMENT IN A COMPLEX
SYSTEM OF HUMAN RESOURCE
MANAGEMENT PROCESSES**

DOCTORAL THESIS

Submitted for the Scientific Doctors's Degree (*Ph.D.*)

Scientific Supervisor: Dr.oec., professor Inesa Vorončuka, University of Latvia

Riga, 2020

List of Contents

INTRODUCTION	9
1 THEORETICAL ASPECTS OF GAMIFICATION AND EMPLOYEE ENGAGEMENT IN A COMPLEX SYSTEM OF HUMAN RESOURCE MANAGEMENT PROCESSES.....	22
1.1 Definitions of gamification and employee engagement in the complex Human Resource management system	22
1.2 Relevance of gamification in the context of engaging younger workforce generations.....	64
1.3 Impact of individual character traits on Employee Engagement	70
2 FREQUENCY OF USE AND IMPACT OF GAMIFICATION ON EMPLOYEE ENGAGEMENT WITH HUMAN RESOURCE PROCESSES	81
2.1. Application of game elements in Latvian Human Resource management practices.....	90
2.2. Impact of gamification on Employee Engagement and Satisfaction	101
3 GAMIFICATION IN HUMAN RESOURCE MANAGEMENT PROCESSES AND ITS IMPACT ON PROCESS INDICATORS.....	119
3.1 Gamification of Internal Communication process at airBaltic.....	119
3.2 Gamification of Performance Management at Lattelecom	150
3.3 Gamification of Performance Management at Evolution Gaming	160
3.4 Gamification in recruitment, selection and onboarding processes.....	168
3.5 Gamification in employee training and development	174
3.6 Gamification of Internal Communication Process at 4finance	179
3.7 Guidelines for engagement-positive gamification of Human Resource management processes	202
3.8 Discussion of the results.....	204
CONCLUSIONS.....	206
RECOMMENDATIONS.....	210
BIBLIOGRAPHY	212
4 APPENDICES	232
Appendix 1: TRI*M results	232
Appendix 2: Forecaster game play design.....	237
Appendix 3: Interview questions airBaltic employees	241
Appendix 4: Example Newscaster	244

Appendix 5 4finance Values introduction Game Pilot	246
Appendix 6 Mini-questionnaire for the HRM professionals	281
Appendix 7 Research questionnaire	283

FIGURES

FIGURE 1.1. THE STATE OF FLOW IS ACHIEVED BETWEEN ANXIETY AND BOREDOM.....	34
FIGURE 1.2. FOGG’S BEHAVIOURAL MODEL	35
FIGURE 1.3. EFFECTIVE GAMIFICATION KALEIDOSCOPE.	42
FIGURE 1.4. PUTTING THE SERVICE-PROFIT CHAIN TO WORK.....	54
FIGURE 1.5. STATE OF THE AMERICAN WORKPLACE: EMPLOYEE ENGAGEMENT INSIGHTS FOR U.S. BUSINESS LEADERS.....	59
FIGURE 2.1. DESIGN OF CONDUCTING OF THE RESEARCH.....	89
FIGURE 2.2. USE OF GAMIFICATION IN HR PROCESSES IN LATVIAN ORGANISATIONS	91
FIGURE 2.3. USE OF GAMIFICATION IN RECRUITMENT AND ONBOARDING (IN %).....	93
FIGURE 2.4. USE OF GAMIFICATION IN REWARDS AND RECOGNITION (IN %).....	94
FIGURE 2.5. USE OF GAMIFICATION IN HR PROCESSES IN DIFFERENT SECTORS (IN %)	94
FIGURE 2.6. USE OF GAMIFICATION IN LEARNING AND DEVELOPMENT (LD) IN DIFFERENT SECTORS (IN %)	96
FIGURE 2.7. USE OF GAMIFICATION IN HR PROCESSES ACCORDING TO THE NUMBER OF EMPLOYEES IN ORGANISATION	97
FIGURE 2.8. USE OF GAMIFICATION IN LEARNING AND DEVELOPMENT PROCESS ACCORDING TO THE NUMBER OF EMPLOYEES IN ORGANIZATION.....	98
FIGURE 2.9. USE OF GAMIFICATION IN TEAM BUILDING PROCESS ACCORDING TO THE NUMBER OF EMPLOYEES IN ORGANISATION	99
FIGURE 2.10. USE OF GAMIFICATION IN OTHER HR PROCESSES ACCORDING TO THE NUMBER OF EMPLOYEES IN ORGANISATION	99
FIGURE 2.11. ENGAGEMENT WHEN GAMIFICATION IS USED OR NOT USED IN HR PROCESSES (MEAN VALUES)	103
FIGURE 2.12. SATISFACTION WHEN GAMIFICATION IS USED OR NOT USED IN HR PROCESSES (MEAN VALUES)....	103
FIGURE 2.13. SEM MODEL WITHOUT GAMIFICATION (PLS ALGORITM).....	105
FIGURE 2.14. MODEL WITHOUT GAMIFICATION BOOTSTRAPPING ANALYSIS (PATH COEFFICIENTS; OUTER WEIGHTS AND P-VALUES).....	107
FIGURE 2.15. MODEL WITH GAMIFIED HR PROCESSES (PLS ALGORITHM)	109
FIGURE 2.16. MODERATING EFFECT OF CHARACTER (CAR) ON SATISFACTION (SAT)	115
FIGURE 2.17. MODERATING EFFECT OF CHARACTER (CAR) ON ENGAGEMENT (ENG).....	116
FIGURE 3.1. RECOMMENDED APPROACH FOR IMPROVING THE FORECASTER GAME	144
FIGURE 3.2. HIGH PRIORITY WEAKNESSES FORECASTER CAN INFLUENCE	145
FIGURE 3.3. 10-STEPS MODEL FOR ENGAGEMENT-POSITIVE GAMIFICATION OF HR PROCESSES	149
FIGURE 3.4. PROCESS OF THE CUSTOMER CLAIM HANDLING	151
FIGURE 3.5. EMPLOYEE CAREER DEVELOPMENT.....	151
FIGURE 3.6. PILOT MODEL	153
FIGURE 3.7. EXAMPLE OF BADGES.....	155

FIGURE 3.8. PRIVATE CUSTOMER SUPPORT TEAM’S PERFORMANCE.....	156
FIGURE 3.9. PRIVATE CUSTOMER SUPPORT TEAM – EMPLOYEE PROGRESS COMPARISON	156
FIGURE 3.10. CUSTOMER SUPPORT DEPARTMENT’S STRUCTURE	161
FIGURE 3.11. CUSTOMER SUPPORT DEPARTMENT’S STRUCTURE CHANGED.....	163
FIGURE 3.12. SHARE OF PLAYER TYPES IN %, ALL COUNTRIES.....	185
FIGURE 4.1. M INDEX AIRBALTIC 2015	232
FIGURE 4.2. TRI*M TYPOLOGY: RESULTS FOR AIR BALTIC IN COMPARISON WITH LATVIA AND THE LARGEST COMPANIES IN LATVIA	232
FIGURE 4.3. TRI*M TYPOLOGY: RESULTS FOR AIRBALTIC PER DEPARTMENT . COALITION REWARDS IS A BENCHMARKING COMPANY	233
FIGURE 4.4. SUMMARY TRI*M GRID RESULTS AIRBALTIC STRENGTHS	234
FIGURE 4.5. SUMMARY TRI*M GRID RESULTS AIRBALTIC WEAKNESSES)	235
FIGURE 4.6. RESULTS USAGE INTERNAL COMMUNICATION AIRBALTIC	236
FIGURE 4.7. SCREENSHOT FORECASTER: PLAYER HOLDING NEGATIVE SHARES.....	238
FIGURE 4.8. SCREENSHOT FORECASTER: EXAMPLE PROJECT.....	239
FIGURE 4.9. SCREENSHOT FORECASTER: EXAMPLE OF INSIDER TRADING AND SHARING INFORMATION(TAKEN FROM THE EXAMPLE PROJECT)	240
FIGURE 4.10. POSTER PLAYER TYPE SURVEY	246
FIGURE 4.11. PIE CHART VISUALIZING THE ABSOLUTE NUMBER OF PLAYER TYPES IN THE 4FINANCE GROUP	247
FIGURE 4.12. PIE CHART VISUALIZING THE PERCENTAGE OF PLAYER TYPES IN THE 4FINANCE GROUP.....	247
FIGURE 4.13. BAR CHART VISUALIZING THE ABSOLUTE NUMBER OF PLAYER TYPES IN DIFFERENT COUNTRIES ...	248
FIGURE 4.14. BAR CHART VISUALIZING THE PERCENTAGE OF PLAYER TYPES IN DIFFERENT COUNTRIES	248
FIGURE 4.15. MISSION SHEET LEVEL 1 TEMPLATE.....	267
FIGURE 4.16. PICTURES OF ELEMENTS OF GAME PILOT: CHALLENGES, PARTICIPANTS AND MATERIAL.....	270
FIGURE 4.17. FEEDBACK SURVEYS	278

TABLES

TABLE 1.1. DIFFERENCES BETWEEN SERIOUS GAMES, ENTERTAINING GAMES AND GAMIFICATION	24
TABLE 1.2. DEFINITIONS OF GAMIFICATION	25
TABLE 1.3. USE OF GAMIFICATION IN VARIOUS FIELDS.....	26
TABLE 1.4. FLOW CONDITIONS AND CHARACTERISTICS OF CZIKSZENTMIHALYI	33
TABLE 1.5. MAIN KEY CONSIDERATIONS FOR VALUE ADDED GAMIFICATION AT WORKPLACE, BASED ON THEORIES	43
TABLE 1.6. MOST FREQUENTLY USED GAMIFICATION ELEMENTS IN HRM PROCESSES	48
TABLE 1.7. DEFINITIONS OF EMPLOYEE EGAGEMENT	55
TABLE 1.8. METHODOLOGIES FOR MEASURING EMPLOYEE ENGAGEMENT.....	57
TABLE 1.9. DIFFERENCES IN EXCPECTATIONS FOR WORKPLACE AMONG GENERATIONS	62
TABLE 1.10. STUDIES EXAMINED	72
TABLE 1.11. CHARACTER STRENGTHS WITH HIGHEST CORRELATION WITH LIFE ENGAGEMENT.....	76
TABLE 2.1. NUMBER OF RESPONDENTS FROM ALL INDUSTRIES	92
TABLE 2.2. SUMMARY OF CHI SQUARE TEST OF INDEPENDENCE RESULTS	92
TABLE 2.3. NUMBER OF RESPONDENTS FROM ALL SECTORS	94
TABLE 2.4. CHI-SQUARE TEST OF INDEPENDENCE RESULTS SUMMARY	95
TABLE 2.5. NUMBER OF RESPONDENTS FROM ORGANISATIONS WITH DIFFERENT SIZE (NUMBER OF EMPLOYEES) .	96
TABLE 2.6. CHI-SQUARE TEST OF INDEPENDENCE FOR THE RELATIONSHIP BETWEEN THE SIZE OF ORGANIZATION AND USE OF GAMIFICATION IN HR PROCESSES	97
TABLE 2.7. INTERNAL CONSISTENCY MEASURES OF THE CONSTRUCT SCALES PER NUMBER OF STATEMENTS ATTRIBUTED TO EACH CONSTRUCT	102
TABLE 2.8. DESCRIPTIVE STATISTICS OF THE CONSTRUCT	102
TABLE 2.9. INTERNAL CONSISTENCY MEASURES OF THE CONSTRUCT SCALES	106
TABLE 2.10. HTMT RATIO.....	106
TABLE 2.11. PATH COEFFICIENT AND P-VALUES FOR THE MODEL WITHOUT GAMIFICATION	108
TABLE 2.12. FULL MODEL WITH GAMIFICATION - PATH COEFFICIENTS AND P-VALUES.....	110
TABLE 2.13. DEMOGRAPHIC DATA ON RESPONDENTS` AGE	111
TABLE 2.14. MULTIGROUP ANALYSIS FOR GENERATION AS GROUPING VARIABLE.....	112
TABLE 2.15. DEMOGRAPHIC DATA ON RESPONDENTS` GENDER.....	113
TABLE 2.16. MGA FOR GENDER AS GROUPING VARIABLE	113
TABLE 3.1. COMPARISON OF TRI*M ITEMS AND ENGAGEMENT AS DEFINED BY ROBINSON, PERRYMAN, & HAYDAY, 2004	120
TABLE 3.2. CATALOGUE.....	127
TABLE 3.3. CATALOGUE OF AIRBALTIC EMPLOYEES, AS PER BARTLE`S PLAYER TYPES	129
TABLE 3.4. STRENGTHS AND WEAKNESSES OF FORECASTER	130
TABLE 3.5. OPPORTUNITIES AND THREATS FOR FORECASTER	132
TABLE 3.6. EMPLOYEES SUPPORT.....	157
TABLE 3.7. DESCRIPTION OF ADVANTAGES GAINED AS A RESULT OF GAMIFICATION.....	162
TABLE 3.8. MANAGEMENT`S EXPECTATIONS BASED ON UNIFICATION CHANGES	164
TABLE 3.9. BADGES AIMED TO MOTIVATE EMPLOYEES TO IMPROVE THEIR KNOWLEDGE AND PRODUCTIVITY	166

TABLE 3.10. BEFORE AND AFTER IMPLEMENTATION OF GAMIFICATION.....	167
TABLE 3.11. VARIOUS GAMIFICATION TOOLS USED IN RECRUITMENT	169
TABLE 3.12. IMPACT OF GAMIFICATION ON ACHIEVING THE GOALS OF PARTICULAR HRM PROCESSES IN PRACTICE	177
TABLE 3.13. GROUP’S RENEWED CORPORATE CULTURAL VALUES	180
TABLE 3.14. IMPACT OF GAMIFICATION ON THE INTERNAL COMMUNICATION PROCESS RESULTS AT 4FINANCE..	201
TABLE 4.1. EXAMPLE NEWSCASTER.....	244
TABLE 4.2. PLAYER TYPE SURVEY	246
TABLE 4.3. SEMI-STRUCTURED INTERVIEWS.....	249
TABLE 4.4. OVERVIEW OF THE SEMI-STRUCTURED INTERVIEWS TO DESIGN THE PILOT.....	250
TABLE 4.5. OVERVIEW OF THE SEMI-STRUCTURED INTERVIEWS TO DESIGN THE PILOT IN RELATIONSHIP WITH OUR PREFERRED NUMBER OF EMPLOYEE INTERVIEWS AND THE TOTAL NUMBER OF EMPLOYEES IN 4FINANCE..	250
TABLE 4.6. DIVISIONS REPRESENTED IN THE SEMI-STRUCTURED INTERVIEWS PER COUNTRY	251
TABLE 4.7. BRAINSTORMING SESSIONS BY PROJECT TEAM	254
TABLE 4.8. PROJECT TEAM MEETINGS	254
TABLE 4.9. DESIGN OUTCOME/PILOT CONTENT.....	254
TABLE 4.10. NUMBER OF GAME MASTERS BY COUNTRY AND DIVISION	268
TABLE 4.11. NUMBER OF PLAYERS BY COUNTRY AND DIVISION	269
TABLE 4.12. FEEDBACK SURVEYS	271
TABLE 4.13. SEMI-STRUCTURED FEEDBACK INTERVIEWS.....	272
TABLE 4.14. DATA MEASUREMENTS	274
TABLE 4.15. SAMPLE OF MONITORING METRICS – VIEWS OF THE HUB PAGE PER COUNTRIES AND WEEK AND UNIQUE VIEWS OF THE HUB PAGE PER COUNTRY AND PER WEEK	275
TABLE 4.16. SAMPLE OF MONITORING METRICS – NUMBER OF SCANS OF THE QR CODES PER COUNTRY FOR WEEK 1 AND NUMBER OF SUBMISSION OF QR CODE PER COUNTRY FOR WEEK 1	276
TABLE 4.17. SAMPLE OF MONITORING METRICS – ANALYSIS OF THE LEADER BOARD SCORES FOR WEEK 1	277
TABLE 4.18. FEEDBACK ABOUT THE COMMUNICATION AROUND THE GAME.....	279
TABLE 4.19. KEY TAKEAWAYS FROM THE SEMI-STRUCTURED FEEDBACK INTERVIEWS.....	279
TABLE 4.20. DATA MEASUREMENTS.....	280
TABLE 4.21. QUESTIONNAIRE.....	284
TABLE 4.22. ANKETAS DEMOGRĀFISKIE JAUTĀJUMI	286

List of abbreviations

The following abbreviations are used in this thesis:

AVE	Average Variance Extracted
BB	Baby Boomers: commonly referred to generation born between 1946 and 1965
CAWI	Computer aided web interviews
CEO	Chief Executive Officer
CFO	Chief Finance Officer
CD	Core drives, as defined by Yu-Kai Chou, refers to the individuals drivers for specific game behaviors
CRM	Customer relationship management
Gen X	Generation X: includes those born between 1965 and 1979
Gen Y	Generation Y: includes those born between 1980 and 1995.
Gen Z	Generation Z: born between 1996 and 2000.
HRM	Human resources management
HR	Human resources
IT	Information Technology
KGC	Korea Ginseng Corporation
KPI	Key Performance Indicator
MBA	Master of Business administration
PC	Personal Computer
QR	Barcode that is machine-readable optical label that contains information about the item to which it is attached
ROI	Return on investment
SAP	German multinational corporation making enterprise software to manage business operations and customer relations
SCN	SAP Community network
SDN	SAP Developers Network
SDT	Self-determination theory
SEM	Structural Equation Modelling
SmartPLS	Software used for survey result analysis, enabling to investigate models at higher level of abstraction
SWOT	Analysis of strengths, weaknesses, opportunities and threats
TETEM	Technology-enhanced training effectiveness model
TNS	Research agency, currently branded as Kantar
TRI*M index	Relative indicator of employees' commitment to the organization, as measured according to Kantar TNS methodology

UWES	Utrecht Work Engagement Scale
VC	Venture capitalist
VIA	VIA Institute on Character is a non-profit organization, based in Cincinnati, Ohio, dedicated to research of character strengths
VUCA	Abbreviation for Volatile, Uncertain, Complex and Ambiguous

INTRODUCTION

The relevance of the theme

According to a survey of Harvard Business School analytical review (2013) employee engagement is by companies seen as a factor most likely to bring success. This places engagement as one of the top business priorities for companies. Of all factors that can drive success, reduce costs and increase revenue and growth, engagement is seen as a key factor with a percentage of 71% .

Due to increasing global competition, Employee Engagement has become a top issue on Human Resource Management agenda (Aberdeen Group, 2013). Worldwide management consultancies year after year keep providing research based evidence that Employee Engagement levels strongly influence productivity of a firm. Companies with higher Employee Engagement scores also have better Employer brand and are more competitive at hiring top talent. Employee Engagement is historically medium to low in Latvian companies, according to the market surveys provider Kantar TNS (Kantar TNS, 2019) who have been researching Employee commitment and engagement with their Employers for many years in a row. Percentage of actively engaged ones fluctuates around 13% to 15% only. At the same time, share of actively disengaged or “detractors” represents high 40% and more.

As such, degree of engagement can be used as an indicator of HRM efficiency, either in the context of specific HRM process, or on the organizational level.

Research shows that the most engaging setting is game environment. People are most engaged when feeling playful. In medicine, researchers even have been experimenting with game environment to reduce permanent pain in patients who became so much engaged with a game that reported relative reduction in pain levels.

Appropriately designed games have ability to engage people for hours and psychologists have been researching game dynamics required to achieve such high levels of engagement.

Human resources is one of the business areas where gamification has been successfully used in different companies worldwide. Processes like Recruitment, Onboarding, Training and Development, Performance Management, Reward and Recognition, Internal Communication, Team Building are most commonly being gamified.

In the past few years, gamification has emerged as a trend within the business training, sales and marketing sectors, and has recently grabbed the attention of academics, educators and practitioners (Seaborn & Fels, 2015). At this moment some of the most common applications of gamification are in the areas of employee performance, innovation management, education,

personal development and customer engagement (Seaborn & Fels, 2015). There are different theories written about making gamification attractive and making sure people feel engaged to the game. Most of these theories are user centered design theories. This means that the user's needs and goals are the first consideration in designing gamification in order to create meaningful games (Nicholson, 2012). According to Seaborn & Fels (2015) gamification has been largely, though inconsistently, referred to as the selective incorporation of game elements into an interactive system without a fully-fledged game as the end product (Deterding, Dixon, Khalad, & Nacke, 2011). According to the said authors, this can also be described as the use of game design elements in non-game context. This definition by Deterding, et al is most widely used by different sources and by practitioners. For the purposes of the given research, therefore, author has chosen this definition, as it allows to look at the gamification from the broader perspective, including digital, online and offline elements' application to the HRM processes.

The classic Human Resource Management system lists 6 broad processes that include a number of sub-processes. Those are job analysis/design, recruitment, selection, training and development, performance management, pay structure/incentives/benefits and labour relations (Noe, et al, 2015).

Due to changing environment, younger generations joining the workforce and developments of technology, the list of HR processes has been growing, the HRM system has become much more complex, and on the contemporary HRM menu more and more often, next to classic ones are listed many others, such as Organization Design and Strategic Workforce Planning, Onboarding and New Hire Orientation, Talent Management and Development, Leadership Development, Employer Branding, Workplace Environment Management, Employee Wellbeing, Workplace Diversity, Reward and Recognition, Internal Communications, Building Effective Teams (the ones that consistently achieve established goals), HR Data Analytics, etc. (Redman & Wilkinson, 2009; Cvenkel, 2019; Holland, 2019)

Out of the many, for the purposes of the Thesis those HRM processes are selected that according to theory and literature sources are more commonly subject to gamification by organizations and enterprises, and where evidence can be observed for the impact of gamification on those processes in terms of improved performance indicators.

The list of indicators can be very diverse and to certain extent differ by organization, depending on business specifics and HRM strategy.

Few examples of those are as follows:

- 1) Recruitment & Onboarding: number of applicants, time to fill the vacancy, % of internal referrals vs all new hires, quality of recruitment (% of attrition during the probation period)
- 2) Performance management: reduced cost in EUR, increased level of service %; increased sales %; increased revenue in EUR, % of goals achieved, etc.
- 3) Internal Communication: % of employees satisfied with IC, % of employees understanding company values; % of employees identifying well with the company, % of employees aware of business goals, etc.
- 4) Learning and Development: % of training participants passing the knowledge test, amount of time spent on training per employee, cost of training per employee, number of internal promotions per year (or % of promotions vs total headcount)

There are different tools that companies exploit (such as incentives and rewards, promotions, specific training, instructions, setting goals according to the objectives and key results framework, feedback systems, etc.) in order to achieve such degree of employee involvement and participation in the certain HRM processes that helps achieving specific goals of each process and improve defined process indicators. Following the findings from different other disciplines, author attempts to investigate potential of gamification to have additional positive influence on engagement and relevant indicators of different HRM processes.

Research object

Gamification as a tool used in Human Resource Management processes

Research subject

Complex system of Human Resource Management processes.

Aim of the research

To investigate gamification as a tool used within a complex system of HRM processes and its potential for achieving higher employee engagement with those processes through application of game elements, and develop recommendations to follow in order to design gamified and engagement-positive HRM processes.

Tasks

In order to accomplish the aim, the following research tasks were stated:

1. Analyze scientific literature sources and available scientific research related to gamification and its linkage to employee engagement.

2. Determine share of enterprises and organizations in Latvia that have implemented gamification to their HRM processes.
3. Determine those HRM processes that are most frequently gamified by organizations
4. Determine impact of gamified HRM processes on employee engagement with those processes.
5. Determine impact of gamification on HRM process indicators.
6. Develop instructions for designing engagement positive application of gamification in HRM processes.
7. Develop, implement and test the impact of gamified HRM process in the real organizational settings.
8. Develop guidelines for the HRM professionals to improve employee engagement with HRM processes in their organizations through application of game elements.

Hypothesis of the research

Given the highly engaging character of the game environment, Employee engagement with different HR processes is positively influenced by application of game elements, which helps to increase measurable indicators of the said processes.

Thesis for Defence:

1. Game environment, being the most engaging environment among others, holds high potential for increased engagement of employees with Human resource management processes.
2. Application of gamification in human resource management processes should increase in the coming years to improve employee engagement with those processes and organization overall.
3. When designed and applied in line with certain rules, gamification has a potential to improve the performance indicators of Human resource management processes and as such lead to better business results.

Research methods applied

Secondary analysis – research through various literature sources and data based on the research by other authors focuses on the topics of employee engagement and gamification in HR. It reviews engaging nature of the game environment and tests potential for gamification to positively impact efficiency of Human resource management processes in organizations through improving employee satisfaction and engagement with both, specific gamified processes and with the organization overall.

Quantitative research – employees’ opinion survey. For the employees’ opinion survey data was gathered in Latvia using CAWI interviews: number of respondents reached 620, general pool of respondents – individuals employed in Riga and Riga region, age group between 18 and 65 years old. Research was performed to provide an answer to the question what is the penetration rate of gamification use within different HRM processes in Latvian enterprises and organizations. Data was analysed to characterise the situation in Latvian organisations using SPSS 21 software. For the second part of result analysis, in order to determine most responsive to gamification Human resource management processes in terms of satisfaction and engagement SmartPLS software was used because it enables to investigate models at high level of abstraction instead of simply interrelating the dimensions. In order to distinguish job satisfaction from engagement higher order model was designed that uses hierarchical components approach.

Qualitative research - interviews with 30 HRM professionals in Latvia and 3 focus group discussions with HRM professionals from various countries and organizations.

Case analysis – Due to the fact that gamification is a relatively new concept in Human Resource Management, and, consequently, limited availability of research available on the topic, case method is used as one of the main tools for analysis, reviewing examples from business enterprises in Latvia and other countries, where companies have used game elements within some of their HRM processes and measured the outcomes. Overall number of employees participating in those processes across organizations surveyed amounts to 400 people

Practical test – within the scope of the current thesis and following the research findings, there was a game pilot designed and implemented in a business enterprise with the purpose to test thesis for defence, validity of the research conclusions and potential for achieving higher employee engagement with the Internal Communications process through gamification of the said process. The number of employees who participated in the test reached 400.

Scope and structure of the Thesis

The scope of the work focuses on two constructs – employee engagement as a measure and indicator for impactful human resource management processes, and on gamification or application of game elements to those processes as potential means to improve engagement with particular process being gamified. Within the scope of the current work and in the context of Human resource management processes gamification is viewed by author as application of any type of game elements or game-like scenarios to those processes, including digital, online, offline, virtual, physical, etc. elements.

Structure of the Thesis consists of the introduction, three chapters divided into 10 subchapters, conclusions and recommendations.

The theoretical basis of the research is reviewed within the first chapter. Author structures the paper by first reviewing theoretical basis for the gamification in Human Resource management. It further looks at defining the concept of Employee Engagement, its importance in the context of business performance and potential for having more engaged employees through gamifying HRM processes. To consider few other main contributors to the degree employees tend to engage with their workplace, author, then, briefly looks at the characteristics of the young generations at workplace (generations Y and Z, which are increasingly representing the main share of workplace in the enterprises) and individual personality as potential determinant of ones' engagement.

Furthermore, author explores the findings of the survey where HRM professionals from large Latvian enterprises have been interviewed to gather their views on the link between gamification at workplace, efficiency of HRM processes and engaged employees. The second study analyzed is a broad survey of employee opinions that seeks to understand penetration of gamification within HRM processes in Latvia, impact of this on different generations, employee engagement with the specific processes being gamified, as well as the potential link between gamified HRM processes and overall employee engagement.

The chapter also looks into specific cases of HRM processes being gamified in particular companies, analyzes the outcomes and draws conclusions for building engagement positive processes through gamification.

The third chapter describes the practical test – development and implementation of gamified Internal Communications process in a particular company with a purpose to achieve higher efficiency in terms of employee engagement with it, where learning and conclusions from secondary research, survey and case analysis are used to build the gamified process with the engagement positive effect. It also analyzes the outcomes of the process and transforms those into conclusions and eventually into recommendations.

The Thesis ends with the Conclusions and suggestions for further research and for potential application of the findings in the business environment. It also provides practical recommendations for the HRM professionals in Latvia in order to improve efficiency of HRM processes through successful application of game elements.

The doctoral thesis consists of 231 pages without appendices and main body of the thesis includes 32 figures and 41 tables. The thesis refers to 276 sources of literature used and has 7 appendices covering 58 pages.

Scientific novelty:

1. Adjusted and further developed definition of gamification with a focus on Human Resources Management
2. Contribution to the theoretical development within the science of management: developed 10-steps model for engagement positive gamification.
3. Developed methodology for researching impact of gamification on employee engagement. Methodology can be used for both, broader market or multi-market research, as well as for a single enterprise or group of enterprises, as the number and list of specific gamified HRM processes in the research model can be adjusted without impacting validity of the model.

Practical Novelty

1. Gamified internal communications process for company values introduction and implementation is developed based on research conclusions and tested in practice in a business enterprise within the framework of the current Thesis.
2. Developed guidelines for improving employee engagement with HRM processes through application of gamification.

Theoretical and practical significance of the doctoral research

Given the fact that the impact of gamification on efficiency of human resource management processes is little researched both, globally and in Latvia, while in practice game elements in business settings are used with an increasing frequency for the past five to six years, it is obvious that business enterprises may benefit from research based evidence for the potential impact of gamification on HRM processes, as well as from tested recommendations for successful application of gamification in order to achieve higher level of employee engagement, primarily, with particular processes and potentially with the company overall. Employee engagement is a concept that according to a vast number of literature sources has a number of influencers, both, found in organizational environment, as well as in individual's personality. Gamified HRM processes can not solve it all. Nevertheless, engaging nature of the game environment hides enormous potential for being used more effectively to tackle the issues with employee engagement. As the theory and practice show, there is a high degree of risk to do more damage than benefit to the employee morale and subsequently to business results, if game elements are used without sufficient knowledge and not following certain required steps. In the less negative scenario, investment in gamification may simply not yield the expected results. Therefore the practical significance of the dissertation lays in carefully developed practical recommendations for HRM professionals that are based on both, thorough theoretical

research and business case analysis, as well as on analysis of practical test where gamified internal communications process has been developed and tested for this research purposes as a pilot within a certain business organization.

Limitations

Thesis are focused on potential use of broad variety of the game elements in Human resource management processes only. Author recognizes gamification being a concept that is applied in different business contexts, specifically in Marketing, Sales, Business training, Operations, etc. For the purpose of the Thesis, however, research is limited to the number of HRM processes that according to literature are most commonly used for application of gamification - Recruitment and onboarding, Reward and recognition, Learning and development, Performance management, Internal communications and Team building. As these processes are not strictly divided and defined within the HRM practice by different organizations, those may overlap at times, thus, suggested elements for one specific process may be applicable to an extent for another process. Gamification is viewed within the framework of the Thesis as a broad concept that involves everything from a small game elements like badges and leaderboards, through to fully designed game scenarios. There is no in-depth analysis of the specifics of each particular type of gamification.

There's limited amount of scientific research available on gamification in HRM, most literature sources describe and analyse empiric evidence and experience.

Audience of the research is limited to Latvia, however, research results are subject to generalization across countries.

Employee engagement (both, engagement with the organization overall, and with specific HRM processes) is discussed within the scope of the Thesis as an end state or goal for application of the game elements in HRM, however, detailed analysis of the Employee Engagement concept is beyond the scope of the Thesis.

Publications and research presentations at conferences

Publications:

- 1. Ergle, Daiga**, “Application of Gamification in human resource management processes at enterprises and organizations in Latvia” 10th International Scientific Conference "New Challenges of Economic and Business Development – 2018: Productivity and Economic Growth", Riga, Latvia, May 11, 2018. Article published in the Conference book of proceedings. Available at:
https://www.bvef.lu.lv/fileadmin/user_upload/lu_portal/projekti/evf_conf2018/Proceedings_2018.pdf
- 2. Ergle, Daiga, Ludviga, Iveta**, “Use of gamification in human resource management: impact on engagement and satisfaction”. 10th International Scientific Conference “Business and Management 2018”, Vilnius, Lithuania, May 3-4, 2018. Article published in Conference book of proceedings, available at:
<http://bm.vgtu.lt/index.php/verslas/2018/schedConf/presentations>
- 3. Ergle, Daiga, Ludviga, Iveta**, “An investigation into gamification as employee training tool: engagement and game components”, 3rd International Conference on “Lifelong Education and Leadership for All” (ICLEL 2017). Porto, Portugal, September 12-14, 2017. Article published in the Conference Book of Proceedings, available at: <http://www.ijlel.com/conference17/135.pdf>
- 4. Ergle, Daiga, Vorontchuk, Inesa**, “The Lost Element in Employee Engagement Debate”, LU International Conference “New Challenges of Economic and Business Development 2017”, Riga, Latvia. May 19-20, 2017, article published in conference Book of Proceedings, available at:
https://www.bvef.lu.lv/fileadmin/user_upload/lu_portal/projekti/bvef/konferences/evf_conf2017/Proceedings.pdf
- 5. Ergle, Daiga, Ludviga, Iveta, Kalvina, Agita**, “Turning Data Into Valuable Insights: The Case Study In Aviation Sector Company”, presented at CBU International Conference “Innovations in Science and Education”, Prague, Czech Republic, March 22-24, 2017. Article published in the Conference Book of Proceedings. Available at:
<https://ojs.journals.cz/index.php/CBUIC/article/view/941>
- 6. Ergle, Daiga, Vorontchuk, Inesa** “Methodological approach to research the linkage between employee engagement and gamification of human resource management processes at Latvian companies”, presented at LU 8th International Scientific

- Conference, Riga, Latvia, May 12 – 16, 2016. Published in conference book of proceedings, available at: <http://www.evf.lu.lv/conf2016/conference-materials/>
7. **Ergle, Daiga:** “airBaltic case-based analysis of potential for improving employee engagement levels in Latvia through gamification”, presented at RTU 56th International scientific conference “SCEE’ 2015”, published in “Economics and Business”, Vol. 28, 45-51, available at: <http://www.degruyter.com/view/j/eb.2016.28.issue-1/issue-files/eb.2016.28.issue-1.xml>, indexed by EBSCO, etc.
 8. **Ergle, Daiga:** “Perceived feminine vs masculine leadership qualities in corporate boardrooms”, 13th International Scientific Conference “Management Horizons in Changing Economic Environment: Visions and Challenges”, Kaunas, Lithuania, September 24-26, 2015, article published in ”Management of Organizations Systematic Research”, NO. 74.. 41-54. Available at: <http://ejournals.vdu.lt;http://dx.doi.org/10.7220/MOSR.2335.8750.2015.74.3>, indexed by EBSCO, etc.
 9. **Ergle, Daiga:** “Fostering Employee Engagement through gamification: airBaltic Forecaster tool”, presented at International conference “MIC 2015”, Portorož, Slovenia, May 28-30, 2015. Published at *Management Journal* Vo.10, No.3, 219-234, available at: http://www.fm-kp.si/zalozba/ISSN/1854-4231/10_219-234.pdf, indexed by EBSCO, etc.
 10. **Ergle, Daiga:** “Employee engagement problems in Latvia: case airBaltic”, presented at International conference “Management Challenges in the 21st Century”, Vysoka Škola Manažmentu, Bratislava, Slovakia, May 19, 2015. Published in conference book of proceedings. Available at: http://www.cutn.sk/Library/proceedings/mch_2015/editovane_prispevky/9.%20Ergle.pdf

Presentations at international scientific conferences:

1. **Ergle, Daiga,** “Application of Gamification in human resource management processes at enterprises and organizations in Latvia” 10th International Scientific Conference "New Challenges of Economic and Business Development – 2018: Productivity and Economic Growth", **Riga, Latvia, May 11, 2018.**
2. **Ergle, Daiga, Ludviga, Iveta,** “Use of gamification in human resource management: impact on engagement and satisfaction”. 10th International Scientific Conference “Business and Management 2018” , **Vilnius, Lithuania, May 3-4, 2018.**

3. **Ergle, Daiga, Ludviga, Iveta**, “Gamification in HR: Does it Really Work?”, 33rd Workshop on Strategic Human Resource Management, **Catania, Italy, April 5-6, 2018.**
4. **Ergle, Daiga**, “Iesaistošas mācību vides veidošana efektīvākai un noturīgākai zināšanu apguvei”, 58th International “Scientific Conference on Economics and Entrepreneurship” (SCEE’2017), **Riga, Latvia October 13, 2017.**
5. **Ergle, Daiga, Ludviga, Iveta**, “An investigation into gamification as employee training tool: engagement and game components”, 3rd International Conference on “Lifelong Education and Leadership for All” (ICLEL 2017). **Porto, Portugal, September 12-14, 2017.**
6. **Ergle, Daiga, Vorontchuk, Inesa**, “The Lost Element in Employee Engagement Debate”, LU International Conference “New Challenges of Economic and Business Development 2017”, **Riga, Latvia. May 19-20, 2017.**
7. **Ergle, Daiga, Vorontchuk, Inesa**, “Solving Employee Engagement Puzzle for Public Administration Education Organizations – Individual Personality Traits Associated with High Engagement”, NISPAcee Annual Conference “Innovation Governance in the Public Sector”, **Kazan, Republic of Tatarstan. May 18-20, 2017.**
8. **Ergle, Daiga, Ludviga, Iveta** “The Value of HR Analytics: A Case Study” , RISEBA 10th Annual Scientific Baltic Business Management Conference “Sustainable Organisations: Creating and Managing in Turbulent Business Environment”, **Riga, Latvia. April 27-29, 2017.**
9. **Ergle, Daiga, Ludviga, Iveta, Kalvina, Agita**, “Turning Data Into Valuable Insights: The Case Study In Aviation Sector Company”, CBU International Conference “Innovations in Science and Education”, **Prague, Czech Republic, March 22-24, 2017.**
10. **Ergle, Daiga, Vorontchuk, Inesa** “Methodological approach to research the linkage between employee engagement and gamification of human resource management processes at Latvian companies”, LU 8th International Scientific Conference, **Riga, Latvia, May 12 – 16, 2016.** <http://www.evf.lu.lv/conf2016/conference-materials/>
11. **Ergle, Daiga**: “airBaltic case based analysis of potential for improving employee engagement levels in Latvia through gamification”, RTU 56th International scientific conference “SCEE’ 2015”, **Riga, Latvia, October 15, 2015.**
12. **Ergle, Daiga**: “Perceived feminine vs masculine leadership qualities in corporate boardrooms”, 13th International Scientific Conference “Management Horizons in

Changing Economic Environment: Visions and Challenges”, **Kaunas, Lithuania, September 24-26, 2015.**

13. Ergle, Daiga: “Are Human Resource Management teams ready for onboarding generation Z?”, International conference “European Integration and Baltic Sea Region: Diversity and Perspectives – 2015”, **Riga, Latvia, June 11-13, 2015.**

14. Ergle, Daiga: “Fostering Employee Engagement through gamification: airBaltic Forecaster tool”, International conference “MIC 2015”, **Portorož, Slovenia, May 28-30, 2015.**

15. Ergle, Daiga: “Employee engagement problems in Latvia: case airBaltic”, International conference “Management Challenges in the 21st Century”, Vysoka Škola Manažmentu, **Bratislava, Slovakia, May 19, 2015.**

Presentations at International Professional Human Resource Management conferences and events:

1. Ergle, Daiga, “Funny is the New Serious”, The HR Congress, Brussels, Belgium, November 27-28, 2018.
2. Ergle, Daiga, “How to Foster Employee Engagement in the organizational change times”, International HR Forum, Vienna, Austria, April 5 -6, 2018.
3. Ergle, Daiga, “Workplace or Playground”, The HR conference by Estonian Personnel Management Association, Tallinn, Estonia, April 13, 2018.
4. Ergle, Daiga, “The Opposite of Play isn’t Work, it’s Depression...”, 9th HR Minds Future of Talent Forum, Barcelona, Spain, February 27, 2018.
5. Ergle, Daiga, “Game on: Putting the Fun Back Into Recruitment and Talent Acquisition”, HR Tech Conference and Expo, Amsterdam, Netherlands, October 24 - 25, 2017.
6. Ergle, Daiga. “Succession Management – Aligning Leadership, Culture and Succession”, The HR Congress “Designing and Building People-Centric Organizations”. Budapest, Hungary, June 6-7, 2017.
7. Ergle, Daiga, “Top Creative Ways to Motivate and Engage Your Employees” (presentation and moderation of discussion), HR Strategy Meeting, London, UK, June 6, 2017.
8. Ergle, Daiga, “Tomorrow’s Leadership Profile Calls for The New Approach to Leadership Development Programs”, 2nd Annual Next Generation Corporate Universities: Advancing Executive Learning, Barcelona, Spain, May 18 – 19, 2017.

9. Ergle, Daiga, “Building Distinctive Employer Brand Through Social Media Recruitment Strategy”, 4th Annual Strategic HR Summit: Leadership Development, Talent Management & Recruitment, Berlin, Germany, May 23 – 25, 2017.
10. Ergle, Daiga, “Attracting Key Talent Through Proactive and Authentic Employer Brand”, 2nd Annual Summit Global Talent Management Leaders (Charing the Think Tank on Unleashing Hidden Talent Potential and presenting), Berlin, Germany, September 12 – 13, 2016.
11. Ergle, Daiga, “Can Women Succeed in Leadership Roles without Gender Equality Strategy?” (chairing the Oxford style debate), HR 360 European Summit, Berlin, Germany, June 8 – 9, 2016.
12. Ergle, Daiga, “Is it Possible to Drive Employee Engagement Through Gamification at Work?”, HR Directors Summit, Birmingham, UK, February 2, 2016.
13. Ergle, Daiga, “Workplace or Playground? “Adult Games” in HR”, HR Minds Europe 4th Annual forum (chairman of the event and presenter), Vienna, Austria, March 10 – 11, 2015.
14. Ergle, Daiga “Linking Social Technology to Employee Engagement”, HR Tech conference and Expo, London, UK, March 24 – 25, 2015.

1 THEORETICAL ASPECTS OF GAMIFICATION AND EMPLOYEE ENGAGEMENT IN A COMPLEX SYSTEM OF HUMAN RESOURCE MANAGEMENT PROCESSES

Theoretical background provides deeper understanding on gamification and how it can be effectively used to engage employees in using gamification as a tool according to theory. Secondly, it describes how to engage employees in an organization based on the possibilities of gamification. This means the author will only go deeper into engagement theory that fits with the purpose and potential of gamification as engagement tool. Author will not look into theory of how to increase engagement which does not fit with gamification. Further, author gives a special attention to generations Y and Z and how to engage these generations, as well as looks briefly into characteristics or traits of individual personality that influences the degree of engagement that an individual is inclined to experience. Synthesis of the learnings from literature sources lead to step by step plan of designing a game that may support engagement endeavour.

1.1 Definitions of gamification and employee engagement in the complex Human Resource management system

There is a radical difference between the action and behavior of “*playing*” and the behavior induced by a “*game*”. A “*game*” differing from the former by having specific objectives and goals, rules, definite outcomes that are classified between the successful outcomes and the failure outcomes.

While there are relatively few sources available that would view gamification from scientific point of view. Landers et al (2018) have a clear position that it should be viewed as a subdiscipline of game science – “*Gamification science can be defined as a social scientific, post-positivist subdiscipline of game science that explores the various design techniques, and related concerns, that can be used to add game elements to existing real-world processes*”. According to Landers and his peers, gamification is not itself a product, it is rather adding game elements to change a process that already exists and this is done with the purpose to change how that process influences people. Hence, “*the goal of gamification scientists is to understand how to best influence human behavior, attitudes, and other states with designed interventions derived from games*”.

According to Deterding et al., gamified systems highly differ from “*whole games*” as gamification relies on adding “*game elements*” to a real-life system. Those “*game elements*” can be points system, level progression, resources and item collection, as well as quests and

mission boards etcetera. Thus, many similar design patterns can be combined to create a gamified system, sometimes more obviously than not. Game design is a whole science by itself and Deterding et al. give a quick reminder on how “*game design techniques*” have long been used for other kinds of products that were not entertainment-oriented games, such as serious games, and how game hardware technologies have also long been re-purposed, e.g. towards scientific visualization. The third element of the definition, the “*non-game context*”, is a supplementary criterion that puts a clear distinction between “play” and a gamified system. A gamified system is based on an achievement in “real life”, that has a validity outside of the gamified system.

Many definitions can be found about gamification and some will explicitly mention the in-real-life productive purpose of its existence: « *Gamification is the craft of deriving all the fun and engaging elements found in games and applying them to real-world or productive activities.*» (Chou, 2015). This author underlines how gamification is about using the motivational power of game elements to have the “players” accomplish real-life tasks or adopt new behaviors.

It is also interesting to mark the clear distinction between gamification and serious games, where those “*use entertainment to further government or corporate training, education, health, public policy, and strategic communication objectives*” (Zyda, 2005). The purpose is comparable, changing behaviors, learning skills or knowledge, but the contexts do differ as serious games stay in the realm of “whole games” (Deterding et al., 2011). The principles for planning, developing and implementing a serious game are explicitly described by Hughes, A. and McCoy, K. (2015). Suttie et al (2012) have also made an effort to unlock the serious game mechanics. There has been developed a methodology for the research and evaluation of serious games (Mayer, 2012). Allam & Sutton (2017) describes application of both, gamification, and serious games, in knowledge management initiatives.

Below summarized main characteristics of serious games and gamification, to see for the differences.

Table 1.1.

Differences between Serious games, Entertaining games and Gamification

Type	Purpose/Application	sources
Serious games	use entertainment to further government or corporate training, education, health, public policy, and strategic communication objectives”	Zyda, 2005
	serious games stay in the realm of “whole games.	Deterding et al., 2011
	the principles for planning, developing and implementing a serious game are explicitly described	Hughes, A. and Mccoy, K.,2015.
	have also made an effort to unlock the serious game mechanics.	Suttie et. al., 2012
	There has been developed a methodology for the research and evaluation of serious games	Mayer, 2012
	Games used for a primary goal other than entertainment	Michael and Chen, 2005
Gamification	gamification is about using the motivational power of game elements to have the “players” accomplish real-life tasks or adopt new behaviors.	Chou, 2015
	The objective is to take techniques from game design and implement them in non-game contexts, so that the overall experience for the employee or “user” is more engaging	Herger, 2014
Entertaining games	Games where primary and only goal is entertainment	Michael and Chen, 2005

Source: Author’s construction, based on literature review, 2019.

Although gamification is a popular word nowadays, and its popularity grows with in the era of mobile and social networks (Kim, 2015), there are quite a few definitions used (Xu, 2011) and also quite some discussion on what the right definition is. This might be due to the fact that theoretical foundations are inconsistently referenced and interpreted. Also there is a gap between theory and practice – where theory is empirically unexamined and applied work lacks reference to theory (Seaborn & Fels, 2015).

According to both above authors, gamification has been largely, though inconsistently, referred to as the selective incorporation of game elements into an interactive system without a fully-fledged game as the end product. This can also be described as: the use of game design elements in non-game context. An important remark however is the high level of subjectivity in identifying “gamification”. The concept of ‘game design elements’ and ‘non-game context’ are both arguable since there is no universal list of game elements (Werbach, 2014). Therefore it is not possible to determine whether a given empirical system is “a gamified application” or “a game” without taking recourse to either the designers’ intentions or the user experiences and enactments (Deterding, Dixon, Khalad, & Nacke, 2011). In order to overcome this problem Werbach (2014) redefines gamification as ‘a process of making activities more “game-like”’. Within this definition it is not necessary to define a point where the designed system crosses over in gamification as in the definition of Deterding. Hamari and Huotari (2012) also don’t agree with the definition of Deterding because they believe the focus should be more on the user’s experience. Hence, they define gamification as “a process of enhancing a service with affordances for game full experiences in order to support user's overall value creation” (Hamari & Huotari 2012).

Table 1.2.

Definitions of Gamification

Author	Definition
Chou, 2015	Gamification is the craft of deriving all the fun and engaging elements found in games and applying them to real-world or productive activities
Xu, 2011, Seaborn & Fels, 2015	selective incorporation of game elements into an interactive system without a fully-fledged game as the end product.
Werbach, 2014	a process of making activities more “game-like
Deterding, 2011	the use of game design elements in non-game context
Hamari & Huotari, 2012	a process of enhancing a service with affordances for game full experiences in order to support user's overall value creation
Dorling & McCaffery, 2012	Adaptation and application of game design principles and game interaction elements to workplace processes and behaviours
Kappen & Nacke, 2013	gamification is influencing human behaviour through engaging experiences, using game design principles in decision-making applications and services

Source: Authors construction, based on literature review, 2019.

Gamification is application of game thinking, design, mechanics and elements to certain processes (e.g. HRM processes) with a purpose to reach the process goal that is not an entertainment but rather a beneficial outcome of otherwise pragmatic process in business, medicine, education, public services and alike.

Based on the above descriptions and definitions (specifically, Deterding; Dorling & McCaffery; Kappen & Nacke, Landers et al), author attempts to define gamification in HRM as *a tool used within a complex system of Human Resource Management processes to design selected parts of those with the help of game elements, dynamics, mechanics, where the goal of such design is to influence employee behaviour towards achieving higher engagement that leads to improved process indicators.*

Game mechanics refer to the reward systems used in HRM processes and game dynamics refer to the user progression that may lead to those rewards. Oprescu, et.al. (2014), in their paper related to workplace gamification have outlined ten principles for transforming work processes through gamification, which include the use of persuasive elements, achievement based awards, amusement factors, and others.

Game thinking can be applied to motivate employees to exert effort, reach higher levels of effort, and continue their effort for longer amounts of time (Armstrong, et.al., 2016)

Nevertheless, the definition of Deterding is the most widespread used, therefore for the purposes of this research Deterding’s definition of gamification is applied: ‘the use of game design elements in non-game context’

In the past few years, gamification has emerged as a trend within the business and marketing sectors, and has recently grabbed the attention of academics, educators and practitioners (Seaborn & Fels, 2015).

Table 1.3.

Use of gamification in various fields

Field	Purpose	Elements used	Sources
Medicine	Pain Relief	Videogames	Black, R. (2018). Gaming as a tool for pain relief. <i>Practical Pain Management</i> . Vol. 18 (1)
Marketing	Push marketing content onto customers	Point-and-click games, moving targets on the screen, etc.	Sarner, A. (2013). Why game based marketing is relevant for anyone who markets anything. http://blogs.gartner.com/adam-sarner/2013/09/13/why-game-based-marketing-is-relevant-for-anyone-who-markets-anything/

Sales	Inspire competition among sales people	Points and leaderboard game mechanics	Chapman, L. (2014). Ambition Solutions raises \$2M for new ways to gamify sales. <i>The Wall Street Journal</i>
Education	Achieve better results in knowledge transfer and retention	Action language, conflict/challenge, game fiction, immersion, rule/goals, environment, control, etc.	Bedwell, W.,L., Pavlas, D., Heyne, K., Lazzara, E.,H., Salas, E. (2012). Toward a taxonomy linking game attributes to learning: an empirical study. <i>Simulation & Gaming: An Interdisciplinary Journal</i> , Vol 43 (6), 729-760. Wilson, K.A., Bedwell, W., L., Lazzara, E., H., Burke, C., S., Estock., J., L. et al. (2009). Relationships between game attributes and learning outcomes. <i>Simulation and Gaming</i> . Vol. 40 (2), 217-266.
HRM	Influence employee behavior to achieve their more active participation in the workplaces processes and/or achieve better process results	All above mentioned, plus semi-game scenarios, simulations, treasure hunts, video-game elements, status badges, etc.	Armstrong, M. B., Landers. R.N., Collmus. A. B. (2016). Gamifying Recruitment, Selection, Training, and Performance Management: Game-Thinking in Human Resource Management. <i>Emerging research and trends in gamification</i> , IGI Global, 140-165.

Source: Author's construction, based on literature review, 2019.

At this moment some of the most common applications of gamification are in the areas of employee performance, innovation management, education, personal development and customer engagement. A number of authors have described examples and evidence of gamification being used by business organizations to engage their customers, but also employees with different internal people management processes. For example, Cardador, et al (2017), Long, J., (2003), Clark et al (2013), De Prins et al (2017), Dobrowolski et al (2014),

Ghani, J. (1995), Maguire et al (2006). Every technological emerging trend goes through a cycle of success and failure, also the trend of gamification has this cycle. An often used cycle is the Gartner Hype Cycle of emerging technologies. The Gartner Hype Cycles provides a graphic representation of the maturity and adoption of technologies and applications (Gartner, 2015). Gartner Hype Cycle methodology gives a view of how a technology or application will evolve over time.

According to the hype cycle as of 2014 gamification is starting to go through “disillusionment”. This means that the hype of the trend is over and due to some failures of gamification there is more awareness for the advantages and disadvantages of this technology. People recognize that gamification cannot solve every problem, that there are limits to the use of gamification and that improvement is still necessary.

According to Gartner research company (2015), 53% of people surveyed said that, by 2020, the use of gamification will be widespread, while 42% predicted that, by 2020, gamification will not evolve to be a larger trend except in specific realms.

Therefore, investments continue only if the surviving providers improve their products to the satisfaction of early adopters (Gartner, 2015). According to Gartner, gamification, applied with correct game design principles, can and will have a significant impact in many domains, and in some fields, the use of game mechanics will have a transformational impact. However, a lot needs to be done. Therefore, in this stage there is a pressing need for empirical studies to validate what effect, and the extent of the effect, gamification features have on participants' performance and enjoyment as well as to identify best practices (Seaborn & Fels, 2015). While one of the most common problems in the business world is getting people engaged, mounting evidence suggests that games are one of the most engaging mediums possible. To the extent that doctors are beginning to employ them as a form of pain relief for victims of severe burns and other extreme trauma. People are quite literally so engaged by gaming content that they are able to enjoy a measure of pain relief (Jameson, E., et al, 2011). Those findings have led different authors to explore the engaging power of gamified environment that can be used in the business settings (Deterding, 2012), (Neuhauser, 1993), (Smith, 2011). Different sources link gamified work processes to employee engagement, motivation, satisfaction and productivity (Ergle, 2015), (Marr, 2012), (Sorensen, 2002), (Burke, 2012), (Cognizant, 2013). With the rapid development of technology, more tools for innovative HR processes support are available (Stone et al, 2015),

Common elements that are typically “borrowed” from traditional games and applied in nongame contexts include levels, badges, points, progress bars, leader boards, and virtual

goods. Each serves to motivate users by providing feedback, recognition, status, and the potential for competition among users (Muntean, 2011).

The objective is to take techniques from game design and implement them in non-game contexts, so that the overall experience for the employee or “user” is more engaging (M. Herger, 2014).

The results from a survey conducted by the research institute iOpener Institute for People and Performance show that happy employees:

- are twice as productive,
- stay five times longer in their jobs,
- are six times more energized,
- take ten times less sick leave.

Happier workers also help their colleagues 33% more than their less happy colleagues. They raise issues that affect performance 46% more, and they achieve their goals 31% more often and are 36% more motivated. (iOpener Institute, 2015).

The author of *Gamification of Learning & Instruction*, Karl Kapp (Kapp, 2012), says the key to gamification is how addictive it can become across all generations of people. Kapp believes the advantages that are part of gamification encourage users to stay engaged and interact with each other, building stronger relationships. A number of organizations like Marriott, Cognizant, Deloitte, Aetna, and a few others are using gaming to improve workforce alignment, enhance employee skills, solve complicated issues and tap into new talent pools. Typical game design techniques consist of goal setting, competition, real-time feedback and rewards. There are also platforms such as eMee and MindTickle that facilitate Gamification in organizations.

The power of Gamification utilizes the competitive streak people have and while playing a game, we become more absorbed and engaged, we feel a greater sense of achievement and are more willing to go the extra mile in either making more effort to choose the right people, or completing more training programs, or even helping other employees to stay motivated. And as we progress, we continue to increase our engagement with the game and thus reach new levels.

Human Resources can use the traditional gamification principles to enhance the engagement of employees into different HR Processes. The most common techniques that games use to provoke users’ emotional response are competition, achievement, status, altruism, collaboration.

Competition is a core principle behind the performance management system, as everyone likes to be appraised as the top performer. However, the gamification can add another element to the system. For example, employees can compete who will be the first employee to finish the entire performance appraisal cycle. Most HR Teams send reminders to complete the assessment. When employees compete - they can see the progress of others. They can be motivated to speed up and finish the document as soon as possible.

The *achievement and status* are closely connected - everyone who reaches the threshold is awarded the achievement. However, few selected ones can be also awarded a higher status, which is an emotional prize that has a great value.

However, the best principles for Human Resources are *altruism and collaboration*, making people to work with others to win as a team is most often the best option. The team spirit should be the driving force behind most games and competitions run by the HR department, as the key intention of HR should be to form the group into an efficient team.

Gamified solutions in Human Resource management can be used to strategically and tactically drive, motivate and engage in main areas of people management, beginning with recruitment and onboarding of a new employee and proceeding to training, developing, rewarding, evaluating and appraising, through to informing and retaining.

Not every author is positive about the use of the game elements in the business and HRM processes. Some critique towards the subject matter has been addressed by Bogost, I. (2015), who criticizes contemporary trend of adding the game elements to so many processes in business just for the sake of manipulation with the minds of customers and employees.

Different theories are written about making gamification attractive and making sure people feel engaged to the game. Most of these theories are user centred design theories. This means that the user's needs and goals are the first consideration in designing gamification in order to create meaningful games (Nicholson, 2012). A couple of theories and practical tactics will be discussed that can be helpful when designing an attractive game in organizations.

When designing a game, it is very important to have a deep understanding of the user and what motivates them to engage in the game. Bartle (1996) did a research which contributed to this subject. His research was about player identities in a game called MUD. He pointed out that not all players play for the same reason or play in the same way. This resulted in a classification of 4 types of players that are often referred to in theory about games.

The 4 types can be identified according to (Bartle, 1996):

- *Achievers* are interested in ACTING on the WORLD. They are typical gamers, playing to "win". They give themselves game-related goals, and vigorously set out to achieve

them. The point of playing is to master the game, and make it do what you want it to do. Achievers are proud of their formal status in the game's built-in level hierarchy, and the little time it took to reach it.

- *Explorers* like INTERACTING with the WORLD. Explorers are interested in having the game surprise them. They delight in discovery. They try to find out as much about the environment's topology and physics. Explorers are proud of their knowledge of the game's finer points, especially if new players treat them as founts of all knowledge.
- *Socializers* are interested in INTERACTING with other PLAYERS. They spend a lot of time chatting, and empathize with other players. Finding out about people and getting to know them is far more worthy than treating them as fodder to be bossed around. The game world is just a setting; it's the characters that makes it so compelling. Socializers are proud of their friendships, their contacts and their influence.
- *Killers* like ACTING on other PLAYERS. They wish to dominate them, either through bullying or politicking. They use the tools of the game to cause distress to other players. Killers are proud of their reputation and of their oft-practiced fighting skills.

The different player types interact with each other in a complex way. To have a stable multi-user game it has to be the “one in which the four principle styles of player are in equilibrium” (Bartle, 1996). Finding this balance is of key importance because a game that only caters to one players’ type need will end up having only one type of player.

Although in practice Bartle’s player types are used in game design there are some critics about it addressed by Dixon (2011). The issue is that the player types were never intended to be a general typology of all digital game players, however it is often referenced out of MUD context and applied to game design generally, and also recently in gamification. Secondly that the types may be overlapping or mixed, yet Bartle asserts that they are mutually exclusive.

Another division into players’ typology is presented by A. Marczewski. (Marczewski, 2015). The test, designed by A, Marczewski, highlights person’s most prominent preferences in terms of playing: Do they particularly like competition? Collaboration? Solo adventure? Is sense-making important? Is recognition more important? Do they like to discover and tinker? All those traits are gathered into six “player’s personalities”:

- Achiever (motivated by Mastery),
- Philanthropist (motivated by Purpose),
- Free Spirit (motivated by Autonomy),
- Disruptor (motivated by Change),

- Player (motivated by Reward),
- Socializer (motivated by Relatedness).

To each player type, Marczewski has described associated relevant game elements for the efficient use to increase player's engagement with the gamified process.

Psychology professor Mihaly Csikszentmihalyi designed the theory of flow which is often referred to in gamification because creating a feeling of flow is important for a game to be successful. According to the theory, flow experiences are those optimal and enjoyable experiences in which we feel "in control of our actions, masters of our own fate...we feel a sense of exhilaration, a deep sense of enjoyment" (Csikszentmihalyi, 1990). In total Csikszentmihalyi described seven core components of flow (Table 1.1.). These components can be broken into two categories: conditions and characteristics. Conditions must be achieved before flow can be reached. Characteristics occur while a person is in flow, even though they may be unaware of it (Xu, 2011). These components can also be used in a gamification to design elements that create flow in a game. Csikszentmihalyi (1990) describes a sense of control over the environment as the most salient element of the flow state. The component of control is very important for gamification. Research on human computer interaction indicated that why people find computer games so captivating is due to the powerful sense of control these games give their players (Ghani & Deshpande, 1994). When people perceive that they can master or control the behaviour of a game this effects their decision to play.

Csikszentmihályi (1990) states that the flow state can be achieved depending on 3 conditions:

- The activity should be clear about its structure, goals and progress. This feature is an intrinsic quality of games. Players always start with short-term and long-term instructions, to which they can always refer to throughout the game. At each new additional mission, it is always clearly stated as what kind of mission it is so that the player can update its own knowledge of the game's structure.

- The feedback on any action must be immediate as the person should adapt to keep themselves in the zone. As said earlier, immediate feedback comes in various forms (the updating amount of points, coins, status and badges) and gives the player enough data for them to adapt their playing and reach for the set goal.

- The task must have the right level of challenge so that the person can balance the challenge with their perceived skills, so that the person can have confidence in their success.

The way digital games adapt to the player skills is one of the most interesting features of modern game design. A video game is all about progression, this unspoken rule between game

designers and players is one of the reasons why players play confidently missions after missions, knowing there are chances to fail but also knowing that even the progression of the failed attempt will help achieving the goal. This confidence is also the motor the virtuous circle of the flow state. Since the confidence is there even in case of failure, the player is prone to restart again, using the latest data he got from the previous attempt, still confident of his chance of success. This enthusiasm is itself a factor of success, as we saw through the law of Readiness (motivation) and Effect (fun).

Overall, the flow is an extremely dynamic mental state that makes the player a greatly motivated, attentive and responsive learner to the content of the game.

Also the component of an attainable, balanced goal is important in gamification. Flow theory suggests that a flow can occur when an activity or game challenges an individual enough to encourage playful and exploratory behaviours (challenges), without the activity or game being beyond the individual's reach and control (skills) (Czikszenmihalyi, 1990). A table below (Table 1.4.) summarizes flow conditions and characteristics according to Czikszenmihalyi.

Table 1.4.

Flow conditions and characteristics of Czikszenmihalyi

<u>Condition of flow</u>	
Clear tasks	Person understands what they must complete
Feedback	Person receives clear and immediate feedback showing what succeeds and what fails
Concentration/focus	Person is not distracted and can fully attend to the task
An attainable, balanced goal	Goal is challenging and within their abilities to complete
<u>Characteristics of flow</u>	
Control	Person believes their actions have direct impact on tasks and that they can control the outcome
Diminished awareness of self	Complete focus on the task leaves little room for feeling self-conscious or doubt. Often described as becoming a part of the activity.
Altered sense of time	Perception of time is distorted. Seconds can feel like minutes, minutes like hours. Yet, time also passes by quickly, unnoticed.

Source: Xu, 2011

A task that is not challenging or requires excessive time to complete becomes boring and players lose interest; a task that is too hard causes a lack of control, frustration and anxiety and

again players lose interest (Xu, 2011). With a person's skills improving over time the challenge needs to increase along with the improving skills (Xu, 2011). This balance is referred to as the flow channel as shown in Figure 1.1.

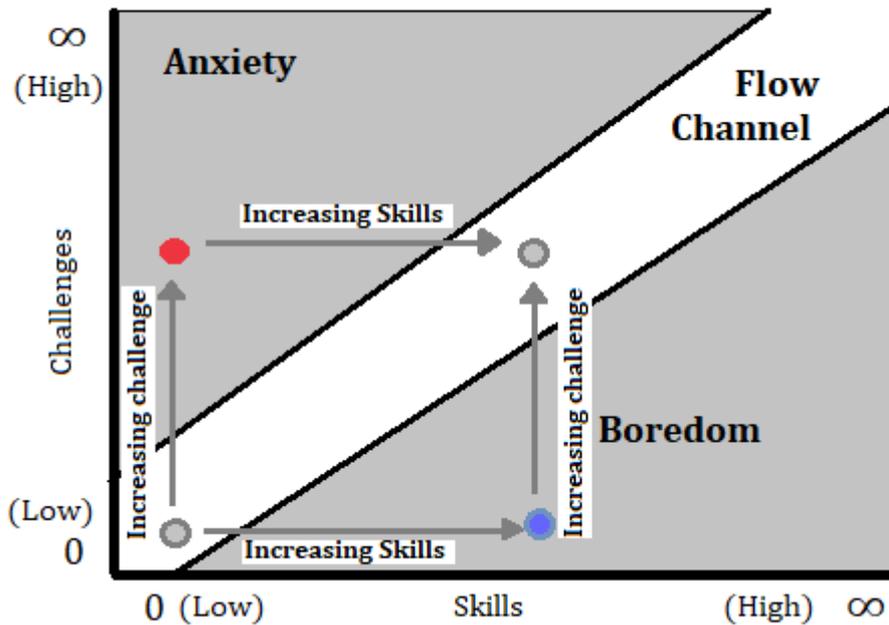


Figure 1.1. The state of flow is achieved between anxiety and boredom
Source: (Xu, 2011)

When looking at other literature sources the concept of employee engagement of the organizational behaviour literature seems to come closest to the notion of flow (Ghani, 1995).

Another theory which can help when designing gamified process is the Fogg's Behaviour Model (Fogg, 2009). The model is used for persuasive technologies in which the Behaviour Model (FBM) can be used as a guide. The model states that the presence of three key conditions must be fulfilled before the person performs the targeted behaviour. The person must have the ability, motivation and trigger. For example, if users are not performing their target behaviour, the model can be used to understand what psychological elements are lacking.

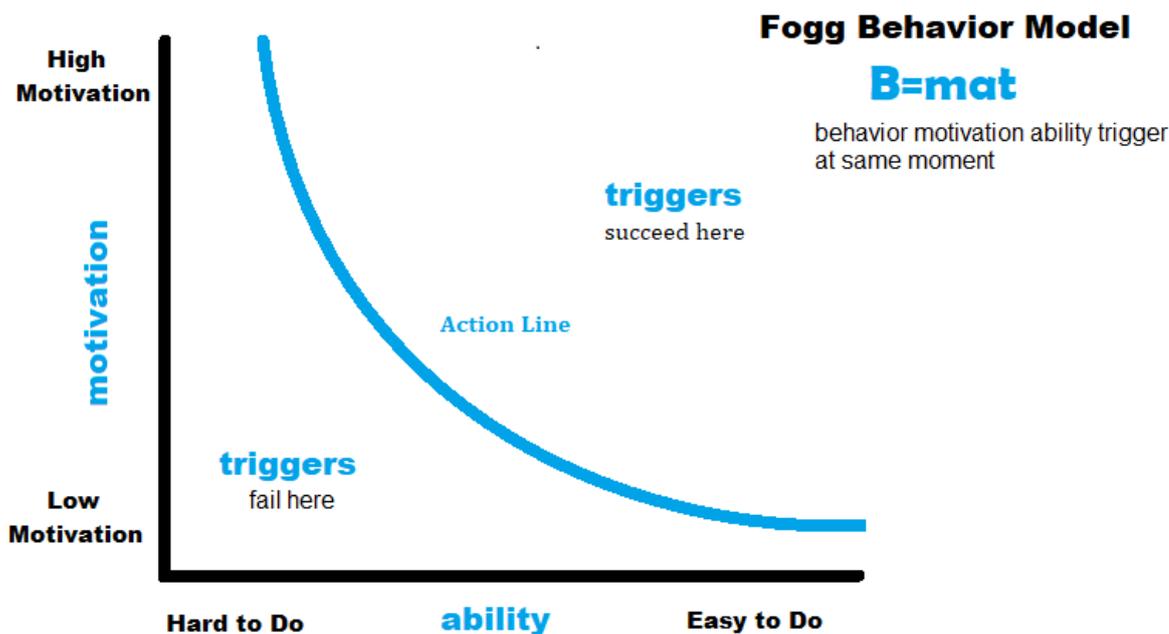


Figure 1.2. Fogg's Behavioural model
Source: Fogg, 2009

In order for behaviour to occur, people must have some level of both motivation and ability. According to Fogg (2009) increasing motivation is not always the solution. Often increasing ability (making the behaviour simpler) is the path for increasing behaviour performance.

But having the motivation and ability is not enough, the targeted behaviour needs to be triggered. The trigger is the missing link between ability & motivation and performing the task. A trigger is a message to perform the task now. Without triggers motivation and ability will not produce the behaviour. There are three types of triggers. First of all sparks, a trigger that motivates behaviour. Secondly, facilitators, who make behaviour easier and thirdly a signal that indicates or reminds people of the behaviour. Each type needs three factors to be successful.

Triggers have to be noticeable, be associated with the targeted behaviour and must occur when the person is motivated and in the ability to perform the targeted behaviour. Timing is therefore of great importance.

The FBM includes the concept of an action line. When the combination of motivation and ability places a person above the action line then a trigger will cause that person to perform the target behaviour. If a person is underneath this action line, then a trigger will not lead to the target behaviour because of a bad combination of motivation and ability.

As described, motivation is very important to engage employees to gamification. Therefore it is important that a designer knows which motivation to address and which game elements to use. Both extrinsic and intrinsic rewards can be used to motivate employees to engage in certain behaviour, however in gamification a lot of interest is given to intrinsically motivating employees to play (Seaborn & Fels, 2015). This might be because of the research of Deci, Koestner, and Ryan (2001) who found that almost all forms of extrinsic rewards reduced intrinsic motivation. The implication of this is that once gamification is used to provide extrinsic motivation, the user's intrinsic motivation decreases (Nicholson, 2012). However if you first start using extrinsic rewards and then decide to stop the rewards program in order to only concentrate on intrinsic motivation, you will be worse off because users will be less likely to return to the behaviour without the external reward (Deci, Koestner, & Ryan, 2001).

The most often referred intrinsic motivation theory for gamification designers is self-determination theory (SDT). SDT proposes that events and conditions that enhance a person's sense of autonomy, relatedness and competence support intrinsic motivation, whereas factors that diminish this sense undermine intrinsic motivation (Ryan, Rigby, & Przybylski, 2006). Autonomy is defined as the sense of freedom and will when performing a task. Competence can be seen as the feeling one is faced with challenges they can efficiently and competently participate in. Relatedness is the experience that one is connected to another person. SDT applied to gamification means that to intrinsically motivate employees in gamification the game elements should enhance employee's sense of autonomy, relatedness and competence.

To investigate this topic further SDT is used to describe elements of gamification in combination with affordance. Affordance is the user's perceived opportunities of action in a game.

When combining this with SDT it transfers affordance to questions of motivation in which a human being seeks out actions that promises to satisfy motivational needs of competence, autonomy and relatedness (Deterding, 2011). This is called motivational affordance which means that motivation is afforded when the relation between the features of an object (a game) and the abilities and background of a subject (the user) allow the subject (the user) to experience the satisfaction of such needs when interacting with the object (the game) (Deterding, 2011).

In practice this means that to make a good gamified system the game elements should satisfy the motivational needs of employees. Aparicio et al. (2012) proposed in their research which game elements to use in order to increase intrinsic motivation:

When increasing autonomy, one can use the following game elements: profiles, avatars, macros, configurable interface, alternative activities, privacy control, and notification control.

When increasing competence, one can use the following game elements: positive feedback, optimal challenge, progressive information, intuitive controls, points, levels and leader boards.

When increasing relatedness, one can use: groups, messages, blogs, connection to social networks and chat.

Although the work of Aparicio provides an overview of different game elements divided according to SDT principles the framework has not been applied and research is still ongoing (Seaborn & Fels, 2015).

However, making game elements that create motivational affordance is not enough, designers should also think about the situational context in which gamification is applied. According to Deterding (2011) the definition of motivational affordance is ignoring the impact of the social situation/context of gamification. This is especially visible when the social situation obliges gamification and integrates serious consequences to gamification for example getting variable salary or not based on leader boards. Employees may experience this as controlling and thwarting autonomy. In this case, the created situational context pertain motivational aspects to play or not play the game. In addition the motivational affordance of the game elements itself are affected because their motivational salience is partially determined by the situational context (Deterding, 2011). In other words, the situational context shapes the usage, meaning, and salient motivational affordances of the game elements itself, according to Deterding.

Although situational motivational affordance is only a theoretical assumption by Deterding that requires further research, it offers another dimension by outlining the impact that rather likely can be played by the social context in which gamification is applied.

When gamification is designed it is important to create a *positive and enthusiastic attitude* towards it in an organization to make sure employees actually use gamification. In their research Hamari and Koivisto (2013) investigated how social motivations predict attitude towards the use of gamification, and intentions to continue using a gamified service. The results clearly showed that social motivators in particular social influence of others clearly predict long term use and recommendation to others.

These findings underline the importance of a community of people that are committed to the goals the gamification application promotes.

Next to empirical studies about creating a positive attitude for gamification there are also some practical examples and insights from organizations and consultancy firms (Klout, 2015), (Kim, 2014), (Gamelengths, 2016), (Casual Game Association, 2016), (Underground, 2016), (US Department of Labour, 1990), (Survey Gizmo, 2016), (ZeptoLab, 2011), (Lusher, 2013), (Saran, 2013). According to Cook (2013) from Inward Strategic Consulting there are 5 tips to promote play in an organization.

1. Get executive buy-in and make it count.

Having support from top management is very important to make gamification successful and sustainable and to give people the feeling that gamification is important within the organization.

2. Explain the rules of the game.

If employees do not understand how to engage in a game, they will lose interest to play. Therefore it is important to fully explain the rules and structure so employees can set their personal game objectives and know how to track their progress. Explaining the rules will eliminate confusion and encourage user participation.

3. Create a master communication plan.

When introducing gamification, it is important to take every opportunity to communicate its objective and how, when and where employees will have access to it. A company can for instance take advantage of available channels such as the company intranet and social media to make people aware and motivated to gamification.

4. Reward employees who spread the word.

Word-of-mouth can be one of the strongest influencers in behaviour. Therefore, to create more participation and community within a game it is important to reward employees who spread the word and inspire others to play.

5. Ask for feedback, and do something with it.

Employee feedback is important to create a great user experience, this begins at the pilot. Creating opportunities for employees to easily give feedback will provide designers with the insights they need to improve the game. You can motivate people for providing feedback by rewarding those contributions.

Balancing extrinsic and intrinsic rewards in a gamified system is one of the hardest lever to set. If any game and gamified experience start by luring the users by offering extrinsic rewards, one must be careful how to use those rewards in the progress of the game/gamified experience. Indeed, when offered extrinsic rewards for a previously unrewarded action, people tend to lose the intrinsic motivation they used to have for the action (Carlson et al., 2007). This

is called the Over-Justification Effect and has been observed in diverse fields, such as volunteering (Frey et al., 1999) or crowd-sourcing (Kaufmann et al., 2011).

Gamifying an experience means transforming it using game design thinking into a game-like experience (Narayanan, 2014), while game design is especially efficient to pull the player into high engagement et emotional involvement (Prensky, 2001), even the most casual player. To understand better why gamification works so well on stimulating its participants, it is necessary to investigate the motivational leverages and the learning concepts it relies on.

Dan Pink within his work “Drive: the surprising truth about what motivates us” (Pink, 2009) correlates the hierarchy of needs with the basic principles of gamification and explains that the deficiency needs in the model are satisfied by a long-term interaction with the gamification method, where people can attain status, social cohesion and reputation. The reason gamification is so successful is due to the rewards provided in the self-actualisation pinnacle of the Maslow model. By playing the same “game” social cohesion is created, and by using rewards and feedback, self-esteem and a sense of achievement are promoted.

Deci & Ryan (2002) established two distinct types of motivation, *intrinsic motivation* and *extrinsic motivation*. Intrinsic motivation is defined as the “*inherent tendency to seek out novelty and challenge, to extend and exercise one’s capacities, to explore and to learn*” (Deci&Ryan, 2002) and as the “*natural inclination towards assimilation, mastery, spontaneous interest, and exploration that is so essential to cognitive and social development and that represents a principal source of enjoyment and vitality through life*” (Csikszentmihalyi & Rathunde, 1993; Ryan, 1995). Put it simply, intrinsic motivation comes from within, from the enjoyment of the activity in itself. The article also underlines the prominence of intrinsic motivation in the earliest stages of life, especially during childhood when the need and the want to explore our close environments are the main objective of the everyday life.

When the child starts to grow, our actions and behaviors are more and more influenced by social pressure. And while intrinsic behavior is motivated by the enjoyment of the activity itself, extrinsic motivation is defined by “*the performance of an activity in order to attain some separable outcome*” (Deci & Ryan, 2002). Put it simply, extrinsic motives are external to the activity, such as, as mentioned earlier, social pressure, lure of profit, lure of fame, etcetera.

Deci & Ryan’s Self-Determination Theory (SDT) explains to what extent are human behaviors self-motivated and presents three intrinsic needs that are essential to any person’s psychological health: competence, autonomy and psychological relatedness. Those psychological needs are said to be universal and innate to each, even if their importance might differ from one culture to another.

Competence is the need to be in control of the results of an action and experience the sense of mastery. Autonomy is the need to be the one making one's life choices and according to one self's desires. However, autonomy does not equal independence of others (Deci & Vansteenkiste, 2004). Indeed, Psychological Relatedness is the need to relate to others, by caring and connecting to them.

The needs of Competence and Autonomy are intrinsic motivations by themselves, since satisfying them would only be possible by adopting certain behaviors or accomplishing certain actions, that is by the activities themselves. For example, positive feedback, feeding the sense of Competence, is a good catalyzer for intrinsic motivation (Deci et al, 1975).

Frederick Herzberg (1968) also worked on psychological motivation and focused his research on motivation in the workplace. He states in his motivation-hygiene theory that the causes for job satisfaction and the causes for job dissatisfaction impacted the worker's satisfaction independently. From empirical research, he arrived at this conclusion:

“The factors [...] that led to satisfaction (achievement, intrinsic interest in the work, responsibility, and advancement) are mostly unipolar; that is, they contribute very little to job dissatisfaction. Conversely, the dis-satisfiers (company policy and administrative practices, supervision, interpersonal relationships, working conditions, and salary) contribute very little to job satisfaction.” (Herzberg et al, 1960)

Herzberg et al (1960) separated those two types of factors into:

- Motivators: Those factors derive directly from the job itself and its intrinsic conditions, the level of challenge, the feeling of accomplishment (also fed by the positive feedback and recognition), personal interest in the job, personal development from it, etcetera. The existence of motivators at the workplace leads to satisfaction.
- The hygiene factors are extrinsic and confine to materialistic conditions and frame of the job, such as financial rewards, benefits, hierarchical status, company rules, policies and procedures. Those factors are often used as coercion levers, hence they particularly impact on job dissatisfaction.

Herzberg (1968) explained that the two types of factors impact job satisfaction and motivation at the job independently. While motivators' existence induces job motivation, their absence does not necessarily induce job dissatisfaction. While bad hygiene factors induce job dissatisfaction, good hygiene factors do not induce job motivation.

The link between employee engagement and gamification is then clear, gamification can leverage the motivators, inducing high motivation at the workplace.

Yu-Kai Chou researched about the psychological mechanisms, that he calls “Core Drives” or CD (Chou, 2015) that entice us to start playing a game and keep on playing. That is how he developed the Octalysis Framework, that link the eight CD to common game mechanisms and patterns.

The Epic Meaning and Calling CD is what makes the user feel that he is working for the greater good, that he is the “chosen one”, a hero on an epic mission.

The Development and Accomplishment CD is what motivates us to learn, progress, accomplish and overcome hardships and challenges. The difficulty of the obstacles and the hard work put to defeat them define the value of the reward.

The Empowerment of Creativity & Feedback CD encourages the players to use repetitive tasks or basics processes to create extraordinary unique things. It is also very important to give feedback on the results or let them visualize their own work.

The Ownership and Possession CD is what pushes users to make things (items, teams, missions, status) theirs and improve them, because we are innately compelled to make what is ours better, bigger, greater.

The Social Influence & Relatedness CD combines all social elements that influence us. It includes the need of acceptance, belongingness, social pressure, the need for connection, envy and jealousy, as well as competition.

The Scarcity and Impatience CD is what makes us want something we cannot have, for any reason.

The Unpredictability & Curiosity CD is the simple but so prominent want to know about next step, what is yet to come.

The Loss and Avoidance CD is our innate reflex of avoiding negative outcomes, such as any type of loss (status, resources, time, past efforts).

Each CD can find examples in real life as well as in our in-game behavior. The matching game-like mechanisms will be detailed and explained further in this paper.

In summary, games play with the most basic, primary functions, wants and needs of the brain, can induce a state of engagement of high intensity barely achievable by any other means. Gamifying does not turn an activity into a game but entices the person to approach the activity with the same cognitive and emotional predisposition they would be in in front of a game, that is with high focus and retention. Moreover, gamification creates intrinsic motivation for the task, more meaningful and stronger than extrinsic motivation. Consequently, gamification can help change human behavior easily and sustainably.

PERCEIVED LAYER OF FUN							
Game design process layer							
PRINCIPLES	MECHANICS	MODELS	PATTERNS	INTERFACE			
Game experience layer							
ACHIEVEMENTS		ACTIONS		CHALLENGES			
Motivated behavior layer							
Intrinsic Motivation			Extrinsic Motivation				
RELATEDNESS	AUTONOMY	COMPETENCE	BADGES	POINTS	LEADERBOARDS	REWARDS	INCENTIVES
EFFECTIVE GAMIFICATION							

Figure 1.3. Effective Gamification Kaleidoscope.

Source :Kappen & Nacke (2013).

As per Kappen and Nacke (2013), it is essential to understand the interconnectedness of behaviour change in gamification. At the very basics of effective gamification lays intrinsic and extrinsic motivators, which are drivers for specific behaviors and can be triggered or “pulled” using certain gamification elements. To create engaging gamified experience, the next layer, game experience layer is pulled and gamification elements from the list of achievements, challenges or actions are chosen to ensure certain process dynamics. Game experience, then, is dependent on game design principles, mechanics, models, patterns and interface design elements. The perceived layer of fun is what a player can see and experience in terms of audio, visuals, interface design, tangible interactions and intangible experiences (Kappen & Nacke, 2013).

Use of gamification is promoted also due to generational shift since forward-thinking companies are adapting themselves to the demands of new generation by embracing the process of gamification (Savitz, 2012).

Millennials (born between early 1980ies and 2000) and generation Z (born between 1996 and 2010) has entered the labour market and these people are used to spend part of their free time playing digital games (Kastner, 2013), so it can be expected that gamification will engage them in their working life. Popularity of video games is growing, and video game industry revenue has surpassed the Hollywood. Looking at the statistics, the average age of the player is 37 years (Brownhill, 2013). Researchers have found that engaging millennials include co-creation of experiences that may also take place in or be facilitated in the virtual world (Skinner, et al., 2018).

Data shows that there is a significant relationship between the following: the more people play games outside of working hours, the greater the likelihood that they engage in games while work (Mollick & Rothbard, 2014).

All the different theories used for gamification have one aspect in common. They are all centred on the user and how to engage them in using gamification. Although some theories

may overlap, every theory has its own focus when it comes to engaging employees in gamification which makes all the theories valuable for a different reason. See Table 1.5. for the main key considerations to add more value to gamification at workplace based on the described theories.

Table 1.5.

Main key considerations for value added gamification at workplace, based on theories

Main key considerations	Theory	Source
Make sure you know the different player types within the organization	Bartle's player types	Bartle, R. (1996) Hearts, Clubs, Diamonds, Spades; Players who suit muds. Colchester, Essex, UK.
Try to have multiple game elements in gamification which address different player types	Bartle's player types	Bartle, R. (1996) Hearts, Clubs, Diamonds, Spades; Players who suit muds. Colchester, Essex, UK.
Make sure employees understand the rules and the tasks of the gamified service	Flow theory	Czikszentmihalyi, M. (1990). Flow. NY, Harper&Row
Make a game that is challenging for multiple employees from different knowledge backgrounds and with different abilities.	Flow theory	Czikszentmihalyi, M. (1990). Flow. NY, Harper & Row
Make sure employees receive clear and immediate feedback showing what succeeded and what failed in their game	Flow theory	Czikszentmihalyi, M. (1990). Flow. NY, Harper & Row
Know what the targeted behaviour is that an organization wants employees to do in gamification	FOG behavioural model	Fogg, B. (2009). A behaviour model for persuasive design. California: Persuasive Technology Lab, Stanford University
Incorporate elements in gamification that trigger targeted behaviour and that make it easier to perform that behaviour for the employees	FOG behavioural model	Fogg, B. (2009). A behaviour model for persuasive design. California: Persuasive Technology Lab, Stanford University
Create more focus capturing intrinsic motivation of employees to play and not focus on extrinsic motivation.	Self-determination theory	Deci E., Ryan R. (2002). Handbook of Self-Determination Research. Rochester (N.Y.): University of Rochester Press
Make sure you know the intrinsic motivational needs of employees based on autonomy, competence and relatedness.	Motivational affordance	Deterding, S. (2011). Situated motivational affordances of game elements: a conceptual model. Vancouver, Canada: CHI 2011
Know the social context in which gamification will be applied and be aware of its implications on gamification.	Situated motivational affordance	Deterding, S. (2011). Situated motivational affordances of game elements: a conceptual model. Vancouver, Canada: CHI 2011
Make a plan to increase enthusiasm for gamification in which the social influence are especially important to consider.	Building enthusiasm for the game	Hamari, J., Koivisto, J. (2013). Social motivations to use gamification: an empirical study of gamifying exercise. Proceedings of the 21 st European Conference on information systems, Utrecht

Source: Author's summary, based on theory review, 2019

Multiple theories reviewed all underline the importance of knowing potential audience well when attempting to apply gamification, so that the outcome is satisfactory.

Gamification was found to be effective component of learning and development process (Whyte, 2016), it can improve organisational culture, reveal talents, foster innovation and engagement (Kumar & Raghavendran, 2015).

Literature broadly describes the positive effect on learning process and knowledge acquisition and retention effectiveness when the learning process is enriched through gamification (Kolb & Kolb, 1984), (Kolb & Kolb, 2010), (Kramer & Willis, 2003), (Kuszewski, 2011), (Leea et al, 2012), (Gimson, 2012), (Hamari et al, 2016), (Draganski et al, 2004), (Erhel & Jamet, 2013), (Marsha, 2002), (Michael & Chen, 2006).

The quality of learning depends on many criteria (from the learner, from the source of knowledge, from the environment of learning) that have been theorized into the three principles of learning by Edward Thorndike (1932): readiness, exercise and effect. Progressively, the theory was enlarged by five other principles (Machin & Murphy, 2011): primacy, recency, intensity, freedom and requirement. We will go through the characteristics of those principles and later focus on how some game mechanisms intrinsic features match some of the principles of learning.

Readiness: The student must be in an open and ready to receive knowledge mental state. The more motivated the better. Gamification already influences the user even before the beginning of the experience. Indeed, gamification is still a new approach in the corporate world while games are familiar experiences to the latest generations of workers. Gamified experiences usually intrigue its soon-to-be participants and naturally puts them in a state of readiness.

Exercise: Student must then practice and repeat till the skill or knowledge is mastered. He also should receive feedback during this training period. The feedbacks and rewards are also the main pedagogical features of games according to Prensky (2001). Gamification is extremely relevant on this aspect as its mechanisms allow for “*reinforcements*” (Robson et al., 2015). By rewarding the expected behaviors, either by extrinsic rewards (items, points, status upgrade, etcetera) or intrinsic rewards (feeling of achievement, pride, fun, etcetera), the player is more likely to repeat these exact behaviors to recapture the corresponding rewards (Skinner, 1938). On the contrary, getting negative feedback, suffering negative outcomes will deter the players to go that path again and will avoid the “*punished*” behaviors (Skinner, 1938).

Effect: Positive emotional state during learning and training also participates in learning retention. Game design plays a lot on the emotional state of the player and try to stimulate it as

much as possible and try to give the player as much pleasure as possible to keep him playing. After all, gaming is about fun, complex term but that includes at least positive feelings and emotions (Prensky, 2001)

The interactive aspect of games makes learning more engaging and improves the knowledge retention (contrary to presentations, lectures, videos, readings) and the progression aspect makes it more structured and exciting than a linear format, hence more memorable, contrary to quizzes and tests (Wilms et al, 2013). Everything can be summed up and implied in the input-process-outcome game model (Garris et al., 2002).

Stories have proved their teaching power throughout all stages of mankind, especially before the advent of writing. Even a merely orally told story has enough power to be imprinted in the brain with close to no effort from the receiver (Neuhauser, 1993). First, narrative stimulates the user into a high level of emotion, imagination and thinking. Second, narrative learning is efficient because it helps connect the currently told stories with real past experiences and making the former easier to assimilate (Rossiter, 2002), (Marsha, 2002). More than just reading or hearing a story, a game gives the player the opportunity to be part of it, through its interactive dimension, making it an excellent learning tool, according to the law of Effect.

Deloitte's executive training program is another example that successfully used gamification to improve learning pathways, real-world simulations, and offer feedback. The program had resulted in a 50 percent increase in course completion and 36 percent higher weekly retention rates, according to Deloitte (Meister, 2013), (Monahan et al, 2016).

Beyond other benefits, game environment helps to motivate learners (Aziz, 2016). Game elements even have a positive effect on assessing the students (OECD, 2012). Overall, gamification has acquired a solid space in the domain of organizational learning and development processes and research provides both, evidence for effectiveness of this, as well as instruction and guideline for how to design and implement a gamified learning process (Buelow et al, 2015), (Buonomano & Merzenich, 1998), (Burge, 2009), (Bachman, 1961), (Baniqued et al, 2013), (Boot et al, 2008), (Boyke et al, 2008), (Mouaheb et al, 2012), (Pumphery & Slater, 2002), (Roelfsema et al, 2010), (Slagter et al, 2011), (Shuck & Wollard, 2009).

Gamification is a way to increase engagement. It is all about activating the right psychological levers by introducing the right game features to ignite the flame. Below are two examples of how gamification helped increasing users' engagement for a real-life purpose.

Using Gamification to Increase Engagement and Content Quality on the SAP Community Network - SAP Community Network, shortened to SCN, was created in 2003 as SAP

Developer Network, shortened to SDN, hence why people still call it SDN even to this day. As the name says, it was firstly created to connect SAP developers but with the growing community over the next few years, business process experts and new features were added, such as wikis.

SAP wanted to create a social network platform to tighten the whole community around SAP products, developers, customers, business experts. But they had to face the typical new social platform problem, that is engagement, participation and content quality. They identified the need to increase the spontaneous sharing of knowledge between members. It would decrease the workload for SAP staff as well as attract new members and hopefully starts on a virtuous circle.

Starting 2004, SCN was already incorporating gamification elements as features.

Up until 2011, SCN added:

- Points, given to members participating to the platform, reacting in forums, answering questions, posting.
- « Top Contributors Annual Contest », congratulates the members with the highest point score.
- Points gained on SCN are considered for the elite selection of the SAP Mentors. SAP Mentor is a very prestigious title that recognizes one as a major influencer in the SAP world. There are less than 200 SAP Mentors globally.
- Levels are added and allows members another opportunity to distinguish themselves.
- Content quality rating and points distribution by the community itself.
- Missions to entice user to become more active.

The gamified platform was well received, and the community kept increasing. Some results even exceeded expectations.

The SCN team had started sending out material rewards such as T-Shirts and other SAP items to the best contributors of the platform. It turned out that members were not especially thrilled by it and saw more value in the recognition of their work on the platform. The material rewards were then dropped. Moreover, SAP SCN levels soon started to have enough value to become part of professional credentials. Proving one's SCN level would work as sign of SAP expertise. Recognized by SAP SCN members, it was soon also considered by organizations, employers and customers alike.

In 2012, because of the growing community and because of the will to upgrade the gamification intensity of the platform, the network was moved to a more powerful hosting solution. It then

allowed to implement achievement badges, bigger level scale, more complex reputation profile and leader boards.

It is hard to measure the exact impact of gamification on the success of the SCN, but the overall consideration of products from the gamification (points, badges, levels) for “real” topics (proof of expertise, recruitment, choice of provider) proves that the gamified aspect of the network has high value among the community.

Comparative data can also support this theory. The amount of activity increased by more than 1200% in 2 months, the amount of feedback by almost 350%, the amount of points earned by almost 250%.

Gamifying the SCN allowed to increase participation but also content quality, leading to a growing and tight community. Today, the SCN represents more than 2 million unique visitors per month, more than 200,000 members throughout SCN history, more than 1,000 discussions per day, 17,000 likes and 7,000 comments.

Using gamification to gather collective intelligence and engagement towards one solution goal is an example of an online game Fold It.

Fold It is the ever-cited example of gamification concentrating collective intelligence, exploiting unsuspected potential and using it for the greater good. The first edition was developed by the University of Washington in 2008, inviting people from all over the world to try folding virtual proteins with the goal to model undiscovered protein structure for science. The rules of the folding would follow real-life bio-chemistry-physics laws.

« In the past decade, Foldit players have advanced protein science by accurately predicting the structure of a viral protein, by developing an algorithm for protein modelling, and by redesigning a protein enzyme with improved activity. Foldit players have shown that they can refine protein models better than sophisticated computer programs, and that they can interpret electron density maps as well as expert crystallographers. » (FoldIt!, 2018)

The university posted a scientific puzzle created from a retroviral protease influencing the effect of AIDS, an unsolved scientific mystery for 15 years. The online community of players managed to model an accurate 3D model of the structure of the enzyme within 10 days.

The developers understood that the success of the « game » and the results that came out of it came from the game elements that pushed players to compete and collaborate and give their all.

Another example is Google Code Jam – a competition that was focused on software writing and helped the company to recognize new recruits. With prizes up to \$50,000, the

approach attracted talented engineers and developers who were interested in testing their skills within a crowd.

Marriott Hotels launched a mobile app that makes candidates virtually perform hotel service industry tasks. This provides insight into how the candidate would approach real work and it helps eliminate those applicants lacking the patience or aptitude for the job. HR teams can also use gamification internally to reward top recruiters and incentivize employees to refer top candidates.

Table 1.6.

Most frequently used gamification elements in HRM processes

Element	Process	Impact
Card games	Team Building; Internal Communication	Improved cohesion of team, improved understanding among team members; better understanding of the message company intends to transfer
Board games	Team Building, Performance Management	Improved cohesion of team; improved understanding of the business performance process that is being gamified
Role plays	Recruitment & Onboarding	Opportunity to observe candidate's behavior in a potential job role, more objective conclusions about candidate's abilities
Situation simulations	Recruitment & Onboarding; Learning & Development	Opportunity to observe candidate in a situation close to the real work situation, more objective conclusions' potential; Learning extent and knowledge retention better when employee has a chance to apply the learned content in a simulated situation
Leaderboards	Performance Management; Internal Communication	Triggers positive competition, helps focusing on improved outcomes; inserts fun element, engages employees to participate
Points	Performance Management	Triggers positive competition, improves the process results
Badges	Performance Management; Internal Communication;	Allows experience sense of recognition for the work well done, sense of pride, sense of achievement

	Rewards & Recognition	
Progress bars	Performance Management	Triggers positive competition, helps focusing on important targets
Digital activity logs/apps	Performance Management; Rewards & Recognition	helps focusing on important targets, helps self-motivate; triggers pride and recognition for the work well done or target achieved
Videogames	Learning & Development	Engages employees effectively in the learning process, helps better knowledge retention
Missions and challenges	Internal Communication, Performance Management, Team Building	Improved cohesion of the team; allows experience layer of fun, thus achieving results becomes easier; effectively conveys the message built into challenges or missions

Source: Author's construction, based on literature review and empiric observations, 2019

Human resource management system is strategic approach to managing employment relations which emphasizes that leveraging people's capabilities is critical to achieving competitive advantage, this being achieved through a distinctive set of integrated employment policies, programs and practices. (Bratton & Gold, 2009)

This system is strongly influenced by different external and internal factors. Externally, HRM system of a firm is facing influence from the particular labour market where it operates, demographics of the country, society at large, specific competition conditions, customers, shareholders, unions, as well as it is dependent on the broader economic context, technology developments, legal considerations and possibly even some other unanticipated events. Internal environment consists of various other functional areas within the particular enterprise, where depending on the business model and specifics those may include marketing, sales, finance, operations, research and development, risk management and others.

Responsibilities of Human Resource management departments traditionally include

- strategic HR planning,
- recruiting and employment
- training and development

- compensation
- benefits
- employee services
- employee and community relations
- personnel records
- health and safety

Within those responsibilities, Human resource management professionals pursue a number of practices. Planning includes job analysis (process of getting detailed information about jobs) and job design (making decisions about what tasks should be grouped into a particular job). Recruiting includes recruitment (the process through which organization seeks applicants or potential candidates) and selection (identifying the candidates with the most appropriate knowledge, skills and ability). Ensuring company has the right mix of skills, knowledge and motivation in place requires training (planned effort to facilitate learning of job-related knowledge, skills, behavior) and development (acquisition of knowledge, skills, and behavior that improves employees' ability to meet the challenges of the future jobs). Compensation process includes decisions on the pay structure, incentives and benefits that company views as fitting their Human resource management strategy. Performance management is the process where everything pretty much comes together, and it helps ensure that employees' activities and outcomes are congruent with the organization's objective.

One of the key thought leaders of contemporary Human Resource management, Dave Ulrich (Ulrich et al., 2008, Ulrich et al., 2012) has broadened the scope of Human resource management system through defining new, more strategic roles and subsequent required competencies for the Human resource management professionals. According to Ulrich and his co-authors, today's HRs have to act as;

- ***Strategic positioners*** - able to position a business to win in its market
- ***Credible activists*** - able to build relationships of trust by having a proactive point of view
- ***Paradox navigators*** - able to manage tensions inherent in businesses (e.g., be both long and short term, be both top down and bottom up)
- ***Culture and change champions*** - able to make change happen and manage organizational culture
- ***Human capital curators*** - able to manage the flow of talent by developing people and leaders, driving individual performance, and building technical talent

- ***Total reward stewards*** - able to manage employee wellbeing through financial and non-financial rewards
- ***Technology and media integrators*** - able to use technology and social media to drive create high-performing organizations
- ***Analytics designer and interpreters*** - able to use analytics to improve decision making
- ***Compliance managers*** - able to manage the processes related to compliance by following regulatory guidelines.

No matter how well the system of HR Management would have been defined in the past years, it is obvious that following ever increasing pace of changes in society, demographics, science, technology and management theory and practice, it keeps evolving and changing. This change is primarily driven by new discoveries in human psychology and brain science (knowledge that is available today about how human brain works is much more rich and advanced comparing to the understanding available decades ago), as well as by technological developments. Technology has enabled companies to design their Human resource management process much more compliant with the modern requirements for fluid, continuous and flexible approach, to interconnect different processes, allow for the employee self-service and eliminate a lot of rigid, formal steps that do not add any value to the individual and organizational performance.

Within this new reality of the complex system of Human resource management processes those at times overlap, change and get altered, hence, gamification rather understandably finds its place here. Primarily, because of the engaging nature of the game environment. As described further in this chapter, engaging employees to participate actively and emotionally in the workplace processes and ultimately, to become engaged with the organization overall, is on the top agenda for HRM professionals and top management globally.

The classic approach lists 6 broad processes that include a number of sub-processes. Those are job analysis/design, recruitment, selection, training and development, performance management, pay structure/incentives/benefits and labour relations (Noe, et al, 2015).

Due to changing environment, generations joining the workforce and developments of technology, the list of HR processes has been growing and on the contemporary HRM menu more and more often, next to classic ones are listed many others, such as Organization Design and Strategic Workforce Planning, On-boarding and New Hire Orientation, Talent Management and Development, Leadership Development, Employer Branding, Workplace Environment Management, Employee Wellbeing, Workplace Diversity, Reward and Recognition, Internal Communications, Building Effective Teams (the ones that consistently

achieve established goals), HR Data Analytics, etc. (Redman & Wilkinson, 2009; Cvenkel, 2019; Holland, 2019)

Out of the many, for the purposes of the Thesis those HRM processes are selected that according to theory and literature sources are more commonly subject to gamification by organizations and enterprises, and where evidence can be observed for the impact of gamification on those processes in terms of improved performance indicators.

The list of indicators can be very diverse and to certain extent differ by organization, depending on business specifics and HRM strategy. Few examples of those are as follows:

- 1) Recruitment & Onboarding: number of applicants, time to fill the vacancy, % of internal referrals vs all new hires, quality of recruitment (% of attrition during the probation period)
- 2) Performance management: reduced cost in EUR, increased level of service %; increased sales %; increased revenue in EUR, % of goals achieved, etc.
- 3) Internal Communication: % of employees satisfied with IC, % of employees understanding company values; % of employees identifying well with the company, % of employees aware of business goals, etc.
- 4) Learning and Development: % of training participants passing the knowledge test, amount of time spent on training per employee, cost of training per employee, number of internal promotions per year (or % of promotions vs total headcount)

There are different tools that companies exploit (such as incentives and rewards, promotions, specific training, instructions, setting goals according to the objectives and key results framework, feedback systems, etc.) in order to achieve such degree of employee involvement and participation in the certain HRM processes that helps achieving specific goals of each process and improve defined process indicators. Following the findings from different other disciplines, author attempts to investigate potential of gamification to have additional positive influence on engagement and relevant indicators of different HRM processes.

Researchers and practitioners agree that engaged employees are better performers. For example, Mihalicz found that productivity of engaged employees is 21% higher, profitability 22% higher and customer ratings are 10% higher (Mihalicz, 2018). Moreover, Harter and Adkins (2015) research found that managers account for 70% of variance in employee engagement. Consequently, employee engagement is frequently regarded as one of the most significant measurements for management efficiency (Ergle, 2015).

Engaged employees are those who are actively involved in and enthusiastic about their work and organisation). It is managers job to create and foster employee engagement (Harter & Adkins, 2015).

Robinson defines engagement as a 'positive attitude towards the organisation and its values' (Robinson et al, 2004). Similarly, engagement is defined as "a positive, fulfilling, work related state of mind" (Schaufeli, et al., 2006). Engagement happens when "organisation members harness their full selves in active, complete work role performances by driving personal energy into physical, cognitive and emotional labours" (Rich, et al., 2010).

Engagement is closely connected to job satisfaction. Both constructs are important for HR, but are not the same (ADP Research Institute, 2012). Researchers consider job satisfaction as part of, or component of engagement (Morgan, 2015) while others state that satisfaction is antecedent of engagement (Markos & Sridevi, 2010). According to recent research in Latvia satisfaction appeared to be a component of engagement (Ludviga & Kalvina, 2016), therefore both constructs are selected as outcome variables in the within the scope of the current research.

According to a survey of Harvard Business School's analytical review (2013) engagement is by companies seen as a factor most likely to bring success. This places engagement as a top 3 business priority for companies. Of all factors that can drive success, reduce costs and increase revenue and growth, engagement is seen as a key factor with a percentage of 71%. It is even seen at the same importance for business success as strong executive leadership. Companies care about employee engagement and believe that investing in employee engagement is of crucial relevance in order to bring business success.

In the above review (2013) the service profit chain is introduced to further visualize the importance of engagement. It has been proved that employee engagement is highly connected to employee satisfaction (Alizadeh, Darvishi, Nazari, & Emami, 2012). Based on this fact the service profit chain is a valuable visualization of the importance of employee satisfaction and also employee engagement in business success. The service-profit chain establishes relationships between profitability, customer loyalty, employee satisfaction, loyalty, and productivity. The chain shows that when the internal environment is of high quality, employee satisfaction will be high, which will create employee retention and productivity. This increases the value of the service for the customer because this is created by satisfied, loyal and productive employees. In turn, this will increase customer satisfaction,

customer loyalty and in the end generate growth, revenue and profitability, which is a measurement for business success.

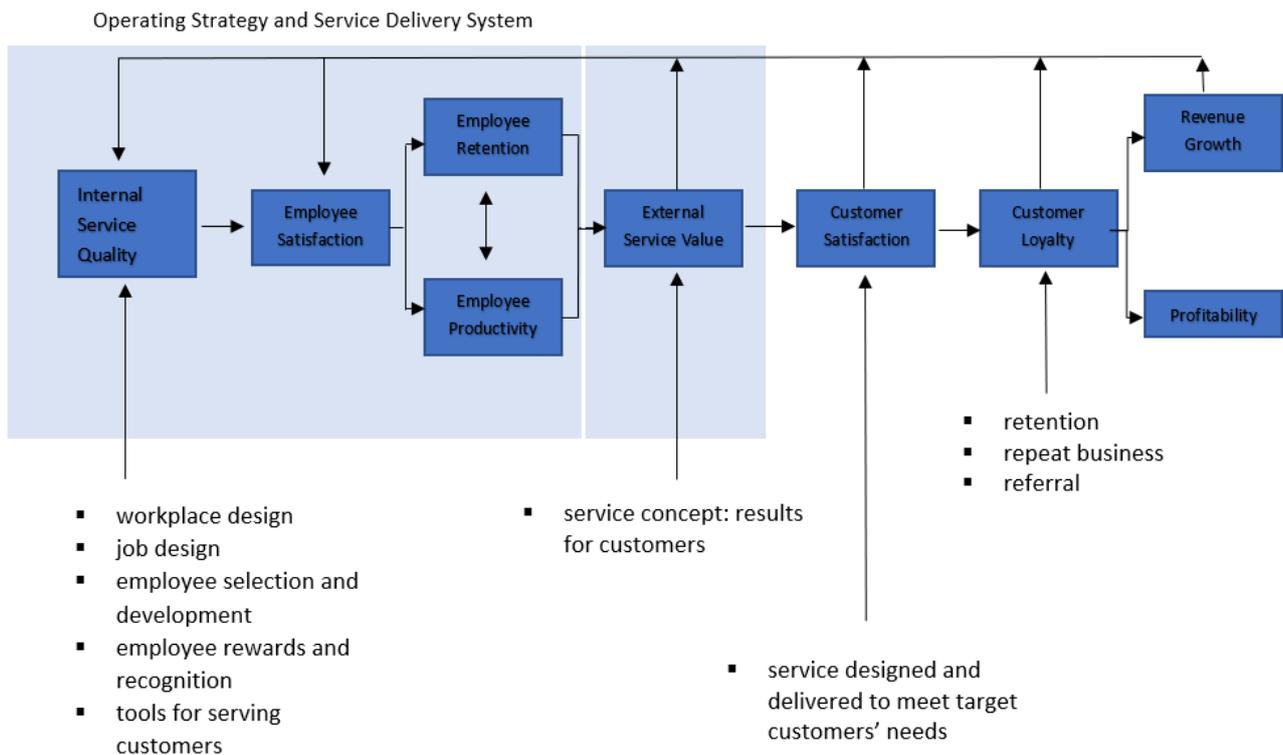


Figure 1.4. Putting the Service-Profit Chain to Work

Source: HBR Analytical Review, 2013. (originally developed by Heskett et al and published in HBR in 1994).

Employee engagement has been defined in many different ways. In the academic literature, a number of definitions have been provided, all with a different focus. The Institute of Employment Studies offers a practical and comprehensive definition of engagement:

“a positive attitude held by the employee towards the organisation and its values. An engaged employee is aware of business context, and works with colleagues to improve performance within the job for the benefit of the organisation. The organisation must work to develop and nurture engagement, which requires a two-way relationship between employer and employee” (Robinson et al, 2004)

Based on observations in organizational settings this definition rather precisely describes the essence of employee engagement, therefore it is chosen to serve as the definition of engagement for the purposes of this research. According to studies by Robinson et al at the Institute of Employment studies (2004) an engaged employee should show these behaviours in order to be recognized as engaged.

- Belief in the organisation
- Desire to work to make things better

- Understanding of business context and the ‘bigger picture’
- Respectful of, and helpful to, colleagues
- Willingness to ‘go the extra mile’
- Keeping up to date with developments in the field.

For an organization it is important to know how to drive the behaviour of an engaged employee. The strongest driver of all is a sense of feeling valued and involved. This has several key components that an organization needs to consider:

- involvement in decision making
- the extent to which employees feel able to voice their ideas, and managers listen to these views, and value employees’ contributions
- the opportunities employees have to develop their jobs
- the extent to which the organisation is concerned for employees’ health and wellbeing.

Especially the first two key components have the potential to be integrated in workplace gamification. Therefore employee participation in decision making and voicing ideas through crowd-sourcing will be further explained in the next paragraphs.

Table 1.7.

Definitions of Employee Engagement

<i>Author</i>	<i>Definition</i>	<i>Source</i>
Shuck, M.B., Wollard, K.K.	an individual employee’s cognitive, emotional and behavioral state directed toward desired organizational outcomes	Shuck, M. B., Wollard, K.K. (2009). Employee engagement and HRD: a seminal review of the foundations, <i>Human Resource Development Review</i> , Vol. 9, No. 1: 89-110.
Robinson, D., Perryman, S., Hayday, S.	an understanding of the bigger picture and a willingness to go beyond the requirements of the job.	Robinson, D., Perryman, S., & Hayday, S. (2004). The drivers of Employee Engagement. Institute for employment studies , Report 408
K. Kruse	emotional commitment the employee has to the organization and its goals.	Kruse K. (2012). Employee engagement 2.0: How to Motivate Your Team for High Performance. Createspace
ADP Research Institute	persistent and pervasive affective-cognitive state that is not strictly focused on any particular object, individual, or behaviour. It is related to “meaning seeking” attitude of fulfilment from the job	ADP Research Institute, (2012). “Employee Satisfaction vs. Employee Engagement: Are They the same Things?” ADP Inc.

W. A. Kahn	expression of self through work and employee-role related activities	W. A. Kahn, (1990). "Psychological conditions of personal engagement and disengagement at work", <i>Academy of Management Journal</i> , Vol. 33(4), 692-724.
Schaufeli, W. B., Bakker, A. B, Salanova, M.	a positive, fulfilling, work related state of mind	W. B. Schaufeli, A. B. Bakker, M. Salanova, (2006). "The Measurement of Work Engagement with a Short Questionnaire", <i>Educational and Psychological Measurement</i> , 66(4), 701-716.
Robbins, S. P., Coulter, M.	positive attitude towards the organisation and its values	Robbins S. P., Coulter, M. (1999). "Management", 6 ed., Prentice Hall

Source: Author's construction, based on literature review, 2019

William Kahn was the first in 1990 to present the idea of employee engagement in academical literature. He researched individuals' engagement and disengagement at work. He found that variety of individual, interpersonal, group, intergroup and organizational factors shape people's engagement and disengagement (Kahn 1990)

Kavita (2015) divides all the engagement drivers into three categories: Individual factors (that include personality traits, personal meaningfulness at work and emotional factors), Interpersonal factors (includes collaboration with coworkers, communication and leadership) and Organizational factors (that cover company practices and career advancement opportunities)

Typically, questionnaires are used to measure employee engagement. In questionnaires respondents are asked to rate several statements and indicate how much they agree-disagree or how frequently they experience the feeling or thought each statement refers to. A vast number of engagement measures have been developed. Measures tend to capture various aspects of an employee's engagement with the organization (Fletcher et al., 2014).

According to Morgan (2015), Employee surveys normally include key areas influencing the staff experiences. West and Dawson (2012) distinguished between two types of engagement and measured employee engagement as a multidimensional attitude via three dimensions. First dimension was engagement with job itself or motivation; the second and third dimension were advocacy and involvement and measured identification with the organisation. Motivation reflects an enthusiasm for and psychological attachment to the activities of the job. Advocacy signifies a belief that the organisation is a good employer and service provider thus it is worthy of recommendation to others. Involvement refers to employees feeling that they have

opportunities to make improvements to their own job and to the organisation that they are listened to.

Well known UWES approach uses 7-point scale and measures more engagement with the job itself and less with the organisation. Gallup’s scale includes 12 questions devoted to both work engagement types - job and organisational engagement. Questions are arranged in four levels and the basic level identifies employee’s basic needs; the second level focuses on contributions - how employees feel as individuals and how the others perceive them; third level measure how and whether employees fit in their organisational community and fourth level is related to the growth (ADP Institute, 2012). Gallup survey uses five point Likert-type scale from (1) ‘strongly disagree’ to (5) ‘strongly agree’.

Table 1.8.

Methodologies for measuring Employee Engagement

<i>Method</i>	<i>Description</i>	<i>Source</i>
Gallup’s 12	12 questions devoted to job and organizational engagement	Forbinger, R. L. (2002). Overview of the Gallup Organisation’s Survey. O.E.Solutions Inc.,
UWES	Scale based on definition of engagement as a a positive, fulfilling, work-related state of mind that is characterized by vigour, dedication and absorption. These 3 become the subscales	Schaufeli, W. B., Bakker, A. B., Salanova, M. (2006) The Measurement of Work Engagement with a Short Questionnaire. Educational and Psychological Measurement, Vol. 66 (4701-716).
Kantar TRI*M	an insight-driven framework that helps to assess employee satisfaction and engagement across four pillars (employee satisfaction and engagement, factors that influence engagement, engagement in different levels of the organization	Kantar (2019). <i>TRI*M</i> . https://www.kantar.lv/ko-mes-daram/musu-izpetes-riki/trim/
Bedarkar, M., Pandita, D.	employee engagement is defined by analyzing specifically three key divers: communication, work life balance and leadership.	Bedarkar, M., Pandita, D. (2014). A study on the drivers of employee engagement impacting employee performance. <i>Procedia - Social and Behavioral Sciences</i> , Vol. 133, 106- 115.

NEHRA model by North-East Human Resource Association,	Employee engagement measured assessing: 1)feedback, 2) trust in leadership, 3) career development, 4) employees' understanding their role, 5) shared decision-making	Esty, K., Gewirtz M. (2008). Creating a Culture of Employee Engagement. http://archive.boston.com/jobs/nehra/062308.shtml
MAGIC model	Employee engagement measured assessing: 1)Meaning, 2) autonomy, 3) growth, 4) impact and 5) connection	Maylett T., Warner P. (2014). MAGIC: Five Keys to Unlock the Power of Employee Engagement. Greenleaf Book Group Press

Source: Authors construction, based on literature review, 2019

One of the popular models to reflect the elements of Employee Engagement is MAGIC-concept developed by Maylett & Warner (2014). It defines five key drivers - meaning, autonomy, growth, impact and connection. Authors' research is based on 12 million employee survey responses and almost two decades of work. These drivers are as follows:

Meaning: Work has purpose beyond the job itself. It must mean something personally to employee.

Autonomy: The power to shape work and environment in ways that allow to perform at your best.

Growth: Being stretched and challenge in ways that result in personal and professional progress.

Impact: Seeing positive, effective and worthwhile outcomes and results from work.

Connection: The sense of belonging to something beyond yourself.

As Jane McGonigal (2011) in her research argues, Gamification has strong potential for influencing many, if not all of those drivers.

A recent study endorses that 69% of European workers are 'not engaged' or 'actively disengaged' in their work (BlessingWhite, 2013).

Studies have found positive relationship between employee engagement and organizational performance outcomes: employee retention, productivity, profitability, customer loyalty and safety. (Coffman, 2000) Researches also indicate that the more engaged employees are, the more likely their employer is to exceed the industry average in its revenue growth. (Ellis and Sorensen, 2007) Employee engagement is found to be higher in double-digit

growth companies. Research also indicates that engagement is positively related to customer satisfaction (Heintzman and Marson, 2005).

Employee Engagement Has A Positive Impact on Key Performance Indicators

Median differences between engaged and activity disengaged work teams studied by Gallup

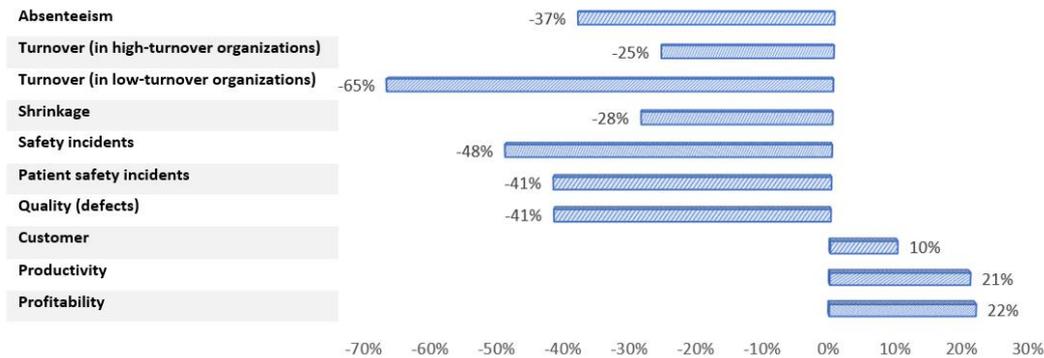


Figure 1.5. State of the American Workplace: Employee Engagement Insights for U.S. Business Leaders

Source: Gallup, 2015

The application of game mechanics addresses engagement, transparency of work and the connection between employees’ actions and business outcomes, by leveraging people's natural desires for competition, achievement and status output. (Sands, 2013)

To *involve employees in decision making* it is very important that knowledge within an organization is shared (Han, Chiang, & Chang, 2010). Therefore involving employees in decision making starts with sharing knowledge about the company and what is happening. Only in that case, employees have the information to actively participate in decision making.

Involvement in decision making has some important positive effects that are worth mentioning. Firstly it can arouse a sense of ownership and commitment of employees to the company (Han, Chiang, & Chang, 2010). In addition, employees who participate in organizational decision making may think they are more closely connected to organizational goals. Employee participation in decision making can benefit employees personally as well. It has been argued that through the use of employee participation in decision making employees can learn the art of self-management, cooperation and responsibility. In addition employees can express talents through participating and satisfy needs of human growth (Han, Chiang, & Chang, 2010). It therefore has several positive influences on employees within a company.

Online communication channels are very important in order to create employee participation in decision making. These kinds of channels are needed for employees to express their opinions in an easy way.

Furthermore these online communication channels are also important for managers to obtain suggestions from organizational members when making decisions (Han, Chiang, & Chang, 2010).

An online opportunity for *employees to voice their ideas* is through intra-corporate crowd sourcing. Although not a lot of research has been done on intra-corporate crowd-sourcing some researchers have discussed the topic. *Intra-Corporate Crowd-sourcing (ICC)* refers to the distributed organizational model used by the firm to extend problem-solving to a large and diverse pool of self-selected contributors beyond the formal internal boundaries of a multi-business firm: across business divisions, bridging geographic locations, levelling hierarchical structures (Villarroel & Reis, 2010). Through crowd-sourcing an organization could use the intelligence of the crowd to come up with new ideas for improvement of the company. The main point of crowd intelligence is articulated by Ghafele and Gilbert (2011): “The power of crowd-sourcing lies in its ability to draw from a diverse intellectual background where networking technologies link the widest possible range of information, knowledge and expertise.” Therefore an organization needs these networking technologies as channels and formal selection process for exploiting employee’s ideas.

Villarroel & Reis (2010 and 2011) did two researches on an intra-corporate crowd-sourcing game within an unknown organization. The game was called the Stock Market for Innovation. Within this game company employees could post their own ideas or speculate on ideas posted by peers. An idea is akin to equity owned by an individual contributor, upon which others can choose to invest by buying and selling using shares a virtual currency. Participants in the game collaborate by commenting upon an existing idea, both to suggest improvements, as well as to challenge it. The profit that employees made could be used to buy a reward. Villarroel & Reis did two researches on Stock Market for Innovation to better understand the dynamics behind such a game. Firstly they explored the source of innovation advantage (Villarroel & Reis, 2010). Their results showed that using the ability of all existing employees, both low ranked and spatially distant, through crowd-sourcing has a positive effect on innovation performance because it bridges the hierarchical and geographical distance. Therefore, this form of open innovation may lead to a community of practice and lead to a creation of a competitive advantage. Their second study using the Stock Market for Innovation was about the elements of buying and selling and the trade-off between speculation and innovation performance (Villarroel & Reis, 2011). The researchers thought that participants may speculate against contributing to the long-term goal of effectively evaluating competing ideas, in exchange for the immediate reward that resulted from using profit for buying your

reward. They found out that indeed strict speculative behaviour in which employees focus only on trading activities may be potentially obstructive for innovation performance.

Engaged employees are productive employees. Over years there have been compiling numerous researches (ADP Research Institute, 2012), (Bedarkar & Pandita, 2014), (Brewster & Harris, 2002), (Drucker, 1986), (Conkright, 2015), (Dale Carnegie Training, 2012), (Nakamura & Csikszentmihalyi, 2001), (Shuck, 2009), (Rich et al, 2010), (May et al, 2004), with some specifics regarding employee engagement and that companies which manage to keep their employees engaged in what they are doing get competitive advantage (Narayanan, 2014).

Linking engagement to productivity at work, there are reasons to strive for identifying solutions that improve employee engagement and therefore their productivity that leads to organizational benefits in terms of increasing productivity also in Latvia, as productivity is among areas where Latvia has been lagging behind other developed EU countries (European Commission, 2015). Together with generation change also the needs, priorities and ways of working are changing therefore almost all organizations struggle to keep people engaged. Additional challenge to organizations globally is presented by the ongoingly changing nature of jobs (World Economic Forum, 2016). Different generations can be present in one project meaning that the manager has to be able to identify the important things for each separate individual in order to keep them engaged. In past it was important for enterprises to have clear hierarchy within the organization. Decision making could be time taking due to different procedural norms, time taking processes and standardized approaches for everyone which has worked very well with the older generation. Table below summarizes main expectations at work by 3 generations currently working together in many organizations. Looking at these one can observe differences where older generation cares for job security, readiness to work extra, then the next one moving in for flexibility and meaningful tasks and finally for the younger workforce there's a need for innovations and unique concepts. Currently in some organizations all of the below mentioned generations work together but as their preferences differ it means that depending on what particular company can provide to its employees their engagement will differ. If the company offers only financial benefits but no innovation, they will be able to keep baby boomers working, however, generation Y will not feel like fulfilling their role. Other such examples occur across generations and it is task of employer to identify the relevant trends and implement such elements to the workplace environment in everyday work that triggers employees' engagement, or be ready that certain type of employees will simply not fit in their organization (Narayanan, 2014).

Table 1.9.

Differences in expectations for workplace among generations

Generation	Workplace expectations
Baby Boomers	Job security and financial stability is important. Ready to work overtime and be loyal if see possibility in carrier advancement meaning that also financial benefits would come.
Gen X	Expect flexibility, meritocracy means a lot, decreased engagement if tasks are too repetitive, seek for meaningful roles, responsibilities and aim to reach long-term aspirations.
Gen Y	Expect unique concepts, processes, things form employers.

Source: Authors construction, based on literature review, 2018

People are ready and willing to work, use their knowledge for the sake of companies' wealth, perform their work role if only they receive basic things from companies which are actually not expensive in terms of investment in systems or processes but only correct selection of leaders which would link the employees with higher management by providing support and communication people needs before they decide to quit the company due to different reasons (Kahn, 1990). Compiled researches over different industries and different types of organizations have brought up some common causes what makes employees disengaged. These factors include poor leadership (lack of vision and thinking from leader side), failure to communicate the purpose and goal of tasks with the team members, failure to meet the expectations of employees, failure to provide training and support when it was needed, need for transparency but failure to provide it, mismatch between people profiles and the tasks to be compiled, meaningless processes to follow, lack of recognition and rewards for job well done, no feedback, no communication between employees and management.

Employees who are engaged trust in the organization and they work not only because of salary but also due to their interest in performing the tasks well. People face betrayal feelings in case if their psychological contracts between them and the organization have been broken, meaning that they have been engaged in what they are doing, investing time, skills and knowledge in order to bring the highest possible assets but the company to some extent fail to provide what they have promised to employees.

Engagement of employees links what organization needs to be done in the best possible way and what people needs, aspirations and desires keep them going towards achieving organizational goals. It seals the contract between employee and the company, tightens relationship with the company employee is working. There are several things which companies still struggle to identify and change. One of such things is to identify which employee is

satisfied and which is truly engaged. The difference between them is not too big, both will work and be satisfied with what the company is offering, but only one will be ready to go an extra mile for the company. The main differences between them are that the satisfied employees like the policies, environment, processes, leadership style etc. actions that the company take meanwhile the engaged employee identifies onemself with the organizational goals, mission, vision and practices of the company. Satisfied employee is well aware and keeps track on what he can get from the company while engaged employee is thinking what else he can give to the company. Satisfied employee will probably stay long with the company while engaged employee will contribute towards organizations well-being longer. There might seem to be a lot of things that employees need in order to be happy in the organization but actually once company has created good system of leading, monitoring and listening it is not anymore that difficult to create effective exchange of needs and wishes in exchange for performance.

Employee engagement does not mean employee happiness or satisfaction. People might be happy without being engaged. It does not necessarily mean they are working hard on behalf of the organization. Employee engagement does not mean employee satisfaction either. Satisfaction set the bar too low. Satisfied employees' might show up every day without complaint, but are willing to move to rival with a 10 per cent increase in their salary. (Kruse 2012)

C. A. Morgan, (2015) and S. Markos & M. S. Sridevi (2010) look at Employee satisfaction as one of components and predictors of employee engagement. Therefore, through achieving employee satisfaction at workplace with certain HRM processes, it may contribute towards achieving increased engagement, provided that the other elements remain neutral.

Human resource management professionals have been concerned with the task to increase employee motivation, satisfaction and engagement for decades. There is a lot of work invested by the management consultants, practitioners and academics internationally (Herzberg et al, 1960), (Ulrich, 1997), (Hofstede et al, 2010), (Kavita, 2015), and in Latvia (Voroncuka, 2009), to support organizations in their endeavour to improve the workplace environment.

Having engaged employees for company means better performance. For employees it means emotional attachment, believing in what company is doing and working hard. It is important to have work - life balance for employees to be more engaged. Another reasons for this work life balance is that employee engagement may have bot only positive but also negative effect. Negative aspect of high engagement may lead to people wanting to contribute more and more every day, which may push them into burnout. Engaged employees truly enjoy their work, they find it interesting and they are motivated in doing it, therefore choosing leisure activities instead

of finishing projects or going to work can be secondary for them. Failure to disconnect from work and inner need to achieve more and succeed faster can backfire on engaged employees and as soon as they burn out, it may take time to recover and reach the performance results they had before the burnout. Another side effect of engagement may be that engaged employees often are under pressure and stress. Instead of positive thinking they are very judgemental towards their own goals and they are critical to each of their actions. It has been shown that people who are more critical actually reach more due to the fact that they prepare more and work harder. They are not sure about their abilities, therefore they are more motivated to achieve their goals. (Garrad, L., Chamorro-Premuzic., T. 2016).

As a summary:

- Employees spend significant time at work therefore they are looking for companies which not only take but also give to them in terms of good environment, development possibilities and bonuses – monetary and non-monetary
- With the speed of information flow companies need to adopt new processes, innovate in systems and be up to date in order to be attractive as an employer for employees
- Employee engagement can lead to burnout and negative consequences for over engaged people if their work life balance is not correctly monitored.
- It is a task of manager to identify the differences of what motivates each employee. Motivational factors can differ due to generation difference. In order to get the best out of employee performance it is crucial to understand what the employee wants from the organization

1.2 Relevance of gamification in the context of engaging younger workforce generations

Most organizations today have a lot of young employees representing generation Y. And even younger ones are entering the organizations for their first internships and early career jobs from generation Z. It is therefore important to understand how to especially engage generations Y and Z. There are multiple definitions used for generation Y and Z. Generation Y – is a group commonly agreed to have been born between 1980 and 1996. As per Van den Bergh & Behrer, (2011), Generation Z is the group commonly agreed to be born after 1996.

To better understand *generation Y* it is important to know their general characteristics. Firstly, parents give their generation Y children the chance to experience a lot of different things ranging from travel, to music, to sports. In addition, generation Y children have been thought that all opinions are equally important. This is why this generation is more critical,

cynical and generally difficult to wow. They are also stimulants' junkies which mean that they have a shorter attention span and a need for instant gratification (Van den Bergh & Behrer, 2011).

Generation Y has some positive characteristics that makes them special when comparing them to other generations. Martin & Tulgan (2001) characterizes generation Y in the following ways:

The most education-minded generation in history

The generation paving the way to a more open, tolerant society

A generation leading a new wave of volunteerism

A generation that is comfortable self-reliant

The impatient generation that want technology and everything else right now

A generation that is always seeking for thrilling opportunities

With these characteristics in mind organizations need to know what generation Y is looking for in a job and what engages them with the job and the organization. According to Martin & Tulgan (2001) generation Y wants their job to have meaning, to have an impact, they want to be useful and to make a signification difference for an organization.

They like a challenge and need to opportunity to professional and personal growth; else they can get bored quickly. In addition they like to work in a great team with high commitment, motivation and energy. The human connections in which you can learn from each other, work closely and socialize is very important for this generation. It makes work more fun. This means that an organization should try to create an open minded organization in which talents are mobilized to make the difference and teamwork is highly valued. Next to this, generation Y has high financial and personal goals. They like to get the rewards that they feel that they have earned. Financial earnings matters to them but they are willing to meet the work standards and go the extra mile in exchange for the financial and non-financial rewards they seek (Martin & Tulgan, 2001).

Generation Z is the youngest generation who are in school at the moment. However, they are entering the job market in the coming years therefore organizations have to create awareness of this generation as well. Since this group is very young there is not that much known about generation Z and research is still necessary. This generation grew up with technology from the beginning of their life. This is why they see technology as part of their life and not as an instrument. They are used to have constant connectivity and access to information and they take this for granted. This may result in different learning styles in which this generation is an expert in how to get access to all information, synthesize it and integrate it to

their lives. In addition they like to customize and individualize. This generation is also very responsible and smart; in general they enjoy school. They grew up in times of economic crisis and unemployment which also makes them eager to be educated and get high grades (Van den Bergh & Behrer, 2011).

According to a research from Millennium Branding and Randstad (2012) on generation Z this generation has a more entrepreneurial spirit. Therefore, when hiring someone in generation Z, it is important to appeal to their entrepreneurial spirit by creating a culture that enables them to focus on new projects tied to business success. In addition generation Z says to prefer face to face communication. To manage generation Z, an organization shouldn't ignore using traditional methods of communication like inviting them to meetings. Lastly they found out in their research that generation Z is less motivated by money, desire openness and honesty from leaders, they like to be taken seriously and they like a workplace where there is stimulation for idea sharing and contributions.

There are different opinions regarding exact name or exact range of birth dates for the generation that is following generation Y or Millennials. Some sources would quote this generation starts at the mid (McCrinkle & Wolfinger, 2014) or late 1990s (Horovitz, 2012) or even from the mid-2000s (Poggi, 2013) to the present day.

Understanding the generations is playing an increasingly bigger role today in the process of understanding each other, with more diversity now existing between the generations than ever before (McCrinkle & Wolfinger, 2014).

Undeniable fact is that the world today is changing faster than ever before. Innovations and technological developments that took years or even decades before, now are happening with increasing frequency. There are upgrades and new versions for what technology can do to improve people lives and way organizations work, every month. According to Daniel Pink, author of 'A Whole New Mind. Why Right-Brainers Will Rule The Future', we have entered the Conceptual Age. This is the time when there's a need for people who are able to conceptualize, to empathize, to create, to see the big picture in a first place. Undeniable is also the fact, that the generation Z representatives naturally possess more of these qualities when compared to elder generations (perhaps, just because they're younger and relatively less spoiled by the old, outdated structures and thought frameworks that are aimed to rather achieve discipline and obedience than innovation and creativity) . Future belongs to them. Consequently, management needs to know them very well to build organizational systems and processes to support their natural strengths and cover up for their weaknesses. It needs to prepare workplace systems and processes that would rather support and foster engagement of

the younger generation. Generation Z is relatively least researched generation. Comparing to Generations X and Y, there is still a large gap into understanding of what are the main driving forces and strongest motivators for this generation to perform at work. Reasons for this are simple, of course – the oldest representatives of gen Z are just out of universities (first ones completed their studies in 2017/2018), so there has been not much opportunity to observe them at workplaces. Still some research has been carried out and there are sources that offer conclusions and observations. These sources provide extremely useful information and good starting point for further research, as well as for experimenting with systems and approaches within the organizations to test validity of provided conclusions. One of the sources defines characteristics of the gen Z being as follows: value remote work options, personal development, continual feedback, rapid career progression and flexibility. They are results driven, seek less face-to-face communication, more through social media. They are the most socially networked in history, thus able to instantly access, consume and digest large quantities of information. They expect immediate responses to questions and will go directly to decision makers. They are likely to change jobs frequently and be interested in starting their own business (Branson, Oelwang, 2015).

The reason global managerial thought becomes more occupied with generation Z related issues is that their parents, teachers, managers and marketing professionals try to understand and engage with this new generation to understand them better in terms of raising, teaching, leading and also offering products and services that they would chose as today's and tomorrow's consumers.

Currently there are 2 billion Generation Z individuals globally, who are born between 1995- 2009, the oldest of them started university in 2013. They are the students of today and the employees of tomorrow, in some cases, they' ve recently joned their first workplaces.

According to McCrindle, generation Z are the most materially endowed, technological saturated, globally connected, formally educated generation our world has ever seen. Technology has played a heavy role in shaping this generation. It is quite obvious that the age at which we first use technology determines how embedded it becomes in our lifestyle. Generation Z representatives have used technology from the early age, they have seamlessly integrated technology into almost all areas of their lives. That's the reason they are also called digital integrators. They are growing up in a world where there are 5.1 billion Google searches per day, 4 billion YouTube views, over one billion active Facebook accounts and over one million applications in the iTunes App Store (McCrindle & Wolfinger, 2014).

Generation Z is also the first generation that is truly globally connected. Already previous generations have pretty much enjoyed global access to the music, movies and celebrities but generation Z as never before through technology is visually globally engaged with the fashions, foods, online entertainment, social trends, communications and even the “must watch” YouTube videos. Many of this generation rather would watch a video summarising an issue than read an article discussing it. As we live in an era of information overload that is increasing every minute, messages have become image based and marketing has learned to communicate across the language barriers with colour and picture rather than words and phrases.

Comparing to all other generations, today’s young people are extensively connected to and to a high extent shaped by their peers. Opinion and views of social network friends often is more influential for them than the one offered by parents or teachers. In a recent study by McCrindle Research (McCrindle & Wolfinger, 2014), it was found that while nearly all the generations had the same amount of close friends (an average of 13); Generations Y and Z had almost twice as many Facebook friends than the older generations. And so, the network that influences them is greater numerically, geographically and being technology based, is also connected 24/7. This is an important fact in the context of the research question of how to engage people through gamification, as game environment offers a lot of opportunities for interaction and peer feedback.

McCrindle also describes the ways how generation Z individuals are different in terms of being engaged with their learning environments. Elder generations were used to verbal messages, sitting and listening to the teacher, focused on content – what to learn, centred on curriculum of a subject, used to a closed book exams, which required severe memorizing of the information. Generation Z prefers and best learns when message is visualized, they need to try and see instead of listening, teacher has to take a role of facilitator for them, they are more focused on process – how they learn, and the process has to be learner-centric, they do not accept blind memorizing of the information, they strongly prefer open book world where the answer is found through browsing loads of information, not trying to recall something that has been read last night. Hence, learning through gamified environment is much more appropriate for them.

Jeanne C. Meister & Karie Willyerd in their book ‘The 2020 Workplace’ define following characteristics for generation Z: hyper connected, super mobile, media savvy, online life starting in pre-school, books on e-readers, etc. Authors of the book refer to the survey carried out by the *Wireless association*, in conjunction with *Harris Interactive*, where they surveyed 2089 teenagers between 13 to 19 about their mobile phone usage and summarized

conclusions in a report entitled „Teenagers: A Generation Unplugged”. The results show following values of generation Z:

- 66 % want the freedom to get an education anywhere on Earth, even through their phone.

- 66 % want to have their medical records and other critical information available to rescue workers via a mobile device.

- 57 % of smart phone users said they carry their cell phones because it is how they stay connected to their world.

- 59 % want mobile access to help them organize their volunteering opportunities and corporate social responsibilities.

These youngsters imagined their ideal mobile phone that would be fully featured multimedia device that is essentially an MP3 player, GPS, desktop/laptop computer, portable video player, text messaging device, and phone all rolled into one. (Meister, Willyerd, 2010)

In his book „The Network Always Wins. How To Survive In The Age Of Uncertainty” Peter Hinssen introduces the VUCA world that we currently live in: Volatile, Uncertain, Complex and Ambiguous (Hinssen, 2014). Elder generations are seriously challenged by VUCA conditions both, in their private lives, as well as at workplaces. Young people, however, find themselves swimming quite comfortably in this ocean of uncertainty and volatility. They are born in this kind of world. They have not seen anything else. For them it’s normal. That’s where the dissonance between the generations often comes. What is „normal” today was not at all „normal” few decades ago. It is easy to understand why many parents, teachers and managers struggle to accept the „new normal”.

Need for the research into characteristics of the youngest generation at workplace becomes even more acute when we realize the extent to which marketplace is rapidly changing. According to Peter Hinssen, global markets increasingly turn into networks of information, serving customer networks. For that reason organizations have to understand the implications and limitations of the structured hierarchies, and adopt the notion of skills networks in order to survive (Hinssen, 2014). Life within a network is something that generation Z understands very well and is extremely good at. If not for the other reasons then for the sake of organizational competitiveness, today leaders ought to look more carefully for understanding and engaging better not only generation Y that is thoroughly researched but also generation Z individuals who are just about to start entering the workforce. Game environment is something very much familiar and “native” to them, thus it can be assumed that their engagement levels

can be positively influenced through creating appropriate work environment where game elements are present.

Businesses are looking for new innovative ways to engage employees and gamification is one such option. Researchers have found that playful activities and well-developed gamification as part of HR process can decrease employee burnout (Sarangi & Shan, 2015) as well as can have far-reaching benefits (Smith & Meyerson, 2015). For example, increase in retention and satisfaction, improved communication, employees will become open to taking risks and being more creative.

1.3 Impact of individual character traits on Employee Engagement

While undoubtedly employee engagement is influenced by workplace factors and by the expectations specific individuals have towards their workplace, which is partly influenced by generation they belong to, there's more to it. Consultants, Researchers and Human Resources Management professionals around the globe are spending enormous time and effort to solve the puzzle of employee engagement but one important element in this equation is in many cases forgotten – personality traits or personal characteristics of individual employee. Perhaps, there is little that companies can do to drive engagement, if certain personality traits are missing in their employees? Perhaps, the answer to the ongoing debate around more engaged workforce is not found within what companies can do to raise engagement of their existing workforce. Perhaps, the answer is in what kind of people companies should hire if they care about high engagement levels.

Rationale behind all the studies related to Employee Engagement is not difficult to define, since numerous authors have proved high impact of engagement not only on business outcomes of enterprises and institutions, but also on individuals themselves. While most research is concerned with the ways how one can improve and increase Employee Engagement from organizational perspective, there's relatively little discussion around individuals and whether there are specific type of people who tend to turn out being more engaged with life in general, including their jobs and whether there's anything that individuals can do to raise their own engagement levels even in circumstances where the organization is not complying with ones expectations fully.

Amy Brann, neuro scientist from UK, in her book *Engaged* (2015) has said: “*Dopamine, serotonin, oxytocin, epinephrine, norepinephrine, and other chemicals all can play their part in helping a person be engaged*”. This indicates that there are some types of individuals for whom it is easier to get to the state of being engaged with the workplace.

Clearly, engagement is a win-win situation for both employees and their organizations, as K. Royal and K. Sorenson (2015) have found out that engaged employees have higher well-being, healthier lifestyles and better health outcomes than their not engaged and actively disengaged counterparts.

The good news, according to research, are that by taking responsibility and empowering oneself by setting measurable, realistic goals and staying focused on how to achieve those, people have high chance for being successful and engagement is following.

Author has performed literature-based research to identify whether and what connection different authors have identified between specific character traits and life engagement of individuals. In addition, brief survey was carried out among MBA students at a Business school to identify the link between work engagement and general life position of individuals.

The basis for all the studies examined on the influence of character traits to ones engagement with life is Positive psychology – a branch of psychology that rather than focusing on the illnesses of the mind, looks on how to make a life worth living. The Field of positive psychology at the subjective level is about valued subjective experiences: well-being, contentment and satisfaction (in the past), hope and optimism (for the future) and flow and happiness (in the present). The aim of positive psychology is to begin to catalyse a change in the focus of psychology from preoccupation only with repairing the worst things in life to also building positive qualities (Seligman, M., Csikszentmihalyi. M., 2000).

Before looking on individual studies, one needs to look first at VIA Classification of character strengths and virtues – the basis for all studies reviewed in this paper. In search for correlation between certain character strengths and life engagement, they provide a clear map of positive character strengths. This classification is regarded as the backbone of the science of positive psychology (VIA Institute on Character website. *The VIA Classification of Character Strengths and Virtues*). The classification was established in a collaboration process of over 50 scientists led by Martin E. P. Seligman and Christopher Peterson over a period of three years. By examining a long list of candidates, six core virtues were identified in the research (wisdom, courage, humanity, justice, temperance and transcendence) and 24 character strengths assigned to them (VIA Institute on Character website. *The VIA Classification of Character Strengths and Virtues*). The VIA Classification of all 24 character strengths and an explanations to each of them is defined by N. Park, C. Peterson, M.E.P. Seligman (2004).

Most of the studies used the Satisfaction with Life Scale to measure satisfaction with life, though some other scales were present as well. Satisfaction with Life Scale was developed by

Ed Diener, Robert A.Emmons, Randy J.Larsen and Sharon Griffin at University of Illinois. The scale evaluates global life satisfaction (2004).

Comparison of Studies

By searching research databases, various studies examining the relationship between character strengths have been found (shown in Table 1.10.).

All of these studies as the basis used the VIA Classification of character strengths and virtues proposed by Martin E. P. Seligman and Christopher Peterson.

Table 1.10.

Studies examined

Number of the study	Authors	Year	Sample size	Sample location
1	Nansook Park, Christopher Peterson and Martin E.P.Seligman	2004	5299	mostly US
2	Satoshi Shimai, Keiko Otake, Nansook Park, Christopher Peterson and Martin E.P. Selingman	2006	1407	US and Japan
3	Nansook Park and Christopher Peterson	2006	680	US
4	Willibald Ruch, Alain Huber, Ursula Beermann, Rene T.Proyer	2007	4419	Austria, Germany, Switzerland
5	Claudia Buschor , René T. Proyer & Willibald Ruch	2013	334	Switzerland
6	Maria L.Martinez-Marti, Wilibald Ruch	2014	945	Switzerland
7	Hadassah Littman-Ovadia and Shiri Lavy	2014	635	Israel
8	Azañedo, C, Fernández-Abascal, E, & Barraca J.	2014	1060	Spain
9	M. Hausler, C. Strecker, A. Huber, M. Brenner, T. Höge, S. Höfer, 2017	2017	299	Austria

Source: Author’s construction, based on research studies of character strengths, 2017.

A total number of 15 978 participants from various countries and age groups participated in these studies. Since most of the studies examined were based on self-evaluation, it is reassuring that among studies was proved that the self and peer ratings converged (Ruch, W., Huber, A., Beermann, U., Proyer, R.T., 2007). Further, in the paper the Authors are briefly going through each of these studies.

Study No.1 - A study by Nansook Park, Christopher Peterson and Martin E.P.Seligman (2004) investigated the relationship between various character strengths and life satisfaction among 5299 adults from three Internet samples. The sample was gathered using Internet – Authentic Happiness Website and Values in Action Website. On average the sample was 35-40 years old and most of them (80%) U.S. citizens. As the study proved, consistently and robustly associated with life satisfaction were hope, zest, gratitude, love, and curiosity. Only weakly associated with life satisfaction in contrast were modesty and the intellectual strengths of appreciation of beauty, creativity, judgment, and love of learning.

From 2002 to 2003 a study by Shimai, Otake, Park, Peterson, and Seligman extended previous studies of character strengths and life satisfaction, conducted with English speakers, to Japanese speakers. The study investigated cultural influences on the distribution of character strengths, gender differences in character strengths and the relationship of happiness to character strengths. In total 1407 people were questioned in United States (1099) and Japan (308). Average age was from 18 to 24 years. The study showed that distribution of character strengths by relative rank was quite similar in the two cultures examined. Although this is definitely not the case for all cultures. For example, a study by Robert Biswas-Diener, which examined VIA character strengths in Kenyan Maasai, Inughuit in Northern Greenland and University of Illinois students found differences between and within cultures (Biswas-Diener, 2006). In the study No 2. It was found that gender differences were also similar (with females being higher in kindness, love, gratitude, teamwork and appreciation of beauty and males being higher in open-mindedness, perspective, creativity, bravery, and self-regulation). Thirdly, relationship of the strengths to happiness was also similar (zest, hope, curiosity and gratitude) (Shimai., S., Otake., K., Park., N., Peterson., C., Seligman., M., 2006).

Study No.3 – a study by Nansook Park and Christopher Peterson examined character strengths and happiness among young children. Total of 680 parents' written descriptions of their children between ages of 3 to 9 years were collected. Love, zest and hope were associated with happiness. Gratitude was associated with happiness only among older children. Overall this study shows similar patterns as in samples of adolescents and adults (Park, N., Peterson, C., 2006).

A study (Study No.4) made by Willibald Ruch, Alain Huber, Ursula Beermann, and Rene T. Proyer questioned 4419 research participants from Austria, Germany and Switzerland. Research showed that overall similar strengths were predictive of life satisfaction in the three countries with small differences. In all three countries degree of life satisfaction increases with degree of development of the good character (the total score of all strengths). Hope and Zest

correlated the most with life satisfaction. This study do not imply causality, the study provides evidence that life satisfaction build upon a well cultivated character (Ruch, W., Huber, A., Beermann, U., Proyer, R.T., 2007)

Study No.5 - A study by Claudia Buschor, René T. Proyer & Willibald Ruch raised the question whether the positive relation between character strengths and satisfaction with life found in previous studies can be replicated if peers give the rating. A sample of 334 adults completed a questioner and were rated by total of 634 peers. The study found out that the self and peer ratings converged. Also the strongest correlation between character strengths and life satisfaction was found for hope, zest, curiosity, gratitude and love. Author points out the importance of this study because the character strengths were identified also by other people and therefore were less subjective (Buschor, C., Proyer, R.T., Ruch, W., 2013).

Study No.6 - A study by Maria L.Martinez-Marti and Wilibald Ruch is trying to assess the relationship between character strengths and subjective well-being (life satisfaction, positive and negative affect) in a representative sample of German-speaking adults living in Switzerland. Sample of 945 German-speaking adults (459 men, 486 women) of working age, starting from 27 to 57 years living in Switzerland participated in this Study. Hope, zest, love, social intelligence and perseverance yielded the highest positive correlations with life satisfaction. What is important, the study also shed light on the fact that the relative importance of some characteristics over others vary across the life span. In the 27-36 years group, strengths that promote commitment and affiliation (kindness and honesty) were among the first five positions in the ranking if the relationship between strengths and well-being. In the 37-46 years group, in addition to hope, zest and humour strengths that promote the maintenance of areas such as family and work (i.e. love, leadership) were among the first five positions in the ranking. In the 47-57 years group in addition to hope, zest and humour, strengths that facilitate integration and a vital involvement with the environment (gratitude, love of learning) were among the first five positions in the ranking (Martinez-Marti, M., Ruch, W., 2014).

Study No.7 - A research executed by Hadassah Littman-Ovadia and Shiri Lavy examined Isreali adults. Total of 635 Hebrew speaking Isreali adults participated in the study. The results replicated previous findings of other studies - Hope, gratitude, vitality, curiosity and love had the highest associations with life satisfaction (Littman-Ovadia, H., Lavy, S., 2014).

Study No.8 – A study conducted by Azañedo, C, Fernández-Abascal, E, & Barraca analyzed character strength associations with life satisfaction in Spain. Total of 1060 adults participated in this study. The findings of this study replicated finding from earlier studies. This particular study showed that five character strengths – hope, zest, gratitude, love and curiosity

showed very high correlation with satisfaction of life (Azanedo, C., Fernandez-Abascal, E., Barraca, J., 2014).

Study No. 9 - Melanie Hausler, Cornelia Strecker, Alexandra Huber, Mirjam Brenner, Thomas Höge, and Stefan Höfer in their 2015 and 2016 research among medical students of the University of Innsbruck in Austria looked at the impact of character strengths on a number of dimensions and basic human psychological needs, such as relationships, engagement, meaning, mastery, autonomy and optimism. Results of the research were published in 2017 and discovered that the strongest impact on engagement has zest and curiosity.

Another interesting set of conclusions have been made by I. Ludviga and A. Kalvina (2016), where the authors have investigated engagement drivers of academic staff at one large higher education institution in Latvia and explore the link between staff satisfaction, loyalty and engagement. What they have found out was that it is important to ensure variety of learning opportunities and career growth possibilities. Since job meaningfulness contributes to work engagement and loyalty to organisation, it is worth investing in job characteristics and job design by raising psychological meaningfulness and thus promoting work engagement. Leaders should ensure fair treatment, transparency of procedures and policies and equal opportunities for all staff members in order to raise the level of trust in the organisation and management. The most interesting discovery by this research, however, is that academic staff's engagement levels exceed their satisfaction, which means that employees of the educational institution might not be satisfied with their work environment and conditions, still they experience relatively high engagement due to the nature of their work and due to their personality traits that help them to experience pride and meaningfulness despite of the missing job satisfaction. This is another proof that personality traits of an individual play essential role in defining their engagement with particular work mission. Based on information gathered from all the studies, it can be concluded that correlation between certain character traits and engagement with life exists. Based on the literature review, below are summarized character strengths that correlate the most with life engagement and happiness in Table 1.11.

Table 1.11.

Character strengths with highest correlation with life engagement

Number of study	Character strengths with high correlation					
	Wisdom and Knowledge	Courage	Humanity		Transcendence	
	Curiosity	Zest	Love	Social intelligence	Gratitude	Hope
Study No.1 N. Park, C. Peterson, M. E.P.Seligman, 2004	x	x	x		x	x
Study No.2 S. Shimai, K. Otake, N. Park, C. Peterson, M. E.P. Selingman, 2006	x	x			x	x
Study No.3. N. Park, C. Peterson, 2006		x	x		x	x
Study No.4 W. Ruch, A. Huber, U. Beermann, R.T.Proyer, 2007		x				x
Study No.5 C. Buschor, R.T. Proyer, W.Ruch, 2013	x	x	x		x	x
Study No.6 M.L.Martinez-Marti, W.Ruch, 2014		x	x	x		x
Study No.7 H. Littman-Ovadia, S. Lavy, 2014	x	x	x		x	x
Study No.8 C. Azañedo, E. Fernández-Abascal, J. Barraca, 2014	x	x	x		x	x
Study No. 9 M. Hausler, C. Strecker, A. Huber, M. Brenner, T. Höge, S. Höfer, 2017	x	x				
Number of occurrence in studies	6	9	6	1	6	8

Source: Author's construction, based on the research literature review, 2018

As seen in the Table 1.11., **Curiosity** – the taking an interest in ongoing experience for its own sake, **Zest** - approaching life with excitement and energy, **Love** – valuing close relations with others, **Gratitude** - being aware of and thankful for the good things that happen

and **Hope** - Expecting the best in the future and working to achieve it consistently showed highest correlation with life engagement and happiness.

Especially fitting seem the explanations provided by Nansook Park, Christopher Peterson and Martin E.P.Seligman (2004) – “*Gratitude connects one happily to the past and hope connects one happily to the future. Zest and curiosity reside in the here and now. Love is the manifest in reciprocated close relationships – the domain in which ongoing life plays itself out in the most fulfilling way.*” From this perspective, the results of all these studies seem logical and even expected to some extent.

Insight from a practical perspective

45 MBA students of Riga Business School, were asked to answer 12 questions measuring employee engagement, based on the Gallup approach. Answers were given on a 5 point Likert scale, where 1 = strongly disagree; 2 = disagree; 3 = neither agree nor disagree; 4 = agree and 5 = strongly agree. 60% of those or 27 students answered mostly positively (agree and strongly agree) to 10 or more questions.

According to overall research this can be considered as rather high ratio of engaged people for a general pool of respondents, given the widespread belief that there are only 13% of the people around the globe engaged with their workplaces (Gallup, 2015).

The same students were asked to assess themselves on a 5-point scale answering questions about their life position, such as:

I consider myself being generally positive and optimistic person, I expect things to turn out well in a first place;

I am happy with my life in general;

I know my goals in life and sooner or later I am successfully achieving them;

I use my failures to learn from those and be more successful next time;

My success in life and at work is primarily dependent on my own thoughts, attitude and effort;

If I see a situation where I know I can help, I will offer my advice or support even if I'm not asked to do so;

At work and in life I often do more than I'm expected or asked to do, going an extra step for the sake of better outcome is a natural thing for me.

It was, then, obvious that the ratio of people in the audience responding with “agree“ or “strongly agree” to the given set of questions was even higher – 71% or 32 people. Perhaps, even more informative is the fact that those people in the audience who scored low in their

responses to personality diagnostics, stating mostly “disagree” and “neither agree nor disagree”, were all demonstrating low results in respect to their engagement score.

Limitation with this survey is that it is a small exercise with a very specific audience – Business Administration students who would be in general expected to be more engaged as personalities and taking responsibility for their own success through investing in their business education and committing effort to achieving their targets. As S. Achor (2011) has elaborated: *“being engaged does release dopamine and serotonin, which can make you want to work harder and subsequently be more successful. Working hard and recognizing the goals you are achieving can also release dopamine and serotonin”*. Nevertheless, the conclusion out of this exercise is that it is worth to repeat it with a larger and more general pool of respondents to see what are the correlations.

Management consultants, researchers and HR professionals accross the globe agree that high Employee Engagement is the goal state to achieve through various human resource management processes in a workplace and as such is a measure or indicator of HRM efficiency in a company. With the help of game elements it is possible to design HRM processes so, that those become more effective in terms of engaging employees with the specific process directly and indirectly with the organization overall.

There are certain rules to follow when attempting to successfully gamify particular HRM process, as well as there are failure risks in case those rules are ignored.

The use of game elements to gamify non-game processes in HRM have great power to increase motivation and influence employee behaviour and engagement. By researching the amount of scientific papers on the use of gamification tools in HRM, it can be seen that there are many case-based reports or research papers that are mainly based on the literature reviews available. Although, there are several papers on various gamification models that have empirical analysis of the main underlying reasons of why gamification is successful, there is rather limited availability of such reports in relation to gamification used in HRM. It would be interesting to see some additional research on the validity of game-like assessments in Recruitment and selection, and the reactions from applicants (whether candidates see game-based assessments as fair or relevant to the job). Additionally, it would be interesting to see whether in training process, poor attitude from employees and lack of previous experience with games, negatively affects the motivation to participate in game-based training.

Nevertheless, by studying the literature reviews and analyzing the cases, trends and implications of the gamification in HRM processes can be observed.

Companies are recognizing the growing intensity of competition for skilled and qualified workforce and are trying new tools to attract the right candidates. This provides insight into how the candidate would approach real work and it helps eliminate those applicants lacking the patience or aptitude for the job. HR teams can also use gamification internally to reward top recruiters and incentivize employees to refer top candidates.

Mandatory trainings that are present on most industries and organizations to some extent, often do not have high motivation from employee side, especially when they don't see a relationship to their day-to-day tasks. Adding a gamification experience to the online learning program can increase involvement and benefit the learning experience. Besides, HR function benefits from the ability to check those boxes for compliance in a timely fashion, without the pressure of having to hound employees to complete the programs.

Additionally, gamification offers new ways to align employee behaviour with organizational goals. Game elements can be adopted at little or zero cost, therefore, companies should be able to adapt to these new methods and include them in their organisational processes.

There are numerous ways in which game concepts can be used in HRM, for example, gamification can be used in HR to attract, induct, train and develop, engage and retain employees. As well as HR professionals understanding gamification to actively create gamification strategies themselves, developing such an understanding will also be important for these professionals to enable them to manage others who create and run gamification platforms on their behalf.

However, even though there have been several great examples, many companies still have not integrated gamification tools in their organisations. There are common reasons for not doing so. First of all, belief is alive that gamification is too expensive. This is not true, because companies do not need to develop a highly-advanced software to take advantage of gamification. Leadership can apply the basic principles to existing processes to improve engagement rates. Secondly, old-fashioned managers may not understand or approve of gamification in workplace. It is necessary to reach out to the younger generation in the company to help convincing the executives in using these tools. Lack of understanding about gamification is another reason that reduces the use of it. Many businesses today still do not understand how it works or the range of benefits that can be obtained by incorporating game-like incentives into workplace activities.

Every company must design a strategy that addresses its individual business challenges, therefore the game concepts and tools used must align with company goals. An organization

needs to understand rules of the game, and tie those to the goals, player motivators and fit, to achieve real-world results.

Dan Pink within his work “Drive: the surprising truth about what motivates us” (Pink, 2009) correlates the hierarchy of needs with the basic principles of gamification and explains that the deficiency needs in the model are satisfied by a long-term interaction with the gamification method, where people can attain status, social cohesion and reputation. The reason gamification is so successful is due to the rewards provided in the self-actualisation pinnacle of the Maslow model. By playing the same “game” social cohesion is created, and by using rewards and feedback, self-esteem and a sense of achievement are promoted.

When companies attempt to apply gamification to their Human resource management processes and as part of this effort define their specific audience (its employees), it makes sense to consider both, distribution of workforce across specific generations (Marin, 2018) but also characteristics or personality traits of individuals, in order to define potential for engagement through specific game design (Zichermann & Cunningham, 2011) and in order to pick the most appropriate, fit for the purpose (Sims, 2018) game elements or scenarios.

2 FREQUENCY OF USE AND IMPACT OF GAMIFICATION ON EMPLOYEE ENGAGEMENT WITH HUMAN RESOURCE PROCESSES

This chapter intends to propose methodology for researching the linkage between Employee Engagement and application of gamification in Human Resource Management processes at Latvian companies, as well as discuss the findings from the first employees' opinion survey of respective scale (N = 620), where penetration of gamification within Human resource management processes in Latvia has been identified, along with its impact on employee satisfaction and engagement.

Throughout the chapter, author also suggests methodology for quantitative and qualitative research to find out how many companies in Latvia are using game elements in their Human Resource Management processes, which processes are most commonly gamified in Latvian companies and whether or not those companies that do use gamification as a tool experience relatively more engaged workforce and thus, more efficient HRM processes.

Chapter discusses the methodology for research how widely gamification is used currently in different Human Resource Management processes in Latvia and what is the impact of gamified HRM processes on employee engagement, if at all. Analysis of the survey results are also provided and discussed. Additional outcome of the research is identification of most responsive Human Resource management processes in terms of influence on Employee Engagement levels, when these processes are gamified.

Methodology consists of the following elements:

- 1) Questionnaire with 10-point Likert scale
 - 7 blocks of reflective type of questions
 - Questions organized in blocks around character traits, management, colleagues and job content
 - 6 in practice most frequently gamified processes: recruitment and onboarding; reward and recognition; performance management, learning and development; internal communication and team building.
 - Blocks of questions around job satisfaction and engagement
- 2) Tool for analysis SmartPLS programma (models for analysis with and without gamification found further in the chapter)
- 3) Changing the block of questions that covers gamified processes (including only the ones that are relevant in a specific case) methodology can be used also for

measuring impact of gamified HRM process(es) on engagement in a particular company or group of companies.

Given the highly engaging character of the game environment, author draws a hypothesis that Employee Engagement can be positively influenced by application of game elements to the organization's people management processes. If the hypothesis is proven true, organizations could make a more widespread and better use of gamification to improve their environments and raise employee engagement, through that improving profitability and competitiveness of the business. Research should be also able to determine those Human Resource Management Processes, where investment into gamification would promise relatively highest return on such investment. Is it Recruitment, Onboarding, Performance Management, Reward & Recognition, Learning and Development, Team Building or Internal Communication that responds best to the gamification effort and offer highest impact on employee engagement?

Chapter suggests methodology to gather information about how widely and in which HRM processes currently companies in Latvia mostly use game elements. It will also offer conceptual model for researching employee engagement effect of different dependent and mediating variables, suggest methodological approach to results' analysis. Qualitative dimension of the research methodology proposes interview structure for surveying opinions and observations of Human Resource Management professionals in those Latvian companies that already use gamification in their HRM routines.

The first step to research the situation has been gathering information about how widespread currently the trend between Latvian business enterprises is to use game elements as part of the people management processes design. For that purposes a short questionnaire has been distributed through Latvian Personnel Management Association to its members asking to respond whether they do use gamification currently within any of their people management practices or not. For those who respond positively, it is further asked to indicate specific, pre-defined HRM processes in which they use game elements.

There are several definitions of the classic HRM processes, that are developed around the employee journey or lifecycle in an organization. Namely, Acquisition and preparation of Human resources (that includes HR planning, recruitment, selection, placement (onboarding) and trainin); Assessment and Development of Human resources (that includes performance management, employee development, employee separation and retention); Compensation of Human resources (that includes Pay structure decisions, recognizing employee contributions

with pay and employee benefits); and collective bargaining and labour relations (that includes job safety, employment legal framework) (Noe, et al, 2015).

Study by Chahar and Hatwal (2018) indicates that HRM practices such as procurement (recruitment and selection), compensation management, training & development, performance management, welfare practices, career growth opportunity have significant impact on employee engagement.

Another aspect of better engagement is communication. It is crucial in ensuring employee engagement, as clear communication from management helps employees to relate their role with management vision (clear internal communication can effectively convey the organizational values to all employees and obtain their support in reaching organizational goals) (Bedarkar and Pandita, 2014).

Hence, the particular processes have been chosen for the purpose of the research – Recruitment and Onboarding, Learning and Development, Performance Management, Reward and Recognition, Team Building, Internal Communication.

For the research purposes (because HRM terminology involves several terms for the same activities, as well as processes have a trend to overlap, it is advised to stick with specific, predefined terms throughout the research to ensure validity), Human Resource Management processes are therefore defined the following way:

Recruitment and Onboarding

Performance Management (target setting and feedback)

Reward and Recognition

Learning and Development (training)

Internal Communication (also ideas generation)

Team Building

The last question of this mini-questionnaire was whether they do or do not measure employee engagement in their organization. Target of the author was to have around 100 responses to draw relevant conclusions.

Information acquired via this questionnaire was used to assume the extent to which gamification is already widespread in HRM processes in Latvia, as well as to provide data for selecting HR Managers for the purpose of performing qualitative interviews.

The second step of the research is survey aimed at employees representing different business enterprises in Latvia. These are random respondents employed by business enterprises in Riga city and close area. The reason for choosing specific geographic location is the higher density of relatively more developed companies in this territory.

For the survey purposes dependent variable is Employee Engagement (ENG). There are six independent variables suggested that correspond to above outlined HRM processes, namely, Recruitment and Onboarding (RO), Performance Management (PM), Reward and Recognition (RR), Learning and Development (LD), Internal Communication (IC) and Team Building (TB). As mediating variables are suggested Generation (GEN), Personality (PER), Job Content (JOB), Supervisor (MNG) and Colleagues (COL). Satisfaction (SAT) is there as a second order dependent variable to detect whether there is more influence on employee engagement or satisfaction when organizations invest in gamifying different people management processes and what is the impact that Satisfaction has on Engagement.

The reason for suggesting Personality (PER) as a mediating variable is observation that within the same environment and conditions certain individuals tend to be happier and act in a more engaged way than the others. It is believed by the authors that individuals whose personality is more positive, who assume their own accountability for their situation and conditions in life and are engaged with the life in general are also more engaged with their organizations irrespective of organizational policies and processes, including whether or not game elements are in use to better engage employees. It was interesting to observe the extent to which this hypothesis is proved, as the outcome may have strong impact on the hiring process of the companies.

The other mediating variable, Generation (GEN), is suggested due to belief that younger individuals are more inclined to appreciate gaming and thus would feel happier and more engaged with the company that does use game elements in their people processes. Whether or not this turns out to be true may have an impact on personnel planning and future design of HRM processes when the organizations realize change of generations in their people resources.

Mediating variable Supervisor (MNG) is included based on literature and practice based belief that Employee Engagement to a high extent is influenced by their relationship with the Manager. Manager is one of the most important elements, influencing work environment and environment is essential influencer of person's behavior (Lewin's equation, *Lewin, Kurt 1936*).

Finally, mediating variable of Colleagues being positive and engaged (COL) is introduced under belief that those individuals whose direct team members (or most of them) are generally positive and having optimistic views on life in general, are also themselves happier and engaged with their jobs and companies in general. The belief is influenced by the observation that many of methodologies that are applied to measuring concepts like employee commitment (TNS, www.tns.lv), employee engagement (Gallup, www.gallup.com), employee satisfaction and other close constructs, have questions related to team environment and

assessment of direct colleagues. For example, one of the 12 criteria used by Gallup in measuring employee engagement, is whether or not an individual has his or her best friend at work. TNS, on their end, have questions regarding general positivity and engagement of the direct colleagues. With human beings having a high need for the close social connections and being strongly influenced by others' opinions, it is reasonable to assume that positive and engaged social environment will influence positively individual's own satisfaction and engagement.

Job content (JOB) is the element that according to Gallup (as well as many thought leaders in HRM domain) has high influence on employee engagement. Whether or not one perceives his or her job as being meaningful, adding up to a purpose bigger than themselves, strongly influences the extent to which such person will feel engaged with the organization he or she works for.

Interviews with Human Resource Management professionals of those companies that responded positively during the search for organizations who use already game elements within their people management processes proved that there is insufficient understanding and knowledge about gamification as a concept among Human Resource management professionals in Latvia. Nevertheless, within the processes like Team building and Learning gamification is rather commonly used approach. Human resource professionals have not observed direct impact of gamification on overall employee engagement in the company, however, they reported an observation that employees are more inclined to engage with particular processes when those are gamified. The highest degree of engagement and thus, positive impact on the efficiency of the process was observed in Learning. Specifically, this was reported to be true in case of mandatory trainings that involve large amount of relatively boring information – e.g. onboarding, job safety, internal regulations, security trainings, etc. Human resource professionals also reported observations regarding the younger generations in the workplace where according to their opinion representatives of generations Y and Z respond particularly well to the application of game elements to their workplace processes. This was an interesting conclusion, as it did not prove being supported by results of employee opinion survey. Altogether, 30 Human resource managers representing medium to large Latvian enterprises were interviewed. Among other, gamification and engagement related questions, during the interviews they were asked:

- 1) what are the 3 top HRM related challenges in their organizations today;
- 2) What are the upcoming top challenges in the next 2 – 3 years;

3) what, according to their observations, are differentiating characteristics of generation Z representatives;

4) How (if at all) they prepare their organizations for onboarding generation Z;

5) what is not done today but should be done in order to better prepare their workplace for onboarding generation Z.

Answering the question about today's challenges, all 30 respondents mentioned finding and/or retaining the right talent for their organizations as the top challenge, followed by employee engagement. For the 3rd most important HRM agenda item there was more variety of opinions. Building leadership capital, building sustainable organizational environment, talent management, motivation, reward, succession planning, fostering innovation, and strengthening their HR data analytics capabilities were all mentioned by HRM professionals.

When asked about future challenges, most respondents didn't see any change in priorities upcoming, except of generation Z onboarding issues, where all except 5 mentioned this as a potential problem area for their companies. It seemed problematic mainly for the reason that there's not sufficient knowledge widely available yet on characteristics of this generation and how to best engage it. Where generation Y is probably the most researched one during the history of Human Resource Management discipline, and professionals today are widely accustomed to seek for the managerial advice that is largely available, generation Z is somewhat left to the intuition of the managers and Human Resource Management departments.

Regarding other challenges they predicted even more difficulty in the future attracting the talent organizations will need (partly, due to the changing demand for the skills and competencies that is not matched by the education system supply mechanisms). Growing importance and pressure on ability to deliver meaningful information for business decisions that is based on analysing the data available to Human Resource functions was also massively mentioned as growing priority.

Respondents also provided answers regarding observed characteristics of generation Z representatives. These were based on a personal, family experience, where respondents had generation Z children (10 respondents out of 30 mentioned their personal family observations). All of them also had at least few observations from professional settings – either generation Z belonging youngsters were serving as interns in their companies or in some cases as employees in their early stage jobs (e.g. as cashiers in a supermarket, assistants, analysts, etc.).

Characteristics that were mentioned in response to above questions were as follows: it's difficult for them to keep focus for longer than few minutes on something; they're hyper connected; they don't have any respect for authorities; no respect for power and structures; extremely social; want to have fun at work, work has to be like a play for them; knowledge rather deep but narrow than broad, sometimes fragmented; lacking of loyalty; sceptic for formal education, etc.

All 30 Human Resource management professionals confirmed that there is missing valid and objective information about how to best prepare for attracting, recruiting, managing and retaining the youngest generation of the workforce when they start massively joining the pool of employees. Currently everybody is basing their approaches on personal experience and professional intuition that is far from desired state of things.

Three interviews were also carried out with professors from Riga Business School and SSE Riga, where author sought to understand characteristics and learning behaviours of generation Z students. Professors reported their observations that mainly focused around inability/unwillingness of youngest students to focus on topics and issues for a longer period of time, disrespect for rules and regulations, as well as for power or authority, close attachment to their mobile devices and extremely weak test results where study process required for memorizing larger amount of information. Professors had a feeling that youngest students overwhelmingly prefer the „easy way of doing things”, are not willing to invest sufficient effort and does not have sufficiently serious attitude towards their study process and future. On the other hand, they admitted that they can be surprisingly smart on occasion, with rather high ethics, socially responsible, creative and eager to learn whenever learning process is designed to suit their preferences and offer frequent individual feedback.

Above findings on the characteristics of the younger generation employees seem to suggest that gamification in a workplace has a potential for being successful in terms of endeavour to engage young people with those processes, as it offers possibility to diversify and ease the learning, communication, performance management, recognition, internal communication, etc. It helps to avoid routine, dissolves the need for heavy longterm concentration, offers frequent feedback and ability to observe the progress regularly, etc.

Since the research aim was to link all the previously discussed constructs (engagement, satisfaction, generation, personality, colleagues, job content, gamification of specific HRM processes) together, they were included in the research model and the following questions were outlined:

- 1) Which constructs are the best predictors of employee engagement?

- 2) What is the impact of individuals personality, generation, job content and engaged colleagues on his or her engagement with the organization?
- 3) What is the relationship between application of game elements to Human Resource management processes and employee engagement, job satisfaction?
- 4) Which Human Resource management processes have the highest impact on employee engagement when gamified?
- 5) What is the penetration rate of gamification use within HRM processes in Latvian business organizations?
- 6) Do younger employees respond better in terms of engagement and satisfaction to gamified HRM processes

Sample size for this research was planned between 200 and 300 respondents to be appraised through the Survey instrument of a structured questionnaire with questions developed for measuring employee engagement and employee satisfaction. Satisfaction includes 4 sub-constructs – work environment, management, team and job itself. The questionnaire measured all items on a 10-point Likert-type scale, where 1 = strongly disagree and 10 = strongly agree. 10-point scale was chosen as the most appropriate for this research purposes, based on conclusions from Dawes, J. (2008). The survey was prepared in Latvian language and included demographic variables like age and gender.

Engagement (ENG) was be measured with 7 statements developed based on Gallup, TNS and UWES (Utrecht Work Engagement Scale) instruments, as well as inspired by methodologies used by management consulting and management solutions provider organizations like Towers Watson, Hewitt, Officevibe, Globoforce, etc., and include engagement relevant statements, such as “I strongly identify myself with the organization’s vision and goals”, “My job is important for the organization ”, “I have freedom to decide on the ways how to do my work”, “I have opportunity to express my opinion at work”, “I often do more at work than my direct responsibility is, without anybody asking for that”, etc.

Satisfaction (SAT) in the model is second order construct and is not measured directly. It includes employee satisfaction with the job content, colleagues, and Human Resource Management processes in the company they work for, as well as organization in general.

SmartPLS software was used for result analysis because it enables to investigate models at high level of abstraction instead of simply interrelating the dimensions. In order to distinguish job satisfaction from engagement higher order model was designed that uses hierarchical components approach (May et al, 2004). Satisfaction (SAT) was measured by observed variables for all the first order factors.

Scientific literature study	<ul style="list-style-type: none"> • analysis of gamification • analysis of the employee engagement • insight into complex environment of HRM processes and other engagement influencing factors
Formulation of the hypothesis	<ul style="list-style-type: none"> • given the highly engaging character of the game environment, employee engagement with different HR processes is positively influenced by application of game elements, which helps to increase measurable indicators of the said processes
Data analysis	<ul style="list-style-type: none"> • Qualitative research - expert interviews, focus group discussions • Quantitative research (questionnaire - employee opinion survey), data analyzed by SPSS and SmartPLS, Mann-Whitney Test for mean (arithmetic average) differences, Structural Equation Modelling (PLS-SEM) method, Heterotrait-Monotrait (HTMT) ratio of correlations
Case analysis	<ul style="list-style-type: none"> • analysis of the business cases from organizations where HRM processes have been gamified and results analyzed, including the impact of gamified processes on process indicators
Development the model	<ul style="list-style-type: none"> • 10-steps model for engagement positive gamification in HR
Practical test	<ul style="list-style-type: none"> • based on literature, expert interviews and case analysis findings, developed and implemented gamified internal communications process
Verification of results	<ul style="list-style-type: none"> • focus group discussion • analysis of the practical test results
Conclusions	<ul style="list-style-type: none"> • gamification has proven positive effect on gamified processes' indicators, it helps to engage employees to participate in such processes more actively. However, there are rules to follow in order to achieve engaging effect and reach the goals established. Direct positive effect of gamified HR processes on overall employee engagement in Latvia is not felt yet, which is contradicting the theoretical findings and can be explained by the lack of guidelines for engagement-positive gamification
Recommendations	<ul style="list-style-type: none"> • recommendations for the HRM professionals to follow in order to improve the engagement of employees with the HR processes through gamification; for the professional associations, educators, technology providers, researchers, etc.

Figure 2.1. Design of conducting of the research.

Source: author's construction, 2017

Overall, the research was conducted and findings analyzed following the steps, as shown above in the figure 2.1.

2.1. Application of game elements in Latvian Human Resource management practices

While globally gamification in Human Resource Management processes is used more and more widely, little or no data exist regarding its use in Latvia. Employee Engagement in most Latvian organizations and enterprises still lags behind desirable levels (Kantar TNS, 2018). At the same time gamified Human Resource Management Processes hold the potential for increasing engagement levels. Therefore, the aim of the given research was to establish how widely gamification is used within different Human Resource Management processes in Latvian enterprises and organizations, which processes are most commonly gamified and whether there are any differences between industries and size of the organizations.

Quantitative research design was chosen. Data was gathered in Latvia using CAWI interviews: number of respondents well exceeded initial plan and reached 620, general pool of respondents – individuals employed in Riga and Riga surroundings, age group between 18 and 65 years old.

Structured questionnaire was designed according to the research model. Scope of the survey included analysis of the impact of gamified human resource management processes on employee engagement and satisfaction. Therefore, the model was designed with two dependent variables: engagement and satisfaction. Four factors were designed as independent variables which impact engagement and satisfaction: job itself, management, colleagues and character of the employee. Respondents were asked to state the level of their agreement with the statement. As the scope of this article limits survey results analysis to the frequency of the application of game elements to human resource management processes in Latvia, the rest of the findings will not be analysed here.

The survey was prepared in Latvian language and included demographic variables like respondents' gender, age and whether they are currently employed. Only those who approved their employment were asked to continue. Further information about the industry sector, the size and age of the organisation were asked.

For more clarity questionnaire provided an explanation for gamification – respondents were asked whether they have experienced at their workplace within various Human Resource Management processes following game elements – electronic, online or virtual reality games, competition elements, leaderboards, badges, status or progress symbols, role plays, imitations, card or board games, team exercises, etc. Use of gamification in HR functions was measured

with yes/no type question where “yes” was coded as 1 and “no” as 2. Respondents were asked to identify whether gamification is being used in their organizations in recruitment and onboarding, performance management, rewards and recognition, learning and development, internal communication, teambuilding and other processes.

Research results and discussion

Research was performed to provide an answer to the question what is the penetration rate of gamification use within different HRM processes in Latvian enterprises and organizations? Data was analysed to characterise the situation in Latvian organisations using SPSS 21 software. HRM processes that were considered, were as follows: Recruitment and Onboarding (RO); Performance Management (PM); Reward and Recognition (RR); Learning and Development (LD); Internal Communication (IC); Team Building (TB).

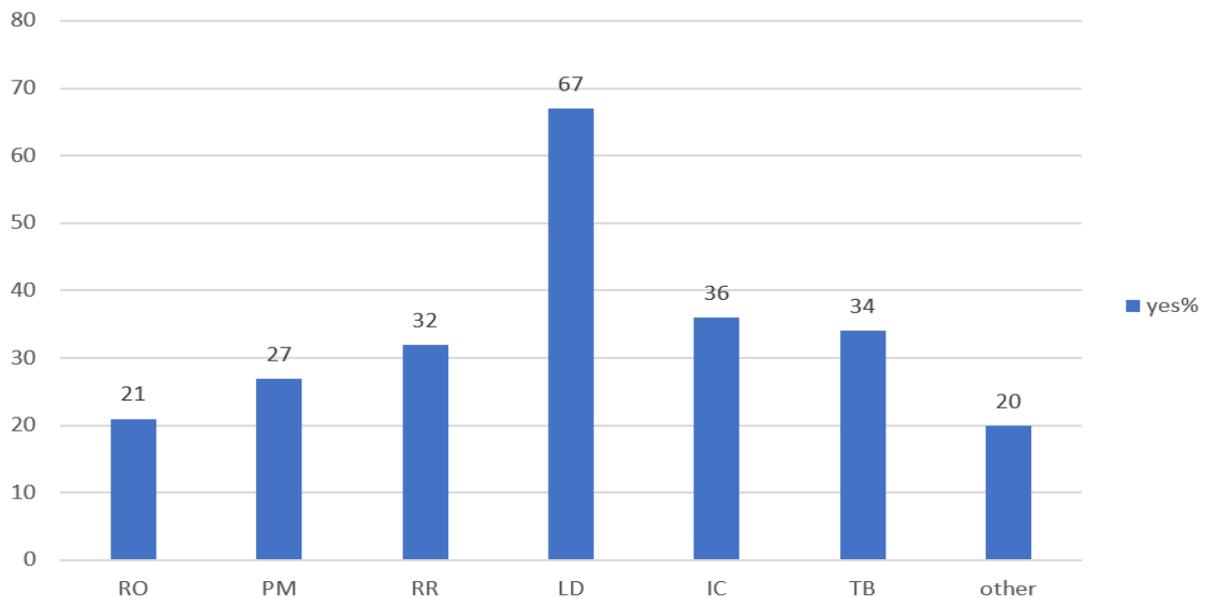


Figure 2.2. Use of gamification in HR processes in Latvian organisations

Source: Author’s conducted survey, 2017, N=620

Results of the survey showed that almost 70 % of all organizations in Riga city and its surroundings apply game elements at least within one HR process – Learning and Development. The other processes are less frequently gamified, however in at least 20% of cases gamification is in use within all the HR processes. It can be concluded, hence, that the concept of gamification is familiar to Latvian marketplace and we may expect the trend growing in the future.

The next task was to understand whether and what is the difference in terms of gamification in HR processes in different industries. For that purpose, the Chi square test of

independence was used. This test was chosen since it is used to determine if there is a significant relationship between two nominal (categorical) variables.

Table 2.1.

Number of respondents from all industries

Industry	Agriculture and forestry	Production	Trade	Service	Other	Total
Number of respondents	3	99	77	221	220	620

Source: Author’s research, “Use of gamification in HR processes in Latvian organizations, 2017, N= 620

Above table demonstrates number of respondents per sector. Unsurprisingly, most participants represent Services sector. Yet, some participants have not been able to decide on specific sector they represent, as well as there has been an insignificant small number of respondents representing a number of other sectors.

Chi square test results are summarised in the Table 2.2.below.

Table 2.2.

Summary of Chi square test of independence results

	Pearson Chi-Square Value	Df	Asymp. Sig. (2-sided)	Conclusion
RO*industry	14,238	4	0,007	differences are statistically significant at 95% confidence level; in trade is used more than in others
PM*industry	2,633	4	0,621	differences are not statistically significant
RR*industry	8,738	4	0,068	differences are statistically significant at 90% confidence level; in trade is used more than in others
LD*industry	4,217	4	0,377	differences are not statistically significant
IC*industry	,631	4	0,960	differences are not statistically significant
TB*industry	1,456	4	0,834	differences are not statistically significant
other*industry	1,456	4	0,834	differences are not statistically significant

Source: Author’s conducted survey, “Use of gamification in HR processes in Latvian organizations, 2017, N= 620

Conclusions from this analysis are made that there is a relationship between industry and use of gamification in 2 HR processes: recruitment and onboarding (RO) and rewards and recognition (RR). However, there is no statistically significant differences between Industries and use of gamification in the following HR processes: performance management, learning and development, internal communication and team building.

Further down analysis of the gamification frequency within particular processes is provided. Figure 2.3 below shows the use of gamification in HR process Recruitment and Onboarding in different industries. In trade sector gamification is used more in recruitment and onboarding as it is in other sectors (36% use it) see figure below.

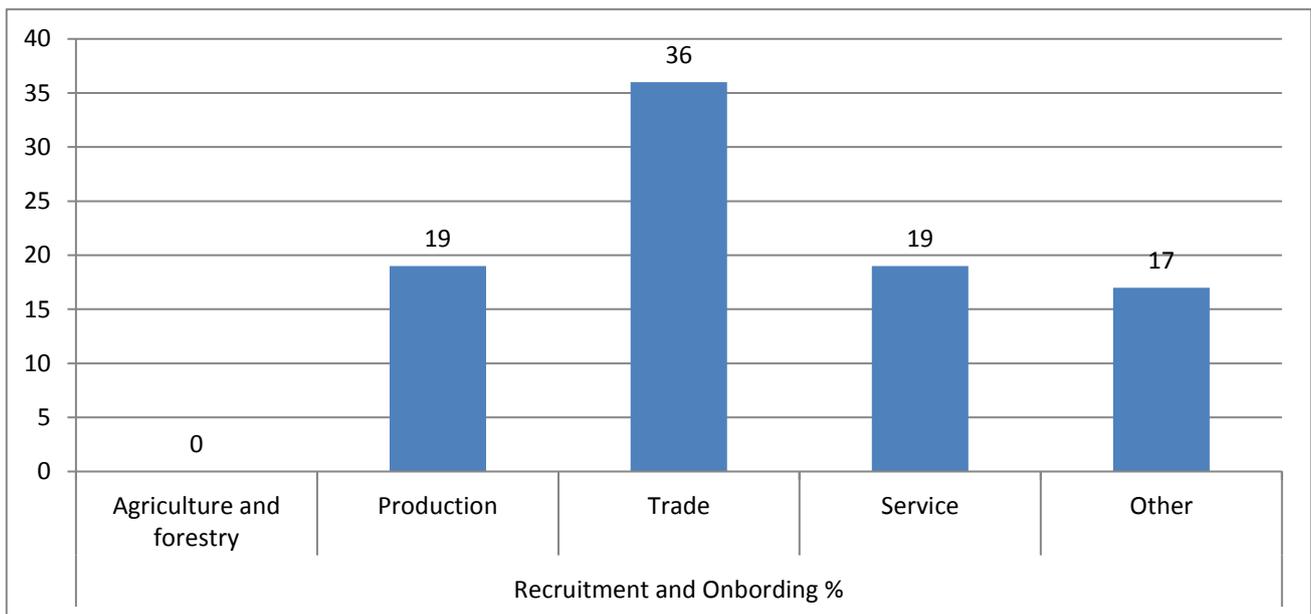


Figure 2.3. Use of gamification in Recruitment and Onboarding (in %)
 Source: Author’s conducted survey, “Use of gamification in HR processes in Latvian organizations, 2017, N= 620

Figure 2.3. below shows the use of gamification in Rewards and Recognition (RR) process in different industries. In agriculture and forestry gamification appears to be heavily used, however the number of respondents in this industry is too small to evaluate differences. Between other industries, trade is leader in RR HR process and differences are statistically significant.

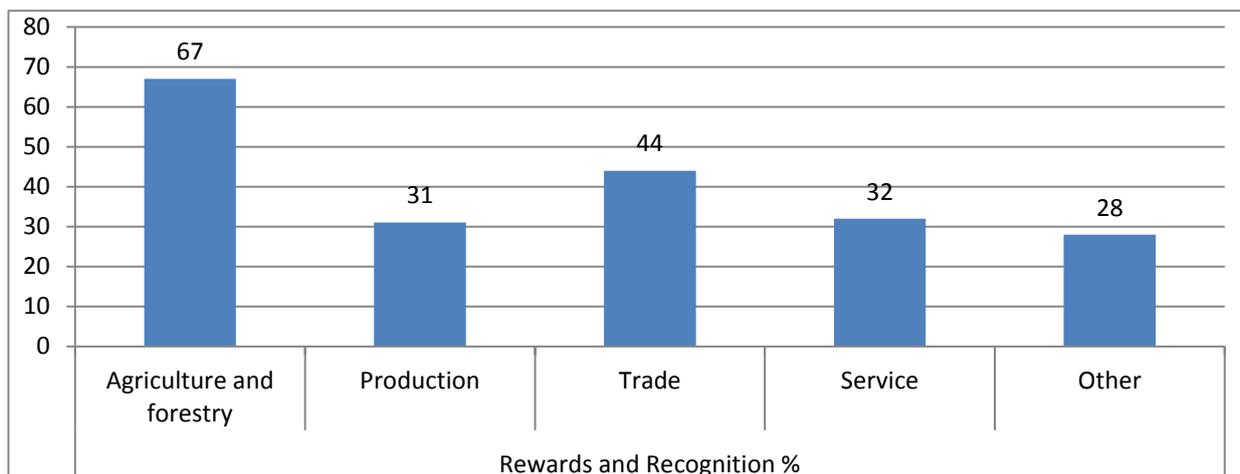


Figure 2.4. Use of gamification in Rewards and recognition (in %)

Source: Author's conducted survey, "Use of gamification in HR processes in Latvian organizations, 2017, N= 620

Further down the use of gamification in HR processes in different sectors is analysed.

Table 2.3.

Number of respondents from all sectors

Sector	State or local government (public sector)	Non-governmental organizations, associations, political parties	Private sector (SIA, AS, IK, etc.)	Difficult to say / NA	Total
Number of respondents	205	11	399	5	620

Source: Author's conducted survey, "Use of gamification in HR processes in Latvian organizations, 2017, N= 620

Results demonstrate majority of respondents representing Private sector organizations, with the State and public sector organizations' representatives being less by approximately 50%. Non-governmental organizations and associations are represented by a small number of respondents and there are few people who found it difficult to define the specific sector they represent.

Figure 2.5. shows the use of gamification in HR processes in all sectors.

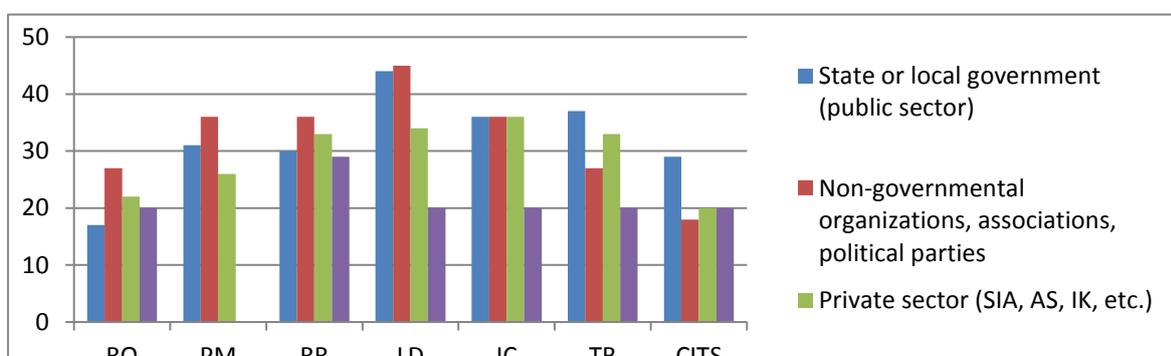


Figure 2.5. Use of gamification in HR processes in different sectors (in %)

Source: Author's conducted survey, "Use of gamification in HR processes in Latvian organizations, 2017, N= 620

Above figure demonstrates that public sector most commonly uses gamification in Learning and development, while private sector leads by a slight difference in Internal communications.

Chi square test results for relationship between industry and gamification of specific HR processes are summarised in the Table 2.4. below, also helping to answer the question whether some of the HR processes are more commonly subject to application of game elements and whether these differences are industry specific:

Table 2.4.

Chi-Square test of independence results summary

Chi-Square Tests				
	Pearson Chi-Square Value	df	Asymp. Sig. (2-sided)	Conclusion
RO*sector	2,564	3	0,464	differences are not statistically significant
PM*sector	4,159	3	0,245	differences are not statistically significant
RR*sector	0,928	3	0,819	differences are not statistically significant
LD*sector	6,525	3	0,089	differences are statistically significant at 90% confidence level
IC*sector	0,553	3	0,907	differences are not statistically significant
TB*sector	1,763	3	0,623	differences are not statistically significant
other*sector	0,158	3	0,984	differences are not statistically significant

Source: Author's conducted survey, "Use of gamification in HR processes in Latvian organizations, 2017, N= 620

According to the table it can be concluded that there is a relationship between the sector and use of gamification in 1 HR process: learning and development (LD). As more detailed shown below, in the figure 2.6., public sector organizations are more commonly applying gamification to their learning and development activities. However, there is no statistically significant differences between sectors and use of gamification in all the other HR processes. Which means that the penetration of the use of gamifications is somewhat evenly distributed across the sectors in Latvia.

Figure 2.6. below shows the use of gamification in HR process Learning and development in different sectors. In state or local government and non-governmental organisations and associations gamification is used more in learning and development as it is in private sector organisations (see figure below).

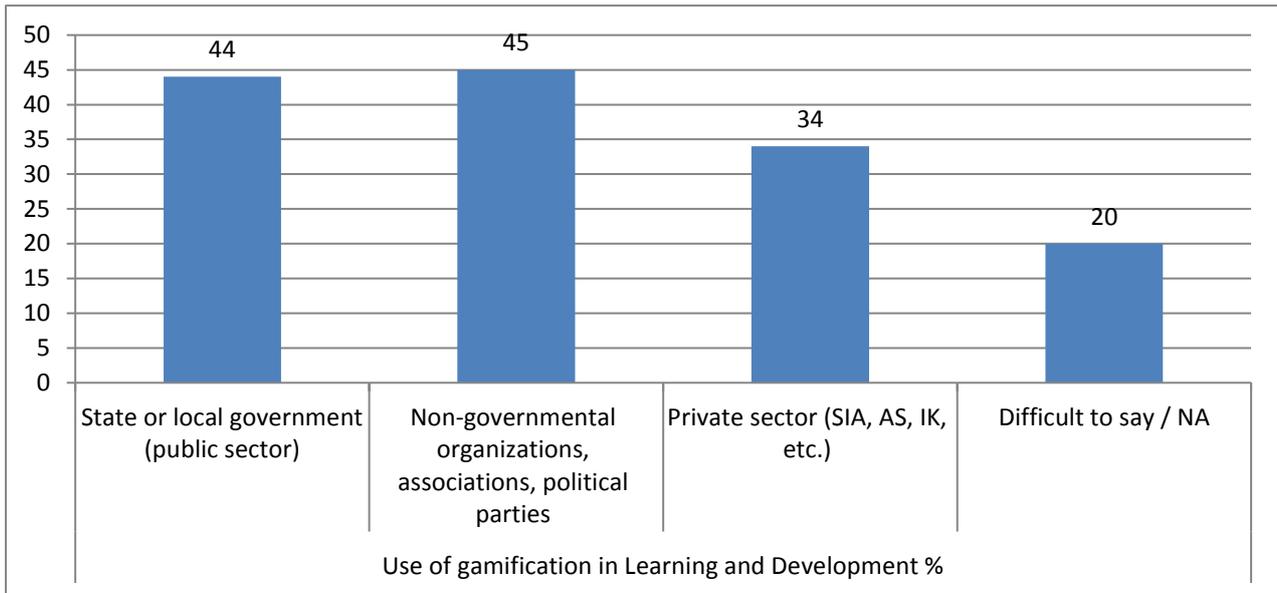


Figure 2.6. Use of gamification in Learning and development (LD) in different sectors (in %)
 Source: Author's conducted survey, "Use of gamification in HR processes in Latvian organizations, 2017, N= 620)

Further on, the use of gamification in HR processes in organisations according to the number of employees is analysed. According to the data provided by the Central Statistics Bureau, in 2017 the average number of all employed individuals Riga was 442 245 and in the surroundings of Riga 143 419. It makes up for the total of 585 664 individuals. 620 respondents represent 0,105% of the general pool.

Table 2.5.
Number of respondents from organisations with different size (number of employees)

Number of employees in organisations	1-9 (micro)	10-49 (mini)	50-249 (medium)	>250 (large)	hard to say / NA	total
Number of respondents	85	138	170	210	17	620

Source: Author's conducted survey, "Use of gamification in HR processes in Latvian organizations, 2017, N= 620)

The next figure demonstrates differences in terms of gamified HR processes by the size of organization.

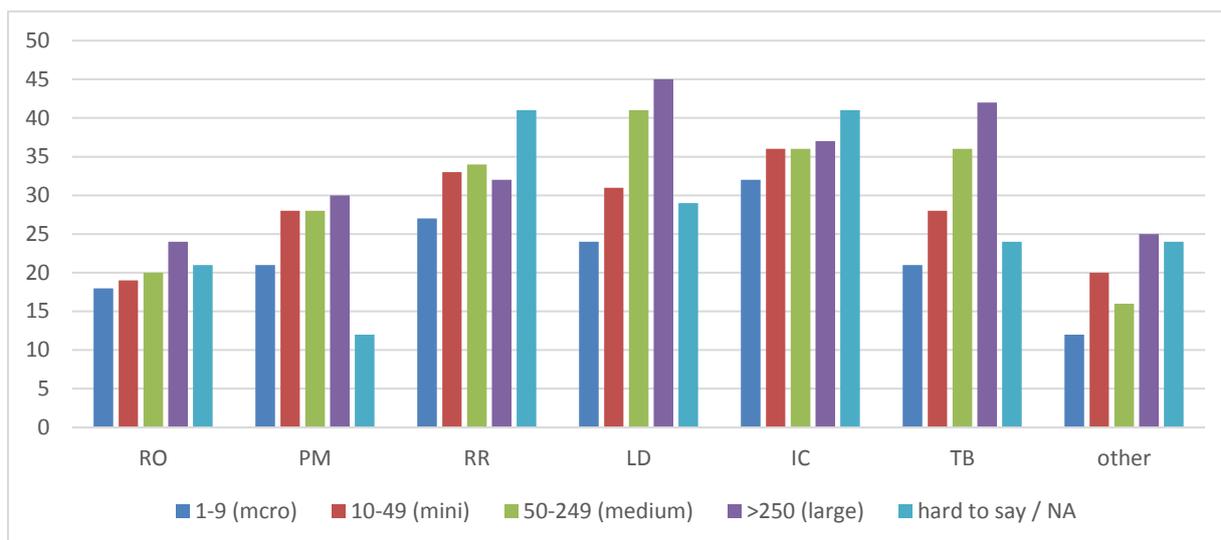


Figure 2.7. Use of gamification in HR processes according to the number of employees in organisation

Source: Author’s conducted survey, “Use of gamification in HR processes in Latvian organizations, 2017, N= 620

From the Figure 2.7 it is evident that gamification in HR processes is used more frequently in larger organisations. For assessing whether the differences are statistically significant, chi-square test of independence is used. Chi square test results, showing the relationship between the size of the organization in terms of employee numbers and the frequency of gamification application in their HR processes are summarised in the Table 2.6 below:

Table 2.6.

Chi-Square test of independence for the relationship between the size of organization and use of gamification in HR processes

	Pearson Chi-Square Value	df	Asymp. Sig. (2-sided)	Conclusion
RO * No.of Employees	2,161	4	0,706	differences are not statistically significant
PM * No. of Employees	4,75 ^a	4	0,313	differences are not statistically significant
RR * No. of Employess	1,813	4	0,77	differences are not statistically significant
LD * No. of Employess	15,989	4	0,003	differences are statistically significant at 95%confidence level
IC * No. of Employess	0,986	4	0,912	differences are not statistically significant
TB * No. of Employees	16,657	4	0,002	differences are statistically significant at 95%confidence level
OTHERhr * No. of Employees	8,710	4	0,069	differences are statistically significant at 90%confidence level

Source: Author’s conducted survey, “Use of gamification in HR processes in Latvian organizations, 2017, N= 620

According to the Table 2.6. it is concluded that there is a statistically significant relationship between the number of employees and use of gamification in 2 HR processes: learning and development (LD) and team building (TB), as well other, not categorized, processes. However, differences in use of gamification between organisations with different number of employees in following HR processes: recruitment and onboarding, performance management, rewards and recognition, and internal communication, even if visually seem being in place, are not statistically significant .

Figure below shows the use of gamification in HR process Learning and development (LD) in organisations with different number of employees - in larger organisations gamification is used more often.

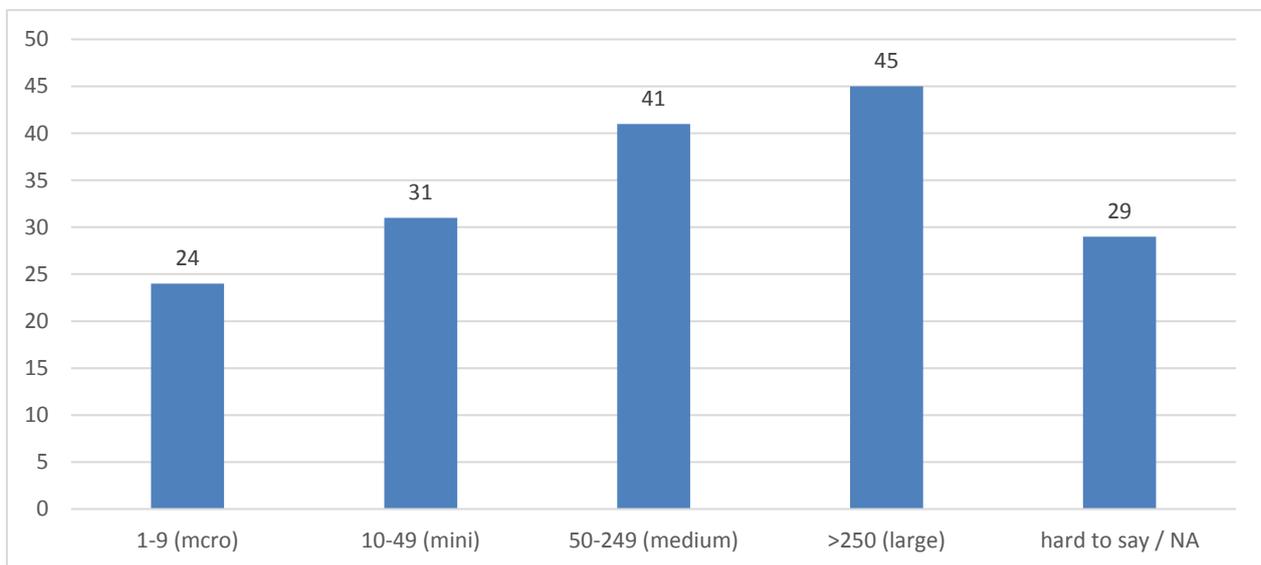


Figure 2.8. Use of gamification in learning and development process according to the number of employees in organization

Source: Author’s conducted survey, “Use of gamification in HR processes in Latvian organizations, 2017, N= 620

The next Figure demonstrates the frequency of gamification use within Team Building process, where it is obvious that larger organizations apply game elements more frequently.

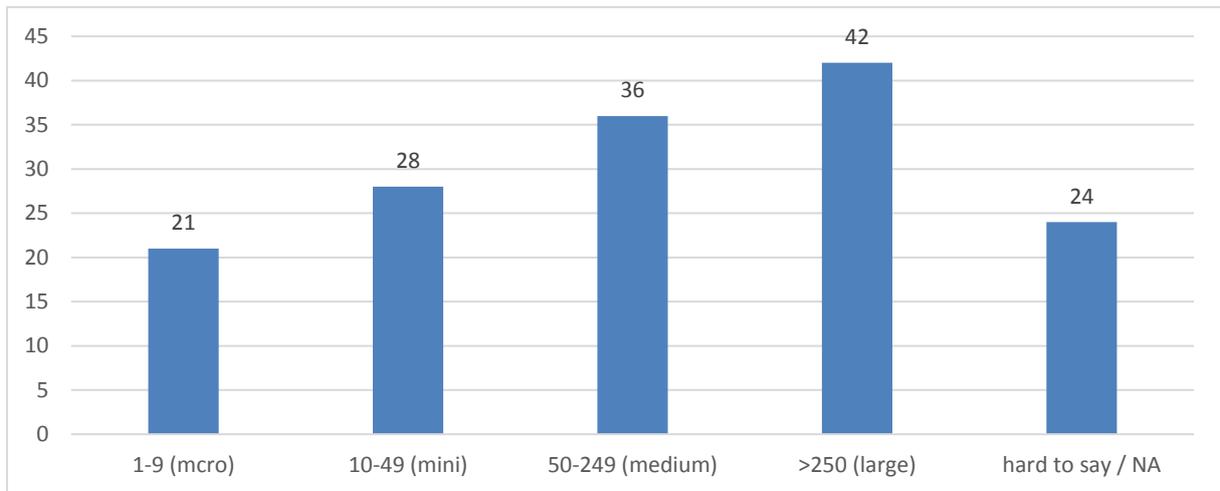


Figure 2.9. Use of gamification in team building process according to the number of employees in organisation

Source: Author’s conducted survey, “Use of gamification in HR processes in Latvian organizations, 2017, N= 620

The next Figure demonstrates the frequency of game elements being used in different other HR processes, where for the most part respondents have not been able to differentiate between particular and specific processes, while still observing presence of certain game elements at their workplaces.

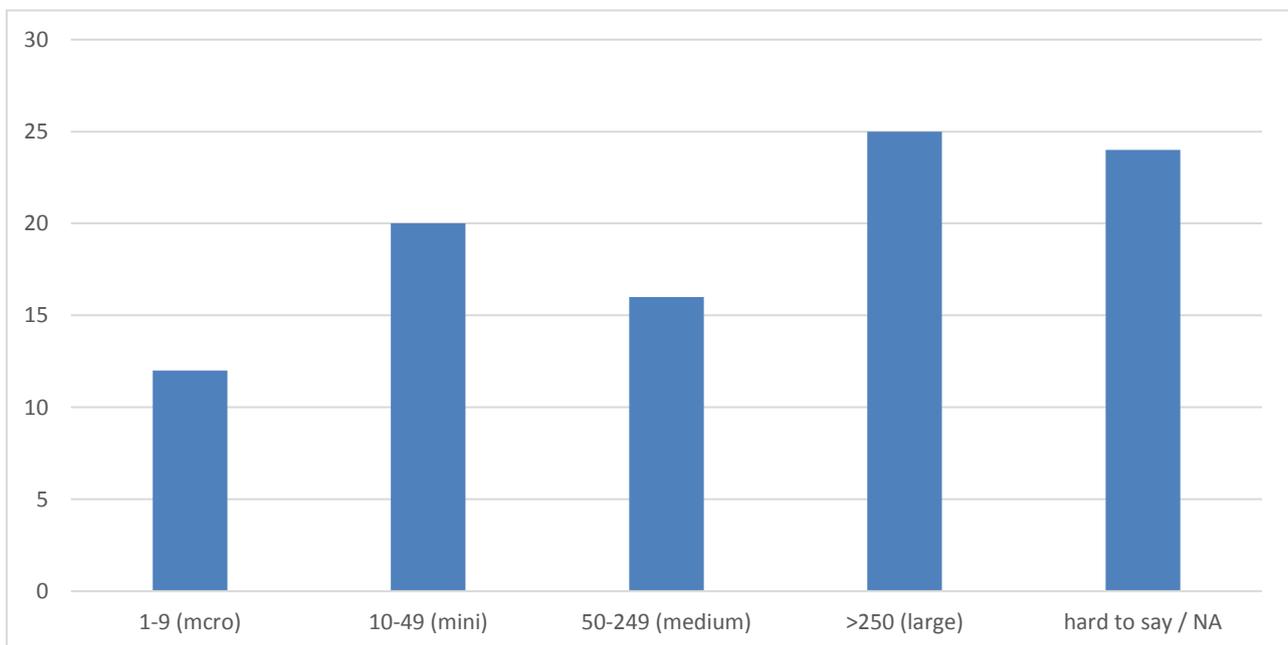


Figure 2.10. Use of gamification in other HR processes according to the number of employees in organisation

Source: Author’s conducted survey, “Use of gamification in HR processes in Latvian organizations, 2017, N= 620

This research was aimed to discover the level of the use of gamification in different HR processes in Latvian organisations and whether any differences can be observed that are related to the size of the organization and industry the organization represents.

In Latvian organisations gamification is primarily used in learning and development process – 67% of respondents approved this. This finding is in line with DuVernet and Popp (2014) who identified that learning and development is one of HR processes where gamification is frequently used. In all other HR processes use of gamification is below 36%. Thus, it can be concluded that gamification is entering HR in Latvian organisations, however, not widely used yet. It is also visible from the survey results that medium and large organizations invest more in advanced HR processes, including application of game elements.

As it is regarded by Jensen that gamification is the next big hope in fostering employee engagement (Jensen, 2012) and Sarangi and Shan (2015) have demonstrated that gamification has positive impact on employee engagement, HR managers in Latvia can be advised to apply game elements to the HR processes more widely. As a result of this research it might be concluded that in Latvia Gamification is relatively new phenomenon and not widely used within Human Resource Management processes, except learning and development. Consequently, the impact on engagement is not felt yet and potential is underused.

Regarding managerial implications, managers should acknowledge the possibilities offered by use of gamification in HR processes.

However, gamification should be used carefully, and proper, engagement positive game design ensured..

The findings should be considered in the light of the research limitations. Electronic survey method was used, and it might be affected by common-method bias.

Based on above analysis, the answer to the question of what the penetration rate of gamification is within HRM processes in Latvian business organizations can be summarized as follows:

- 1) The use of gamification in HRM processes in Latvia is relatively widespread – 67% of all organizations are using it at least in one process - Learning and Development;
- 2) Between 20 % and 36% of organizations use gamification in other HRM processes, such as Team Building, Reward and Recognition, Performance Management, etc.
- 3) Differences between industries show that in trading organisations gamification is used more in Recruitment and Onboarding and Reward and Recognition processes;

- 4) Differences between sectors show that local government and non-governmental organisations and associations use gamification more in Learning and Development process, as it is in private sector organisations;
- 5) Gamification in HRM is used more frequently in larger organisations.

Overall conclusion is that organizations and enterprises in Latvia are following the global trends and developments in Human Resource Management, it is expected that over time, as a result of growing competence and resources, a wider number of companies will catch up with the global best practice.

2.2. Impact of gamification on Employee Engagement and Satisfaction

Second important task of the study was to identify those HR processes that are most responsive to gamification in terms of impact on employee engagement and satisfaction. Understanding this is helpful to HRM professionals and business management in order to allocate investment in gamifying certain processes where the return on investment in terms of process efficiency is expected to be the highest.

Further the constructs, their coding, number of corresponding statements and samples are described. Engagement (ENG) was measured with 7 statements and sample statement is “I invest more effort in my job than my direct responsibilities require”. Satisfaction was measured with 5 statements, including overall satisfaction with the level of stress, payment, environment, and workload. Similarly, colleagues, management and job itself was measured with 6, 5 and 5 statements respectively. Since it might be assumed that only employees with positive character respond positively to use of gamification in HR, the character traits of the respondent were measured with 7 statements and sample statements are “I am satisfied with my life” and “I am optimistic person who usually expects positive outcomes”.

Use of gamification in HR functions was measured with yes/no type question where “yes” was coded as 1 and “no” as 2. Respondents were asked to identify whether gamification is being used in their organisations in recruitment and onboarding; performance management; reward and recognition; learning and development; internal communication; teambuilding and other. Questionnaire scales, coding and number of statements per scale and internal consistency reliability of the scales (Cronbach's Alpha) are seen in Table 2.7. It provides the conclusion for whether each of the constructs used for analysis in terms of their impact on employee engagement is properly and consistently measured within the questionnaire based on the number of statements attributed to respective construct.

Table 2.7.

Internal consistency measures of the construct scales per number of statements attributed to each construct

Variables and their codes	No.of items	Cronbach's Alpha
Character (CAR)	7	0.847
Colleagues (COL)	6	0.914
Job (JOB)	5	0.860
Management (MNG)	5	0.932
Satisfaction (SAT)	5	0.852
Engagement (ENG)	7	0.898

Source: Author's conducted survey, "Use of gamification in HR processes in Latvian organizations, 2017, N= 620

Data was analysed with SPSS and smartPLS software. Data showed that gamification in Latvian organisations is more used for learning and development purposes, followed by internal communication and teambuilding. Since use of gamification in HR processes was yes/no type question, table. 2.8. below presents the percentage of respondents who answered "yes" meaning that gamification is used in the respective HR process in their organisation.

Table 2.8.

Descriptive statistics of the construct

Variables	Mean values (arithmetic average)	Standard deviation
Character (CAR)	7.05	1.52
Colleagues (COL)	6.79	1.81
Job (JOB)	7.24	1,75
Management (MNG)	6.85	2,16
Satisfaction (SAT)	6.67	1.91
Engagement (ENG)	6.80	1.82
<i>Use of gamification in HR process:</i>		
recruitment and on boarding (HR_RO)	1.79	0.40
performance management (HR_PM)	1.73	0.45
rewards and recognition (HR_RR)	1.68	0.47
learning and development (HR_LD)	1.63	0.48
Internal communication (HR_IC)	1.64	0.48
teambuilding (HR_TB)	1.66	0.47
Other (HR_OTHER)	1.80	0.40

Source: Author's conducted survey "Use of gamification in HR processes in Latvian organizations, 2017, N= 620

To evaluate whether use of gamification in HR processes create differences in satisfaction and engagement, nonparametric test Mann-Whitney Test for mean (arithmetic average) differences is used.

Use of gamification in all HR processes create statistically significant differences in engagement and satisfaction of the respondents ($p < 0,05$) However, differences in recruitment and on boarding (RO) process are statistically significant only at 90% confidence ($p < 0.1$). Figures below present the differences in engagement and satisfaction between respondents who claim that gamification is used and those who claim that it is not used in HR processes.

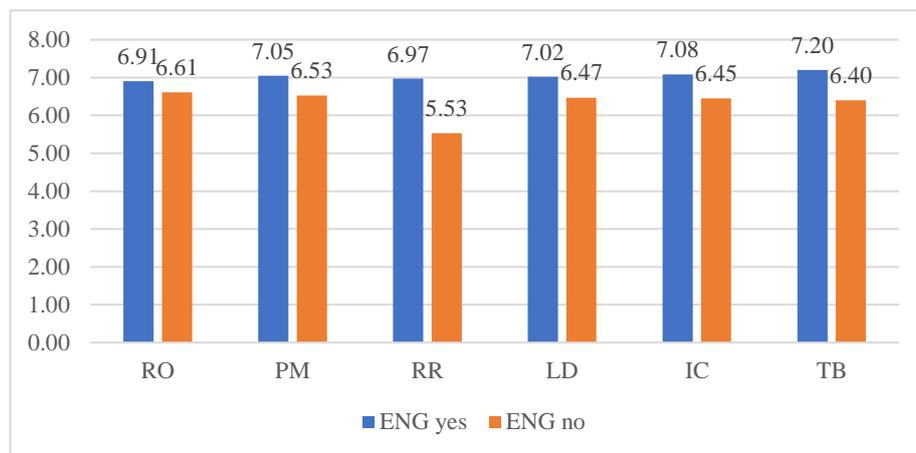


Figure 2.11. Engagement when gamification is used or not used in HR processes (mean values)

Source: Author’s conducted survey “Use of gamification in HR processes in Latvian organizations, 2017, N= 620

The conclusion from above figure might lead to the acceptance of H1 (Use of Gamification in Human Resource Management processes positively influence Employee Engagement level).

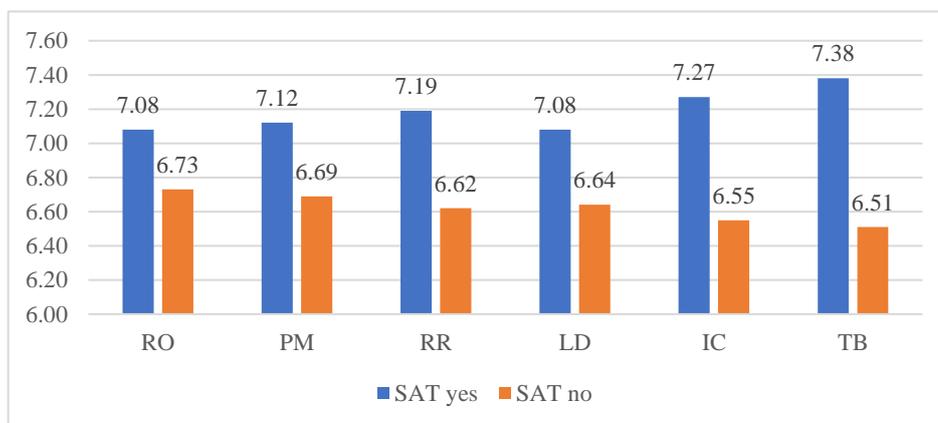


Figure 2.12. Satisfaction when gamification is used or not used in HR processes (mean values)

Source: Author’s conducted survey “Use of gamification in HR processes in Latvian organizations, 2017, N= 620

Similarly to above, the conclusion from this figure might lead to the acceptance of H2 (Use of Gamification in Human Resource Management processes positively influence Employee Satisfaction level). However, the test for mean differences does not indicate anything about the influence. There might be other factors, which are not included in the analysis which influences the level of engagement and satisfaction. Put it differently, organisations which use gamification in HR process are generally better in HR, they do the other entire thing better, they have more advanced HR function, therefore the level of satisfaction and engagement of their employees is generally higher.

Structural Equation Modelling Results

Further variance based Structural Equation Modelling (PLS-SEM) method (Hair, 2015) was used to prove or reject the hypotheses since it is applicable for relatively small samples and when research area is relatively new (Ringle, et al., 2014). Besides this technique allows exploring larger number of relationships simultaneously (Hair & Ringle, 2011). The statistical objective of PLS-SEM is to maximize the explained variance of endogenous latent constructs (independent variables), or exogenous constructs (dependent variables), in this research satisfaction and engagement.

First the model without gamification was designed in order to see how the surveyed factors – management, job content, colleagues and character alone predict employee satisfaction and engagement (see Figure below).

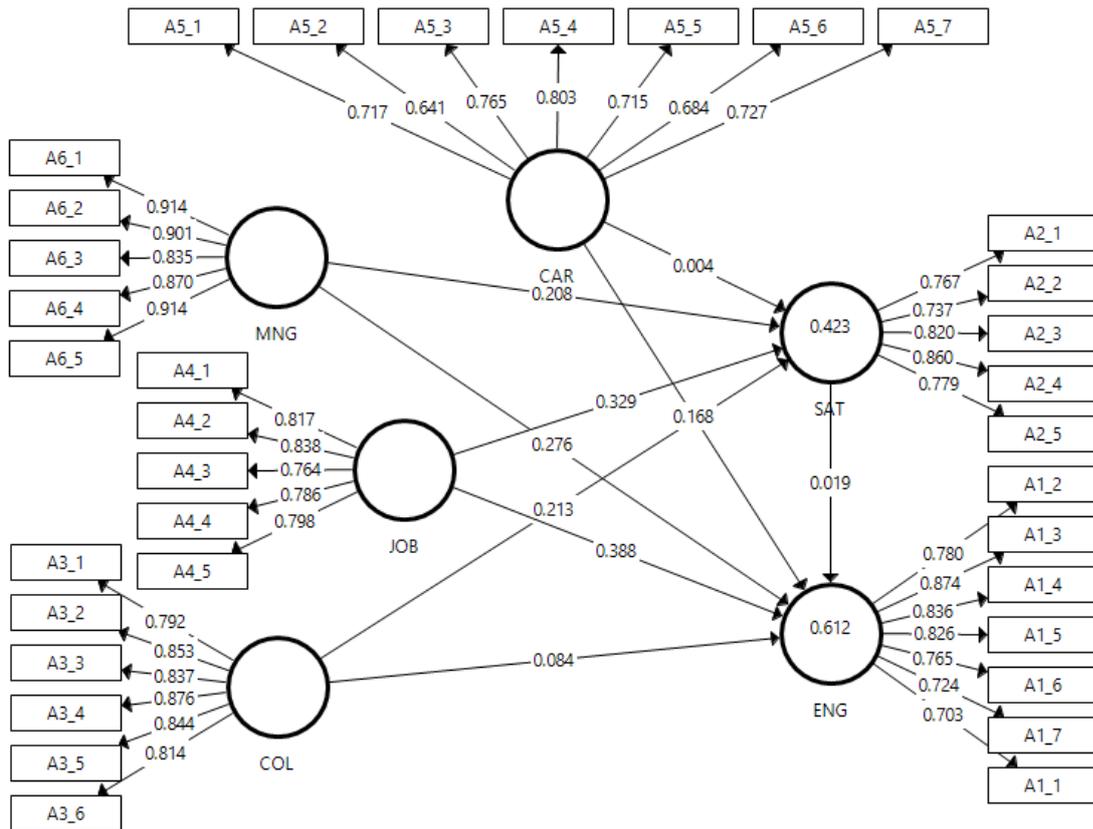


Figure 2.13. SEM model without gamification (PLS algorithm)

Source: Author's conducted survey "Use of gamification in HR processes in Latvian organizations, 2017, N= 620

Before drawing any conclusion regarded relationships between constructs, the model reliability and validity were assessed and in order to do so with the help of Smart PLS software and algorithms calculated.

First the measurement model (outer model) was evaluated. It shows how correctly each construct is measured or how each set of indicators are related to their latent variable. As seen from Figure 2.13, the loadings of all manifest variables are above the minimum threshold value 0,708. Thus, all the manifest variables exhibit outer loadings high enough and are good measure of their latent variables.

To evaluate reflectively measured models the following should be examined: outer loadings (size and significance); composite reliability; average variance extracted (AVE) or convergent validity; discriminant validity (Hair & Ringle, 2011).

Internal consistency reliability was assessed using Cronbah`s alpha and composite reliability and average variance extracted (AVE). Cronbah`s alpha coefficients for the model are all above 0.8, thus the scales exhibit good internal consistency reliability (see Table below)

Table 2.9.

Internal consistency measures of the construct scales

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
CAR	0.847	0.884	0.523
COL	0.914	0.933	0.699
ENG	0.898	0.920	0.622
JOB	0.860	0.899	0.641
MNG	0.932	0.949	0.787
SAT	0.852	0.895	0.630

Source: Author's conducted survey "Use of gamification in HR processes in Latvian organizations, 2017, N= 620

Composite Reliability is an estimate of constructs' internal consistency and should be above threshold level 0.7. Composite reliability scores of the model are in between 0.88 and 0.95, what is well above the minimums thus indicating sufficient reliability.

Convergent Validity of the reflective constructs is examined with average communality or AVE (average variance extracted). It should be at least higher than 50%. All AVE scores are above 0.5 and thus are acceptable.

Discriminant Validity represents the extent to which measures of a given construct differ from measure of other constructs in the same model. Heterotrait-Monotrait (HTMT) ratio of correlations is used to measure discriminant validity (Hair & Ringle, 2011). HTMT is a ratio of the within construct correlations to the between construct correlations. All HTMT values should be lower than 0.85 for conceptually distinct constructs, such as work management perceptions and compensation, and lower than 0.9 for similar constructs.

Table 2.10.

HTMT ratio

	CAR	COL	ENG	JOB	MNG
COL	0.534				
ENG	0.663	0.627			
JOB	0.684	0.696	0.814		
MNG	0.524	0.637	0.689	0.669	
SAT	0.457	0.612	0.569	0.686	0.598

Source: Author's conducted survey "Use of gamification in HR processes in Latvian organizations, 2017, N= 620

The HTMT scores are presented in the Table above, and since all values are lower than 0.85 thus the validity is confirmed. Besides Bias Corrected confidence intervals showed that neither

the high nor the low confidence intervals includes a value of 1. Thus, the discriminant validity is demonstrated by the HTMT method.

Collinearity statistics revealed that all values are in between 1.408 and 4.306, thus they are less than 5, thus indicating that collinearity is not a problem for the model.

The primary evaluation criteria for SEM are R^2 results. R^2 values 0.75, 0.50 and 0.25 for endogenous latent variables indicate substantial, moderate or weak predicting capacity (Hair & Ringle, 2011). As seen from Figure 2.14 presented R^2 values (R^2 satisfaction = 0.423; R^2 engagement = 0.612), the model explains 42% of satisfaction and has moderate predicting capacity, and it explains 61% of engagement, thus showing moderate to high predicting capacity for this construct.

Other measure which allows to evaluate the goodness of fit of the model is PMS theta and values below 0.14 provide support for model fit (Becker, et al., 2017).

For the model presented in Figure 2.14 PMS theta = 0.018, thus the fit of the model is good.

Since the measurement model showed satisfactory results, the structural model was estimated applying PLS algorithm (see Figure below) and bootstrapping procedure.

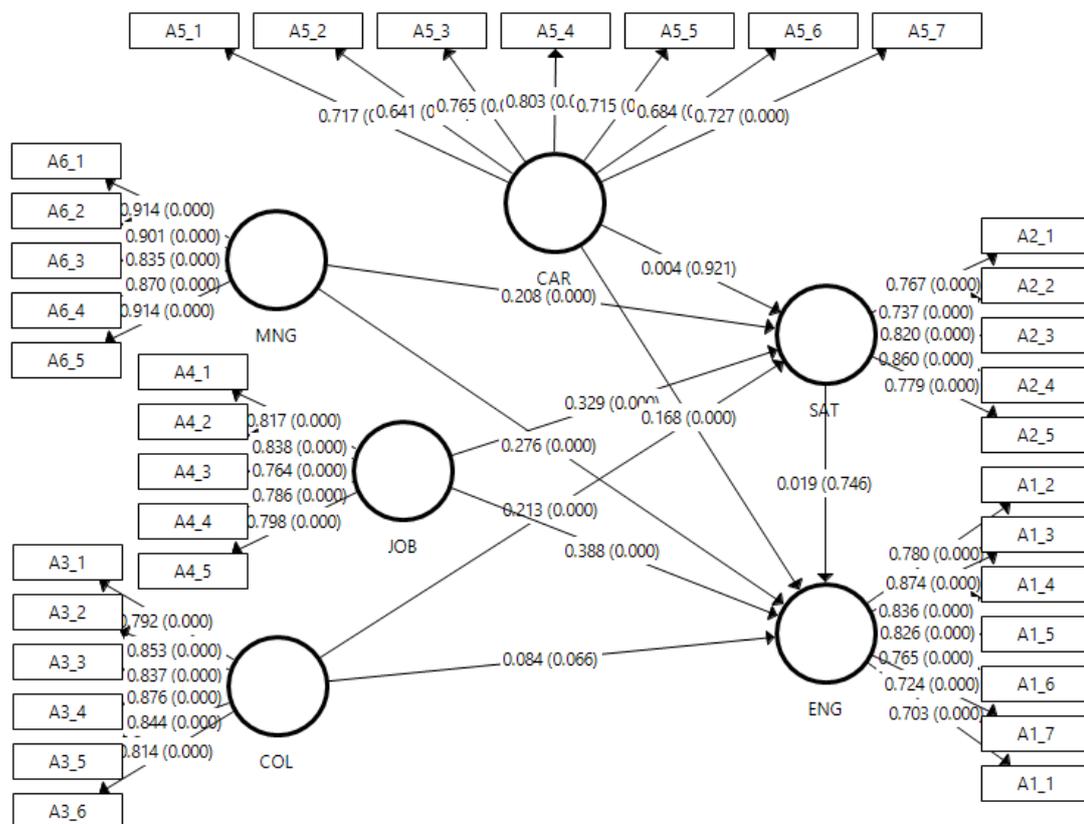


Figure 2.14. Model without gamification Bootstrapping analysis (path coefficients; outer weights and p-values)

Source: Author's conducted survey "Use of gamification in HR processes in Latvian organizations, 2017, N= 620

Bootstrapping procedure was used to determine statistical significance of outer model loadings - all loadings were statistically significant ($p < 0.05$).

Table 2.11.

Path coefficient and p-values for the model without gamification

Bootstrapping path coefficients				
	Original Sample (O)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
CAR -> ENG	0.168	0.037	4.542	0.000
CAR -> SAT	0.004	0.045	0.099	0.921
COL -> ENG	0.084	0.046	1.840	0.066
COL -> SAT	0.213	0.053	4.058	0.000
JOB -> ENG	0.388	0.049	7.990	0.000
JOB -> SAT	0.329	0.060	5.465	0.000
MNG ->ENG	0.276	0.038	7.221	0.000
MNG -> SAT	0.208	0.053	3.964	0.000
SAT -> ENG	0.019	0.058	0.324	0.746

Source: Author's conducted survey "Use of gamification in HR processes in Latvian organizations, 2017, N= 620

The data in Table above present the answer on the *questionn: what is the impact of individual's personality, job content, colleagues and manager on his/her engagement with the company?*

The analysis shows that the strongest statistically significant impact on satisfaction has JOB (path coefficient 0.33), followed by MNG (path coefficient 0.21) and colleagues (path coefficient 0.21). Impact of Car on satisfaction is not significant.

On engagement the strongest impact has JOB (path coefficient 0.39), followed by MAN (path coefficient 0.28), and CAR (path coefficient 0.17). Impact of COL on engagement is significant only at 0.1 level (path coefficient 0.08; $p=0,07$).

To summarise:

1. Individuals personality (traits like optimism, positiveness, enthusiasm) has positive impact only engagement, it has no impact on satisfaction;
2. Engagement is impacted by job content, management and personality character;
3. Satisfaction is impacted by job content, management and colleagues.

In order to understand the impact of gamification on engagement and satisfaction, the model use of gamification in HR processes was included in the model (see Figure below). It presents the full model with hidden manifest variables for SAT, ENG, CAR, MNG, COL and JOB.

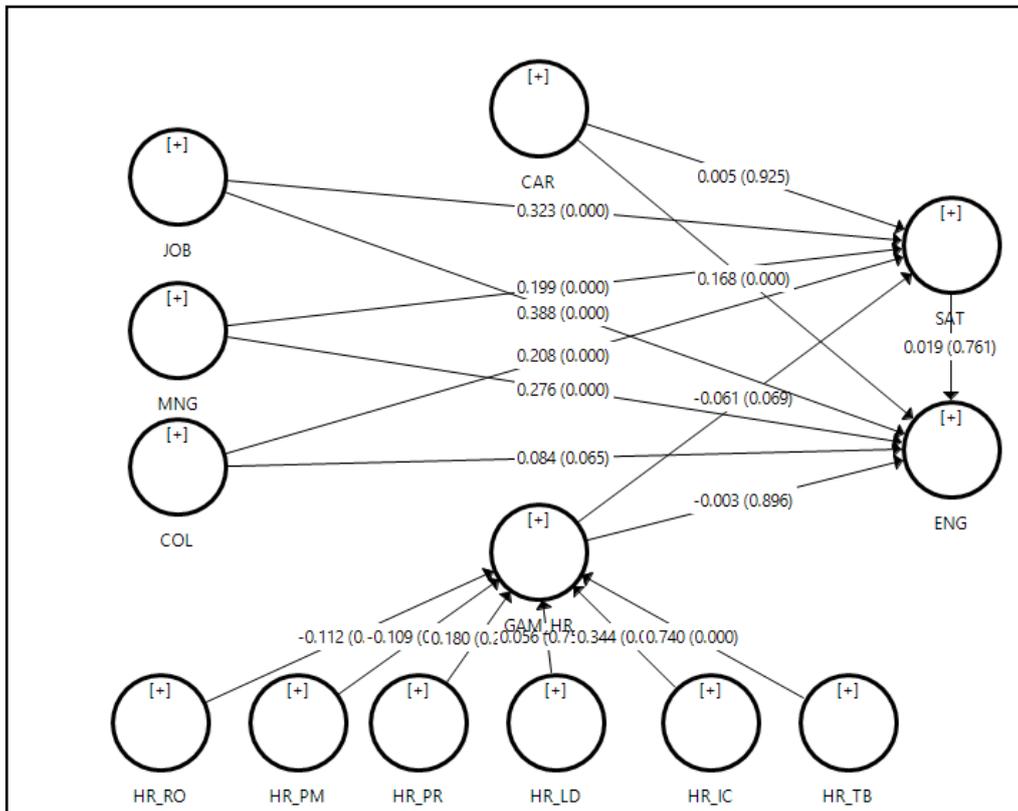


Figure 2.15. Model with Gamified HR processes (PLS algorithm)
 Source: Author’s conducted survey, “Use of gamification in HR processes in Latvian organizations, 2017, N= 620

Higher-order model approach was used for gamification in HR processes – the higher-order component (GAM-HR) was introduced using repeated indicators approach. Reason for using higher-order model is, according to Becker, to reduce the number of inner model relationships (Becker, et al., 2017).

Use of gamification in all HR processes was measured with binary scale coded as:

- “yes” (gamification is used in this process) = 1
- “no” (gamification is not used in this process) = 2.

Thus, the negative path coefficient actually shows the positive impact of use of gamification in HR on engagement and satisfaction.

Table below show the bootstrapping results and path coefficients with their statistical significances.

Table 2.12.

Full model with gamification - Path coefficients and p-values

	Path coefficient	P Values
CAR -> ENG	0.168	0.000
CAR -> SAT	0.005	0.922
COL -> ENG	0.084	0.060
COL -> SAT	0.208	0.000
GAM_HR -> ENG	-0.003	0.895
GAM_HR -> SAT	-0.061	0.069
HR_IC -> GAM_HR	0.344	0.051
HR_LD -> GAM_HR	0.056	0.741
HR_PM -> GAM_HR	-0.109	0.527
HR_RR -> GAM_HR	0.180	0.217
HR_RO -> GAM_HR	-0.112	0.497
HR_TB -> GAM_HR	0.740	0.000
JOB -> ENG	0.388	0.000
JOB -> SAT	0.323	0.000
MNG -> ENG	0.276	0.000
MNG -> SAT	0.199	0.000
SAT -> ENG	0.019	0.761

Source: Author's conducted survey "Use of gamification in HR processes in Latvian organizations, 2017, N= 620

As seen from the table, path coefficients from GAM-HR to satisfaction and engagement are both negative indication positive impact, however, only path to satisfaction is statistically significant at 90% confidence (GAM_HR -> SAT = -0.061; $p=0.069 < 0.1$).

This allows to summarise following conclusions:

1) *Use of Gamification in Human Resource Management processes positively influence Employee Engagement level - **rejected***

2) *Use of Gamification in Human Resource Management processes positively influence Employee Satisfaction level – **accepted***

Question related to *which HRM processes have the highest impact on Employee Engagement when gamified?*, data in Table above allow to make conclusions since, according to Becker, path coefficients between LOCs and HOC should be interpreted as loadings (Becker, et al., 2017).

Therefore, data in Table above show that *internal communication (IC) and teambuilding (TB)* are HR processes which show statistically significant impact on GAM-HR. Moreover, total indirect effect, which include effect of the manifest variable on the dependent variable through independent variables, of teambuilding (TB) on satisfaction is statistically significant:

(HR_TB -> SAT path coefficient -0.045; $p=0.073<0.1$).

This allows to conclude that use of gamification in HR process teambuilding has positive and statistically significant impact on employee satisfaction.

Multigroup analysis by generations

To make conclusion regarding generations and their response to gamification in terms of engagement and satisfaction, multigroup analysis using age as grouping variable was performed.

Table 2.13.

Demographic data on respondents' age

Age group	code	Number of respondents	Number of respondents in age group	Group number
Up to 24 y.	1	35	241	1
25 – 35 v.	2	206		
36 – 50 y.	3	226	379	2
51 y. and more	4	153		

Source: Author's conducted survey "Use of gamification in HR processes in Latvian organizations, 2017, N= 620

For MGA respondents were grouped according to generations: group 1 – generation X and Y; group 2 – older generations.

Table 2.14.

Multigroup analysis for generation as grouping variable

Path	Path Coefficients		p-values		Group differences: PLS-MGA	
	Group 1	Group 2	Group 1	Group 2	Path Coefficients difference	p-Value
CAR -> ENG	0.193	0.153	0.000	0.002	0.039	0.296
CAR -> SAT	-0.033	0.027	0.619	0.649	0.060	0.748
COL -> ENG	0.177	0.041	0.002	0.459	0.136	0.042
COL -> SAT	0.371	0.113	0.000	0.073	0.258	0.004
GAM_HR -> ENG	-0.024	-0.005	0.556	0.900	0.019	0.646
GAM_HR -> SAT	-0.010	-0.100	0.847	0.023	0.090	0.099
HR_IC -> GAM_HR	0.242	0.347	0.378	0.098	0.105	0.610
HR_LD -> GAM_HR	0.420	-0.045	0.148	0.820	0.465	0.094
HR_PM -> GAM_HR	0.009	-0.175	0.973	0.398	0.184	0.287
HR_PR -> GAM_HR	-0.138	0.263	0.590	0.122	0.401	0.905
HR_RO -> GAM_HR	-0.408	0.021	0.136	0.914	0.429	0.907
HR_TB -> GAM_HR	0.719	0.722	0.002	0.000	0.003	0.492
JOB -> ENG	0.286	0.431	0.000	0.000	0.145	0.936
JOB -> SAT	0.264	0.378	0.002	0.000	0.113	0.855
MNG -> ENG	0.383	0.218	0.000	0.000	0.166	0.013
MNG -> SAT	0.143	0.219	0.068	0.001	0.076	0.771
SAT -> ENG	-0.070	0.067	0.189	0.449	0.136	0.912

Source: Author's conducted survey "Use of gamification in HR processes in Latvian organizations, 2017, N= 620

In table above columns PLS-MGA present test for differences among the groups. P-values indicate that statistically significant differences exist in three paths:

1. COL are more important for engagement for group 1 (younger respondents) than for group 2. Moreover, for group 1 path COL->ENG is statistically significant, however, for group 2 it is not statistically significant;
2. COL are more important for satisfaction for group 1 (younger respondents) than for group 2. Still, for both groups path COL->SAT is statistically significant, however, the level of significance for group 1 is higher than for group 2. So, for younger respondents, colleagues are more important for satisfaction;

3. Path from GAM_HR->SAT is stronger for older respondents and differences are statistically significant. Thus, assumption that younger employees respond better to gamification in terms of engagement or satisfaction should be rejected. Interestingly, that the *older employees (generations X & BB) respond better to gamified HRM processes in terms of satisfaction.*
4. Path between GAM_HR->ENG is not statistically significant for both groups, therefore also differences are not significant.

Multigroup analysis was also performed for gender as grouping variable (MGA gender).

Table 2.15.

Demographic data on respondents' gender

Gender	Codes	Number of respondents
male	1	316
female	2	304

Source: Author's conducted survey "Use of gamification in HR processes in Latvian organizations, 2017, N= 620

Results of MGA gender are presented in the Table below. Interesting finding relates to impact of management (MNG) on engagement and satisfaction. Differences between both path coefficients are statistically significant and interestingly, that path MNG->ENG and MNG->SAT are stringer and statistically significant only for male respondents. This leads to conclude that management has strong impact on engagement and satisfaction for males, but is not significant factor for females.

Table 2.16.

MGA for gender as grouping variable

	Path Coefficients		p-values		Group differences: PLS-MGA	
	Group 2	Group 1	Group 2	Group 2	Path Coefficients difference	p-Value
CAR -> ENG	0.106	0.193	0.039	0.001	0.087	0.875
CAR -> SAT	0.036	-0.050	0.576	0.364	0.086	0.159
COL -> ENG	0.050	0.094	0.404	0.126	0.044	0.698
COL -> SAT	0.145	0.269	0.093	0.000	0.125	0.880
GAM_HR -> ENG	-0.034	0.012	0.364	0.767	0.045	0.801
GAM_HR -> SAT	-0.044	-0.088	0.384	0.054	0.044	0.255

HR_IC -> GAM_HR	0.115	0.496	0.657	0.032	0.382	0.866
HR_LD -> GAM_HR	0.308	-0.117	0.179	0.622	0.425	0.101
HR_PM -> GAM_HR	0.137	-0.286	0.545	0.273	0.424	0.112
HR_PR -> GAM_HR	0.007	0.359	0.975	0.058	0.352	0.893
HR_RO -> GAM_HR	-0.226	-0.062	0.340	0.773	0.164	0.695
HR_TB -> GAM_HR	0.732	0.646	0.001	0.000	0.086	0.368
JOB -> ENG	0.344	0.462	0.000	0.000	0.118	0.883
JOB -> SAT	0.269	0.392	0.002	0.000	0.123	0.863
MNG -> ENG	0.382	0.203	0.000	0.000	0.179	0.014
MNG -> SAT	0.286	0.112	0.000	0.094	0.174	0.046
SAT -> ENG	0.043	-0.025	0.652	0.651	0.068	0.288

Source: Author's conducted survey "Use of gamification in HR processes in Latvian organizations, 2017, N= 620

Moderation effects

In order to draw conclusion related to questions whether individual's character (traits like optimism, positiveness, enthusiasm) positively moderates the effect of use of gamification in HR processes on employee work engagement; and whether individual's character (traits like optimism, positiveness, enthusiasm) positively moderates the effect of use of gamification in HR processes on employee work satisfaction) moderation analysis was performed using CAR as moderator between GAM_HR and both: ENG and SAT.

Moderating variable is one that may have influence on the path between variables. In this case assumptions suggest that path between GAM_HR to SAT and to ENG will be positively moderated by CAR.

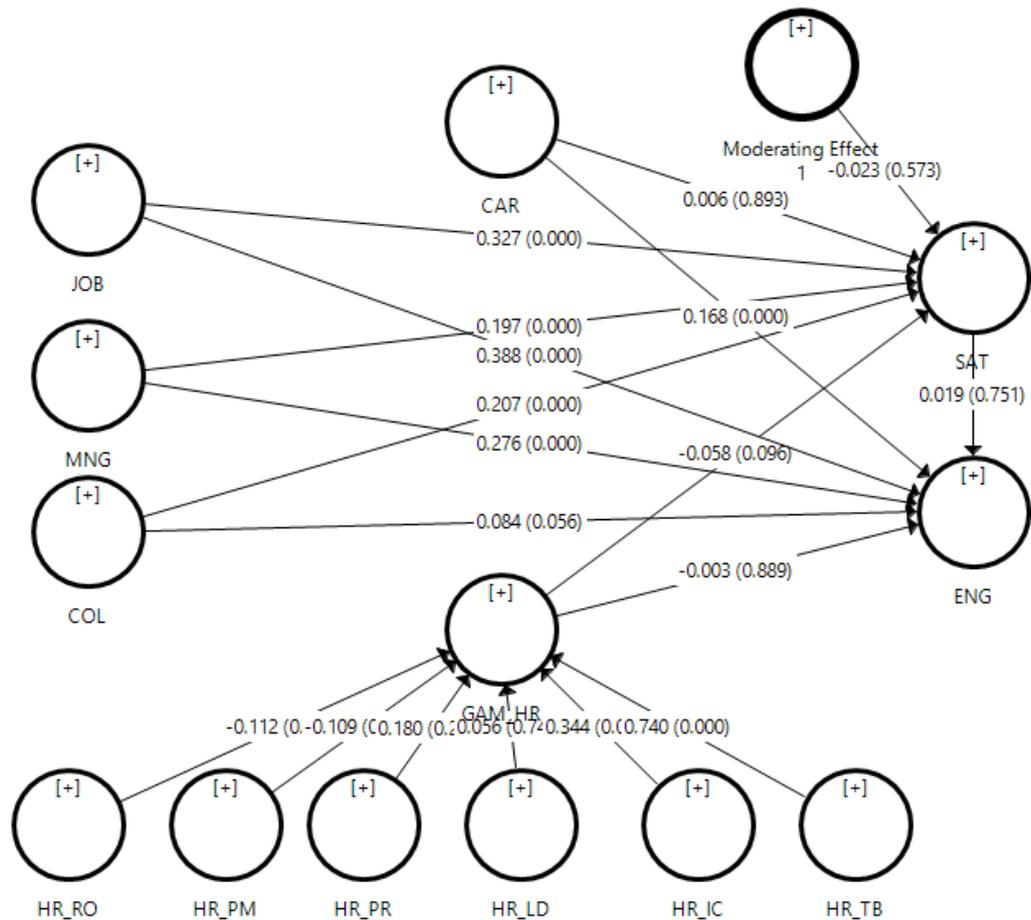


Figure 2.16. Moderating effect of character (CAR) on satisfaction (SAT)

Source: Author’s conducted survey “Use of gamification in HR processes in Latvian organizations, 2017, N= 620

As it is seen from the Figure 2.16, moderating effect is small and statistically insignificant (path=-0.023; p=0.573>0.05). Thus it can be concluded that use of gamification in HR processes will be perceived equally by all employees and individual’s character has no influence.

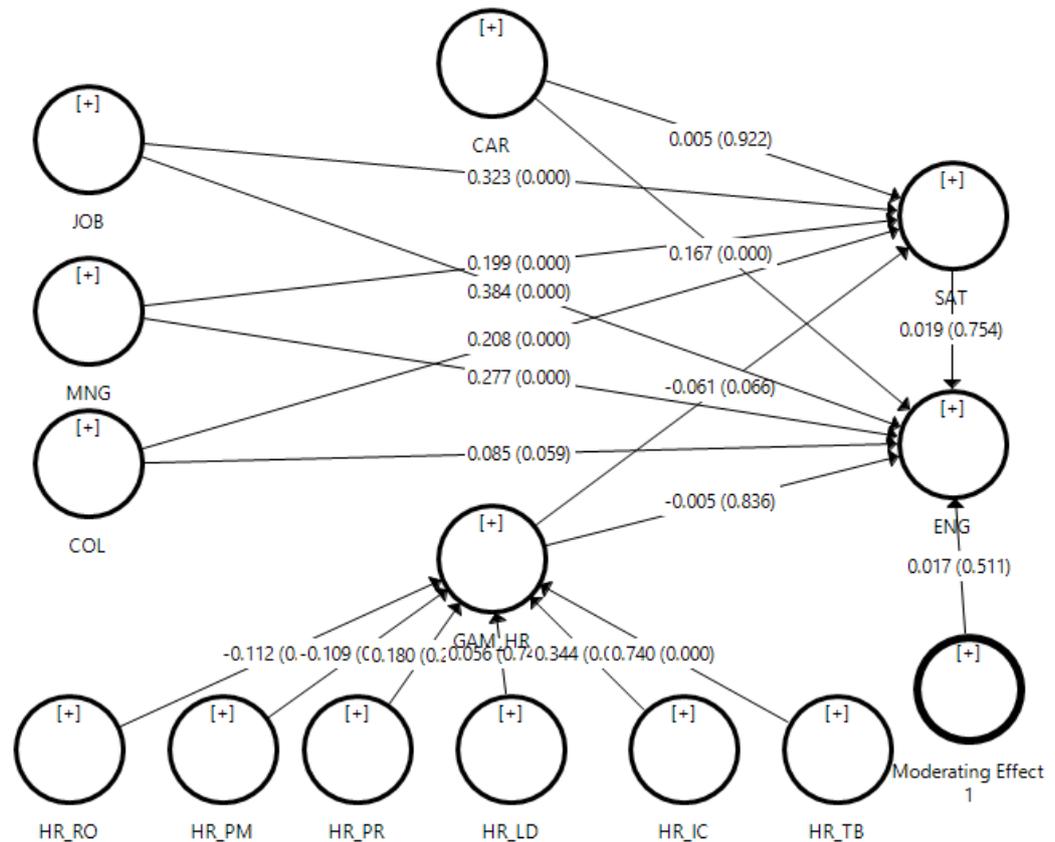


Figure 2.17. Moderating effect of character (CAR) on engagement (ENG)

Source: Author’s conducted survey “Use of gamification in HR processes in Latvian organizations, 2017, N= 620

As it is seen from the Figure 2.17, moderating effect is small and statistically insignificant (path=0.017; p=0.511>0.05). Thus, it can be concluded that use of gamification in HR processes will be perceived equally by all employees and individual’s character has no influence.

Summary of the findings

Influence of gamified HR processes on overall employee engagement with the organizations in Latvia was not identified. Still positive influence on satisfaction was found. Among HR processes which better respond to gamification appeared to be teambuilding and internal communication, moreover, team building has significant indirect impact on satisfaction.

In Latvia gamification is primarily used in learning and development, however, impact of this process according to the analysis appeared to be insignificant. HR managers should better focus on teambuilding and internal communication.

Interesting finding is related to age – although it was hypothesised that younger generation respond better to gamification in HR, it appeared to be vice versa. Older generation (generations X & BB) respond better to gamified HRM processes in terms of satisfaction.

Individual's character (traits like optimism, positiveness, enthusiasm) does not make any difference when it comes to effect of the gamification on engagement or satisfaction, the impact of use of gamification in HR processes is perceived in the same way regardless of the character traits.

Nevertheless, individuals personality (traits like optimism, positiveness, enthusiasm) has positive impact on engagement, while it has no impact on satisfaction.

Finding that gamified HR processes have no proven direct impact on overall employee engagement with the company in Latvian organisations contradicts findings by Jensen, who regarded gamification as the next big hope in fostering employee engagement (Jensen, 2012) and Sarangi and Shan who have developed a model which demonstrates impact of gamification on employee engagement (Sarangi & Shan, 2015). The result of this research in Latvia might be explained with the fact that in Latvia Gamification is new phenomenon and not widely used, except learning and development process. The other reason might be lack of proven guidelines and instructions for implementing gamification that supports higher levels of engagement. Consequently, the impact on engagement is not felt yet. One more reason might be related to the complexity of this approach. Several authors have identified negative outcomes of gamification if not used correctly (e.g. Bogost, 2015). For example, Callan and colleagues stated the importance of fit between organisational aims and players aims (Callan, et al., 2015) and Kastner (2013) stressed that weak application of gamification can even hurt the reputation of the organisation.

Positive influence of the use of gamification in HR processes on satisfaction was found. Among HR processes which better respond to gamification appeared to be team-building and internal communication, moreover, team-building showed significant indirect impact on satisfaction. The impact of learning and development, which was the most frequently gamified HR process in Latvian organisations, on job engagement and satisfaction, according to the analysis, appeared to be insignificant. Thus, the findings of this research lead to recommendation that HR managers should sooner focus on team-building and internal communication.

Managers should acknowledge the possibilities offered by use of gamification in HR processes, especially it is recommended to use it with team-building purposes. Moreover, since older generation in Latvia seems to respond to gamification even more favourably than younger ones,

it might be recommended to use carefully designed gamification more often with older employees.

The findings should be considered in light of the research limitations. Electronic survey method was used, and it might be affected by common-method bias. Second limitation is related to geographical coverage, data was gathered only in Latvia and this limits the generalizability of the findings. Further studies could be extended to other locations and include more manifest variables.

While gamification is spreading fast across organizations and its positive effects are observed, it should be used carefully, and proper game design ensured. Further analysis of specific gamification examples from the business organizations in Latvia, where game elements' or game scenario application to specific HR processes has been tested will help to identify guidelines for effective gamification. Companies who respected gamification and its limits have implemented successful applications that have helped them to reach their business goals. Along with particular example of business game (Forecaster) designed at *airBaltic* Corporation with the purpose to foster employee engagement, below the most noticeable other best practices will be discussed. These best practices, mostly from big players in employment market, represent a very wide range of gamification methods and purposes. All of these best practice cases reviewed are useful to determine successful game elements to engage people with a game, the specific process that is being gamified, and consequently – with an organization.

3 GAMIFICATION IN HUMAN RESOURCE MANAGEMENT PROCESSES AND ITS IMPACT ON PROCESS INDICATORS

In this chapter author analyses gamification of selected HRM processes in a number of real business organizations, including the test case, where based on the findings from theory, survey results and analysis of the business cases, author attempted to develop and implement gamified internal communications process within particular organization – 4finance AS. The purpose of the experiment was to test the conclusions of the given Thesis in practice and develop further recommendations, which could be taken in use to improve engagement of employees with various Human resource management processes through application of game elements

3.1 Gamification of Internal Communication process at airBaltic

airBaltic is an airline company founded in 1995. With over 1100 employee's *airBaltic* is the 14th biggest company in Latvia (TeleMedia SIA, 2014). Employer branding is very strong as *airBaltic* is known as one of the best companies to work for and won numerous employee awards and aviation trophies. *AirBaltic* is one of the most punctual airlines in the world (McCarthy, 2015). *AirBaltic* also prides itself with being innovative and the frontrunner in new technologies. For example *airBaltic* was the first airline in the Baltic States to pioneer iPads in the cockpit replacing bulky flight information and manuals printed on paper, saving up to 2 million pages a year (*airBaltic*, 2014). They were also the first airline to accept bitcoins (Murrey, 2014). *AirBaltic* is part of the AMBER initiative trying to fly the most efficient routes to save fuel consumption and CO₂ exertion. (*airBaltic*, 2013) .

In 2011 *airBaltic* went through a financial rough path. The only business goal was to survive. Bootstrapping, cutting cost and postponing investments were part of the deal.

AirBaltic measures their employee commitment yearly by research agency Kantar TNS, who create an analysis of the current situation concerning commitment. Employee engagement is according to TNS seen as a part of commitment. However, having a look at the items of commitment survey, it is observed that TNS is measuring what can be described as engagement according to the theory. Therefore, the results of the TRI*M commitment survey can be used to understand engagement at *airBaltic*. TNS uses their own measuring tool called TRI*M™. This includes a TRI*M rate, TRI*M Typology and a TRI*M plot where items importance and the company's performance are plotted on a foursquare.

Table 3.1.

Comparison of TRI*M items and Engagement as defined by Robinson, Perryman, & Hayday, 2004

TRI*M Items examples	Engagement measurement (Robinson, Perryman, & Hayday, 2004)
<ol style="list-style-type: none"> 1. I am proud of the company I work for, I like my job, positive atmosphere 2. Financially strong company, company does everything for the client 3. Managers ensure my job is clear, I know who to contact if I have any trouble, managers are accessible 4. Colleagues share knowledge, colleagues are willing to help each other 5. I am aware of the company's plans and goals. 	<ol style="list-style-type: none"> 1. a positive attitude towards, and pride in, the organisation 2. belief in the organisation's products/services 3. a perception that the organisation enables the employee to perform well 4. a willingness to behave altruistically and be a good team player 5. an understanding of the bigger picture and a willingness to go beyond the requirements of the job.

Source: Author's comparison, based on literature review, 2016

Employee commitment survey from the end of 2014 demonstrated interesting findings about the current engagement issues at the time. (The figures of the survey can be found in appendix). The results of the survey showed that *AirBaltic* commitment ratios remained far below the Latvian average since 2011. Although there was an improvement of the ratio compared to the year before, it was still lagging behind. Breaking the scores down to departments it was visible that the rates of cabin crew were far below average although they had improved in respect to the year before. The employee commitment survey also gave a view on the typology population in the company divided in 4 types of employees. Striking was that 56% of the employees belonged to the residents' group. This group is generally satisfied with their work even though they do not feel a motivating environment. These people bring stability to the company but are rather security driven (TNS, 2015). When compared to Latvia's biggest companies *airBaltic* had 17% more employees in this group. In addition, troubling was the small amount of employees belonging to the drivers group in *airBaltic* (6%). This is the type that is very willing to cooperate, take self-initiatives and motivate other colleagues. They are loyal and satisfied with their job and feel a motivating environment. Benchmarked to the Latvian biggest companies *airBaltic* was far from the average of 20% drivers. (TNS, 2015). Drivers can be very important for a company as they are source for positivity and enthusiasm. In contrast. *airBaltic* had a big population of detached employees. These are actively disengaged employees and they are a source of contagion for more negativity. Although the

detached typology population was 35% at airBaltic, it looks more like a wider spread problem as the Latvian average was 43% detached employees.

The general tendency of the survey shows that airBaltic had a misbalance and mostly the drivers were outnumbered. Employees were unsure about the company's performance, the strategy and what the plans of top-level management are. They were not convinced airBaltic can react fast enough to changes and new trends in the market. They were missing transparency and didn't feel they have enough career opportunities and sufficient remuneration. When it comes to transparency and communication *airBaltic* could hardly be accused of not trying. There were a lot of internal communication channels. There was an extensive intranet, a monthly "interview with the CEO" movie on YouTube and every employee could volunteer to perform this interview. A monthly newsletter, notice boards, all company e-mails, weekly open CEO presentations of results and so on. Still, the information was not getting where it needs to be.

The results of the survey showed that improvements can be made to increase the engagement of employees at airBaltic. Overall it was a challenge for airBaltic to increase engagement among all departments, to create a motivating environment with more drivers and to resolve some of the priority weaknesses. In addition, there was a specific key element to consider; the employees of airBaltic were remarkably young. With an average age of 33 there were a lot of Y generation employees keeping airBaltic afloat. On top of that, the new generation Z was ready to enter the job market. As cabin crew joins from an early age airBaltic prepared to be faced with this generation soon. These generational cohorts are infamous for being difficult to engage and keep interested and motivated. They are also extra sensitive to not being informed enough. They do not like very hierarchical companies where you are supposed to do your job and not question the bigger picture or be able to impact the company. Information streams and being connected is a part of life for these young professionals. Not catering to this need can lead to active disengagement with all its dangers for the company. (Van Den Berg & Behrer, 2013)

HR representatives at *airBaltic* were wondering how to increase employee engagement to get better rates in next year's survey. They believed that a new, gamified communication tool, called Forecaster, had that potential to increase engagement and also to appeal to the young generation Y and Z. Especially for generation Y and Z the lack of a common goal and/or lack of communication about the goal, which are weaknesses outlined by the survey, can create lowering engagement. At the time, this could be felt in some expressions of the young cabin crew: "we are just supposed to do our work and not ask questions", "Nobody tells us anything

about what is going on”. HR was hoping that the new tool - Forecaster – will help dealing with some of these issues.

The communication problem that employees experienced at *airBaltic* is largely an issue of perception because company did a lot to communicate to all the different employee groups. Company was putting a lot of effort into giving information to the employees, however the survey results still showed that improvement in communication about *airBaltic* strategy is very necessary.

Background of Forecaster

Forecaster was born out of a former start-up project. It was based on a very successful crowd-casting website where people could try and predict the outcome of trivial things in the media, like the winner for the Latvian edition of idols. Company wanted to duplicate that idea in an organizational setting. It recognised that some employees had specific insights that can predict failure or success of some business projects. The first and foremost idea for Forecaster was to harvest these unique insights to prevent erroneous decisions’ harm.

By “selling and buying” shares of projects posted on an online platform, employees had the opportunity to let managers know if they believed in the potential success of the project. An added benefit of Forecaster would be that employees get information about what is happening in departments they do not come in contact with during their daily routines. They could potentially learn more about the aviation business and can better understand what is going on within the organization. With these benefits in mind the Forecaster was pitched to the board and permission to run the game was achieved. (See appendices for further explanation of Forecaster game play design.)

Forecaster was about involving employees and communicating to employees about what is going on within *airBaltic*. This was why HR department was enthusiastic about the potential effect of Forecaster. They saw opportunities in Forecaster to increase engagement within the company by addressing some top priority weaknesses as seen in the engagement survey. HR also saw opportunities to reach generation Y and Z, ‘the game generation’ through the use of Forecaster.

The launch of Forecaster was done via email and intranet communication. It created a buzz within the company and most of the employees registered their game account during the launch of Forecaster. In addition, the fresh way of thinking about managerial decision making and internal communications earned *airBaltic* a lot of external attention and several awards.

Around 327 employees registered their game account. In any particular week there were on average 90 active players. The group of most active players was rather homogenous. These

were employees who work behind a computer and have the opportunity to sneak and peak once a week at the game. Those were also mostly higher educated finance and analytics employees who work at the head office.

The ideal vision of Forecaster according to the management board was that it will help decision making as employees can share their unique insights and might help management to make better business decisions. Forecaster could theoretically provide management with new insights and ideas from employees and allow for crowd-sourcing of innovation for new revenue models or ventures. An employee could be a source for a blue ocean strategy.

In addition, it had a potential to serve an employer transparency purpose where employees can see what is going on in other departments. The tool could be able to educate employees on the airBaltic goals and managerial projects. Next to tangible outcomes such as better decision making, higher engagement or new ventures, Forecaster had the potential to change perception of management and culture of airBaltic. However, at the initial stage of the game this ideal vision was not reached.

The question that airBaltic management was looking to answer at the time was: How to design, implement and communicate Forecaster so that it becomes an attractive platform helping employees feel more informed about the company and thus more engaged?

Next to the main question several sub questions were developed to sharpen the focus

- What value does Forecaster add in the current state?
 - a. Who is playing
 - b. What are the features that attract
 - c. Does Forecaster have an impact on business decisions
 - d. What is the general sentiment for Forecaster
- What is Forecaster's potential; Can Forecaster impact engagement?
 - a. What behaviours lead to engagement
 - b. What behaviours could Forecaster foster
 - c. How to gamify those behaviours
 - d. Is there a need to redesign Forecaster and how
- How can be more people attracted to play Forecaster?
 - a. Who is not and why
 - b. What are the players' expectations
 - c. How to communicate Forecaster
- Is Forecaster worth the resources?
 - a. What are the costs of improvement

b. What are the potential gains

Interviewing employees and management of airBaltic helped to investigate these first steps and come to certain conclusions. Conclusions were made that in order to achieve engagement positive effect, organization has to follow specific steps when designing and implementing gamified HR process. Recommendations to improve the Forecaster, above discussed internal communications channel, were, therefore, based on those steps.

Step 1. Identify the overall business goal top management want to reach

At the time before Forecaster introduction airBaltic did not have a clear new strategy for the future. They were climbing out of difficult times and they were trying to survive and to create a financially strong company. It was therefore the task of the board to further design the strategy of airBaltic. For the time being, it was difficult to identify overall business goals related to the strategy of airBaltic. However, a goal that is always present within *airBaltic* was to work cost efficient and increase revenue in order to create a better financial position. Management of the company wanted to create more productive processes. Theory has shown that engaging employees is a key success factor in reaching this business goal. Also, HR Analytics has proven that by engaging employees an increase in productivity and a decrease in attrition can be realized within airBaltic. This can lead to great cost reductions. It can save cost in turnover because less time needs to be spent on searching new employees and getting them settled. The costs of replacing employees were calculated at the level of 38% of a yearly salary. In addition, cost can be saved in productivity gains. At the same time engaged employees are happy and satisfied employees, therefore airBaltic was striving to achieve win-win situation of cost reduction and happy satisfied employees. Hence, the business goal for the management was: *Decrease turnover and increase productivity by engaging employees within airBaltic.*

When looking at the TNS survey as a starting point one could see that the rate of committed and engaged employees was 53. The goal of the HR department was to increase this rate to the national average of 65 in the next years.

Step. 2. Identify the main objective of gamification: know the entity you want to gamify in order to reach business goal

In order to increase engagement according to the overall business goal different measures can be taken. For Forecaster to work properly and have the intended effect on engagement it was important to choose the right entity to gamify. Engagement as a concept can't be gamified but the behaviours that lead to it can. Forecaster was already running within the company and according to interviews there was a certain pool of employees participating at it. However, for the ideal state of matters, the potential new entity to gamify was discussed.

Identify current entity being gamified:

Different subjects/entities can be gamified to increase engagement. It is known that the idea of the CFO was to gamify participation in decision making through Forecaster. He therefore designed a game that he thought was interesting. However, out of the interviews it can be concluded that all employees interviewed (players, non-players and managers) believed that Forecaster is only meant to provide information and to communicate. None of them believed that Forecaster was contributing to participation in decision making. The game elements of buying and selling shares were seen as 'just for fun'. Forecaster, in its current form, was, therefore, not contributing to participation in decision making. The added value of Forecaster to airBaltic was communication of projects from different departments and the entity that was gamified was internal communication/information flow.

Although communication/information flow was not the intended entity to gamify, employees were generally positive about it. The employees interviewed, in general, were happy about the communication/information flow on Forecaster and they thought it is interesting to know which projects were running in different departments.

When going back to the overall business goal of increasing engagement one can conclude that communication fits with the overall business goal. Good internal communication has a part in creating employee engagement because it involves them with the goals of the organization and enables them to identify with the values of airBaltic. Therefore, communication is a potentially good entity to gamify in order to increase engagement. However, while speaking to employees during the interviews it was noticed that they have other ideas for Forecaster besides communication/information flow.

Step 2 cont. Identify new entity being gamified:

Out of the interviews it was noticed that employees do like to receive information about projects from other departments through Forecaster. Therefore, internal communication was a good entity to gamify, if done properly. However, employees suggested other ideas as well to further develop Forecaster. Employees suggested that Forecaster could possibly be used to let employees give ideas about how to improve *airBaltic*. One interviewee suggested making Forecaster a platform in which ideas can be shared by all employees and where employees could get followers for their idea. Ideas with the most followers get discussed by the board and maybe implemented. Also some suggested that it would be great if they could give their opinion about decisions at airBaltic. For instance, an employee suggested putting ideas or questions on Forecaster so that people could give their input. For instance about menu's on board, hand luggage price and style of employee party. These opinions can be taken into account when

further deciding what to do. Another suggestion is to provide projects about ‘should we do this?’ or ‘should we implement this?’. Also it was suggested to provide ‘will the board approve our idea by certain date’ in order for employees to give their opinion about the idea. One interviewee said that getting opinions from insiders is very useful. According to this employee it is especially useful to know what cabin crew and pilots think because they experience things outside of the office.

In addition one employee said that airBaltic is facing hard competition and in order to survive they need ideas and opinions from all employees about creating revenue and decreasing costs. During the interviews there were only two employees that were not enthusiastic about sharing ideas and opinions through Forecaster. They did not see the added value of sharing your idea on Forecaster in order to ‘chat’ about it. They both said to never post an idea on Forecaster even if this is possible.

Based on interviews it was concluded that the majority of employees see more possibilities for Forecaster besides communication and are also open for these possibilities. Their new ideas for Forecaster were fit with the idea of the CFO about decision making through Forecaster. In addition, the theory has shown that participation in decision making and crowd sourcing, so that employees can give their ideas and opinions, has the potential to increase engagement of employees as employees will feel more involved with the company and its goals. For these reasons it is believed that these findings can be taken into account as a second entity to gamify next to communication. This means that, based on the findings, two entities to gamify can be considered - communication and idea & opinion sharing.

Step 3. Identify the users: what’s in it for them, what motivates them to engage, what is their interest? Know the stakeholders.

Next to identifying the overall business goal and the entity to gamify it is important to really know your users and potential users before designing a game. To identify the users of airBaltic a catalogue was made per type of employee that was interviewed. Managers who post projects on Forecaster, non-players and players were interviewed. Per group the general findings are described characterizing that group of employees. Of course, these are general findings which mean they cannot be attributed to every person within company.

Catalogue

Managers
In general, do not play Forecaster themselves because they do not see the added value of the game element. They do read the project description.
Provide projects because it was asked by CFO and because they want to help
See added value of Forecaster as a communication tool, not as decision making
Believe that Forecaster is not properly communicated to employees
Believe that Forecaster is not adding value for the projects itself or helping them realize the project.
Do not feel additional pressure for succeeding the project when put on Forecaster
Think that Forecaster needs more content and more players for the game to survive
See potential in Forecaster as an idea sharing place where employees can also give their opinion.
In general do not believe monetary reward is necessary
Believe that also for managers it would add value if employees share their ideas through Forecaster with them.

Catalogue players

Players
Believe the reward creates motivation to play
Like that it provides them with information about projects in airBaltic
Believe that more projects and shorter project make it more exiting
Like it when managers and employees post more comments
Believe Forecaster is easy to play
Would like more players to create more unpredictability in the game
Think other rewards would be nice like a party and free flights
Think Forecaster would be more interesting if they can have more impact by giving their opinion
Would not play Forecaster in their free time, only during working hours
Like the gambling and analytic part of playing Forecaster

Catalogue non players

Cabin crew
Their job does not lend itself to look into Forecaster on a PC, they are in the air constantly
The game has no clear 'What is in it for me' for the cabin crew
Current projects on Forecaster are too far from their daily work and are mostly office projects

Hard target group to get engaged in activities next to their actual job
In general are not that much into selling and buying shares
Most have never heard of Forecaster, therefore it is not good communicated to them
Project descriptions can be hard for them to understand
Need information and new things to be repeated to them as reminders
Technicians
Their job does not lend itself to look into the game on PC
Playing Forecaster during working time is not socially accepted, due to tight schedules. They have a very time pressured job
They don't feel they could win because they are not in the head office and therefore do not have enough information about the projects. Same group always wins.
The projects are not relevant for them, almost no technical projects on Forecaster
Technicians do not speak English, while Forecaster is only in English
Technicians is a group of relatively old employees who are therefore not into digital games like younger generations
Just looking
Do not like to make «bets», are not into the game element of Forecaster
Feel that buying shares has no real impact on the projects
Do not understand the game dynamics, and are not that interested in it
Feel more for voting and helping others out
Likes to read about the projects and if they succeeded or failed
Do not like games in general
Are not affected or motivated by the financial rewards
Do not believe Forecaster is professional; project descriptions should be more professional

Source: Author's construction, based on analysis of Forecaster game results, 2015

The same findings of the interviews can also be used to categorize them according to Bartle's player type, who divides players into two large categories – people who want to act and people who want to interact. Because the player types are a lot of times overlapping and strict boundaries do not exist it was difficult to identify each player type in the findings of the interviews. However, it was possible to make a distinction between the 'people who want to act', consisting of Killers and Achievers and 'people who want to interact, consisting of Socializers and Explorers. Based on this distinction the problems that the two different groups face in Forecaster are described. Both player types described different problems while talking

about Forecaster during the interviews; this is because both have different needs that they want Forecaster to fulfil.

Table 3.3.

Catalogue of airBaltic employees, as per Bartle's player types

<ol style="list-style-type: none"> 1. The rules of the game are not explained 2. The one who sits behind computer all day has better chances to win 3. There should be more and shorter projects to create more dynamics 4. It is just about the spread and speed. The projects are not sufficiently important, especially over the longer run 5. Some people receive information faster and can win more easily, not fair. 6. Too many clicks to buy or sell shares, want to act faster 	<p><i>People who want to act</i></p>
<ol style="list-style-type: none"> 1. My contribution in Forecaster does not impact the projects 2. I do not like the investment part of it, I rather help 3. There are almost no updates about what is going on in the project 4. It is not really generating good ideas 5. I like that people post comments, I like to read them 6. I like to read and explore Forecaster to know what is happening in other departments 	<p><i>People who want to interact</i></p>

Source: Author's construction, based on analysis of Forecaster game results 2015

The catalogues of the different employee groups and player types makes clear that every group has different needs and different opinions about Forecaster. All these differences need to be taken into account when designing a better Forecaster. The challenge is to design Forecaster in such a way that it is attractive for all the different employee groups. Only then Forecaster can generate enough users. Based on the findings it is possible to determine the strengths and weaknesses of Forecaster. These strengths and weaknesses show how Forecaster is perceived in general.

Table 3.4.

Strengths and weaknesses of Forecaster

<i>Strengths</i>	<i>Weaknesses</i>
<ol style="list-style-type: none"> 1. Providing information 2. Top level buy in (CFO) 3. Shows managers' willingness to be transparent about projects 4. Innovative and unique game 5. Has in-company fans 6. Employees see added value of information/communication flow 	<ol style="list-style-type: none"> 1. Not enough active players 2. Only attractive for specific employee profile 3. Large group does not see added value of game element 4. Generating projects is an effort 5. Does not impact decision making 6. Opportunity to play not for everybody the same 7. Not well communicated to the employees

Source: Author's construction, based on analysis of Forecaster game results, 2015

Together with the user centred theory, the catalogue and the strengths and weaknesses Forecaster can be further re-designed with the end-user in mind.

Step 4. Identify context and culture in which the game will be used

The last element is to identify the context/culture in which the game will be used. A game will never work properly if no attention is paid to the context and culture. The general culture of airBaltic is already described in the introduction. However there are particular aspects that are worth to note. Firstly, when interviewing employees the conversation often went to the Latvian Culture as a determining factor for the company culture. This is therefore an important aspect to consider for Forecaster. Secondly, an expert interviewed gave some insights when talking about culture and context which are important. Thirdly, the opportunities and threats of the SWOT analysis are visualized which are derived from the outside environment in which Forecaster runs.

During the interviews a lot has been said about the Latvian culture. The culture is determined by a history of suppression during the wars and Soviet Union in which it was not allowed to voice publicly your opinion. Although this period is over the culture that was formed is still present even in this generation. Latvian people can be shy, they think twice before they give their opinion and are not used to talk out loud about what they really think. Some employees mentioned during the interviews that this attitude is changing and that the young generations are more open and less shy to tell what they think. But it still remains a typical

aspect of the Latvian culture. For Forecaster this means that on the one hand employees desire a platform where ideas are shared and opinions can be given, on the other hand they know that not all employees are comfortable doing so. This is an aspect that needs to be taken into account. According to one employee Forecaster is already helping because you can voice your opinion through a digital platform in which you choose your own name. If you want to be anonymous this is possible in Forecaster. This makes it easier to give your idea or share your opinion.

Next to interviewing employees an expert of gamification was also interviewed. This expert made a relevant remark about the context/culture. According to the expert you should never see gamification as just an IT implementation. It is not only about creating an online environment but also about creating an offline environment.

In this offline environment you have to give employees a certain reason why to go to Forecaster; give them a reason why they need the online platform in their offline context. This also fits with the theory about situated motivational affordance. In addition, according to the expert, if you want employees to share ideas through Forecaster, you have to make them ready for this in the offline world. This means making idea sharing part of the culture, whereby employees want to contribute to ideas and make Forecaster the platform to do it. Of course, it takes time to make this part of a culture. It is not something that happens overnight. But something as small as C-level management posting less serious comments or showing their interest is very effective. This way they inadvertently give permission to play and to fail.

Through the findings of the interviews it was possible to determine the opportunities and threats for Forecaster in this environment. The opportunities for Forecaster are based on the suggestions and ideas employees give in the interviews about making Forecaster a better game. These opportunities were earlier discussed in step 2 of the findings as possible new entities to gamify. The threats are based on possible factors in the outside environment of Forecaster that can affect its success or failure.

Table 3.5.

Opportunities and threats for Forecaster

<i>Opportunities</i>	<i>Threats</i>
1. Making platform, for idea sharing and innovation	1. Latvian culture that prefers keeping ideas/opinion to oneself
2. Allowing management to ask opinions of a big group of employees	2. Lack of enthusiasm/scepticism about Forecaster
3. Allowing employees to ask questions, provide ideas	3. Lack of funding to invest in improvements of the game
4. Having all angles on decision, limiting mistakes	4. Employees may stop using the game
5. Developing an innovative behaviour	5. Playing during working time remains socially unacceptable in some departments
6. Creating commitment and engagement	

Source: Author's construction, 2015

Based on the findings, recommendations were given to improve Forecaster and engagement through Forecaster. These recommendations were given systematically according to the last 4 steps of the 8 step model.

Step 5. Designing game and game mechanics: selecting game elements that engage user while accomplishing the business objectives.

Based on the research it can be concluded that Forecaster in its current form will not have a lasting effect and therefore cannot have the intended long term effect on engagement. Key elements have to change to improve Forecaster. The first recommended option was a fully redesigned Forecaster 2.0 with all elements that could foster employee engagement according to findings. Forecaster 2.0 would not only be able to increase engagement but could also create possibilities for more innovation, collaboration and knowledge sharing. Therefore it was highly recommended to airBaltic adopting Forecaster 2.0. However, creating and implementing Forecaster 2.0 requires resourced and IT expertise because a total new application has to be build. At the moment resources at airBaltic were scarce and priorities for using these resources had to be made. Therefore, also Quick fixes to improve the current Forecaster were provided. These low cost changes had the opportunity to improve the quality of the game, game dynamics and engage and attract more employees.

Findings suggested that employees would like to see Forecaster as a platform where idea and opinion sharing is made possible. Therefore, **Forecaster 2.0** was designed with these elements as the focus. Forecaster 2.0 is seen as a game in which it is possible for employees to

be actively involved in significant organizational issues through sharing ideas, knowledge, information and opinions. When employees feel they can share their opinion, questions and ideas in Forecaster, they would feel more engaged and involved with airBaltic. It is also a strong signal to employees that management value their input and want them to be able to voice their opinions. In addition, top management can benefit from the good ideas and useful insights of employees in order to make better decisions and implementing innovative ideas. Forecaster 2.0 had three main Features which will be further explained.

Feature 1 – maintain the project posting and buying/selling element - this part was the current Forecaster. Keeping this part was prudent. Even though not enough employees played this game, they did value the communication Forecaster was providing them. This information was not important enough for an intranet or meeting but still very interesting. The buying/selling shares part also had an amount of fans and was a successful communication tool. The current ‘popularity’ of the speculative game could help keeping the fans of the first hour and attract them to use the new features. Taking away the original features of Forecaster would feel like killing Forecaster and replacing it.

Feature 2 was a new feature within Forecaster in which employees could ***ask questions*** to each other in order to share knowledge. Findings suggested that employees within airBaltic sometimes had a lot of questions about why certain decisions are made. To be transparent and open to all employees and to engage employees it is important that they can ask questions. This new feature of Forecaster would allow employees to ask questions to each other about why certain things are done in a certain way or not done at all. Through these questions knowledge and information can be shared, expertise can be showed, and a dialogue can be opened between different employees and/or management. It is an open platform on which a large variation of questions can be asked and if desired even an open idea for improvement can be posted. The questions are tagged with an area/expertise so that employees with knowledge in this expertise can easily see and answer the questions. In addition, employees can like questions and/or answers if they feel it is valuable. The questions and answers with the most likes are up-voted and are on top of the list so that employees can easily see the best questions and answers. This new feature also has new game elements to make it attractive and reward targeted behaviour. Employees can earn points when posting questions, answering questions or liking. In addition, the employee with the best answer to the question according to the crowd gets additional points. These points are combined to a collegial score showing how big your influence is and how your post are valued.

Feature 3: airBaltic Challenge - top management would come up with a challenge and would ask employees for ideas/suggestions to face the challenge and improve airBaltic. Employees could submit their suggestion or idea and others can 'like' the idea if they think it's good. The ideas are up-voted. This means that the idea with the most votes will be shown on top of the page. With this system the crowd chooses the best idea.

As a side effect some buy-in from employees for the ideas were already present. The best ideas were considered in top management meetings and at the end a follow up given by top management. Forecaster 2.0 would show a list of former implemented ideas and feedback. The findings of interviews showed that employees would like to see this new feature in Forecaster. In addition the theory shows that letting employees have impact on decisions and involving them has a great impact on their engagement. Also the company benefits because they can harvest new ideas and solutions from its employees and their expertise. Through this new feature the knowledge of the crowd is used to get ideas for innovation, improvement, cost savings or creating revenue. This also helps top management in decision making as they do not have to come up with all the solutions by themselves. The game elements of this part resemble the game element of 'ask a question' and are based on the targeted behaviour. Employees can earn points for submitting suggestions and liking suggestions of others. Employees with the best suggestion according to the crowd get extra points as well. These points are combined to a challenge score which tells employees how active and good they are in facing airBaltic challenges.

The prototype of Forecaster 2.0 also showed individual account in which all scores of the different parts were visible and individual score was placed on a leader board. This way individual score was compared to others in order to create a little competition and motivation to play. It is possible to reward employees based on their scores to create even more motivation to play. The scores could be linked to the airBaltic pins, which is a virtual loyalty currency that can be traded in the airBaltic shop.

It was chosen not to integrate the buying and selling shares in the parts of 'ask a colleague' and 'airBaltic challenge'. The theory states that using a stock market for ideas can have a negative influence because of the hard-speculative behaviour that can be triggered within some employees. In addition, the findings of the interviews suggested that there is a large group of employees that are not into the financial part of buying and selling shares. Therefore, the system of collecting points is preferred and recommended in Forecaster 2.0. This system of reward is also very agile. Pins could be awarded to the top 3 players of each feature

or employees could collect them by doing a certain amount of behaviours f.e. 10 likes for their idea or posting a top suggestion.

Because designing Forecaster 2.0 had cost a lot of resources in IT time spend and money spend, also **quick fixes** were offered to improve the current Forecaster as communication tool. Qualitative good communication is and remains an important part for engagement. All the quick fixes were recommended and could be easily implemented. These quick fixes were based on making Forecaster more user friendly, making it a more dynamic game, rewarding behaviour that company wanted employees to show and adding more value to the game. With these quick fixes it was possible to attract more employees to play Forecaster and engaging more employees with compny. Although, by only doing these quick fixes the impact on engagement of employees can never be as high then with Forecaster 2.0., still, these quick fixes would improve Forecaster. Total of 17 quick fixes divided over 4 themes were offered:

To improve added value and game impact it was suggested to make it possible to like comments; comment with most likes is best comment of the season

It was suggested integrating the possibility to ‘like’ comments. This increases the options for social interaction that the interactive player types like. In addition, it gives employees the options to show their appreciation for good comments and also to receive appreciation if your comment is liked. This visibility of appreciation might motivate more employees to give insightful comments which are a targeted behaviour. Some employees noted that they do not know the conditions under which the best comment is chosen by the CFO. Therefore, it would be an additional game element if employees could choose the best comment; the comment with the most likes would become the best comment of the season. This would add transparency and involve the Forecaster players in rewarding.

It was highly advised to submit projects on Forecaster that are not yet approved and of which employee’s opinion can add actual value. When there are certain ideas within the company which still need approval from the board these ideas can firstly be tested with airBaltic employees by submitting them on Forecaster. Employees can give their opinion about if they believe the idea would be successful and approved by the board by buying or selling shares. The opinion of the employees can be taken into account when the board makes the final decision about the project. These kinds of projects would create participation in decision making and could result in better decisions taken by the board and a better image of the board.

End project description with: ‘ Do you believe in our target? Please give suggestions in the comments if you have any feedback/idea’s to make the target’

To involve more employees with the projects and to help project leaders with the wisdom of the crowd it is recommended asking employees for feedback.

Suggest ending every project description with a question to the employees in which feedback is asked. Asking for feedback gives employees the feeling that they can really contribute to the project and that their feedback is valued. It gives them the option to provide their idea's in Forecaster if they like. It adds value for the project leader because it might provide him/her with idea's it would otherwise never get.

Make project description depict the bigger picture

Project descriptions were very short with only the limited information. Almost never explained why this project is important, why there is actually time invested in it and how it could help airBaltic forward. Therefore, it was important to invest more time in the project descriptions in order to explain the impact of projects and why it was chosen. Through this change in description employees can better understand business decisions that have been made and the contribution of these projects to airBaltic.

Improve user-friendliness - make sure the project descriptions are accessible: in easy language and attractive to read

Some employees believed that the projects on Forecaster were too hard to understand for everybody. The descriptions needed to be written in an accessible inviting way for every employee group. The description of the projects should be in very easy language and all the abbreviations should be explained. In addition, descriptions should be brought in a fun and playful story-telling manner to make it more attractive to read.

It was recommended giving every project a badge which states the overall subject of the project for instance marketing, sales, technique or cabin crew. Because of this badge projects are easier recognisable, understandable and it is easy to scan over them. It creates a more user-friendly Forecaster and it makes it possible to select the projects per subject.

Some players complained about the endless clicking that is necessary if you want to buy multiple shares. At the moment you can only buy one share at a time. In order to make Forecaster more user-friendly it is advised to integrate the possibility of buying multiple shares at once.

To create more playing moments for cabin crew and pilots Forecaster it was suggested to make Forecaster available on their tablets. When they have time in between flights they have the ability to check Forecaster and play the game on the tablet. It should be possible to use Forecaster offline and then make the updates as soon Wi-Fi connection is regained. This way cabin crew can play in the quiet moments on long flights.

Improve game dynamics - more projects, shorter projects

The active players suggested making Forecaster more dynamic by submitting more projects and also shorter projects (maximum 1 month). This way more is happening in the game with improves the game experience and more information is given. Projects that are months away from the targets are boring and not worth to invest money in as all assets get reset every month. Betting on long term projects therefore makes no sense. In addition the shorter projects are mostly also smaller projects with targets that are closer to the employee's daily operations. Project examples are for instance 'will we make more than 1200 internet bookings this month due to airBaltic commercials?'

In order to keep the stream of new projects flowing it was suggested to make 'providing projects for Forecaster' as a KPI for all managers of departments. Their contribution to knowledge and information sharing within airBaltic is important and that is why targets should be provided. In addition it secures the content of Forecaster and it creates diverse content of different departments which is essential for its existence. Managers can delegate this task to other employees; however they are end-responsible.

During the interviews some employees suggested that managers should give regular updates about how the project is going. Employees liked updates because it is informative and interesting to know.

Employees felt more involved with the project if they get the updates and they can use this information to play the game as well. This creates more dynamics and more excitement. Therefore, managers were encouraged to post updates on a regular basis. To make giving these updates easier for managers they would get a weekly email as a reminder. All the new comments of the project can be summed up in this email. The manager can just reply to the email and the update would automatically be posted on Forecaster.

Providing the option to upload a photo in Forecaster by everyone would create more dynamic, more interaction and a fun element. A photo can be posted about the summer party, about hard-working colleagues trying to make the deadline, or for celebrating colleagues who made the deadline. It would make projects more attractive, more personal, and would create more involvement.

To make the game elements more dynamic and interesting it is suggested offering a reward in the game. Offering an in-game reward motivates employees to play and actually invest money in projects they believe or not believe in. As administrators you can see extra information about a project that is also interesting for a regular player to see; this can be used as a reward. Therefore, it was suggested that employees can 'unlock' this information of a

specific project when they buy/sell a minimum of 100 shares of this project. This information might give them a competitive edge in Forecaster which motivates to play.

At the time it was only possible to see ones' results going to own account. If wanted to see ones' place on the leader-board employee needed to click on the leader-board and scroll down until finding oneself on this leader-board. This was not user-friendly and it did not motivate to look at it. Therefore, it was suggested that on every page of Forecaster one should be able to see personal profit and place on the leader-board with a red arrow when the player went down on the leader-board, and a green arrow when the player went up on the leader-board. Seeing this as a reminder on every page creates more competition and eagerness to do better.

A targeted behaviour that airBaltic would like employees to do is *suggest a project*. At the moment it is already possible to suggest a project on Forecaster and while this is important for engaging employees it is a behaviour that is not rewarded or stimulated in any way. Therefore it is recommended rewarding employees who suggest a project on Forecaster for instance by giving them a 'stay calm and play Forecaster' mug. The reward does not have to be big, but appreciation for suggesting a project should be given to motivate and engage employees.

Create more variety in rewards and surprise. To create more dynamics and more excitement it is suggested varying in rewards and being creative with the possibilities of rewarding. Chose, for instance per month, a different reward, based on the behaviour that you would like employees to show that month. This reward could for instance be a small Forecaster party, a teambuilding day, discount at the gym, discount for a course, or two round trip flights etc. The rewards do not have to cost a lot of money and can benefit the employee and also the employer. Next to the fact that it creates extra dynamics an unexpected moments it also creates the possibility to experiment with prices and targeted behaviour. It provides airBaltic with insights in the value of the prices and the value of targeted behaviour in the game. Successful rewards can of course be repeated.

To attract more players and to show appreciation for the new and active players it is suggested creating a *reward for 'best newcomer'*. This might motivate employees to create and account and become an active player. It also provides them the opportunity to win something in the first seasons even though they are not the best players yet. Practically this means that on a time base of for instance two seasons the best newcomer can be chosen, which is an employee who created a Forecaster account during these two seasons and is actively

playing. This reward can be a Forecaster mug, pins or 50 euro. The reward can be based on the available budget.

Step 6. Create a measurement plan to determine effectiveness and ROI

Without measures set from the beginning the game will be set up to fail as without consensus success cannot be reached. While a rise in employee engagement rates counts as success for one, the other wants to know if this results in the financial gains that can justify the cost of the game.

Luckily the average return on employee engagement can be calculated and the part of which Forecaster is responsible can be shown in the amount of players and people who use Forecaster. The TNS survey already looks into this. If Forecaster is also redesigned to be a platform for innovation the return of new ideas could also be taken into account.

Measurements of Effectiveness:

1. Daily log-ins are part of the target originally posted. However it was found out from the research that daily log-ins are unnecessary to monitor because some employees just read projects and value Forecaster but do not log in. Seeing only the daily log-ins would ignore this group of 'readers'. What needs to be monitored are the log-ins when new content is posted, the comments and the transactions. Through prohibiting the 'just read' players to be reading everything in the e-mail but having to follow a link, it could be efficiently measured how many readers there are. At least 2/3 of the players should look at new content within the first days after posting new content.
2. The amount of projects should be about 3 a week to keep it interesting and keep the platform lively. The amount and quality of the projects determines effectiveness.
3. Amount of sign-ups should reach minimum 30% of total company, with a good spread over departments.

Measurements of return on Investment:

1. Research has shown, that getting employee engagement to average levels can be translated in cold hard cash. A study can be made of the relation between the increase of Forecaster use and the employee engagement rates. Forecasters return can be calculated by R² rates in a regression analyses. This way the yearly return of Forecaster can be translated in hard numbers.

2. When Forecaster 2.0 is designed to foster ideation and innovation the savings or profits made from the new ideas can be calculated and added to the return of Forecaster.

3. Forecaster is innovative and shows airBaltic willingness to cooperate and work more bottom-up. Extra publicity or awards won by Forecaster should not be forgotten in return. The price-money or the marketing-cost it would have taken to reach that amount of people can be seen as return. Increase of brand equity can also be taken into account.

Step 7. Implementation and communication plan

Whichever option is chosen, Forecaster 2.0 and/or some quick fixes, a good communication plan is necessary to introduce it. At the moment not enough employees know Forecaster and some employees that heard about it are not yet motivated to make an account. In addition some employees do not understand Forecaster and its purpose. Therefore good communication is essential to make Forecaster successful, only changing the game design is not enough.

A distinction has to be made between improvement of the continual, structural communications and communication to introduce the improved Forecaster to all employees.

Improvement plan for continual/structural communication:

At the moment there is structural communication through email to all Forecaster players. It provides the players updates about new projects, their current situation and ending projects. However the structural communication can be improved to make it more interesting, to attract new players and to improve stickiness of Forecaster. The following recommendations are given:

1. Monthly Newscaster

Currently a monthly newsletter is send to every player with some information about the season of Forecaster. However this newsletter is not written in an attractive and exciting way. It should be experimented with a new newsletter lay-out. This newsletter can be called 'Newscaster' and provided in a fun, informative and easy to read way the most exciting topics and changes of that season. In addition it is recommended sending Newscaster not only to employees who have an account of Forecaster but also to employees who do not yet have an account.

This reminds them of Forecaster, increases their curiosity in Forecaster, and attracts employees to make an account. The monthly Newscaster should be seen as an opportunity to promote Forecaster and to attract players.

2. Send attractive emails

Every time a new project is submitted or a project is ending an email is sent to all Forecaster players. However these emails do not have an attractive lay-out and do not invite to read. It is suggested to keep these email-updates when important things are submitted on

Forecaster like a new project or a new airBaltic Challenge. Because it is important to remind players of new things that are happening every once a while. But it is also suggested to make the emails more attractive to read by making a new lay-out. In addition it is suggested to add more links in the email for instance directly buying/selling shares or directly providing an answer to questions asked. This makes it easier for employees to perform the targeted behaviour because you trigger them to do it via the email. The emails announcing new projects should also be just a teaser so that employees will click on the links provided. The reason for this is the measurement of people actually reading the topics.

3. Link Forecaster to intranet

In addition it is recommended to link Forecaster to the intranet in order to increase the traffic of employees that go to Forecaster. When Intranet and Forecaster are connected employees can easily hop from one to the other which is more user-friendly. In addition they are constantly reminded of Forecaster when they go to the intranet which can create curiosity among non-players to click on it and take a look.

4. Communicate Forecaster winners and possible successes in intranet

Use intranet to communicate regularly about Forecaster and its winners. Using these opportunities to talk about Forecaster is very important to reach a bigger audience and to create awareness of the game among employees. If there is any exiting news that is valuable to share about Forecaster this should be communicated to all employees.

5. Explain the rules

Lastly, some employees said during the interviews that they do not understand all the rules because they are not explained. Therefore, it is highly recommended to explain the rules because no enthusiasm for Forecaster will grow if employees do not understand the purpose and game mechanics. The rules can be explained with a short tutorial movie that is easy to understand. In addition, the most important rules and the terms and conditions for using Forecaster can be written down as well. These terms and conditions are important to explain the proper behaviour on Forecaster in which employees are treated with respect, privacy is secured, and information is handled with care.

A new and improved Forecaster needs a new communication plan to create a buzz, attract employees and create awareness. However, before an improved Forecaster is introduced it is recommended to have a short testing phase of 1 month with a selected group of employees to make sure there are no bugs in the system. When approved Forecaster can be rolled out for all the employees of airBaltic. The introductive communication can start after the testing phase. The recommended steps are further explained:

Launch Forecaster during one of the airBaltic parties

Use a special occasion to introduce Forecaster to all the employees. For instance, the Christmas party could be a good occasion to launch and introduce the improved Forecaster. It should be impossible that employee do not know Forecaster at all and therefore a big launch is important. The launch will create a name for Forecaster and it will create a buzz which is necessary to attract more players. When airBaltic chooses to invest in Forecaster 2.0 it would be recommended to launch Forecaster 2.0 during the new opening of the office building. AirBaltic is getting one big new building for all the employees to create better communication, collaboration and knowledge sharing between the different departments and people. Therefore, Forecaster fits with the idea of the new building. airBaltic could introduce the new building together with Forecaster as a new fresh start for the company in which new values of collaboration, communication and knowledge sharing are highlighted.

Ask fans of Forecaster to help and be an internal promoter

It is important to have a group of employees that is behind Forecaster and that want to support. At the moment there are some top players who are a fan of Forecaster and who are really positive about the game. These fans can help with promoting Forecaster and spreading out the word. In addition, they can help with generating more ideas to tell employees about Forecaster.

Introduce improved Forecaster via email and intranet with a short video

In addition, Forecaster should also be introduced via email and intranet. Through a video airBaltic can explain in an attractive and informative manner what Forecaster is, how it works and why it is implemented. A video is an open, transparent method to explain all employees about Forecaster and its benefits for the employees and the company.

hang posters of Forecaster

AirBaltic has a lot of places with pin-up boards for instance in the kitchen of the head office and in the meeting room of the cabin crew. Employees look at these boards for new information when they are waiting for their coffee or for their prints. Therefore, these pin-up boards are a perfect place to hang posters of Forecaster. When employees look at the pin-up board they are reminded of Forecaster. These little reminders and images help in creating a name for Forecaster and attracting players.

Provide real-life promo/tutorial presentations

The findings suggest that there are certain employee groups that need more attention in order to reach them. For instance, cabin crew and technicians are in general difficult to reach through email and intranet, they prefer that you tell them something face to face. Therefore, it

is necessary to provide them a real life tutorial presentation about Forecaster. During one of their meetings a Forecaster expert can tell them about the game, how it works and what the purpose is. It is important to make these tutorials easy to understand, interactive and fun. In addition, they also need to be informative. Through these presentations it is also possible to show to specific groups that it is socially accepted to check Forecaster during work.

Interview CEO about Forecaster

Every month airBaltic releases a new video in which a regular employee interviews the CEO about a certain topic. This is a perfect chance to further promote Forecaster. Therefore, it is recommended to make one of these videos about Forecaster in which the CEO explains in an interview his vision of Forecaster and why he believes Forecaster is important for airBaltic. The CEO has a very high social influence on employees and therefore it is important to show the executive buy-in.

Next to these steps it is important to never waste an opportunity to talk about Forecaster. Make sure that you keep using communication tools to spread the word and create awareness of the game. In the end it should not be possible that there are employees who never heard about Forecaster. During this introduction phase it is important that feedback is asked about how employees perceive Forecaster and what could be improved. Feedback could for instance be asked during the presentations or via a short survey. It is important to note that not everyone has to play Forecaster, this is not realistic. Therefore, it is not the goal of the communication plan to make all employees play Forecaster however it is the goal to get as many players as possible and to create awareness about its existence and purpose. So never waste an opportunity to talk about Forecaster.

Step 8. Constant monitoring effectiveness and added value of game: Keep adjusting and improving the gamification experience.

A game like Forecaster needs constant monitoring and attention to keep the quality of the game high. When an organization develops, the game should develop with it and never stand still. At the moment the CFO is running the game on its own however this is not a situation that is sustainable. Therefore, it is recommended to make an employee of airBaltic responsible for running Forecaster, creating content, monitoring, communicating Forecaster and improving it on a constant basis. This person is end-responsible and capable of making Forecaster a success. It is recommended that the internal communications manager would be fit for this job as Forecaster can be seen as a successful internal communication Tool. Forecaster also needs a person with exceptional communication skills to keep the game alive.

In addition, the Chief Forecaster Officer should get the support from HR and top management to make Forecaster a success.

To be able to monitor the degree of success of Forecaster airBaltic needs to ask the feedback of their employees. This can be done for instance through a button on Forecaster itself. This information is important in order to improve Forecaster and keep it attractive for users. In addition, Forecaster should be able to generate more data behind the scenes to find out some specific metrics about active player groups. E.g.: what parts they like the most, where they click on the most and which traffic is on Forecaster. This data can also be used to further improve Forecaster.

It can be concluded that Forecaster at airBaltic could have potentially been a highly valuable tool in increasing employee awareness and sense of being informed about the business. However, Forecaster in its tested form needed to be changed in order to have more impact on employee engagement with the game process. In its tested form Forecaster was not living up to its full potential. Therefore, the question arose during research if it would be wise to discontinue Forecaster. Eventually, it was done, as resources were not found to be devoted to further maintenance and development of the game. A gamified system needs attention, support and time. Recommendations showed two scenarios possible to improve Forecaster; one of quick fixes and one of a new redesigned game in which the focus would go to idea, knowledge and opinion sharing. Although both scenarios were possible it was recommended that airBaltic takes following approach: Due to the amount of resources that are needed to create Forecaster 2.0 it is first recommended to do the quick fixes in order to improve the current form of Forecaster and to give it a fair chance. Forecaster needs new life blown into it to create engagement, more content and players. The quick fixes can realize this in a cheap, easy way in short-term. Efforts taken for the current game can only benefit the next generation of the application.



Figure 3.1. Recommended approach for improving the Forecaster game

Source: Author's construction, based on Forecaster game results analysis 2015

Popularity of Forecaster in its current form can only create momentum and enthusiasm for sharing and playing with co-workers. After one year the effect can be reviewed and based on these effects a decision on how to proceed can be taken. By doing quick fixes first and Forecaster 2.0 second the game will gradually and naturally evolve and improve which gives the players the chance to evolve with it and keep attractiveness of the game. Designing Forecaster 2.0 could be done in-house to make it precisely customized to airBaltic. This will cost time from *airBaltic* employees and system maintenance needs to be done in-house. Another option is to outsource designing Forecaster 2.0 to a third-party. They mostly have on the shelf solutions, but the advantage is that airBaltic can focus only on rolling the game out to the user and not on system maintenance and design.

The potential positive effects of Forecaster could directly impact important weaknesses that the commitment survey showed as having the highest priority. The weaknesses that Forecaster can impact are based on better company communication about strategy, plans and direction and the perception and image of company management. Through the effective use of Forecaster the flow of communication about strategy, plans and direction can be bettered. In addition the open transparency of top management on Forecaster can change the perception that employees have of management. If employees see that management is willing to involve employees in organizational issues and value their involvement this will better their image and reliability as a good management team. This shows that putting time and effort in Forecaster can directly and positively affect the priority weaknesses that hinder engagement at the moment.

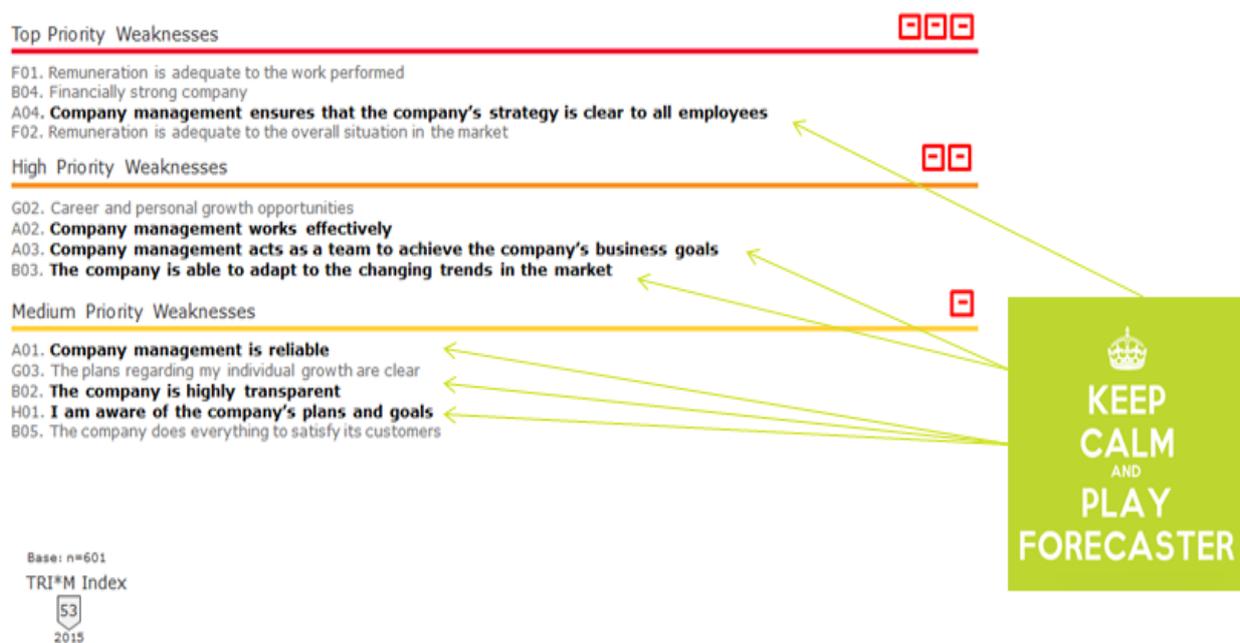


Figure 3.2. High priority weaknesses Forecaster can influence
 Source: airBaltic Employee Commitment survey by TNS results, 2015

In addition, Forecaster has a second positive effect. Forecaster has the ability to attract and engage the young generation. Generation Y and Z is a generation that wants to be challenged, they want to contribute, and they want to be able to participate and impact organizational issues. Especially the design of Forecaster 2.0 meets these expectations because of the new features (ask a colleague and airBaltic challenge) in which their ideas and expertise is valued. If airBaltic wants to specifically address the young generation and future employees than Forecaster 2.0 can be of great value. However, the quick fixes that improve the current form of Forecaster can also engage this group specifically as an open communication platform in which constant information streams and being connected are their main focus. In addition, they are challenged to give comments and provide opinions about projects which involve them with airBaltic.

When researching other airlines, it is noticeable that a lot of them use forms gamification and are also very progressive in this. Their gamification efforts are almost always connected to engaging the customer to the airline and creating customer loyalty. For instance, *KLM* airlines used gamification and social networks to engage the customer into the company. *KLM* launched the ‘*Must See Map*’ application that showed a map of where friends had travelled before and their recommendations (Shayon, 2013a). A full-blown game called ‘*Airline Empire*’ allows customers to run their own airline and understand the operations behind their flight better and adding on to brand equity and share of hearths. (Shayon, 2013b) In the app. ‘*Airline Empire*’ Customers can also check into the places they have flown to and earn loyalty points. *KLM* also used social media to get customers to share their favourite destinations and gave discounts in proportion to the amount of people who joined the flight online. This resulted in 30% more sales. (de Maagt, 2012). Air Canada also launched gamification for customers called “Earn Your Wings,” a leader board-centred competition offering digital badges and points (or “Wings”) for completed tasks and miles flown. Some of the tasks are relatively simple (visit a specific airport), while others are more involved like the Pacific Coast Badge that was earned by hanging out in “at least 3 specific cities on the West Coast. At the end of the competition, the top Wings earners will be rewarded with a portion of 10 million Aeroplan Miles (James, 2013).

Engaging employees in CRM input: Salesforce Chicken Hunt & Bunchball Nitro

Engagement of customers is one gamification application, but gamification is also used to engage employees in crucial elements of daily operations. On average 63% of CRM implementations fail (Prezant, 2013). This is because sales people are not putting in the correct information and feel CRM’s are just a big ‘to do’ list with no immediate effect on their sales.

Without employee commitment to the CRM tool no CRM solution, however perfectly designed, can be successful. Chicken Hunt successfully plays into the competitive nature of salespeople. Chickens are hidden ‘under’ different salesforce functions. Every input of new information is a chance to find a chicken. The salespeople are put on a leader board as to who has ‘hunted’ the most chickens (Higgins, 2014). Another successful player in engaging sale employees is Bunch Ball. Bunch Ball has a plug in for various CRM systems called Nitro. It awards levels to salespeople by letting them earn experience points for deals closed or information input. Bunchball also awards achievements and badges. When employees achieve something, reach a goal, or reach a challenge, they earn a badge. This badge is visible for people to see. A leader board is also part of the Bunch Ball solution. (Bunchball, 2015)

Engage employees in innovation: Venture Spirit

Employees are a vast source of new ideas and improvements. Some employees have good connection to the customers and hear customer’s complaints or suggestions in an informal setting. Gaining these insights is hard as employees don’t know where to take their ideas or do not want to go through lengthy business case build-up processes to present their idea. Venture Spirit is a Belgian start-up that provides a successful solution to get these hidden ideas out in the open. This company uses the VC model. At the start of the game people with the ideas are called the entrepreneurs. They post their idea on the Venture Spirit platform and get initial feedback. Employees who really like an idea and feel they can make a valuable contribution are allowed to join that team to build the business case in full. These people are called talents. In the second phase of the game the venture capitalists are introduced. Employees get an amount of fictional currency and buy shares of the idea they believe in. At the end the best entrepreneur, talent and venture capitalists got a price. The winning ideas are implemented. Amongst some of Venture spirits references were reported over 88 innovative ideas the first year alone. One idea to improve efficiency saved the company a few millions a year. (Venture Spirit, 2015)

Engage employees in social Sharing: Bunchbal’s solution for Bluewolf

Bluewolf inc. wanted employees to become an ambassador for the company on social media and more active on the information platform the company had in place. Bunchball set up a system to reward employees for sharing Bluewolf content to social media, writing blogs, placing content on the internal knowledge base and posting or reacting to posts in the internal chatter platform.

For every action the employees earned points, levels and badges. The points can be exchanged in a shop for “swag” meaning merchandise and goodies of the company. The results

were an 80% increase of blog activity and 45% more traffic on the website (Karen, 2012). The company's Klout score (2015), a numeric value of a company's or person's social media reach, which had been stagnant at 42 last year is now up to 45.

Gamification leader: Badgeville

Next to Bunchball, Badgeville is also part of the market leaders in gamification. Badgeville offers gamification solutions for customer service, learning and development and innovation and collaboration. They have big customers such as Oracle, Samsung and Microsoft. Badgeville (2015) uses several game mechanics in all their gamification solutions. Their game mechanics consist of point and click rewards and achievements than can be given every time someone performs a valuable behaviour. Their rewards and achievements can be personalized to the user and contextualized through creating rewards for behaviour that really matters for the user. In addition, Badgeville created missions to group the valuable behaviour you want users to perform into a set of milestones that helps users track their progress towards a larger achievement, privilege, or status. Badgeville also offers levels and leader boards to steer up some friendly competition and finds it very important to give user's immediate feedback. Through notifications real time recognition is provided for earning points, unlocking rewards, progressing through a mission, or levelling up.

airBaltic Forecaster game could be further improved to achieve sustained growth of employee engagement. As gamification is being used to promote a wide array of behaviours a tool that resembles Forecaster is hard to find. Mostly gamification is used to motivate employees to engage in otherwise tedious jobs. Forecaster is different as it should allow employees to engage into having impact on the company. Forecaster is not a means to motivate employees; it is more of a platform that allows actions that could be motivating and very engaging for an employee. Therefore, these best practices from big organizations and companies that offer gamification solutions cannot be copied one on one with Forecaster. Instead, gamified systems like Forecaster need to be selectively designed given the individual makeup of the end-user, allowing for personalization and customization, to accommodate individual users (Seaborn & Fels, 2015). However, these best practices can be used to demonstrate the different options and game elements that gamification has to offer which can be used as inspiration for further improving Forecaster.

Based on analysis of *airBaltic* business case and various literature review, following 10 steps model has been developed for effective application of gamification to HRM processes in order to achieve higher engagement by employees to the said process.

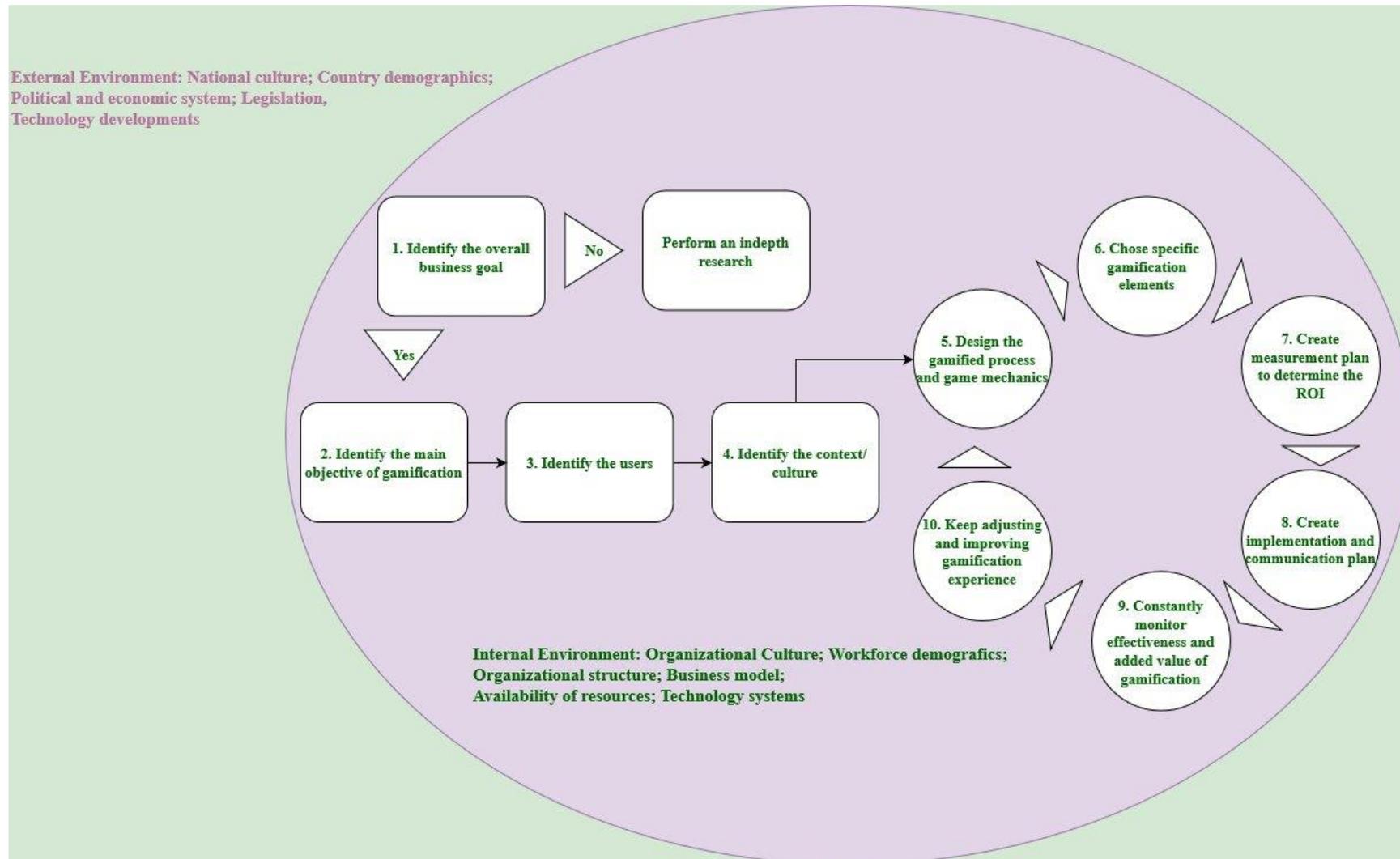


Figure 3.3. 10-Steps Model for Engagement-Positive gamification of HR processes
Source: Author's construction, based on literature review and business case analysis, 2019

The above model serves as a generally applicable guideline for developing an implementing engagement positive gamification in any HRM processes.

3.2 Gamification of Performance Management at Lattelecom

Lattelecom Company (recently branded to Tet) had a "*Lattelecom* managers club", which was established in June 2012. The club aimed to bring together the company's biggest enthusiasts - the leaders, to have a chance to meet each other and discuss interesting and educational topics. Gamification was one of the first topics that was introduced. For the majority of members this theme was new, but it was decided to examine how it would work in one specific department – External Customer Support.

Department of *External Customer Support* employs 41 employees. Department is divided into several units depending on the customer segment they are responsible for, respectively: private customers, business customers, corporate clients, platinum customer support and IT unit serving corporate customers.

Each unit's task is to respond to customer claims and resolve all problems incurred while using the offered services. Claim submitting process depends from sector to sector. Corporate clients and platinum customers submit their claims via phone or post them via already pre-developed e-solution. Private and business customers contact other department, so called "Call Centre", hereinafter referred to as "Level 1". The mentioned department helps to sort incoming calls and takes care about customer claims which can be handled via phone. Problems or errors, which can't be solved by "Level 1" support, are addressed to the "External customer Support" department, hereinafter referred to as "Level 2". In this unit employees have a higher level of competences and are more experienced, as well as they have opportunity to use wider range of additional tools and diagnostic systems. In cases when problem or error can't be handled remotely by the "Level 2" support (for example if the device is physically damaged and you need to plan a site visit), the claim handling is forwarded to "Level 3" team. More detailed process of the customer claim handling can be seen in Figure 3.4.

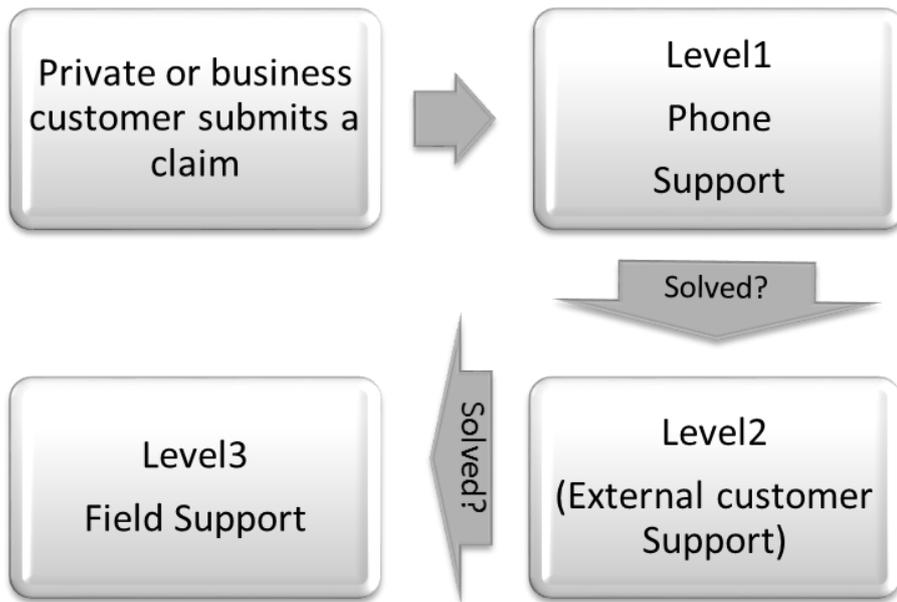


Figure 3.4. Process of the customer claim handling
 Source: Author's construction, based on Lattelecom case study, 2016

Employees in the department perform more of a routine work, because reported errors or damages repeat over the time, as well as topics of customer calls tend to be similar. In order to make the daily routines and responsibilities more interesting, employees are offered a development opportunity, following the typical pattern as shown in Figure 3.5:

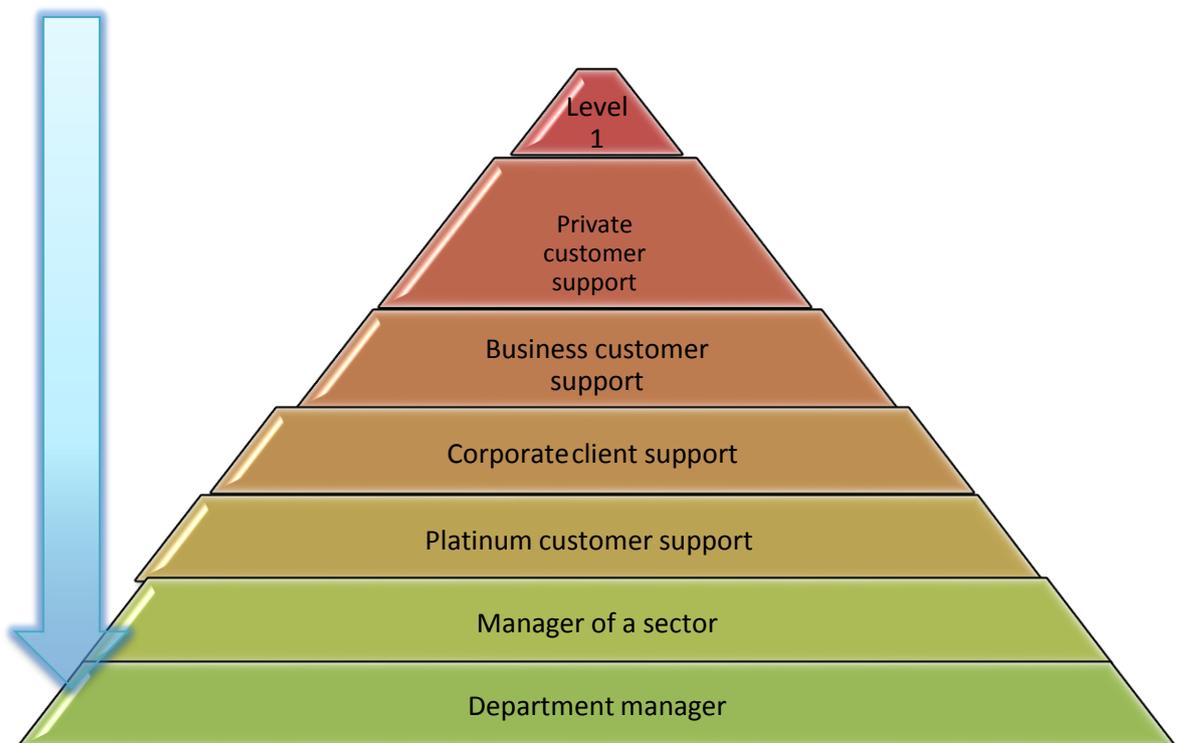


Figure 3.5. Employee career development
 Source: Author's construction, based on Lattelecom case study, 2016

Employee career development is a major challenge and as can be seen from the Figure 3.5, the base of new members is coming from “Level 1” Support.

There are several strategic objectives for the department:

1. Solve the service errors in the shortest possible period of time, so that the services are up and running again.
2. Solve the errors as much as possible in the own unit, not involving “Level 3” Support, which is the most expensive for the company, as claim handling is done at customer site and takes much longer.
3. When the error is solved, regardless of the level involved, it is important to make sure that the fault is really corrected, and customer is satisfied with the progress of the problem solution.

Unit’s team consists mainly from young people. The average age in the unit is 28 years, as well as the sector managers are young and ready to adapt to various changes. Team has a few very experienced employees as well – there are five persons over age of 40. The team is very open and cohesive - employees are ready to support each other during high workload and stress situations. Team building events, games and internal competitions are organized on a regular basis as well. It was decided that this particular team could be fitting for testing the gamification methodology.

To test the Gamification idea, some of new employees who had recently experienced growth from support team level 1 to level 2 were selected - Janis, Kristine, Daria and Kaspars. The idea was to encourage employees to work efficiently and effectively, and therefore contribute to the raising of quantitative targets and faster integration in the team. Mathematical method of collecting gamification results was established, and each employee receiving service failure trouble ticket from customer and solving it, received points, depending on the complexity and type of service that customer complained about. Similarly, points were awarded for incoming and outgoing calls. Gamification score was reduced if the client was approached with the same trouble ticket repeatedly or customer expressed complaint in NPS survey. The optimal number of points per day was determined (120 points) and every morning staff received by e-mail their performance results and level reached. In addition, employees were able to analyze cumulative points and see the cumulative score for other pilot participants. At a certain level of cumulative quantity (11 000 points) the staff member got the status of "Engineer". The main task for new employees was to reach at least “Engineer” level during the inspection period, and Gamification score worked as an additional data to use in interview after the inspection period. In addition, it was stated that the first of the new employees who will

reach the “Engineer” level will be get the ageing award. Daily it took about 30 minutes for sector leader to track and maintain the score and send it to participants via e-mail. Unfortunately results couldn’t be shown online and staff waited every morning to see the performance of previous day. Pilot graph is shown in Figure 3.6.

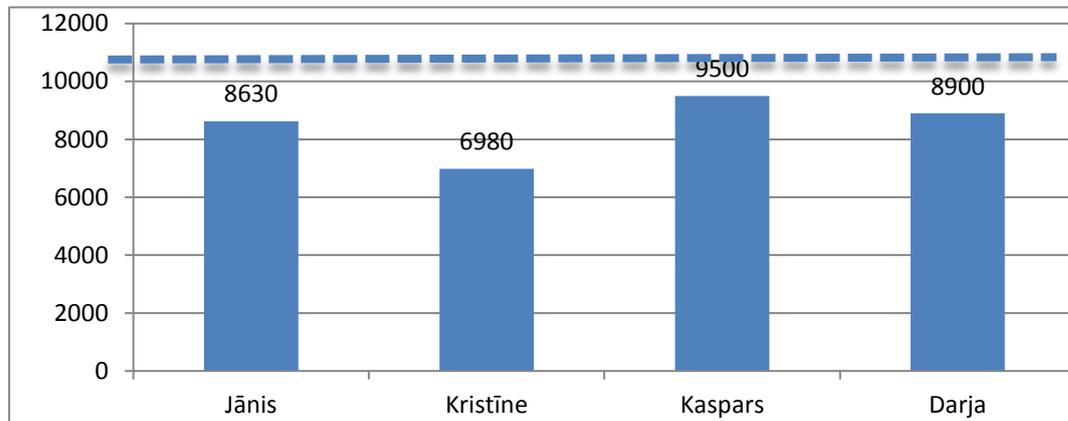


Figure 3.6. Pilot model

Source: Author’s construction, based on *Lattelecom* case study, 2016

At the beginning the staff did not believe in the idea, but results were quickly noticeable and after the first week, staff anxiously waited for the current results in the morning, wanted to see their place in the top, as well as their progress towards the status of “Engineer”. There were even cases when staff came to work on weekends and studied systems and processes, just to see their selves with the top score on the Monday morning. We could see the passion and spirit of competition between employees and as a result the first new employee reached the “Engineer” level just a little after two months, which was an unprecedented record in department’s history.

After summarizing the results of the pilot, it was decided that it had been productive and should be introduced as a basic solution for the entire department.

Implementation of Gamification principles

Evaluating employee feedback and suggestions a set of requirements was prepared for the prototype of the first version. The basic requirements were:

1. Minimize number of manual operations and time needed for data collecting, entry and update driven by the sector’s manager
2. Create an IT platform in a common „Business Intelligence” site, where employees at any time could follow their actual performance, as well as the collection of points and data progress would be done automatically

3. Introduce twenty different levels of achievement - from lowest to highest, where each level requires fulfilment of specific conditions. After a completing a level an employee receives the next tasks and challenges for the next level.
 - 3.1. **Level 1:** Well done! You have started your way to become an engineer of electronic communications.
 - 3.2. **Level 2:** The team will support you, if you'll be a part of it. Always ask the first shift if you can give a hand and never avoid your given task.
 - 3.3. **Level 3:** A good engineer is always result oriented. Set your own target of reaching 200 points in one day. Send a message as soon it's done.
 - 3.4. **Level 4:** In Lattelecom we communicate in a customer friendly and understandable language. The same applies to co-workers (presentation of one topic).
 - 3.5. **Level 5:** OLA, SLA, PPV (take lead of the regular morning meeting).
 - 3.6. **Level 6:** You have made your way to become an engineer. Here you will find a map, which will help you to plan your next steps (skills matrix from manager).
 - 3.7. **Level 7:** In case of a remotely configured device, good engineer has seen it with his own eyes as well (BOSS LEVEL).
 - 3.8. **Level 8:** Have you tried to process two trouble tickets at once? Maybe three?
 - 3.9. **Level 9:** Motivation is the engineer's best tool and clear targets are the base for own development (Development discussions with manager). In similar way up to Level 20.
4. At a certain level employee receives a notice about creation of his own skill matrix or the additional training needed in order to improve his competencies. Employee's skill matrix is built and maintained in an Excel file.
5. Also, manager receives a notice regarding the changes in employee's level. At this point manager can enter an individual notice or encouragement and send it to the employee.
6. Consider an option about point reduction or cancelled level of achievement if the job performance does not meet the quality requirements. Manager should have the rights to deduct points, in case he observes such a necessity.
7. Create different kind of special badges for employee achievements. Those can be either daily or weekly records or given ideas about possible improvements in processes, etc.



Figure 3.7. Example of badges
 Source: Author's construction, 2016

8. Option to define the “*Profile of an ideal employee*” and possibility to track whether employees’ performance is “ideal”, according to sector’s interests. The profile of an ideal employee consists of the following criteria:
 - 8.1. Quality measure 40%. Quality of repairs done by employee. Measured in terms of a need in repeated repairs within next 30 days. NPS (Net promoter score) survey data about job quality of the particular employee.
 - 8.2. Quantity measure 20%. Employee performance in points.
 - 8.3. Attitude measure 20%. Various factors of an attitude measured by the manager or the expert of a particular sector. For an example: how employee manages the daily meetings, gives analyze of the results, what kind of ideas or problems have been identified, how company rules are followed, helping colleagues in case of extra work load, etc.
 - 8.4. Knowledge 20%. Skill matrix completion plan. In order to improve their knowledge employees must follow the expert’s created Gaming plan. If the plan is followed accordingly, the performance ratio is 20%.
9. Employee can see his place in the matrix of an ideal employee, but the names of other colleagues are hidden.

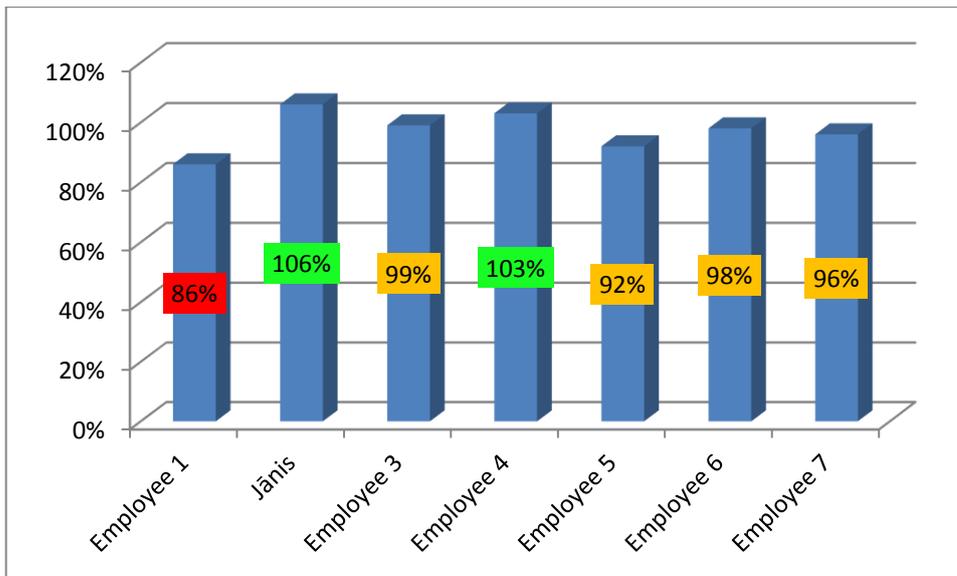


Figure 3.8. Private customer support team's performance
 Source: Author's construction, based on Lattelecom case study, 2016

The above figure demonstrates representation of the competition element that is brought in to the process for employees to see and compare their performance to that of the other colleagues.

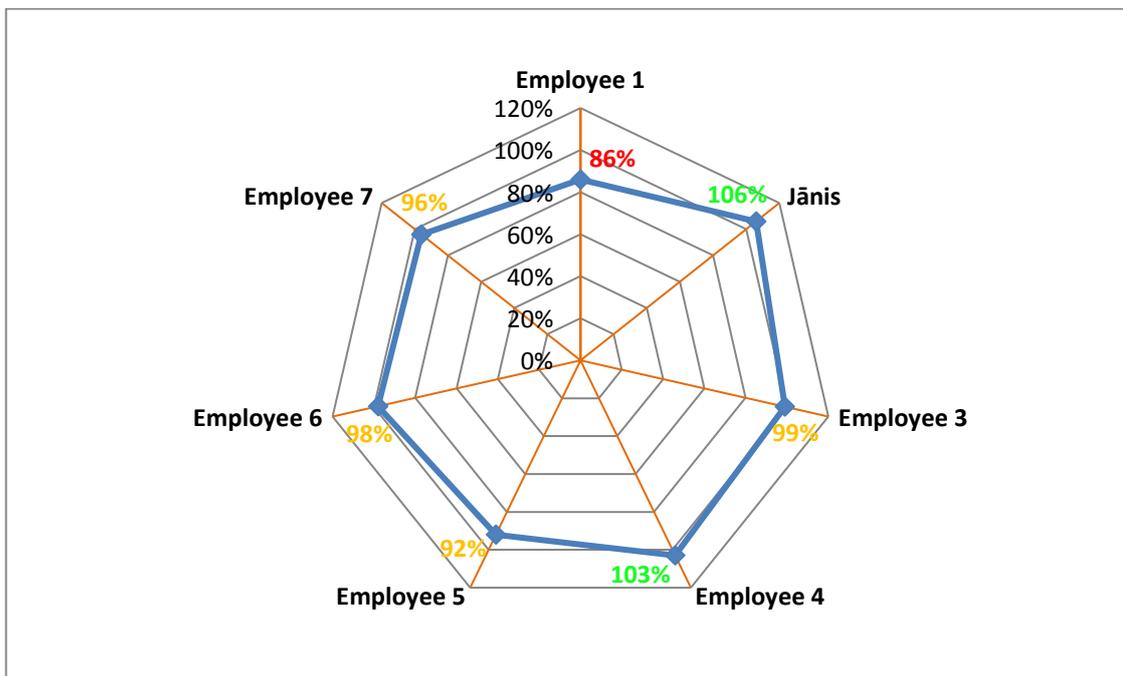


Figure 3.9. Private customer support team – employee progress comparison
 Source: Author's construction, based on Lattelecom case study, 2016

The above figure offers another dimension for employees to view their progress in comparison with the rest of department.

Technical part was created within two months and gaming methodology is in place for more than a year. Even the most skeptical employees gained the interest about the chosen

approach and are very keen on their result improvement. Within one year it was observed an improvement in department's strategic objective. It's possible that improved indicators were not only the result of the implemented gaming principles, but definitely it had a high effect on the outcome.

Table 3.6.

Employees support

	Department's objectives	Before Gaming	After Gaming
1	Solve the requests within time of 2 hours or post them to Level 3	76%	97%
2	As maximum as possible solve the requests in the own level, without transferring them to Level 3	35%	50%
3	When the repairs are done: regardless of the level of a service man, make sure that the request has been solved and customer is happy with the progress of the repair.	6.8%	6.2%
4	Average issue resolution time	1.22 days	0.87 days
5	Number of employees in 3 rd level department before and after (economy)	208	187

Source: Author's construction, based on Lattelecom case study, 2016

Employees support the Gaming idea and are proud of the results achieved. The methodology is included as one of the elements in the employee's on-boarding procedure. As a result, employees are more motivated, productive and cohesive. New personal and professional goals are reached—they enhance the employee's individual performance and their bonus amounts. Company saves significant costs because of less involvement of a Level 3 support in a problem solution.

To find out the current opinions about gamification in *Lattelecom*, **employee survey** was conducted. It had eight questions that aimed to find out satisfaction levels, self-evaluation of productivity before and after gamification was introduced, as well as employee overall perceptions about gamification in their workplace - do they think others like and benefit from it. Furthermore, employees were asked to volunteer their suggestions to improve the practices of gamification, which can be used both to identify weak spots in the system and to find new ways how to implement gamification better.

There were 9 respondents out of total 41 employees in department - 6 men, 3 women. Average age of respondents is 27, which reflects the average age in department.

Survey was anonymous, and participation was voluntary, so the respondents most probably are more active than average and could have a more positive opinion about

gamification, as they found it interesting and useful to fill out the questionnaire. Nevertheless, as the aim of the survey is not to gather statistical, quantitative data about the department, but to change or upgrade the gamification version that is used currently in Lattelecom for use in other organizations, people that see the point in the method as such and hence are interested in giving constructive advice, in this case are much more useful. It should be noted, that this means that the survey data is not really applicable and should not be used to evaluate gamification use in HR as such, but, as mentioned before, it is fitting for current purpose.

Respondent answers to the question: “Do you like the use of gamification in workplace?” were overall positive - more than half (5 respondents) said that they rather like the use of gamification in workplace and all others (4 resp.) most definitely like the use of gamification in workplace. When asked to evaluate their colleague satisfaction about gamification use in workplace answers are very similar - 6 respondents think that their colleagues rather like it, while 3 think that their colleagues most definitely like the use of gamification in workplace.

On average, respondents perceived gamification as a factor that can and does influence their productivity. In a scale from one to ten, where one represents “Not productive” and ten “Very productive”, before the implementation of gamification respondents on average evaluate their productivity as 6.5. After the implementation of the gamification practices, respondents on average evaluate their productivity as 7.5. So, they think that their personal productivity level is higher by ten percent and attribute that to gamification.

When asked, what do they like the most about gamification in the workplace, answers were generally about the possibility to see own results and to compete. Competition element is liked by everyone, but not in the same sense - some see gamification as a good way how to see their own place in the department or organization and to find out are they better or worse than others. They are competing with others and are excited about this game element. Others are thrilled that they can see their own progress and every day improve their own performance and productivity, thus, competing mainly with themselves. Most often it is some combination of the two, but usually one of the competition aspects (does the employee values the chance to compete with others or with him or herself) is more important.

When asked, what do they like the least about gamification in the workplace, most of the respondents did not have any answers (for comparison - all of the respondents could name the things they liked the most about gamification in workplace). One of the respondents said that there are undertones of childishness while another one mentioned that not everyone takes the gamification practices seriously. These perceptions could explain each other - if gamification practices are seen as something not really suitable for adults or workplace as such, they cannot

be taken seriously by employees. Other things that respondents liked the least were in regards to mechanisms of gamification - one was worried that gamification rewards (and thus, is fitting to) only those that do routine work where it is easy to gather a big amount of finished products, while more innovative or creative solutions do not get recognized in the system. Another respondent builds on this idea and reminds that the gamification system should be very carefully crafted, so as not to reward only a few of the duties, leaving others in neglect.

Another question that respondents had to answer was regarding the changes that gamification has introduced to their workplace and everyday work experience. Overall the biggest change that was mentioned by many respondents was that employees became more focused on results and overall aimed to achieve more - one of the respondents, while prefacing his answer with “Nothing [changed],” explained that people work more actively. Some mention that there is an increase in communication. Respondents explain that for those that embraced gamification it created a healthy level of competition and a sense of moving forward in their duties and career. One respondent mentions that the impact was very individual - some employees chose not to “pay attention” to gamification as they felt that it just a waste of time and another explained that there were no changes in his/her everyday experience, but encouraged improvement of gamification system, as she/he saw the idea as too young to already be able to change something.

Respondents were asked to leave recommendations, if they have any, and many chose to do so. They were different in nature - starting from individual wishes to systemic improvements. For example, one respondent advises to work on motivating people to participate in the gamification practices, while another one wishes that it would be possible to see his/her progress in his mobile device. One of the respondents wishes that the system would be improved so as not focus so much in quantity but take into account the quality as well. Another suggestion concerns the team - that competition between individual team members should not sacrifice the team spirit.

So, it is possible to conclude that employees that are satisfied with gamification as such and do like it, perceive it as an improvement to their productivity and even overall work life satisfaction - the competition that it creates is characterized as healthy, seen as a factor that increases communication and even builds a new team from high-achievers that want to gain even more success. Nevertheless, there are worries about the system as such and it is not generally seen as finished - respondents still see the gamification as a work in progress. This could also be one of the explanations for aforementioned colleagues that are not willing to participate - if they see the gamification as a fad that will come and (hopefully) go, they are not

very interested to embrace it in their everyday lives. Also, if there is inconsistency in the gamification system that it rewards more quantitative, simple work duties, then those who work on more complex problems could have misgivings about the whole idea. Even if this is only a perception and the system in reality does reward the more complex, creative tasks as well, the perception is a strong enough factor to hinder their involvement. The childishness factor is an important one as well as it is connected with self-worth and the worth that employees attach to their work - if they perceive the gamification practices as a way how their contribution is simplified or made less important, they are again less likely to be interested in participating in gamification practices.

Summarizing theory of gamification and successful experiences in Lattelecom it can be concluded that gamification approach can work as a driver for a concernment in routine and even in an enterprise itself because of growing level of an engagement.

It is useful solution for building healthy competition in a team, and a beneficial way that can bring in new contemporary solutions for the company with the purpose to avoid the routine, properly allocate resources, figure out talents, create an atmosphere of collaboration and as a result raise employee loyalty.

Lattelecom experience showed that gamification of Human Resource management practices is an ongoing process and can bring impactful benefit in terms of employee involvement. Furthermore, it is possible to successfully replicate it in a similar organizational culture although local challenges have to be taken into account.

3.3 Gamification of Performance Management at Evolution Gaming

SIA *Evolution Latvia* decided to design a similar gamification of their performance management process, where they hoped to bring more excitement and engagement with work routines, following the example of *Lattelecom* and advice from the literature (Whitehurst, 2015). Company is a part of *Evolution Gaming* group which was established in 2006 as one of the first providers of B2B Live Casino solutions in Europe. *Evolution Gaming* is a leading B2B provider of Live Casino systems in Europe. In Live Casino, a human dealer runs the game in real time from a casino gaming table which can be seen via a live streaming video link. Players make betting decisions on their device (PC, smartphone, tablet etc.) and can communicate with the dealer using a text chat function. The group employs approximately 1,300 people whereof a majority is based in Latvia and Malta. Besides that the organization has offices and studios in UK, Italy and Spain.

Company's customers include 70+ operators including the majority of tier 1s across Europe and a number of land-based casinos. At company's purpose-built, state-of-the-art Live Casino production studios in Riga, Latvia organization operates more live games tables than any other land-based operator in Europe. Riga is the larger of Evolution Gaming two central studios and home to ever-growing range of generic shared live tables, as well as the bespoke dedicated tables and environments company creates exclusively for individual operators.

Gaming is offering following games to the customers: unique multi-camera Immersive Roulette, Live Roulette, Live Blackjack, Live Baccarat, Live Casino Hold'em, Live Three Card Poker and more.

Customer Support department of SIA *Evolution Latvia* is divided into 3 subdivisions: Live Support, Customer Support and 2nd Line Customer Support (or Customer Support IT Analysts). In total there are 29 employees.

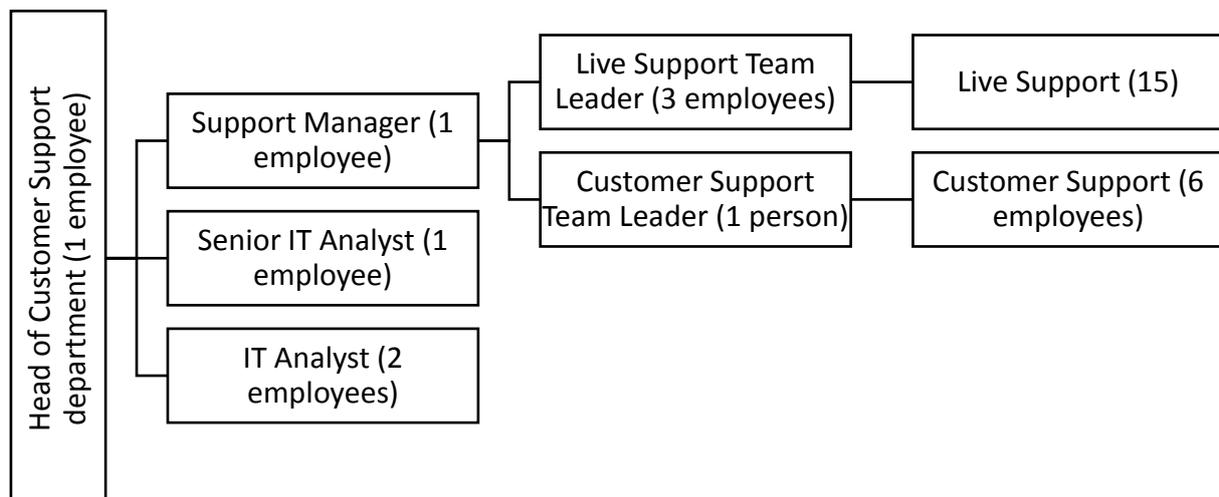


Figure 3.10. Customer Support department's structure
 Source: Author's construction, based on *Evolution Latvia* case analysis, 2017

Live Support subdivision is communicating with the players via Live Chat. They are monitoring chat, answering on players' questions, resolving players' complains or addressing them to the next level of support.

Customer Support subdivision is communicating with casinos via ticketing system or e-mail. They are answering casinos' questions, resolving issues received from Live Supports or casinos, passing technical issues or cases which require additional investigation to the next level of support. Customer Support employees are more experienced than their Live Support colleagues. They are using more technical tools and have better knowledge about casino's system behavior, processes flow within the company and internal procedures.

2nd Line Customer Support is the last support level within the department. They are deeply investigating received technical issues, reporting new technical issues and casinos change requests to development team, advising Customer Support and Live Support on new technical aspects of the products, creating different types of reports and etc.

Since each level of support needs to have more experienced and knowledgeable employees, there was traditionally certain hierarchy of promotions within the department: from Dealer/Shuffler employee could be promoted to Live Support specialist, to Customer support specialist and then to an IT Analyst

Each time when there was an open position, a contest which included motivation letters, table tests and interview was made.

SIA *Evolution Latvia* created and implemented evaluation system for dealers, Live Supports and Customer Supports. Each employee is evaluated based on his performance and productivity level using particular measurement system. The result of the evaluation influences employee's salary, since the compensation consists from hourly rate and hourly bonus. Description of advantages gained from each position is shown in table 3.7:

Table 3.7.

Description of advantages gained as a result of gamification

Position	Dealer	Live Support	Customer Support	IT Analyst
<i>Salary</i>	Hourly rate + hourly bonus	Better than the dealer's hourly rate + hourly bonus	Better than the Live Support's hourly rate + hourly bonus	Fixed salary (based on Customer Support's hourly rate + average hourly bonus for 160 hours)
<i>Working hours</i>	8 h shifts, possible working hours: 24 h daily, 7 days/week	8 h shifts, possible working hours: 24 h daily, 7 days/week	8 h shifts, possible working hours: from 7 AM till 11 PM, mainly business days	Business hours during business days only
<i>Working conditions</i>	Performance in front of the camera	Stressful and routine work in office with a computer	Routine work in office with a computer	Challenging diverse work in office with a computer

Source: Author's construction, based on Evolution Latvia case analysis, 2017

The departments average employee's age is 25 (including team leaders). Although all supports levels in Customer Support department are very hierarchical, overall the department is very helpful. More experienced employees always give advices to lower levels of support and less experienced colleagues.

New knowledge gained from difficult case or after consultation with next level of support is always shared with colleagues within subdivision. The employees are more united within the subdivisions and it is common for them to spend free time together after working hours.

Key focus set for the Customer Support's department is:

- Operator success;
- Excellent end user's experience;
- Quality relationship with end customers;
- Reliable and correctly behaving gaming platform.

To improve players experience by resolving their issues, as well as to establish better relationship with both casinos and players, Customer Support's management has decided to make internal changes within the subdivisions. Main idea is to combine Live Supports and Customer Supports in one subdivision. According to this change the Customer Support department's structure will look as follows:

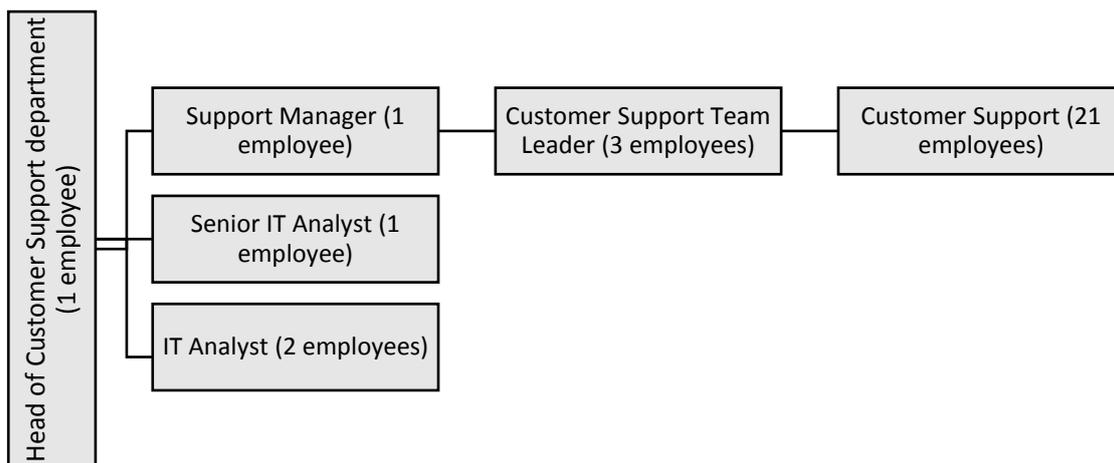


Figure 3.11. Customer Support department's structure changed

Source: Auhtor's construction, 2017

According to this idea all current Live Supports will improve their knowledge of internal processes, procedures and technical tools. After that, there will be more Customer Support employees represented on the shift and they will communicate with the players using chat, as well as will communicate with casinos via ticketing system or e-mail.

This change will bring the following advantages for players and casinos:

- Since more employees communicating with the players via chat will be present during the shift it will offer more personal approach to each client;
- The issues will be resolved much faster since more experienced employees will be present during each shift;

- The process of resolving technical issues will be simplified and no duplicated work will take place;
- More complicated technical issues will be resolved 24 h a day and 7 days per week since experienced employees will be present during night shifts.

The change will bring the following advantages for the employees:

- Employees will have less routine work since their work duties will become more diverse;
- The salary (rate) of ex Live Supports and ex Live Support Team Leaders will increase;
- There will not be evaluation process on monthly basis until the moment all employees will be trained and have gained experience; everyone will receive average hourly bonus, while current Customer Supports who will mentor ex Live Supports will receive higher hourly bonus;
- Employees will have more working schedule options, as well as more opportunities to take an extra shift.
- Management’s expectations based on the unification changes are listed in table below:

Table 3.8.

Management’s expectations based on unification changes

Management’s expectations based	Before unification	After all employees become Customer Supports
Issue’s resolution time via Live Chat	10 minutes in average	8 minutes in average
Technical issue’s resolution time via ticketing system	30 hours in average	24 hours in average
Number of cases that cannot be resolved via Live Chat	8%, 1000 cases in average per month	6,5%, 800 cases In average per month
Number of employees presented during a shift	Live Supports: 3 – 4* Customer Supports: 2 - 3*	4 – 6* Customer Supports
Number of employees in department	Live Supports: 15 Customer Supports: 6 IT Analysts: 3	Customer Supports: 17** IT Analysts: 3

Source: Author’s construction, based on Evolution Latvia case analysis, 2017

*Number of employees presented during the shift depends on shift time and its average workload.

**Employees reduction will be achieved by natural workforce rotation – to another department, position or organization.

Nevertheless, there are objections from the former Customer Supports' and IT Analysts' side against subdivisions' combining:

- Each Customer Support has passed quite serious contest in order to get Customer Support's position and now all Live Supports will get this promotion automatically;
- All former Customer Supports will have to advise ex Live Support on numerous cases during the shift and deal with more complicated cases since ex Live Supports are less experienced;
- There will not be any hierarchy between Live Supports and Customer Supports, however former Customer Supports have used to see Live Supports a bit in a role of subordinates;
- The workload of IT Analysts will increase significantly since new Customer Supports will be less experienced and will escalate more cases.

As from the management's point of view current changes can have the following risks:

- Productivity and performance of the employees could decrease since there will not be evaluation system anymore;
- The department's friendly atmosphere will deteriorate, and former Customer Supports will not help new Customer Supports in difficult issues;
- Since all Live Supports will receive promotion automatically part of them will not be motivated in learning new tools and duties.

Taking into consideration the successful experience of gamification implementation in similar Lattelecom's department it was suggested trying gamification approach in Evolution Latvia Customer Support's department in order to prevent the above risks. Based on the Lattelecom employees' survey information gamification approach helped them to improve productivity and performance, as well as to be motivated on the goal achievement. It was assumed that gamification approach will fit for Customer Support's department well since it is young and SIA *Evolution Latvia* (as a part of *Evolution Gaming* group) emphasizes innovations.

The system is in place, which counts each communication in the chat that employee participates in. Each issue received either from player or from casino is logged into the company's ticketing system and there is statistics for each reply and each resolved ticket for every employee as well.

Both mentioned statistics used to be confidential, and they were used mainly during employee evaluation process in order to determine employee's productivity. When implementing gamification principles in SIA *Evolution Latvia*, both parameters can be used –

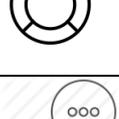
number of communications with players and number of resolved issues – in order to determine the most productive employee in chat and in issue solving.

These numbers were confidential before since the employee’s bonus and salary level was partly depending on them. These statistics are not anymore used for those purposes therefore can be made public and employees’ top can be made visible based on those.

To record other types of employees’ achievements, it was proposed to create number of different badges based on Lattelecom experience.

Table 3.9.

Badges aimed to motivate employees to improve their knowledge and productivity

	New technical issue was discovered and escalated to IT Analyst
	Difficult technical case was resolved without escalation the issue
	Has prepared training for colleagues / has prepared an e-mail for colleagues with useful tips
	Detailed issue analysis before escalating to IT Analysts
	The biggest amount of issues resolved during the last day
	The biggest amount of issues resolved during the last week
	Helped colleague to resolve difficult issue
	Positive personal feedback was received from the customer
	New idea for work improvement was introduced
	Resolved case was considered as an example of the best service

Source: Author’s construction, based on Evolution Latvia case analysis, 2017

Evolution Gaming group has its own intranet where each department has its own space, so **implementation** costs were small. The employee's points (and the tops based on them), as well as the table with the badges was suggested to be posted on specially created intranet page.

Since statistical data are gathered automatically, the list of employees' points as well as their positions in the tops can be updated automatically once per day. The table with the badges can be edited by team leader on the shift or manager.

The first phase of gamification implementation was suggested for the length of about 3 months. During this time manager and team leaders should constantly monitor whether the implemented approach help to increase productivity, contribute cooperation within the team and motivates the employees to get new knowledge.

The gamification approach in Customer Support department does not intend to influence employees' hourly bonuses. Evaluation of the employees' performance will directly affect the employees' salary. Nevertheless, management team could set some kind of goal using gamification instruments (each employee should achieve some amount of points during the month, all employees should receive some kind of badges during the month etc.) and pay quarterly bonuses in case the goal is achieved.

It was anticipated that implementation of gamification could bring the following increase in employees' productivity during the first year of successful implementation*:

Table 3.10.

Before and after implementation of gamification

Measurements	Before gamification implementation	After gamification implementation
<i>As maximum as possible solve the requests in the own level, without escalating them to IT Analysts</i>	Average amount of escalated cases during the month: 400	Average amount of escalated cases during the month: 340 (according to Lattelecom data the amount of such cases reduced for 15%)
<i>Technical issue's resolution time via ticketing system</i>	24 hours in average	17 hours in average (according to Lattelecom data the resolution time of the cases has been reduced for 29%)
<i>Number of employees in department</i>	Customer Supports: 17 IT Analysts: 3	Customer Supports: 15 - 16 IT Analysts: 2 – 3 (according to Lattelecom data the number of 3 rd level employees decreased for 10%)

Source: Author's construction, based on Evolution Latvia case analysis, 2017

The following gamification phases of implementation were suggested:

- Introduction of new badges (for example, based on the different performance aspects once the monthly evaluation is back etc.);
- Leveling system based on different tasks and goals for each employee (similar to the approach introduced in *Lattelecom*);
- Annual contest based on the amount of the points, badges received during the year, level achieved and set goals achieved.

3.4 Gamification in recruitment, selection and onboarding processes

Recruitment and selection is the process of attracting individuals on a timely basis, in sufficient numbers and with appropriate qualifications. Thus, recruitment is the process of identifying and attracting potential candidates from within and outside an organization to begin evaluating them for future employment. Selection then begins when the right candidates are identified. (Djabatey, 2012) Recruiting experts say gamification can stir people's interest in job openings, project an innovative image of an employer and deliver accurate previews of applicants' future job performance (Zielinski, 2015). To look at recruitment and selection process from gamification perspective, several research papers are relevant.

The paper by Armstrong et al (2015), about Game-Thinking in Human Resource management helps to determine which game elements might be applied to non-game HRM contexts. Due to limited availability of empirical research in this area (Hamari, Koivisto, & Sarsa, 2014), analyzing case studies of selected organizations is another way to deduct applicable conclusions. Making recruitment processes more game-like can motivate employees to recruit new applicants or involve potential applicants in the workings of the recruiting organization. These objectives are accomplished through gamified employee referral systems and through competitions among potential applicants. For example, as a case study was used the software developer company Herd Wisdom, who created a mobile application to gamify the employee referral system by awarding points and prizes to employees for recruiting new applicants (Herd Wisdom, 2013).

Recruitment process can be effectively gamified through the use of competition.

In the paper by Jacek Woznak (2015), "The use different levels of e-recruitment methods", the author analysed the various gamification tools used in e-recruitment. The author distinguished four levels of internet recruitment and categorized the gamification tools according to these levels. Various gamification tools used in e-recruitment are summarized in the table below.

Table 3.11.

Various gamification tools used in recruitment

Tool	Description	Tasks	Benefits	Practical examples
Entertainment games in Web 1.0	Company places entertainment games on its website	Increases traffic, attractiveness of website and owner's image. If game has elements showing character of the job, job pre-orientation (a realistic job preview) is possible, and job image can be enhanced. If game is highly attractive for chosen groups, image of company or branch may be enhanced and become an element of group culture	Relatively cheap, low risk activity. Low possibility of huge success.	Games used by Marriott Hotels and the US Army (2002) VirtualCareer Game or PowerBands used by Reckitt Benckiser (Wozniak, 2015)
Gamification systems in Web 1.0	Company organizes gamification-type competition on its website (supported by information elsewhere on the Internet).	Creating warmer image. Selection of ambitious candidates which allows them to believe they have won in a difficult competition (a socializing procedure).	Preselection and socializing activity	Selection: compare stage 1 in the "Bro Game" Related to image: "Lep lepieje" 4 (Woźniak, 2015).
Games and gamification as a tool in Web 2.0	Observing results obtained in games and competitions organized by others.	Preselection and selection of people with potential in a given area (a source of names).	A wide range of activities which can be indicative of skills the potential candidate possesses.	Offering jobs to winners of contests in different areas – e.g. computer programming – and collecting information about results of contests and open source activities (Herger, 2014).

Games as a tool in Web 3.0	Observing results and players' behavior in games containing tasks analogous to those tested using AC (indicative of competencies sought), or to significant challenges in everyday work.	Situations appropriate for selection purposes are arranged, and more comprehensive information concerning motivation behind behavior in such situations is gathered.	Situations currently considered of critical significance for the success of the organization can be tested. Hypotheses can be verified by repeating the test situation several times.	Talent cube d5 (Woźniak, 2015).
Gamified contests and communication activities as a tool in Web 3.0	Gamification is used in classic employer branding activities – such as the exchange of points for a trophy (e.g. tickets to a sponsored concert) – to encourage the development of fan clubs.	Increasing readiness to participate in an image-warming activity. Real-life activities are part of the contest and can be taken into consideration.	Stimulating activity through organizational forms that are adjusted to young people.	The Bro Game, recruiting candidates for the Beerlovers.pl portal.
Games as a tool in Web 4.0	Entertainment type game in which additional resources are obtained when a correct command is given	If the task is relatively simple for players, the group of candidates increases.	Increased number of referrals in chosen segments of the work market.	
Gamified forms of activities as a tool in Web 4.0	Points are collected for tasks, leading to valuable prizes.	Recommenders may become interested in cooperation on a permanent basis.	Increase in attractiveness of recommending, with the costs of individual referrals	Points are collected as a reward for referrals according to the value of the position

Source: Author's construction, based on various sources discussed in the chapter, 2018

Several case studies of organizations using gamification tools for recruitment are relevant to review.

L'Oreal

Between 2010 and 2015, L'Oreal in India used gamification tools to recruit for marketing, human resources, sales and operations roles. Their game, Reveal, allowed players to experience working in a global firm, interact with avatars representing employees and get a sense of which department they might be suited for at L'Oreal. (Da Corta, 2019)

“Gamification tools deployed by us call for solutions to real-life challenges. It helps us screen the applicant’s analytical skills, which may not be possible via traditional hiring means. We attempt to recruit 20% of the company’s managerial cadre through gaming channels,” said Mohit James, HR Director at L'Oreal India. (Da Corta, 2019)

Following the achievement of the key project deadlines, the Reveal game, including all assessment components, was successfully launched across the globe in January 2010. The game secured a number of industry awards including the 2010 National Graduate Recruitment Award for the ‘Most Innovative Way of Attracting Graduates’. By 2015 the game had amassed 120,000 players. (Da Corta, 2019)

PwC

PwC in Hungary set a goal to better engage its pool of candidates during the search process. Traditionally, candidates were spending less than 15 minutes on their career website, and the firm was interested in attracting more suitable, qualified candidates. This resulted in the development and launch of a game called Multipoly, which allows PwC candidates to virtually test their readiness and suitability for working at the firm by working in teams to solve real world business scenarios. Multipoly presents users with tasks based on the PwC competencies, such as building business acumen, such as building business acumen, increasing digital skills and embracing relational skills. (Da Corta, 2019)

The game was initially designed to boost employer branding, said Noemi Biro, PwC’s recruitment leader in Budapest. But today the customized tool is more focused on improving the selection practices for both the company and prospective hires. “It provides insight into the audit and consulting profession in a fun way and builds engagement,” Biro said. “It’s also compatible with younger generations’ need for social media, networking, quick information search and developing themselves through the Internet. Additionally, candidates who had played the Multipoly game were better prepared for the “live” face-to-face interviews, as the game “pre-educated them about PwC and its vision, services and skills needed for success.”

Overall, Multipoly increased the number of applicants by 190% and 78% of those completing the game were interested in joining PwC. The game has also contributed to a significant increase in the number of job applicants (Da Corta, 2019). Learnings from above examples lead to a valid conclusion that within a highly competitive job market, it is useful to test new and innovative tools and techniques to attract and select required human capital.

airBaltic

airBaltic always has struggled to recruit sufficient numbers of cabin crew members. It is both, due to the fact that Latvian employment market is relatively small, requirements for successful candidates are relatively high (knowledge of foreign languages, good health conditions, ability to swim, great customer service skills), and also due to fact that there's high turnover of employees in this specific category – around 20% of employees need to be replaced every year. The reason for high attrition is fact that there are large quantities of employees hired (around 300 members of cabin crew on average altogether), while there are objectively limited opportunities for career advancement, as more senior positions are always available in smaller amounts than employees would like to be promoted. As a result, after an average of 3 years employees often seek advancement opportunities elsewhere. Another reason is that the job of cabin crew is frequently chosen by students who can combine their studies with flexible flying schedules. After completing their studies, people often decide to pursue further career in their chosen profession. An outcome is permanent need for airBaltic to ensure sufficient supply of new employees in the cabin crew job.

In 2014, airBaltic HR Department faced an increasing pressure to secure sufficient numbers of the candidates who would even apply for the job. Together with marketing department, company developed and online gamified recruitment campaign, targeted specifically at young people in Latvia, whose interests would include travelling and service. Campaign offered potential candidates to test their suitability for the cabin crew job through answering online test questions about various work situations and chose the right answers. Campaign was communicated through the social media channels and there was a feature built into it that used applicant's friend's profiles, inserting their names as customers into test questions. A sample question would be something like "your friend Janis X during the flight wants to smoke a cigarette", where 3 different answer options would follow to chose from. Typically, one would be a correct answer, whereas the other two would be wrong or even funny. At the end of the test candidate got the assessment results and either an encouragement to apply or friendly

suggestion to improve certain skills and try another time. Candidates could share their test results or the test itself via social media and suggest it to their friends and relatives.

The whole purpose of the campaign was not to select the right candidates, as it was not designed as a serious test. The purpose was to use the gamified elements of the job simulation through allowing potential candidates to put themselves in a shoes of a cabin crew job and with a light dose of fun experience their work situations and what kind of decisions cabin crew members need to make as part of their daily job. Ultimately, the purpose was to create a positive awareness in the market and attract bigger numbers of applicants, whereas HR specialists would have sufficient resource to work with and select the fitting ones.

Results of the campaign surprised everyone, including HR specialists. Whereas, a regular recruitment campaign would produce no more than few tenths of applications, this gamified recruitment campaign resulted in more than 1000 applications and CVs that could be used for several recruitment rounds. The other numbers characterising the advertising impact were also stunning – 31 000 people visited the campaign page, 16 000 shared the test and 13 000 actually filled it. Beyond the immediate recruitment effect, company achieved large positive impact for its Employer Brand.

Vivus PL

4finance Group company Vivus in Poland applied gamification to their new hires' onboarding process, attempting to improve the level of product knowledge that is acquired and retained through the onboarding training. The secondary goal was to reduce the number of people who leave the company during the first 3 months on the job. The target audience of this specific gamification effort was customer care and debt collection agents. This is category of employees who have to undergo a very thorough training on the products company serve. Vivus is a consumer finance business, offering its customers different type of financial loans. Each product has slightly different and rather complicated features that agents have to become familiar with and remember well. In addition, there are many internal policies and procedures that agents are supposed to know by heart and apply in their works. Standard onboarding program includes classroom trainings and lots of reading materials that new employees have to memorize, in order to complete the product knowledge test, before they are allowed to serve customers independently. As a general rule, on average only around 70% of the new hires pass the product knowledge test with the first attempt. The others have to go back and do another round of learning.

Familiarization with the office environment, colleagues and workplace rules happens through an introduction by an HR specialist, whereas after few hours of powerpoint presentations, tour around the office and quick introductions to the rest of colleagues present in the office, new employee is left on their own, supported, perhaps, by closest colleagues and direct superior. HR specialists at Vivus realized that this is not a satisfactory onboarding process, as on average up to 10% of the new hires leave during the first 3 months on the job, as they find themselves unable to “grow into” the company environment and the job itself turns out to be different from what they have expected. This is time and money lost, plus negative emotions on both sides – company and leaving employee.

Vivus HR department came up with an idea to gamify the onboarding process, add in design elements from the game environment. In order to be able to achieve both, more effective knowledge acquisition and retention, and better familiarization with the workplace, colleagues and environment, they developed an onboarding book that follows the idea of a simple children “activity book” – it is colourful and contains a good number of tasks, missions, exercises, quizzes, etc. that newly hired employees are supposed to complete as they go through their onboarding process, including the product trainings. All the tasks are organized in a certain steps or modules that are supposed to follow each other in a certain sequence. As employee goes through the module related tasks, they can complete their “missions” at an individual speed, where they collect points for each completed item. Those points are recorded to the book and turned into progress symbols to recognize achieved milestones – modules completed. At the end of the onboarding process there are two types of winners – the one who has completed the process fastest and the one who collected maximum number of points. Both achievements are celebrated, which adds a positivity to how the employee feels overall.

Results that company have observed since the introduction of their new, gamified onboarding process, are more than satisfying. 95% of the newcomers now pass the product knowledge test with the first attempt and trial period attrition has dropped down to 3% only.

3.5 Gamification in employee training and development

There is a direct relationship between employee motivation and training output (Aziz, 2016). Internet is considered to increase and improve individual learning, reasoning, understanding and comprehension and is considered as a powerful tool to facilitate learning, including improvement of physical ability to process and record the material (West et al, 2015).

In the field of training, game-thinking has been applied to both improving overall training effectiveness and to improving motivation during training. Game-thinking in training can have an impact on learning and organizational outcomes. Game-thinking also can serve as a

motivational tool, increasing training completion rates and trainee motivation to learn. (Armstrong et al, 2016)

Human resource management professionals are facing challenges in training employees the same classic ways they used to do. Long classroom training days, lecturing are not the methods that are proven to bring the best results, therefore professionals look for innovative approaches (Biro, 2016) to increase employee satisfaction and engagement with the learning process,

There are four basic principles, based on the analysis of organizational examples, to ensure that gamification is successfully implemented in the learning process.

1. Clear business objectives – it is important that before gamification process is designed, there should be clarity over the company's business objectives. For example, if the company aims to increase its return on investment (ROI), the learning process should be linked to the same business strategies and to the key performance indicators.
2. Employee motivation – the company should understand the underlying motivators for employees and those in turn have to be linked with the outcome of the learning process.
3. Sustainable scales for measurement – a gamification solution needs to be well constructed and formulated. The gamified training platform should be able to monitor results, measure business impacts and support perpetual interactions. Once gamification is integrated into the training platform, one can create a learning program that continues to motivate for a long span of time.
4. Hiring expertise – for the gamification platform to work well, the company should understand the employee motivators, therefore the company might want to look for outside expertise in measuring employee motivation before designing a T&D platform.

Research paper by Landers and Armstrong (2015) proposed a technology-enhanced training effectiveness model (TETEM), demonstrating that poor trainee attitudes toward new technologies, low trainee experience with training technologies, and poor organizational climate for training technologies can reduce reactions to training, learning from training, behavioural transfer from training, and organizational return on investment, even if the technology itself has been implemented effectively. (Armstrong et al, 2016) In the present context, this means that a well-designed serious game can still fail to produce desired training outcomes if trainees are not properly motivated to engage with that game, which suggests that it is not only important to use gamification principles in the training and development, but for those tools to be successful, it is necessary to understand the underlying motivational factors that will drive the employee engagement in these games.

The challenges and complications to enhance effective learning process, whereas it is specifically important in the knowledge economy, are researched and recognized also in Latvia (Voronchuk, Starineca, 2014), (Voronchuk, Starineca, 2015). It is useful to review and analyze world's best practice to learn from it and apply in the local organizations.

Korea Ginseng Corporation (KGC)

The KGC is one of the world's leading companies in the world health food market by specializing in the red ginseng. During the past decade, the company has been rapidly developing and therefore has faced several challenges, mainly that the employees had lack of access to the company data and understanding about the company goals, which in turn caused communication issues between business units.

In order to address these issues, KGC human resource development department analysed and summarized the core knowledge about all business units and distributed this information in video and paper format to employees, however, it was found that employees were not using these materials. In order to entice employees to update their knowledge, the company introduced a mobile game application that allowed employees to take quizzes and compete against each other.

Although playing the mobile game and taking part in the competition was voluntary for employees, the participation rate was high. Server data reveal that 90 percent of possible users (excluding expatriates, etc.) used the game app, and employees even played the game on weekends. The uptick in employee hits on the knowledge management pages suggests that the mobile gamification encouraged important connections between mobile learning and rich database-provided company content. Furthermore, this relationship facilitated self-directed in-depth study on the part of employees. Many employees said that once they received a play request from a stranger, they searched for that person's profile on the intranet. Employees came to know more people in the organization, as well as learned about the organization itself. (Young & Lee, 2016). The example of KGC is an inspiring material to review and analyze when attempting to develop gamified training solutions for the organizational setup.

Table 3.12.

Impact of gamification on achieving the goals of particular HRM processes in practice

<i>Company</i>	<i>Process</i>	<i>Process Goal</i>	<i>Elements Used</i>	<i>Results Before Gamification</i>	<i>Results After Gamification</i>	<i>Improvement Achieved</i>
Lattelecom	Performance management	Solve the errors in shortest possible time, without escalating to the 3rd level technical service unit	Public status badges for different type of service achievements	76% of issues solved in 2h; 35% of issues solved at unit's level; avg resolution time 1,22 days	97% of issues solved in 2h; 50% of issues solved at unit's level; avg resolution time 0,87 days	+21% in solving issues within 2h; +15% improvement for issues solved at unit's level; avg resolution time decreased by 0,35 days. Additional benefit – reduced # of employees in 3rd (next) level unit
airBaltic	Internal communication	Increase overall employee satisfaction with internal communication and increased engagement score	Serious business content blended into digital game format – “buying & selling of shares” in various company projects	Low engagement score (48), satisfaction with internal awareness among top weaknesses	Improved satisfaction with internal communication and improved overall engagement score (53)	Satisfaction with internal communication removed from top weaknesses list and +5 points in overall engagement score

airBaltic	Recruitment	Attract 300 applicants for cabin crew recruitment	gamified online campaign, simulation of the job	30 – 40 applications per campaign	1050 applications received	+1010 applications
Vivus PL	Onboarding	Improve the product knowledge score as a first time test result; reduce trial period attrition	Competition elements, points collection, progress tracking through an onboarding book	On average 70% of new employees pass the product test first time; 10% of new hires leave within the trial period	On average 95% of new employees pass the product test first time; 3% of new hires leave within the trial period	+15% improvement on product knowledge; -7% in trial period attrition
Evolution Gaming	Performance Management	Improve the Customer Support unit's indicators – Issues resolution 8 min; technical issues resolution 24 h; avg unresolved cases per month 1000; # of employees 20	Public status badges for different type of service achievements	Issues resolution 10 min; technical issues resolution 30 h; avg unresolved cases 800 per month; # of employees 24	Issues resolution 8 min; technical issues resolution 17 h; avg unresolved cases 400 per month; # of employees 19	-2 min in avg issue resolution; -13h in technical resolution time; - 600 unresolved cases per month; -5 employees

Source: Author's construction, based on business case analysis, 2019

Table above summarizes benefits or improvements companies have been able to observe in terms of various HRM processes' results after applying gamification.

3.6 Gamification of Internal Communication Process at 4finance

Established in 2008, 4finance Group (the 'Group' of '4finance') is one of Europe's largest digital consumer lenders.

4finance operates through a portfolio of market leading brands, through which, as a responsible lender, the firm offers simple, convenient and transparent products to millions of customers who are typically underserved by conventional providers.

4finance has Group offices in Riga (Latvia), London, Luxembourg and Miami, and currently operates in 13 countries in Europe as well as in Argentina, Mexico and the United States.

With around 2,900 employees, 4finance's leadership team features some of the most experienced professionals in the industry. This combined with the company's reach and lending expertise provides the strong foundation upon which the public credit ratings from Moody's (B2) and Standard & Poor's (B+) are based.

4finance was founded as a start-up in 2008. In the following years the organization grew exponentially, did mergers and acquisitions and followed a transnational strategic approach for alignment between HQ in Latvia and the subsidiaries (Cf. Bartlett & Ghoshal, 1989). Now 4finance has reached the scale-up phase.

The task of the project was to re-introduce and explain 4finance's renewed corporate values through a gamified internal communications process. In other words, 4finance set the task to test gamification as a tool to test potential for achieving higher employee engagement with the process and improve process indicators (namely, recognition, understanding and identification with values). To be able to explain where the project originated from, it is useful to look at historic development of the organization. In 2017, new, experienced international CEO stepped in as an interim CEO to lead the Group. Mark Ruddock, the new CEO, had over 20 years of experience in fintech startups. When he joined 4finance he revised the organization's mission, vision and strategy. As a next step, he looked at the corporate culture of the organization to see whether it was aligned with the renewed strategy. He noticed that the values were more a façade for investors on the website than something that is actually alive in the organization. As a consequence of this, some of the relationships between headquarters and subsidiaries were rather poor.

When looking at corporate culture, it is defined by Welch & Welch (2006) as "a shared and deeply held set of values and norms" that steer group behavior. As corporate culture steers

behavior, it is considered a management tool. Pinho et al. (2014) explain that corporate culture is strongly linked to strategy: Whereas strategy leads to formal goal alignment, corporate culture leads to *informal* goal alignment. Consequently, corporate culture allows multinational corporations to find a balance between, on the one hand, having centralized policies to make sure everyone is going into the same strategic direction, and, on the other hand, allowing local adaptation in subsidiaries to meet local market needs (Scheffknecht, 2001), (Schein, 1992), (Schein, 2009). This is especially important for finance because it follows a Transnational strategic approach (Bartlett & Ghoshal, 1989).

The fact that culture is extremely important to steer organizational behavior in the desired strategic direction is widely accepted across businesses (Groysberg et al., 2018). As corporate culture strengthens the execution of strategy, it can have a substantial impact on business outcomes. Kotter & Heskett (2008) explain that a strong, strategically aligned and adaptive corporate culture leads to greater employee engagement, which in turn leads to increased organizational performance.

As a result, CEO of the company, Mark Ruddock, in 2018 attempted to “renew” the corporate cultural values together with an internal management team so that the values appeal to both, an external *and internal* audience. These renewed values were as follows:

Table 3.13.

Group’s renewed Corporate Cultural Values

Value	We put people first People – be they our customers or our employees - are at the heart of everything we do. We strive to help the world’s financially underserved meet their financial needs today and build stronger foundations for tomorrow. And we seek to create supportive, rewarding and empowering workplaces that enable our employees to grow their talent and their capabilities.
Behaviour	We treat everyone with the same level of respect. We empower customers and team members alike. We support diversity. We treat other everyone as we would like to be treated. We are open and transparent in our communications. We challenge ourselves to deliver the best possible customer outcomes. We empower our team members to grow. We help customers when they are in trouble.
Value	We keep things <i>simple</i> We believe that financial services should be clear, simple and delivered on your terms. We take pride in being a responsible lender, communicating openly and transparently with our customers. We seek elegant solutions. We aim to make processes simple.

Behaviour	We speak plainly. We avoid unnecessary complexity. We are transparent. We seek straightforward and elegant solutions to complex problems.
Value	We strive for <u>excellence</u> We encourage our people to be bold and pioneering. We deliver continuous improvement throughout our business. We don't stop at good enough, we seek great.
Behaviour	We strive to be the best we can be. We seek to make things better. We are not afraid to make mistakes along the way, and we aspire to learn from them quickly.
Value	We act <u>responsibly</u> We seek to do the right thing across all aspects of our business. We're a responsible lender. We care about the environment. We give back to our communities. We treat customers fairly. We respect all laws. We take responsibility for our actions. We seek to deliver good customer outcomes, we are accountable and honest, we seek to develop our employees, and we take corporate social responsibility seriously.
Value	We are <u>entrepreneurial</u> We strive for creative solutions to complex problems. We identify whitespace, and deliver unique solutions that give us a sustainable competitive advantage. We seek not to copy, but to innovate ... to break new ground.
Behaviour	We are passionate about what we do. We seek new ideas. We innovate quickly and make decisions fast. We are energetic and driven to overcome challenges. We move with speed but not haste. We seek new ways of doing things. We are not afraid of complexity. We are not afraid to solve that which others deem unsolvable.

Source: Author's construction, based on 4finance internal materials, 2018

The challenge that 4finance was facing was to bring these values alive in the organization. Trying to implement them across the organization requires a change in mindsets and behaviors. In other words, the implementation process can be considered a "change management" process. This, however, is not a straightforward process. As stated by the change management guru John Kotter (2012) "Leading change is both absolutely essential and incredibly difficult." Many change management models or frameworks have been published in the past decades that explain how you can increase the acceptance of change and thus the probability of having a successful change process.

Probably, Kotter's model is the most widely known but alternative to Kotter's model is *Six Batteries of Change* by De Prins, Letens & Verweire (2017). This model explains that

there are six ways to gain or lose energy in a change process. The main idea behind the model is that most change initiatives fail due to a lack of energy. As a manager one should energize the batteries and keep them energized to reach successful. Three out of the six batteries are rational (Clear strategic direction, Powerful management infrastructure, Action planning and implementation) and three are emotional (Ambitious top team, Healthy culture, Strong connection with employees). Two out of the six batteries are operational/local (Action planning and implementation, Strong connection with employees), two are strategic/top (Clear strategic direction and Ambitious top team) and two form bridges between the operational and strategic batteries (Powerful management infrastructure and Healthy culture).

An article published in Harvard Business Review by Groysberg et al. (2018) summarizes decades of research about cultural change and lays out 4 practices that lead to successful culture change. Groysberg et al. (2018) refer to this as “4 levers for evolving a culture”:

1. Articulate the aspiration
2. Select and develop leaders who align with the target culture
3. Use organizational conversation about culture to underscore the importance of change
4. Reinforce the desired change through organizational design

The gamified values introduction project fits in these change frameworks/models by following the Kotter’s 8 steps, specifically, the step 4 - communicating the vision. The project could also be situated within the “Six Batteries of Change” model, namely linked to the emotional, operational battery “A strong connection with employees”. This connection can be achieved through change communication. Regarding Groysberg et al.’s levers to evolve a culture, it can be stated that the project is a way to start organizational conversation about the desired change.

It is important to point out that gamified values introduction was not the only way in which the renewed corporate cultural values were communicated. The company had already started with multiple initiatives that serve as a communication channel to introduce and explain the renewed values throughout the traditional communication channels – intranet, newsletters, townhall presentations, employee workshops, etc. Gamification was an additional communication tool that 4finance was ready to test. Belief that gamified internal communications process would be more effectively achieving communication goals (namely, better awareness and acceptance of renewed corporate values and employee identification with those), was based on example of arBaltic’s Forecaster game experience, as well as on a number of literature findings (Mishra et al., 2014; Burman, 2017), etc.

Another reason for this belief can be related to the 4finance Employee Survey from 2017. The results from this survey showed that quite some subsidiaries in other countries score significantly lower than average on Employee engagement. Indeed, it has been quite hard to communicate and engage with these “Low Commitment Countries”. Therefore, 4finance felt that it was time to look for alternative ways to approach the subsidiaries, especially with the desired cultural change in mind. Gamification, based on earlier research and case analysis, was a promising tool to test.

The goals of the pilot project were to find an answer to two questions:

- 1) Is gamification an appropriate tool to be used in internal communication to introduce and explain the renewed corporate values?
 - A. Does it improve the knowledge, understanding of and identification with the corporate values?
 - B. Does the organizational environment/climate in the different country offices and functions/divisions allow for gamification to be used?
- 2) If gamification is found to be useful in order to achieve process goals, what would a gamified experience that is able to engage the employees look like?
 - A. How should the game be designed/what does the gameplay look like?
 - B. What should the communication around the game look like to attract attention of employees, and convince them to start and keep playing until the end?

To conduct this project, the following action plan was set:

- Research of the concept, theory and how to design a successful gamified experience;
- Design of the game pilot according to theory and field research results;
- Pilot execution;
- Pilot analysis, for the impact and results of the project,
- Further recommendations for the next, full-scale gamified values introduction project, based on the learnings from the pilot.

Once the business goal and gamification object (the 1st two steps in the 10-steps model of the engagement positive gamification) for the organization was clear, it was time to identify potential users or participants of the gamified process (Step 3 of the model).

Gamification requires understanding of human psychology. To gather as much insight as possible, author went through several data collection methods: The Player Type test for quantitative data and interviews for qualitative data. For the Player Type identification, the test designed by Andrzej Marczewski (Marczewski, A., 2015) was used. As described in the Theory

chapter, the test highlights person's most prominent preferences in terms of playing: competition, collaboration, solo adventure, sense-making, recognition., discovery, etc. As per Marczewski, all those traits are gathered into six "player's personalities":

- Achiever (motivated by Mastery),
- Philanthropist (motivated by Purpose),
- Free Spirit (motivated by Autonomy),
- Disruptor (motivated by Change),
- Player (motivated by Reward),
- Socializer (motivated by Relatedness).

It was then deemed useful to understand what types were present in the 4finance population group-wide, so the test was spread to all offices. To entice people to respond, the test was turned into a superhero-themed tombola.

In participating offices, a local colleague was asked to spread the survey to the whole office and set up a box in the common kitchen. The colleagues would then take the survey, write down their results on a small paper and put it in the box. After a week, a helping colleague would collect the box, take a random paper in the box and the respondent would be declared winner. It was left to the offices to choose their prize according to their local culture and budget. Some offices ordered/made a cake for the winner to share, another office offered cinema ticket to see the latest superhero movies (it just happened that *The Avengers* and *Deadpool* were running at movie theatres at a time). It was interesting to observe that it enticed people to take the survey and gather more data than just pushing the survey by email. Local helping colleagues would also count the results and communicate them back to the central office.

In total, the test was spread to all 1500 4finance employees and 452 response entries received. The results were then summarized and those showed Philanthropists being a massive majority of the respondents, while Disruptors were quite marginal in the company. In between, 4finance was also largely composed of Achievers and quite equally of Players, Free Spirits and Socializers.

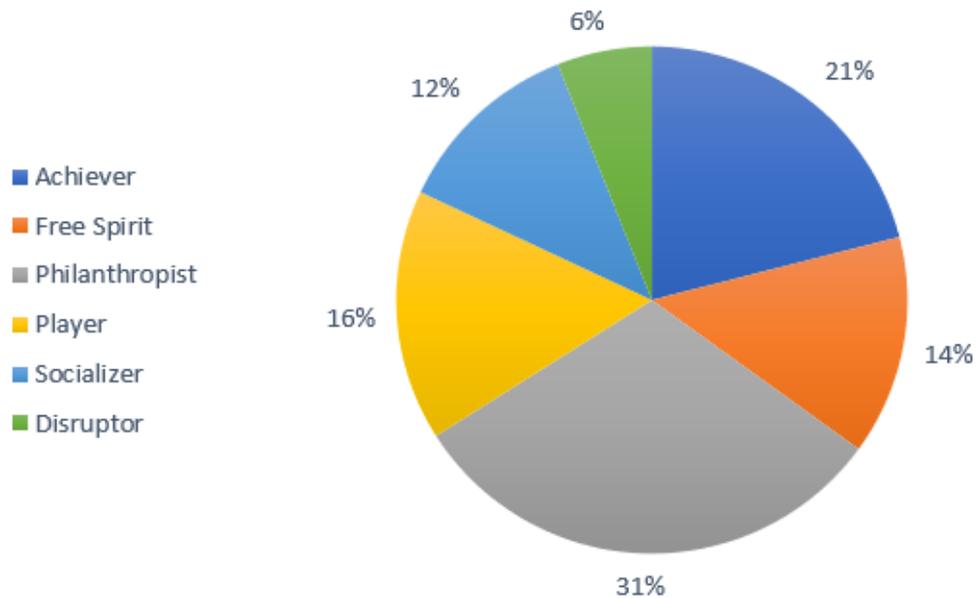


Figure 3.12. Share of Player Types in %, all countries
 Source: Author's construction, based on 4finance internal survey, 2018

In parallel, semi-directed interviews were conducted for qualitative data. A preferred sample of 105 employees (5% of the whole 4finance population) was established, diverse in terms of country and functions representation. 21 employees (1%) accepted to be interviewed. For more than 10 hours in total, those were interviewed to clarify their opinion on the potential of gamification in their office and recommendations for it to work (the questionnaire template is available in the Appendix).

The key takeaways revolve around three main topics: project potential, communication and game design. For each topic, insights and expectations from employees were gathered.

The concept of gamification needed to be explained because it was not well-known. But once explained, a lot of interviewees agreed that the concept had potential in 4finance because they already had a lot of game-like activities at the workplace and/or for team-building activities. For example, they had contests (who walks the most during Health Week, guess-the-number-of-candies-in-the-jar) and games (Easter Eggs hunt at the office, orienteering race to explore the new office they recently moved in). These findings offered an extra evidence to the belief that people enjoy gamified processes at work and are more inclined to engage with those comparing to traditional ones.

Some interviewees in a management position also told that they had considered adding gamification to some processes (gamify customer care work to make it more engaging; gamifying onboarding).

Employees confided that they would like a combination of communication channels to be informed about the project and the results of the game (using email, Intranet posts, 4finance Instagram posts). As for the explanation of the game itself (rules, objectives, modalities), they would also like a combination of video and email to watch and read by themselves, but also a meeting with other players and organizers to be able to ask questions.

Finally, the interviewees insisted on the fact that they would need to hear results during and after the game, especially about the impact of their actions on the whole purpose of the project.

Interviewees told about the differences between the offices. Differences in cultures, differences in what is perceived as fun, but also differences in integration to the 4finance group, because some offices had a strong local company culture and were not receptive to 4finance's initiatives. Interviewees also told that translation would be needed if expected to reach everyone.

Challenges should be short so that it would fit easily into their daily schedules. Some people were reluctant regarding the idea of collaborative challenge because of the over-heated concept of team-building, while other people told that only collaborative and competitive challenges would appeal to players.

Some ideas were suggested about tangible rewards, such as an actual trophy to exhibit at the office (especially if a group-wide country contest is implemented), some budget to improve office equipment, or small individual rewards (such as vouchers, days-off, coupons).

Interviews helped to identify the organizational context and culture (step 4 of the 10-steps model), as well as provided useful information for the steps from 5 through to 8 of the model – develop the design, select game mechanism, chose specific game elements to be used, develop indicators and measurements and build the communication plan for the introduction.

About 30 hours were spent brainstorming by the project team to design the game scenario that could achieve its purpose within the resource constraints given - little to no financial resources, as well as a very limited IT availability.

The game was set to follow superheroes-themed narrative. The world is plague by dullness and irresponsibility. The five Values (People, Simplicity, Excellence, Responsibility and Entrepreneurship) that used to guide humankind through darkness and hostility, have been forgotten. But some exceptional beings have been working in the shadow all over the world to restore the Values and bring light back to the grey world. They are called the 4finance Heroes League.

The player enters the story as a would-be finance Hero. Fed up with the current order of the world, the player has decided to join the Heroes League and has to prove their worth to the League by taking up challenges and prove that they know, understand and can fight for the Values.

During the game, the player would have to go through a succession of solo, collaborative of competitive short challenges, distributed into levels that were wrapped up by a bigger challenge. Each 'normal' challenge should not take than 3 to 5 minutes to accomplish and requires little to no material at all, the big challenge would take no more than 20 minutes, including setting up the material.

There were three types of "normal" challenges: action (the player has to complete an action), quiz (the player has to answer a one-question quiz) and fun (those challenges are even more detached from reality and have no corporate content). Each value has one challenge of each type based on the value.

To each challenge achievement, the player received points and if they complete the mandatory challenges, they would then get access to a tougher challenge. The achievement of this bigger challenge would give more points than an average challenge, give a badge of level accomplishment and will lead to the next level and a new series of challenges. The player would accumulate a total number of points throughout the duration of the game and the player with the highest score at the end would be declared the winner. The points were virtual, counted in a digital leaderboard, but also translated into material tokens. Candies served for the purpose of coins to be collected at a non-playing colleague, called the "Accountant" in the narrative, after each tough challenge was completed.

To have a clear structure of the game, one week was be one level. Monday and Tuesday would feature two values each day and Wednesday would feature the remaining value. Thursday would feature the big collaborative challenge so that players would have two days to find time to complete it. As for the technology savvy company, it was chosen to communicate the tasks or challenges through QR codes. The QR codes were hang strictly according to the timeline. That means that the challenges for the People and Simple values were hung out on Monday, the QR codes for the Excellence and Responsibility values were hung out only on Tuesday, the QR code for Entrepreneurship was hung out only on Wednesday and the QR code for the big challenge was hung out only on Thursday.

Content-wise, each challenge, except the bigger challenges, was linked to one of the five corporate values, but remained detached from reality and could not be used as an example behavior in the real world.

For example, a challenge description for the People value would sound like this:

“In the 4finance League, **people are at the heart of everything we do. We love what we do and we do it together as one team.** So it is time for you to feel how it is to **put people first.** Get a co-worker and hold eye contact in silence for 1.30 min. Don’t forget to write down the name of your practice partner for the Accountant! “

The narrative also included some corporate content. Indeed, the layout highlights the content to be remembered, taken directly from corporate communication of the values. Thus, throughout the game, the player was put in front of corporate content on a blended format, between informal and formal.

Each challenge was brought by an actual “hero”, taken from the national pop culture of each 4finance country, except from a very few well-known Hollywood characters. At the final closure of the game, the total of points earned by all players were added and translated into real money and donated to charity.

Player Type test results and insights from employees were taken and linked to the gamification theory, using especially the Player Type framework. Framework allowed to decide what game elements to include in the game to reach majority of employees.

The game was designed to be progressive. Each level was made of a series of “normal” challenge to be wrapped up by a tougher collaborative and competitive challenge. This progression and distribution into levels was especially thought for the Achiever type of players, since they like competition, signs of achievement, badges, confirmation of completed tasks and skills mastery. Such a progression loop (Werbach & Hunter, 2012) is also a powerful element of engagement for the game.

The narrative was particularly thought for Philanthropists, as they need meaning and purpose. Playing as a would-be underground Superhero would trigger multiple levers under the Meaning spectrum, such as the sense of *Elitism* (the sense of belonging to part of an elite), *Humanity Hero* (feeling as a savior of humankind), and *Destiny Child* (the feeling of being the chosen one).

The diversity in types of challenges was thought to trigger the *Unpredictability* lever that is particularly engaging for the Free Spirit type of players. It would satisfy their sense of exploration, curiosity, liberty of choosing. The diversity of challenges was also so that game could reach all types of players regularly - some creative challenges and some « fun » challenges (Free Spirits), competitive ones (Socializers and Players), some that leave space for the « Highest Score » (Achievers), narrative in each (Philanthropists).

The points system and the translation into money for real-life donation were thought for both Philanthropists and Achievers. The points, the “coins”, the badges and the leader board are all evidence of achievement, perfect for Achievers (also Players) who need to feel Accomplishment and Ownership. The donation part was to motivate the most zealous Philanthropists who would need higher purpose and meaning.

The multiplayer dimension, collaborative and competitive dimension of the challenges, was meant for Socializers and Philanthropists. Playing “with” satisfy the needs for Friending and Relatedness, playing “against” satisfy the needs for competition, social status and recognition. Outside of the challenges, players are also expected to informally guide each other, and that would contribute to the sense of mentorship and care-taking, important for Philanthropists.

Because of the non-digital nature of the game, the pilot needed a lot of physical preparation on-site. Because it was obviously not possible to go on-site in each participating office, project team had to delegate the preparation and guidance of players to at least one local employee for each participating office, that was called “Game Master”, according to the game vocabulary. They were main contacts for each office if needed to pass information to the players or if the players had questions.

The week before the beginning of the pilot, Game Masters were guided through the preparations on-site. Content of the game was created - texts of the challenges, creating the landing pages for the challenges, the QR codes leading to the challenges, guidelines for players and guidelines of Game Masters. Those were organized into folders, accessible on the Intranet through a small Intranet hub especially created for the pilot.

To test the potential of the design, a pilot version of it was executed. The pilot lasted two weeks and involved a few players for each office group-wide.

To recruit volunteers, an email was sent to all employees group-wide, explaining the concept, the purpose of the project, the details of the game (the game system, the dates and the required number of participants per office needed for the pilot to run smoothly). The pilot project was eventually live across 4finance Group for 2 weeks of execution, between 18.06 and 29.06, in 2018. Some of the facts and numbers about the pilot project were as follows:

- 14 country offices (74% of the total number of country offices) represented among participants: Headquarters, Argentina, Armenia, Canada, Czech Republic, Estonia, Georgia, Latvia, Lithuania, Mexico, Poland, Spain and Miami;
- 74 participants, including 19 Game Masters and 55 players;

- 11 divisions/functions (65% of the total number of divisions) represented among participants: Administration, Customer Care, Data Management, Finance, HR, IT, Lean, Legal, Marketing, Operations, Product, Risk;
- An average of 18€ of budget per office to play the 2 weeks of pilot.

At the end of the two weeks, three teams had accumulated the maximum number of points possible: Latvia, Mexico and Poland.

Three data collection methods were used to analyze project outcomes: metrics and surveys to evaluate the activity and engagement of the players and also the level of attention the project was getting, and semi-structured interviews of Game Masters for qualitative feedback.

Metrics were used to quantify the traffic on pilot content, thus quantify the usefulness and/or popularity of the content (step 9 of the 10-steps model) Google Analytics were used and built-in monitoring features of the Intranet website. 9 metrics were monitored:

- Intranet: Attention the project was getting,
 - (1) Number of views of the project hub,
 - (2) Number of unique views of the project hub,
- QR Codes: Activity and engagement of the players
 - (3) Number of times QR Code Missions have been scanned
 - (4) Number of times a mission was achieved (when a mission was achieved, the player who scanned the corresponding QR codes had to submit individual information. The submissions are trackable).
- Leader Board: Activity and engagement of the players
 - (5) Number of employees officially participating in the Pilot
 - (6) Number of players on the leader board
 - (7) Number of players that have completed badge levels 1 and 2
 - (8) Number of players per points increments per level (0 to 10 points, 11 to 20 points, 21 to 25 points).
 - (9) Number of player points: points of all players (Max, Min, Average, Total points earned)

All participants were spread (74 participants, for an average response rate of 56% for all three surveys):

- [Right before the beginning of the pilot] A before-pilot survey about their understanding of the company values,
- [At the end of the first week of pilot] An in-game feedback survey about their game experience

- [Right at the end of the pilot] An after-pilot feedback surveys to all players, asking for about their final understanding of the company values, asking for feedback about the communication around the pilot, about their game experience, about the potential in their local environment and personal recommendations for further gamification.

Semi-structured interviews with Game Masters were conducted at the end of the first week and at the end of the pilot, discussion about the topic of the communication around the pilot, the game experience (from a player but also a Game Master point of view), and the potential of gamification in their local environment, and personal recommendations for further gamification. All Game Masters were reached out to with a response rate of 79% and a total of 12h30 of interviews.

The key takeaways revolve around three main topics: communication, game experience and environment.

Clear instructions email sent to all Game Masters at the beginning of each of the two weeks of pilot were appreciated, including a precise timeline of the tasks to accomplish for smooth preparations of the pilot. The purpose of the company through this project, to help employees know and understand the values better, was also clear from the very beginning of the communication around the project. Project overall got a lot more attention than expected. In some countries, such as in Spain, there were much more QR code scans than the number of players in the Spanish office. Moreover, project hub on Intranet and the weekly update Intranet articles were all in the top 10 most visited Intranet pages for the duration of the pilot and even the week before (when pilot communication begun).

However, there were also learnings from feedback. The purpose of the company was clear, but the personal gain for the employee in case of participation was not explicit enough. Also, many participants told that the impact would have been stronger if the communication was supported, if not done, by senior management.

Participants liked the idea of taking up challenges to perform quickly at work and they particularly liked the tougher challenges that were designed to be especially collaborative and competitive. Most of the Game Masters usually did not play with the players by lack of time but most of them joined for those two big challenges. This is also part of a general positive feedback that, overall, participating to this pilot gave them the opportunity to have great people experiences, to get to know new colleagues and/or bond with them on a higher level. The fact that they knew other offices were playing the same game also reinforced their vision of the company as a group. Below are two statements taken from the after-game survey:

« You can improve the work environment and make people feel better at work with very little. Having something like [this game] is so great for stress release. At the end of the week, it feels like 4finance really is a great place to come to work every day. »

« We [should] show what a fantastic global organization we are – people identify themselves with their local company, not really with 4finance. We need more stuff like this. »

However, a lot of participants disengaged because of some aspects that were not foreseen or could not be prevented. Indeed, a lot of players and Game Masters complained about the pilot not being digital. Another finding was that project team underestimated the size of the discrepancies between the cultures across country offices, as well as between functions/divisions, that impacted greatly the reception of the challenge. Content-wise, a challenge would be received as too boring in a country office while it would be deemed too crazy in another office. Another learning was around Marshmallow-Spaghetti Tower challenge that was a hit in most offices, while it was a subject of discomfort in Argentina because it seemed to be not appropriate to play with food. The differences between divisions came as a problem of availability and feasibility. Indeed, for example, employees from the call center cannot leave their desk for an extended time if they do not want to see their performance and bonus decrease. Participating to a gamified project would then need special adjustment to their work pace. Another major negative feedback that project team got was that the game was too intense, the amount of challenges to accomplish in the short duration of two weeks was too big.

Finally, a lot of disengagement from players came from their local office environment. Indeed, employees' workloads had been unexpectedly increased and thus left them with no time for participation. In a few offices, local management turned out to be negatively receiving the news about their employees potentially spending some time at work devoted to playing a game, which they viewed as a counterproductive activity.

Analysing the pilot results leads to conclusion that gamification is not easy to implement when the attempt is to achieve an engaging effect. Gamification might be a powerful engaging tool, but to be efficient, the users need to be in a constant receptive and responsive mental state. This can happen through certain conditions. Pilot project provided certain learnings regarding what needs to happen around the game for it to work as a fully engaging communications channel in 4finance.

For gamification to gain traction, support for the initiative from senior and middle management is crucial. Gamification as an alternative/innovative communication channel thus needs to be a top-down initiative. Management from all levels should show leadership (lead by example) and support the project by communicating about the project and allowing employees

to make a little bit of time for the game during the week. Everyone should be given the opportunity to play but playing should be voluntary.

At the same time, the game should be designed through a bottom-up dynamic. The content of the game/mission challenges needs to be based on employees' expectations and needs. These expectations and needs can differ greatly in different countries and functions! So, employees in distinct cultures and functions will have to be engaged in different ways.

One challenge for management here: how to keep the game "fair and equal" if the content is different in different countries and functions? The game needs to be designed in a fair and consequent way so that the playing field is levelled for all countries and functions.

However, in the case some employees are unwilling to participate after all the information around the project, they should never be forced.

"I don't think anybody should make games to try to motivate somebody to do something they don't want to do. If the game is not about a goal you're intrinsically motivated by, it won't work." (McGonical, 2011).

Additional effort will be needed to also engage the « Low Commitment » country offices and functions/divisions (e.g.: Sweden, IT). In the results, it was seen that the countries who were most engaged in the pilot, were usually countries that also score higher than average in the Employee Commitment Survey (examples of Poland and Miami). At the same time, offices that score lower than average in this survey were also almost not represented in the pilot, example is IT department. So, gamification as a fun/innovative communication channel on its own will not be enough to get them really engaged.

The differences between offices and divisions cannot be overlooked. They have been the reason for many hitches in the pilot game.

Language barrier is an obvious but still consequent obstacle. It is vital to have all communication around the project and all the content inside translated for offices where use of English is not evident. So, while local translations are not necessary for Scandinavian offices or Headquarters, it is essential for offices in Bulgaria or in Poland.

Two types of cultural differences are evident, the country culture and the local company culture. When designing the game and the content of it, one should keep in mind specifics of each office. As a country specific example, one of most popular challenges was a team challenge with the objective of building a tower using dry spaghetti sticks and marshmallows. While this challenge was a big hit in most offices, the Argentinian office had a hard time wrapping their minds around it because one does not play with food in Argentina. As an office culture specificity, one of playing teams belonged to an IT office in Czech Republic. They had

to play the game mostly behind the closed doors because they knew their playing during office hours would be frowned upon.

To counter this problem, as well as the differences between the divisions, it was suggested that the game design allows an option for either co-creation or customization. Co-creation would imply a long period of surveying and interviewing employees for their expectations, investigating the local country and company cultures, and finally a lot of game design and brainstorming to create a game with a content that would fit all 4finance population. This option would be extremely time-consuming, and the final product might not be as universal as one hopes to be. Therefore, it was advised to give each office a possibility of post-launch customization. Customization means that a game system is created and while the mechanisms are fixed (such as the rewards and feedback system, attribution of badges, status, the number of levels, the number of actions to achieve before unlocking a new feature, etc.), the content might be customizable by each office (the content of a challenge, the feedbacks texts, the name of badges, the name of the “coins”, etc.) to suit local cultures. So, the game system would be created, then handover to the Game Masters for modification, after which the game can be finally released. This would imply the substantial involvement of a few local “Game Masters” to act as intermediary and modify the content if necessary. Those Game Masters would need to follow a quick training to be able to manipulate the game system and would need to allocate some time to follow the smooth running of the game.

A crucial point not to forget is the fairness of the game so that it still prevails under the customizations. The game needs to be designed so that it offers a smooth experience, it should run smoothly and progressively so that it stays fun. For the optimal impact in the future there are multiple reasons to have a fully digitalized system:

- The automatization allows immediate feedback, rewards and leader board (essential for the gamification psychology lever), allows less human intervention once the game is launched.
- A lot of offices are trending towards a non-paper, all digital policy. Digitalizing a gamified initiative would fit this overall strategy. Not digitalizing would go against the strategy, create confusion and go against both the strategy and the “game”.

The game also should not be overwhelming. Be it the content (the rules, the story, the materials) and the play time. About onboarding into the game, a digitalized platform with step-by-step tutorials would help the players ease into the game without having to read countless documents. What also helped pilot players were the tasks timeline. It could be interesting to add such a feature in the digitalized system:

- A preparation tasks timeline for the Game Masters so that they know what to do when,
- A progression bar for players so that they know what to do to reach which goal.

Traditional written guidelines would also work but they need to be centralized into one well-structured document, including timelines.

However, players must feel the challenge to keep playing.

“The hard part is the fun part. We need a good challenge to have fun, to feel alive, to unleash our strengths, to turn strangers into teammates and allies.” (McGonical, 2011)

Players particularly liked the competitive and collaborative type of challenges. It is highly recommended to make most of the actions competitive or collaborating. On the other hand, quizzes were highly disliked. Project team had designed them to be easy to answer, thinking the easy and light-hearted answers would be easily retained. However, the feedback went the opposite way and players were disappointed with the “dumb questions” and did not feel as if they were learning anything, hence not gaining anything. It is , therefore, suggested either to remove quizzes altogether or design more difficult questions such as situational dilemmas. Some offices suggested to have a competition between offices across the group.

Finally, as a company initiative, users will be expected to first “play” during office hours and this play time should not impinge on their daily workload. A lot of gamification examples showed intense engagement from employees who started to also “play” outside of their office hours.

For the pilot, there were 4 mandatory challenges to complete in a day and 2 optional. It turned out to be way too much. The overall play time per day was a big problem and some players considered it too time-consuming. Moreover, having achieved 4 small unlinked challenges were sometimes a bit confusing for players. It was suggested designing one task with one main objective that could take 15 min to accomplish, the task being subdivided into smaller linked tasks with smaller objectives. Achieving the smaller tasks would then lead to achieving the main objective.

As a result of the pilot project team observed that improving a number of game elements can help increase the players’ engagement.

Player recognition is a pillar of gamification psychology. It is an innate and universal desire to see ones’ work and involvement recognized, either publicly or by oneself, through highlights from the game system. The rewards/points system should be discriminating enough so that superior or exceptional efforts will be more rewarded and exceptional players can distinguish themselves from the rest. Beyond the immediate feedback and attribution of points, the leader board is a pivotal game element to stress competition and recognition. To enhance the impact

of the leader board, it was suggested to add elements of status overview (profile pictures or avatar picture, Player Type), as well as elements of progress overview (number of points, last badge earned, last mission achieved). For even more pushed recognition, it could be taken out of the game and into Intranet post and awards events, where to nominate particularly involved players (Player of the Month, “Epic Wins” of the week). Physical signs of recognition would also be appreciated by the players (certificates, medals, office trophy for the intra-office competition, etc.).

Another interesting psychological lever is the sense of community. By playing, one automatically enters the players community, in which they share experiences, knowledge, rules, etc. Enhancing this feeling could have two positive effects:

- Engaging the players even more by bonding them to the game community,
- Advertising the game to the non-players by showing high engagement from the community.

If feasible, adding a guild-building feature would highly increase the sense of community inside the game. Meaning, giving the possibility to players to create teams, “guilds”, join them, build them and compete between guilds. Outside of the game, it could be materialized as simple distinctive signs, such as color-coded simple bracelets or color-coded coin-collecting jars.

Side missions and unexpected rewards are classic and unavoidable game elements to fuel a player’s engagement. Side missions should not impinge on the other missions and are optional, but if accomplished, they should be rewarded just like the rest. Nothing can be more disappointing and frustrating than going out of your way to do something and get nothing in return. Unexpected rewards and findings are also a clever way to keep the curiosity of the players for the game. The player will progress in the game and will gain unexpected points, badges, status for actions he accomplished without knowing it was worth recognition. The engagement boost never fails to follow!

For launching the game pre-communication is essential

A lot of timely communication about the game is necessary for it to effectively inform employees about the concept and its purpose, and for it to be accepted. The pre-communication messages should include the following topics:

What is the purpose of the game? How does this fit within overall company strategy? What are the benefits of gamification? For the employees personally and for the organization? What is/are the reward/s if employees play? How much time does it take per day? From when until when will the game be played? What should employees be expecting in terms of intensity, types of “fun”? Setting the right expectations is very important for players not to be

disappointed when playing for the first time. Players who expected more than what was given disengaged very quickly from the pilot project, admitting themselves that the game was not bad but just not as good as expected.

Allow Game Masters time to prepare - because of the remote launching across the offices group-wide, the role of the “Game Masters” is essential, especially in case of customization. To obtain quality content and modification, Game Masters need to be allowed enough time to understand the system, probe local expectations and create the right content. They might also need support from a centralized point of reference for the project and from comparison with the whole community of Game Masters. Not giving them enough resources, support and time might have negative undesired effects such as the Game Master dropping the responsibility, rejecting the project or even turning towards opposition against the concept

The launch of the game should be heavily communicated to gain as much attention as possible, insisting on the pioneer dimension of the initiative and the expectations employees can have of the event. Communication should follow a top-down process. As explicated earlier, senior management and middle management should all be involved in the process and it starts crucially with pre-communication.

As for communication items, it is suggested to use:

- Pushed Intranet posts,
- Instagram posts,
- Event posters in each office
- Themed decorations (for example, for a Superheroes-themed game, put up comics text bubbles around the walls and dining tables)
- Themed-banners for email signature.

The launching event itself could take the form of a big kick-off meeting, gathering everyone in the office. It can be very short and dense, to present the game, the purpose of it, the objectives inside the game, the prizes, and a quick overview of the gameplay.

It is suggested to start the game with a very smooth onboarding, introduction of the game with step-by-step tutorials and guided actions, followed immediately by a first collaborative challenging mission. That would engage the players on a very intense first note and keep them motivated to discover what is to follow and keep on playing. It would make a mark on everyone’s mind if the game was physical. It could be done outdoor. Some players suggested to especially do it outdoor, or at least outside of the office.

Duration and intensity of a game are tightly correlated. If the game is intense, it should be short, as not to tire the players. Players told that two weeks was more than enough for the

pilot, that was very intense. It is suggested to lower the intensity and make the game longer to leave more opportunity window to potential participants.

A centralized support team should be put in place so that Players know who to contact in case of questions, problems or issues. The centralized team should be able to solve most of the problems or at least know who to go to to have the problem solved as fast as possible. The idea is to shorten the problem-to-solution route to make the game as smooth as possible and not let the players time to disengage.

Maintain interest by maintaining a community of players.

Aside from the game system itself, what could help keep the players engage is to create and maintain a community of players and use it as showcase of the game to the non-players. For that, a space on the Intranet could be allocated where group-wide players can share their experiences of the game at any time: pictures, posts, comments about others' uploads. It would become a social platform for the game content exclusively. While only participants should be able to upload, non-participants should be able to browse and react to the content. Based on the sense of community, the sense of recognition, the sense of sharing, the sense of curiosity, and a lot of other psychological aspirations, once the platform is up, the players themselves will do the rest to feed the content.

It is always obvious that designing the game and launching a game are crucial steps for a successful gamified experience. It is sometimes less obvious that wrapping up the game might be just as vital, as the last and final impression the participants will have from the project.

Starting with a boom will engage players with a great first impression. Ending with just as much, will crystallize the experience in the participants and observers' minds and leave a great last impression.

It is therefore worth ending with another communication buzz, using all communication channels available. Finally, for a loud and visible closure, awards event would be advised. If possible, even in each office, so that everyone can have a bit of festivity and chance for recognition.

Post-communication should not be neglected. It is the final step for a proper wrap up.

Communicate about the results of the game with highlights, such as the name of the winners but also some memorable actions, unexpected plot twists, etc. Communicate also about some overall game statistics, the total number of participants, the total amount of time played by everyone, the total amount of points earned throughout the game, etc. Absurd figures are always a funny touch to the traditional announcement of the winners. Communicate heavily on the results of the project from the company point of view. How did this project contribute to

the company? How did it fit in the strategy? And most of all, how did employees contribute to the company through their participation?

Employees want to see results and even if they had a good time, they want to know it was not just some carefree fun time.

Currently, one of the most explored gamification solutions in the business world, gamifying the intranet is an option to consider.

A lot of companies specializing in this field offer personalized services and it could be particularly interesting since 4finance will move to a new Intranet platform. A gamified intranet has multiple advantages, starting with faster and higher adoption from employees, but also increasing usage and quality content creation, and finally, it encourages interaction and collaboration between employees and can create a real community out of the workforce.

What other stage of the company life needs more engagement from the employee than the very beginning? Onboarding is a crucial stage to get employee to engage sustainably into the company culture. This stage can be a bit unsure and awkward for both employers and employees. But gamification can help breaking the ice by turning the onboarding process, which is sometimes painfully confusing and boring, into a mission quest. Transforming compliance tasks and administrative procedures into rewarded missions, making the whole experience more engaging, can help onboarding for multiple reasons: speed up administrative procedures, facilitate compliance, smoothen employee integration and internal networking.

This can be possible as an added page/feature to a gamified intranet, or it could be built as a stand-alone system, but it would still need a specific gamified digital platform. The missions would be visible on the platform, along with all the needed documents and materials, face book of the employees to meet, a progression bar so that the new employee can see where they stand in the process, and feedback would be given immediately and automatically by the system for the simple tasks, or by a personalized feedback comment/feedback from another employee or the manager.

The pilot project was considered a success because it provided many useful insights to answer two main questions:

1. Could 4finance use gamification as a tool to foster introduction and explanation of the renewed corporate values?
2. If yes, what would a good gamified experience look like for 4finance employees?

The conclusions were:

1. Yes, 4finance can use gamification as a tool for internal communications process to introduce and explain the renewed corporate values. However, only when it is visibly supported by management.
2. For gamification to have the desired impact on engagement, communication before, during and after the game is essential. Furthermore, the gamified experience needs to be as a minimum partly digital within 4finance environment and the game's content needs to be relevant to individual employees' daily work. Moreover, the content needs to be tailored to cross-cultural and cross-functional differences in what is considered fun/engaging/motivating group-wide.

82,6% of Employees questioned through a post-gamification survey after the pilot process confirmed they have gained a better understanding and acceptance of corporate values than before it. 72% confirmed they would readily participate in a similar gamified process again. 83% reported they prefer this type of communication versus traditional, newsletter or power point based communication.

Reviewing the learnings from the pilot phase and having more in-depth look into the research done around gamification, its impact and elements of an engaging gamified process (Sungur & Boduroglu, 2012), (Shute et al, 2015), (Shu-HuaYeh, 2015), (Simons & Boot, 2012), (Smith & Meyerson, 2015), (Ries, 2013), (Roberts, 2014), (Chou, 2013) and (Chou, 2018), company redesigned the internal communications process for the values re-introduction and launched a *full-scale* Group-wide values communication *game*.

In March 2019, 4finance Group launched a fully-fledged values game under the title of “Values Quest” that was designed based on the learnings from a pilot project in 2018. Purpose of the game was the same - company-wide communication of the corporate values and it was introduced as one of the initiatives within the broader plan for embedding corporate values to the daily life and people processes of the company.

This time 400 employees (74 teams) from all the offices took part in the activity, and it was recognized as highly successful by both, management and employees. In addition to those who actively participated within the game, there were many more supporting their colleagues and following up on the game scenario. CEO got engaged with the game and shared his own experience in a video message to the staff. Senior management team participated and offered a special prize for the team with most creative values video. Winning teams were announced publicly during the CEO quarterly townhall meeting that was streamed live to all the offices of the Group. There was a post-game communication in place for several weeks where game

participants were interviewed and videos created by teams (one of the challenges within the game was to film a short video reflecting the values) were shared.

Short employee survey was carried out before the game and also after it, to determine the impact of the gamified internal communication on understanding and acceptance of corporate values among employees, as well as to get the feedback for the process itself.

Table 3.14.

Impact of gamification on the Internal Communication process results at 4finance

<i>Process</i>	<i>Process Goal</i>	<i>Elements used</i>	<i>Results before Gamification</i>	<i>Results After Gamification</i>	<i>Improvement Achieved</i>
Introduction of renewed company values	To achieve improved 1) understanding of and 2) identification with the company values among its employees	Treasure hunt, Leader boards	1) understanding of values = 51% of respondents 2) Identification with values = 37% of respondents	1) understanding of values = 100% of respondents 2) Identification with values = 91% of respondents	1) + 49% understanding; 2) +54% identifying with values

Source: Authors construction, based on test of gamified Internal Communications process, 2019

Comparing the results of before and after the gamified values communication process survey, where 54% or 216 people of the all participants responded, those demonstrated that knowing/understanding of company values has increased by 49% (all respondents (100%) in the post-survey confirmed they know well corporate values vs 110 (51%) respondents during the pre-survey) and the share of those who personally relate to the company values has increased by 54% (197 (91%) respondents in the post-survey confirmed they identify themselves well with the corporate values vs 80 (37%) respondents during the pre-survey).

This allowed to make a conclusion that gamified process has achieved its purpose and secured higher employee engagement with the values that management intended to embedd.

Quarterly engagement survey that was carried out few weeks after the game to identify top strengths and weaknesses of the workplace from employees’ perspective demonstrated corporate culture (including company values) among the top reasons why employees would recommend 4finance as a workplace for others.

3.7 Guidelines for engagement-positive gamification of Human Resource management processes

Based on the conclusions from theory review, expert interviews, case analysis, as well as following the learnings from the practical test with designed and implemented, monitored and analysed gamified internal communications process within a specific business organization, where the earlier assumptions were tested in practice, following guidelines for improving employee engagement with HRM processes through application of gamification have been developed:

1. Discuss and decide at the top management level on specific goal company aims to achieve through gamification of the certain process
2. Understand that different processes require different approach to the use of gamification – chose the most appropriate one for the specific process
3. Analyze the profile of potential process participants, what are the player types according to theory, are there significant age differences, what might be the motivators for participants to potentially engage with the gamified process
4. Assess the environment and culture of the organization where gamification will be introduced, what will be reactions from managers/employees who will not participate in the process (their behaviours will likely influence participants)
5. Chose game dynamics and mechanics that is most suitable for the specific audience and situation, depending on whether the process includes fostering achievement motivation, status, creativity, reach expert level, completing the task within the deadline, etc.
6. Chose the game elements that are best fitting to the chosen dynamics, mechanics and motivators, depending on whether the aim is to promote competition, improve something, collaborate, share information or knowledge, etc.
7. Chose appropriate platform – digital, based on physical environment or combined
8. Introducing gamification means change in the working environment, therefore there's a need for carefully designed communications plan. In order to engage with the new process, people need to understand and accept its purpose and sequence of steps
9. Successful communication and employee engagement requires involvement of the top management – employees get inspired and engage more actively when management shows the example
10. If the gamified process has a mandatory nature within the certain group of employees, it is advised to plan for an alternative process steps without game elements for those employees who hold high resistance to participate in a gamified activity

11. If gamified process involves competition, think of alternative mechanics for those employees who are not inspired by the element of competition or even get demotivated by it
12. If the plan is to trigger intrinsic motivation within the participant population , pick rewards that are not connected to material values. However, if you have already used material rewards in a certain process, be ready that cancelling those certain number of participants will lose their interest to further participate in the process. The best choice is to carefully analyze and chose motivating elements already at the beginning, planning stage, to foster and not endanger achieving of the planned goals
13. Following the planned methodology and regularity, collect and monitor data on process indicators in order to assess whether the process continues to bring the anticipated benefit
14. Considering the fact that any established game design within a specific process holds a feature to grow into a routine over time and lose participant interest, the process requires regular review and renewal/ upgrade/ temporary putting on hold, as may be necessary.

These guidelines are based on and derived from the 10-steps model introduced within the scope of this dissertation. Those are universally applicable across industries, size of the business and geographies, as discussed and tested during focus group discussions with senior Human Resource management professionals from various countries in Europe and beyond. Holding the nature of general advice, the guidelines are useful to follow irrespective of specific process that organization intends to gamify. Moreover, it is advised to follow the above guidelines in order to achieve intended benefits that are available through application of gamification and to avoid potential risks and pitfalls that are also real in case gamification is introduced without proper knowledge.

3.8 Discussion of the results

Findings of the research at the different stages of it have been discussed with the 3 different focus groups during 2018, where participants represented Human Resource Management professionals from a number of various organizations in different countries and discussions were held around the experience of using gamification in the human resource management processes and its impact on improved employee engagement with these processes, as well as potential for improving process indicators.

Discussions took place:

- 1) On February 27, 2018, in Barcelona, Spain, after the author's presentation at the HR Future of Talents forum. Discussion participants were 17 HR Directors, HR Business Partners and Global Heads of Learning & Development, representing following organizations – Swarovski, Navo Orbico Sp.Z.o.o., KLM Royal Dutch Airlines, Adient Slovakia, ICTS, Google, Citi, SC Hella Romania, Gemalto SP SA, Cisco, Sazka, Storm International, Moldova-AgroindBank. Rovio, Diageo.
- 2) On April 5, 2018, in Vienna, Austria, after author's presentation on the topic of gamification in HRM at International HR Forum. Discussion participants were 7 HR Directors and Talent Acquisition Leads representing following organizations - Employer Branding Institute, Resilience, IBM, Sanoson, Microsoft, Pirelli, Telekom Austria,
- 3) On November 27, 2018, in Brussels, Belgium, after author's presentation on experience designing and implementing gamified internal communications process. Discussion participants were 10 HR Directors and Senior HR Business Partners representing following organizations – Deutsche Telekom, Zalando, Novartis, IngBank, Unilever, Lufthansa, Revolut, Talentwunder, Oracle, Cornerstone.

To all three focus groups author has presented for discussion the potential 10-steps model of engagement-positive gamification, as well as discussed the general guidelines for designing and implementing engagement-positive gamification within the complex system of HRM processes. Focus group participants all held positive attitude towards gamification as a useful tool in contemporary Human resource management processes, in order to achieve required focus and degree of involvement by employees. In a number of cases participants mentioned examples of successful and not so successful implementation of game elements. One characteristic stood out as common for those examples where attempts to gamify a certain process had failed to reach expected results. In those cases process was not followed through

according to the steps of proposed model and certain lack of knowledge about gamification principles was observed. In some of the cases discussion participants admitted they have “experimented” with the application of game elements without a particular goal in mind. One participant shared an experience where financial rewards have been introduced to motivate people more actively participate in the gamified process, however, the principles were not followed through carefully enough and as a result organization observed a number of negative instances where employees were either manipulating the system or withdrawing from participation with a feeling that the conditions are unfair. Another conclusion from the focus group discussions was made that the same process, with similar gamification design, will look differently and be perceived differently in different organization due to external and internal influencing factors. Therefore, as an outcome of those discussions, model has slightly evolved and dimensions of internal and external environment were added. Overall, focus group participants recognized the 10-steps model as valid and helpful in order to avoid potential pitfalls and design gamified processes that successfully meet the targets.

CONCLUSIONS

Based on the research, it is concluded:

- 1) the use of gamification in HRM processes in Latvia is relatively widespread – 67% of all organizations are using it at least in one process - Learning and Development. Between 20 % and 36% of organizations use gamification in other HRM processes, such as Team Building, Reward and Recognition, Performance Management, etc.
- 2) Differences between industries and sectors show that in trading organisations gamification is used more in Recruitment and Onboarding and Reward and Recognition processes. Privately held organizations relatively more frequently apply gamification to Internal Communications, while public sector organizations use it more frequently within Training and Development activities. Gamification in HRM is used more frequently in larger organisations.
- 3) Between 20 % and 36% of organizations use gamification in other HRM processes, such as Team Building, Reward and Recognition, Performance Management, etc.
- 4) Comparison between sectors show that local government and non-governmental organisations and associations use gamification more in Learning and Development process, as it is in private sector organisations. Gamification in HRM is used more frequently in larger organisations.
- 5) Overall, the research shows that organizations and enterprises in Latvia have started to follow the global trends and developments in Human Resource Management, however, increased competence and resources would allow wider number of companies catch up with the global best practice.
- 6) High Employee Engagement is the goal state to achieve through various human resource management processes in a workplace and as such is a measure or indicator of HRM impact on organization's success. With the help of game elements it is possible to design HRM processes so, that those become more effective in terms of engaging employees with the specific process directly and indirectly with the organization overall.
- 7) There are certain rules to follow when attempting to successfully gamify particular HRM process, as well as there are failure risks in case those rules are ignored.
- 8) The use of game elements to gamify non-game processes in HRM have great power to increase motivation and influence employee behaviour and engagement. By researching the amount of scientific papers on the use of gamification tools in HRM,

it can be seen that there are many case-based reports or research papers that are mainly based on the literature reviews available. Although, there are several papers on various gamification models that have empirical analysis of the main underlying reasons of why gamification is successful, there is rather limited availability of such reports in relation to gamification used in HRM.

- 9) Additional research on the validity of game-like assessments in Recruitment and selection, and the reactions from applicants (whether candidates see game-based assessments as fair or relevant to the job) is highly advisable.
- 10) Additional research is advisable to investigate whether in training process, poor attitude from employees and lack of previous experience with games, negatively affects the motivation to participate in game-based training.
- 11) Companies are recognizing the growing intensity of competition for skilled and qualified workforce and are trying new tools to attract the right candidates. Gamification is among those.
- 12) Mandatory trainings that are present on most industries and organizations to some extent, often do not have high motivation from employee side, especially when they don't see a relationship to their day-to-day tasks. Adding a gamification experience to the online learning program can increase involvement and benefit the learning experience. Besides, HR function benefits from the ability to check boxes for compliance in a timely fashion, without the pressure of having to hound employees to complete the programs.
- 13) Gamification offers new ways to align employee behaviour with organizational goals. Game elements can be adopted at little or zero cost, therefore, companies should be able to adapt to these new methods and include them in their organisational processes.
- 14) There are numerous ways in which game concepts can be used in HRM, to attract, induct, train and develop, engage and retain employees. As well as HR professionals understanding gamification to actively create gamification strategies themselves, developing such an understanding will also be important for these professionals to enable them to manage others who create and run gamification platforms on their behalf.
- 15) Many companies still have not integrated gamification tools in their organisations. There are common reasons for not doing so. Belief is alive that gamification is too expensive. This study shows that companies do not need to develop a highly-

advanced software to take advantage of gamification. Leadership can apply the basic principles to existing processes to improve engagement rates.

- 16) Old-fashioned managers may not understand or approve of gamification in workplace. It is necessary to reach out to the younger generation in the company to help convincing the executives in using these tools. Lack of understanding about gamification is another reason that reduces the use of it. Many businesses today still do not understand how it works or the range of benefits that can be obtained by incorporating game-like incentives into workplace activities.
- 17) Every company must design a strategy that addresses its individual business challenges, therefore the game concepts and tools used must align with company goals and organization's culture. An organization needs to understand rules of the game, and tie those to the goals, player motivators and fit, to achieve real-world results.
- 18) Based on the elaborated theory and business cases, author has developed a conceptual framework for designing Employee Engagement positive game. In this framework parts are brought together in order to design gamification tools for the workplace in such a way that they increase engagement with the specific process being gamified and remain aligned with the business goals. Together these elements of theory combined with practical steps can function as a practical guide for designing and improving most workplace games.

When it comes to the hypothesis for the research, based on performed analysis, there are following findings:

1. Gamification in HR has positive impact on engaging employees in the process being gamified, thus achieving better results of the said process.

The assumption has been tested through interviews with Human Resources management professionals, analysis of several business cases, including airBaltic Forecaster and 4finance values communication game, and similarly to what was suggested by literature, it is observed that employees exhibit higher extent of engagement with the process when it has game elements built in it.

Assumption is therefore confirmed.

2. Gamification in HR has positive impact on overall employee experience and satisfaction

Positive influence of the use of gamification in HR processes on satisfaction was found. Among HR processes which better respond to gamification appeared to be team-building and internal communication, moreover, team-building showed significant impact on satisfaction.

Interviews with HRM professionals allow to conclude that overall employee experience in the company improves, whereas HR processes are designed with gamification as an element into those.

Assumption is therefore confirmed

3. Gamification in HR has positive impact on overall employee engagement with the company

Influence of gamified HR processes on employee engagement with the organization overall was not identified in Latvian organisations as a result of the employee opinion survey. This result contradicts theory findings, which imply strong evidence of gamification as a tool to achieve higher organizational employee engagement. The result of this research in Latvia might be explained with the fact that in Latvia Gamification in Human resource management is new phenomenon and not widely used in various processes, except learning and development. Consequently, the impact on organizational engagement is not felt yet. At this stage, however, Assumption is rejected.

4. Younger employees respond better in terms of engagement and satisfaction to gamified HRM processes. Finding related to age was unexpected – although it was hypothesised that younger generation respond better to use of gamification in HR, which was also strongly suggested by the HRM professionals interviewed, it appeared to be vice versa when analysing the results of employee opinion survey. Older generation (generations X & BB) in Latvia appeared to respond better to gamified HRM processes in terms of satisfaction.

Assumption is therefore rejected. Nevertheless, further research into this direction needs to happen.

The main hypothesis for the research, which relates to the engaging character of the game environment and therefore assumes that Employee engagement with different HR processes is positively influenced by application of game elements, is considered proven throughout the research, empiric test and analysis of the business cases. Positive impact of rightly chosen, designed and implemented gamification that follows the 10-steps model of Engagement positive gamification, has been empirically tested and proven.

RECOMMENDATIONS

1. **HR management professionals are recommended** without a delay, during 2019 and 2020, to invest more in learning from the global best practice in terms of designing employment processes in a more creative, innovative ways that are ensuring the most productive performance due to the game elements built into those. Benefits from application of game elements in Learning and Development are well understood and broadly used (around 70% of all organizations in Latvia are using this approach). It is time to take this experience into other employment related processes – Recruitment and Onboarding, Performance Management, Recognition and Reward, Internal Communication.
2. For the gamification to be successful and deliver expected effect of engaging employees with the specific HR process, **HRM professionals in the coming years are advised to follow the 10 steps's model**, which is a model **derived and constructed by the author** and based on a number of relevant literature sources, as well as analysis of the practical application of gamification in a business settings by a number of organizations in Latvia and abroad. Thus, the steps to be followed when attempting to implement successful, engagement positive gamification to the specific HR process can be obtained from the Thesis.
3. **Educators are recommended to include** the subject of gamification to the Human Resource Management study programs already during the 2019/2020 study year, to provide future HRM professionals with contemporary tools for effective management of HRM processes at the workplace. Findings and examples from the Thesis can be used to develop program materials.
4. **Training institutions are advised to organize** short courses and workshops discussing gamification examples in HRM and teaching HRM professionals to design and implement effective gamification in their organizations. Such programs should be designed during the fall and winter of 2019, offered to the public in 2020.
5. **Organizing institutions of conferences and events are advised to organize** regular crossfunctional events , starting in spring 2020, where professionals from different business functions and industries would have an opportunity to exchange their experience and learn from each other innovative ways for application of game elements to the business environment, including HRM processes.

6. **Latvian Association for Personnel Management (LPVA)** is advised to actively organize experience sharing and exchange events for the members of the association during the 2019/2020 season and in the coming years, where representatives from different organizations would be able to learn from each others' experience in gamifying HRM processes.
7. **Developers and providers of IT and Technology solutions** for HRM support are advised during the next years to invest into developing innovative and affordable HRM tools and platforms that facilitate adding gamification and game elements to the personnel management processes.
8. **Senior leaders and directors of the organizations and enterprises** are advised to educate themselves without further delay and regularly, throughout the coming years, on the changing work environment and workforce expectations, as well as begin to actively invest in supporting HRM professionals' endeavour to increase competitiveness of the organizations through implementing innovative tools and solutions, including gamified HRM processes.
9. While conclusions of the current research hold high degree of validity, it is expected that gamification in HRM will continue to develop and grow in the future to become even more widespread. It is, therefore, recommended that **researchers continue the research** into various use and impact of gamification in HRM.

BIBLIOGRAPHY

1. Aberdeen Group. (2013). Human Capital Management Trends. www.aberdeen.com/assets/report-preview/8101-RA-human-capital-management.pdf.
2. Achor, S. (2011). *The Happiness Advantage: The Seven Principles of Positive Psychology that Fuel Success and Performance at Work*. Virgin Books.
3. ADP Research Institute. (2012). Employee Satisfaction vs. Employee Engagement: Are They the same Things?, ADP inc.
4. *airBaltic*. (2013). *airBaltic Completes Turboprop Fleet Modernisation*. www.airbaltic.com/airbaltic-completes-turboprop-fleet-modernisation.
5. *airBaltic*. (2014). Pilots Go Green With iPads. www.airbaltic.com/airbaltic-pilots-go-green-with-ipads.
6. *airBaltic* Intranet. (2015). about airBaltic. Intra.Airbaltic.com.
7. Alizadeh, Z., Darvishi, S., Nazari, K., & Emami, M. (2012). Antecedents and Consequences of Organisational Citizenship Behaviour. *Interdisciplinary Journal of Contemporary Research in Business*, Vol 3 (9), 494-505.
8. Allam, A., Sutton, M. J. D. (2017). Gamification, serious games, simulations, and immersive learning environments in knowledge management initiatives. *World Journal of Science, Technology and Sustainable Development*. 14(2/3), 78–83.
9. Ambuj. N., Khan. S. (2012). Enterprise Gamification. Happiest Minds. www.happiestminds.com/whitepapers/Enterprise-Gamification-Enabling-businesses-drive-participation-user-engagement-employee-productivity-and-customer-loyalty.pdf.
10. Aparicio, A., Vela, F., Sánchez, J., & Montes, J. (2012). Analysis and application of gamification. Elche, Alicante, Spain.
11. Armstrong. M. B., Landers. R.N., Collmus. A. B. (2016). Gamifying Recruitment, Selection, Training, and Performance Management: Game-Thinking in Human Resource Management. *Emerging research and trends in gamification*, IGI Global, 140-165.
12. Azañedo, C, Fernández-Abascal, E, Barraca, J. (2014). Character strengths in Spain: Validation of the Values in Action Inventory of Strengths (VIA-IS) in a Spanish sample, *Clínica Y Salud*, Vol. 25, 123-130.
13. Aziz. A., (2016). Stimulating Workplace Learning through Training Characteristics and Motivation to Learn. *Jurnal Pengurusan*. Vol. 48, 173 – 185.

14. Bachman, J.,C., (1961) Specificity vs. Generality in Learning and Performing Two Large Muscle Motor Tasks. *Research Quarterly, American Association for Health, Physical Education and Recreation*, Vol. 32(1), 3-11.
15. Badgeville. (2015). Game Mechanics. <https://badgeville.com/products/gamification>.
16. Baniqued, P.L., Lee, H.K., Voss M.W., Basak C, Cosman, J., Desouza, S., Severson, J., Salthouse, T., Kramer, A.F. (2013). Selling points: What cognitive abilities are tapped by casual video games? *Acta psychologica*, Vol. 142 (1), 74-86.
17. Bartle, R. (1996). Hearts, clubs, diamonds, spades: players who suit muds. Colchester, Essex, United Kingdom.
18. Bartlett, C. A., Ghoshal, S. (1989). Managing across borders: the transnational solution. Boston, Harvard business school press.
19. Becker, J.-M., Ringle, C. M. & Sarstedt, M. (2017). PLS-SEM Using SmartPLS 3 Foundations. Hamburg, Germany, Northern Institute of Technology.
20. Bedarkar, M., Pandita, D. (2014). A study on the drivers of employee engagement impacting. *Procedia - Social and Behavioral Sciences*. Vol. 133, 106 – 115.
21. Bedwell, W.,L., Pavlas, D., Heyne, K., Lazzara, E.,H., Salas, E. (2012). Toward a taxonomy linking game attributes to learning: an empirical study. *Simulation & Gaming: An Interdisciplinary Journal*, Vol 43 (6), 729-760.
22. Biro. M. (2016). HR: It's Time To "Level Up" With Gamification. *TalentCulture*. <http://www.talentculture.com/hr-its-time-to-level-up-with-gamification/>.
23. Biswas-Diener, R. (2006). From the Equator to the North Pole: a study of Character Strengths. *Journal of Happiness Studies*. Vol. 7(3), 293-310.
24. Black, R. (2018). Gaming as a tool for pain relief. *Practical Pain Management* Vol.18 (1) <https://www.practicalpainmanagement.com/treatments/complementary/biobehavioral/gaming-tool-pain-relief>
25. BlessingWhite. (2013). Employee engagement research report update – 2013. <https://blessingwhite.com/employee-engagement-research-report-update-jan-2013/>.
26. Bogost, I. (2015). Why Gamification Is Bullshit. *The Gameful World: Approaches, Issues, Applications*, 65-79. Cambridge, The MIT Press.
27. Boot, W., Kramer, A., Simons, D., Fabiani, M., Gratton, G. (2008). The effects of video game playing on attention, memory, and executive control. *Acta Psychologica*, Vol. 129(3), 315-428.

28. Boyke, J., Driemeyer, J., Gaser, C., Buchel, C., May, A. (2008). Training-induced brainstructure changes in the elderly. *The Journal of Neuroscience*. Vol. 28, 7031-7035.
29. Brann, A. (2015). *Engaged*. Palgrave MacMillan.
30. Branson, R., Oelwang, J. (2015). The new ways of working. Virgin Unite. www.virgin.com/unite.
31. Bratton, J., Gold, J., (2009). *Human Resource Management: Theory and Practice*, Palgrave Macmillan.
32. Brewster, C., Harris, H. (2002). *International HRM: Contemporary issues in Europe*. London, Routledge.
33. Brownhill, I., 2013. Does gaming have a role to play in employee engagement? *Strategic HR review*. Vol. 12, (1), 5-8.
34. Buelow, M., Okdie, B., & Cooper, A. (2015). The influence of video games on executive functions in college students. *Computers in Human Behaviour*, Vol. 45, 228-234.
35. Buonomano, D., & Merzenich, M. (1998). Cortical plasticity: from synapses to maps. *Annual Review of Neuroscience*, Vol. 21, 149-186.
36. Bunchball. (2015). Nitro Gamification Platform. <http://www.bunchball.com/products/nitro>.
37. Burge, S. (2009). *The Systems Engineering Tool Box*. Glasgow, Strathclyde University in Glasgow.
38. Burke, B. (2012). *Gamification: Engagement Strategies for Business and IT*. <https://thisiswhatgoodlookslike.com/tag/gartner-gamification-engagement-strategies-for-business-and-it/>.
39. Burman, S. (2017). *A Gameful Change: How Gamification can be used as a Communication Tool in Change Management (Master Thesis)*. Uppsala University.
40. Buschor, C, Proyer, R.T, Ruch, W. (2013). Self and peer-rated character strengths: How do they relate to satisfaction with life and orientations to happiness? *The Journal of Positive Psychology*, Vol. 8 (2),116-127.
41. Callan, R. C., Bauer, K. N., Landers, R. N. (2015). How to Avoid the Dark Side of Gamification: Ten Business Scenarios and Their Unintended Consequences. *Gamification in Education and Business*, 553-568. NY, Springer International Publishing.
42. Cardador, T., Northcraft, G., & Whicker, J. (2017). A theory of work gamification: Something old, something new, something borrowed, something cool? *Human Resource Management Review*. Vol. 27(2), 353-365.

43. Carlson, N. R., Buskist, W., Donald., H.C., Scmaltz, R. (2009). *Psychology: The science of behaviour*. Toronto, Pearson Education, Canada.
44. Casual Game Association. (2016). *Global Market In 2017*.
<http://www.casualconnect.org/education.html>.
45. Chahar, B., Hatwal, V. (2018). Human Resource Management Practices and Its Impact on Employees Engagement and Performance, *OPUS: HR Journal*, Vol. 9(1).
46. Chapman, L. (2014). Ambition Solutions raises \$2M for new ways to gamify sales. *The Wall Street Journal*.
47. Chou, Y. (2013). Autodesk: What Makes a Successful or a Failed Gamification Campaign? <https://yukaichou.com/gamification-study/convertng-free-users-paid-gamification-autodesk-gsummit-sf-2013/>.
48. Chou, Y. (2015). *Actionable Gamification: Beyond Points, Badges and Leaderboards*. UK: Createspace Independent Publishing Platform.
49. Chou, Y. (2018). Octalysis – the complete Gamification framework.
<https://yukaichou.com/gamification-examples/octalysis-complete-gamification-framework/>.
50. Clark, K., Fleck, M., Mitroff, S. (2011). Enhanced change detection performance reveals improved strategy use in avid action video game players. *Acta Psychologica*, Vol. 136, 67-72.
51. Cognizant Reports. (2013). *Gamifying Business to Drive Employee Engagement and Performance*. www.cognizant.com/InsightsWhitepapers/Gamifying-Business-to-Drive-Employee-Engagement-and-Performance.pdf.
52. Coffman C. (2000). *Is Your Company Bleeding Talent? How to become a true “employer of choice”*. The Gallup Management Journal, The Gallup Organization, Princeton, NJ.
53. Conkright, T.A., (2015). Using the Four Functions of Management for Sustainable Employee Engagement. *Performance Improvement*. Vol. 54 (8), 15-21.
54. Cook, W. (2013). *5 reasons you can't ignore gamification*. Newton: Inward Strategic Consulting.
55. Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York, NY, Harper & Row.
56. Csikszentmihalyi, M., Rathunde, K. (1993). The measurement of flow in everyday life: Toward a theory of emergent motivation. *Current theory and research in motivation*, Vol. 40, 57-97. US, University of Nebraska Press.

57. Cvenkel, N., 2019, Promoting Healthy Workplaces: Well-Being Insights for Leadership, Engagement and Productivity, AuthorHouse.
58. Da Corta, A. (2019). Personnel Selection 4.0: Recruitment Gamification. www.getplayoff.com/blog/en/personnel-selection-recruitment-gamification.
59. Dale Carnegie Training. (2012). What Drives Employee Engagement and Why It Matters. www.dalecarnegie.com/assets/1/7/driveengagement_101612_wp.pdf.
60. Dawes, J. (2008). Do data characteristics change according to the number of scale points used? An experiment using 5-point, 7-point and 10-point scales. *International journal of market research*, Vol. 50.(1), 61-104.
61. De Maagt, P. (2012). + 30% sales by involving customers: <https://www.flickr.com/photos/polledemaagt/8264343407/>.
62. De Prins, P., Letens, G., & Verweire, K. (2017). Six batteries of change: energize your company. Leuven, Lannoo Campus.
63. Deci, E., Cascio, W.F., Krusell, J. (1975). Cognitive evaluation theory and some comments on the Calder and Staw critique. *Journal of Personality and Social Psychology*, Vol. 31.(1), 81-85.
64. Deci, E., Koestner, R., Ryan, R. (2001). Extrinsic rewards and intrinsic motivations in education: reconsidered once again. *Review of Educational Research*, Vol. 71 (1) 1-27.
65. Deci E., Ryan R. (2002). Handbook of Self-Determination Research. Rochester, NY, University of Rochester Press.
66. Deci, E., Vansteenkiste, M. (2004). Self-determination theory and basic need satisfaction: Understanding human development in positive psychology. *Ricerche di Psicologia*, Vol. 27(1), 23-40.
67. Deterding, S. (2011). Situated motivational affordances of game elements: a conceptual model. Vancouver, Canada, CHI 2011.
68. Deterding, S. (2012). Gamification: designing for motivation. *Interactions*, Vol. 19 (4), 14-17.
69. Deterding, S., Dixon, D., Khalad, R. & Nacke, L., (2011). From game design elements to gamefulness: defining Gamification. *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments*, 9-15. Tampere, Finland.
70. Deterding, S., Khaled, R., Nacke, L.E. & Dixon, D. (2011). Gamification: Toward a Definition. CHI 2011 Gamification Workshop Proceedings. Vancouver, Canada.

71. Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment*, 49, (1) 71-75.
72. Dixon, D. (2011). Player types and gamification. Vancouver, CHI.
73. Dobrowolski, P., Hanusz, K., Sobczyk, B., Skorko, M., & Wiatrow, A. (2014). Cognitive enhancement in video game players: The role of video game genre. *Computers in Human Behaviour*. Vol. 44, 59-63.
74. Dorling, A., McCaffery, F. (2012). The gamification of SPICE. *Software Process Improvement Capability Determinants*, Vol. 290, 290-301.
75. Draganski, B., Gaser, C., Busch, V., Schuierer, H., Bogdahn, U., & May, A. (2004). Temporal and Spatial Dynamics of Brain Structure Changes during Extensive Learning, *Journal of Neuroscience*. Vol 26 (23), 6314-6317.
76. Drucker, P. F. (1986). *Management: Tasks, Responsibilities, Practices*. NY, Truman Tally Books.
77. DuVernet, A. M., Popp, E. (2014). Gamification of Workplace Practices. *The Industrial-Organizational Psychologist*, Vol. 52(1), 39-44.
78. Djabatey. E. (2012). Recruitment and Selection Practices of Organisations, A Case Study for HCF Bank.
<http://ir.knust.edu.gh/bitstream/123456789/4294/1/FINAL%20THESIS%20-%20EDWARD%20DJABATEY.pdf>.
79. Ellis, M., C., Sorensen, A. (2007). Assessing employee engagement: the key to improving productivity.
https://www.researchgate.net/publication/228341039_Assessing_employee_engagement_the_key_to_improving_productivity.
80. Ergle, D., 2015. Fostering Employee Engagement Through Gamification: AirBaltic Forecast Tool. *Management*, Vol. 10(3), 219-234.
81. Erhel, S., Jamet, E. (2013). Digital game-based learning: Impact of instructions and feedback on motivation and learning effectiveness, *Computers & Education*. Vol. 67, 156-167.
82. Esty, K., Gewirtz M. (2008). Creating a Culture of Employee Engagement.
<http://archive.boston.com/jobs/nehra/062308.shtml>
83. European Commission. (2015). Country Report Latvia 2015. Brussels: European Commission.

84. Fletcher, L., Robinson, D., Bailey, C., Alfes, K., Holmes, J., Madden, A., ... Currie, G. M. (2014). Measuring employee engagement and interpreting survey results. Institute for Employment Studies, Brighton (UK).
85. Fogg, B. (2009). A behavior model for persuasive design. California, Persuasive Technology Lab, Stanford University.
86. Foldit! (2018). Washington University Benchmark: Foldit's 10 Year Anniversary! <https://fold.it/portal/blog>.
87. Forbinger, R. L. (2002). Overview of the Gallup Organisation`s Survey. O.E.Solutions Inc.
88. Frey, B., Goette, L. (1999). Does Pay Motivate Volunteers? Institute for Empirical Research in Economics, University of Zurich. Working Paper No. 7, May 1999.
89. Gallup, (2015), State of the American Workplace report, <https://www.gallup.com/workplace/238085/state-american-workplace-report-2015.aspx>
90. Gamelengths. (2016). Games, Puzzles. <http://www.gamelengths.com/games/genre/Puzzle/>
91. Garrad, L., Chamorro-Premuzic., T. (2016). The Dark Side of High Employee Engagement. <https://hbr.org/2016/08/the-dark-side-of-high-employee-engagement>.
92. Garris, R., Ahlers, R., Driskell, J.E. (2002). Games, Motivation, and Learning: A Research and Practice Model. *Simulation & Gaming*, Vol.33 (4), 441-467.
93. Gartner. (2015). Gartner Hype Cycle. <http://www.gartner.com/technology/research/methodologies/hype-cycle.jsp>.
94. Ghafele, R., & Gibert, B. (2011). Crowdsourcing patent application review: leveraging new opportunities to capitalize on innovation? *Intellectual Property Quarterly*, No. 3, 23-33.
95. Ghani, A.J. (1995). Flow of human-computer interaction: test of a model. *Human Factors in information systems emerging theoretical bases (by Carey, J.M.)*, 291-312. New Jersey, Ablex Publishing Corporation.
96. Ghani, J., & Deshpande, S. (1994). Tasks characteristics and the experience of optimal flow in human-computer interaction. *The journal of psychology*. Vol. 128 (4), 381-391.
97. Government of the Netherlands. (2015). The Dutch online gaming industry. Amsterdam, Netherlands.

- <http://www.hollandtradeandinvest.com/keysectors/creativeindustries/contents/online-gaming-industry>.
98. Gimson, A. (2012). Game on for virtual work and play: Engaging learners' interest with online role-play. *Development and Learning in Organizations: An International Journal*, Vol. 27(1), 22-24.
 99. Groysberg, B., Lee, J., Price, J., Yo-Jud Cheng, J. (2018). The Leader's Guide to Corporate Culture: How to manage the eight critical elements of organizational life. *Harvard Business Review*, January-February 2018, 44-52.
 100. Hair, J. (2015). Structural Equation Modelling: Market Research Colloquium. Zagreb, Innovation Institute.
 101. Hair, J. F. & Ringle, C. M. (2011). PLS-SEM; indeed a silver Bullet. *Journal of Marketing Theory and Practice*, Vol. 19(2), 139-151.
 102. Hall, B. (2017). 5 ways gamification could transform your internal comms. www.interact-intranet.com/blog/5-ways-gamification-could-transform-your-internal-comms/.
 103. Hamari, J., Koivisto, J. (2013). Social motivations to use gamification: an empirical study of gamifying exercise. *Proceedings of the 21st European Conference on information systems*, Paper 122. Utrecht.
 104. Hamari, J., Koivisto, J., Sarsa, H. (2014). Does gamification work? A literature review of empirical studies on gamification. *Proceedings of Hawaii 47th International Conference of System Sciences HICSS*, 3025-3034.
 105. Hamari, J., Huotari, K., (2012). Defining gamification: a service marketing perspective, *Proceedings of the 16th International Academic MindTrek Conference*, 17-22. Tampere, Finland.
 106. Hamari, J., Shernoff, D. J., Rowe, Collier, B., Asbell-Clarke, J., Edwards, T. (2016). Challenging games help students learn: An empirical study on engagement, flow and immersion in gamebased learning. *Computers in Human Behavior*, Vol. 54 (2016), 170-179.
 107. Han, T., Chiang, H., Chang, C. (2010). Employee participation in decision making, psychological ownership and knowledge sharing: mediating role of organizational commitment in Taiwanese high-tech organizations. *The International Journal of Human Resource Management*. Vol. 21 (12), 2218–2233.

108. Harter, J., Adkins, A. (2015). Employees Want a Lot More From Their Managers. www.coursehero.com/file/37903478/Harter-Adkins-2015-Employees-Want-a-Lot-More-From-Their-Managerspdf/.
109. Harter J., Adkins, A., (2015). Wat great managers do to engage employees. <https://hbr.org/2015/04/what-great-managers-do-to-engage-employees>.
110. Harvard business school analytical review. (2013). The impact of employee engagment on performance. London, Harvard business review publisher.
111. Hausler, M., Strecker, C., Huber, A., Brenner, M., Höge, T., Höfer, S. (2017). Distinguishing Relational Aspects of Character Strengths with Subjective and Psychological Well-being. *Frontiers in Psychology*. <https://www.frontiersin.org/articles/10.3389/fpsyg.2017.01159/full>.
112. Heintzman R., Marson B. (2005). People, service and trust: Links in a public sector service value chain. *International Review of Administrative Studies*, Vol. 7 (4), 549-575.
113. Herger, M. (2014). Gamification in Human Resources. Mario Herger.
114. Herzberg, F. (1968). One more time: How do you motivate employees? Harvard Business review, Jan-Feb. 1968.
115. Herzberg, F., Montuclard, M., Mausner, B., & Snyderman, B. B. (1960). The Motivation to Work. *Revue Française De Sociologie*, Vol. 1(2), 244.
116. Heskett, J. L., Jones, T. O., Loveman, G. W., Earl Sasser W., Schlesinger. L. A. (1994). Putting the Service-Profit Chain to Work. *Harvard Business Review* Vol. 72, (2), 164–174.
117. Higgins, A. (2014). 3 Examples of gamification in the workplace. <https://www.concur.com/blog/en-us/3-examples-of-gamification-in-the-workplace>.
118. Hinssen, P. (2014). *The Network Always Wins, How To Survive In The Age Of Uncertainty*. Mach Media NV.
119. Hofstede, G., Hofstede G.J., Minkov, M. (2010). Cultures and Organizations: Software of the Mind – Intercultural Cooperation and Its Importance for Survival. NY, McGraw-Hill.
120. Holland, P., 2019, Contemporary HRM Issues in the 21st Century, Emerald Publishing Ltd.
121. Horovitz, B. (2012). After Gen X, Millennials, what should next generation be? USA Today.

122. HR Trend Institute. (2017). How to Use Gamification to Recruit Talented Employees. <https://hrtrendinstitute.com/2017/06/26/how-to-use-gamification-to-recruit-talented-employees/>.
123. Hughes, A. & McCoy, K. (2015). Planning, Developing, Implementing Serious Game. *Training Industry Magazine*, Fall 2015, 16-19.
124. Institute of Employment Studies. (2004). Report Summary: The drivers of employee engagement. www.employment-studies.co.uk/report-summary-drivers-employee-engagement.
125. Opener Institute. (2015). The Science of Happiness at Work. www.iopenerinstitute.com/the-science-of-happiness-at-work%E2%84%A2.aspx
126. James, A. (2013). Air Canada pilots gamification with 'Earn Your Wings' loyalty program. <http://www.commercelab.ca/air-canada-pilots-gamification-with-earn-your-wings-loyalty-program/>.
127. Jameson, E., Trevena, J., Swain, N. (2011). Electronic gaming as pain distraction. *Pain Res Manag.* Vol. 16(1), 27–32.
128. Jensen, M., 2012. Engaging the Learner: Gamification Strives to Keep the Users Interest. *T+D*, Vol. 66(1), 41-44.
129. Kahn, W., (1990). Psychological conditions of Personal Engagement and Disengagement at Work. *The Academy of Management Journal*, Vol. 33 (4), 692-724.
130. Kantar. (2019). TRI*M. <https://www.kantar.lv/ko-mes-daram/musu-izpetes-riki/trim/>
131. Kantar. (2019). Latvijā iezīmējas darbinieku piesaistības rādītāja kāpums, <https://www.kantar.lv/newsletters/tns57/latvija-iezimejas-darbinieku-piesaistibas-raditaja-kapums/>.
132. Kapp, K. (2012). *The Gamification of Learning and Instruction: Game-based Methods and Strategies for Training and Education*. California, Pfeiffer.
133. Kapp, K. (2014). 10 best practices for implementing gamification. <https://www.td.org/Publications/Blogs/Learning-Technologies-Blog/2014/02/10-Best-Practices-for-Implementing-Gamification>.
134. Kappen, D.,L., Nacke, L.E. (2013). The Kaleidoscope of Effective Gamification: Deconstructing Gamification in Business Applications. *Conference proceedings Gamification 2013*, Stratford, Ontario, Vol. 1.
135. Karen, J. (2015). Bluewolf uses employee gamification to increase social sharing. <http://adage.com/article/btob/bluewolf-employee-gamification-increase-social-sharing/286425/>.

136. Kastner, N. (2013). Gamification: from the arcade to the bank. *ABA Bank Marketing*, Vol. 45(10), 20-23.
137. Kavita H., (2015). Exploring Employee Engagement for Understanding Employee Perspective. (Master Thesis). Helsinki Metropolia University of applied sciences.
138. Kim, A. (2014). The Player's Journey. <http://amyjokim.com/blog/2014/04/08/the-players-journey/>
139. Kim, B. (2015). The Popularity of Gamification in the Mobile and Social Era. *Library Technology Reports*, Vol. 1, 5-9.
140. Klout. (2015). Klout Score. <https://klout.com/corp/score>.
141. Kolb, A. & Kolb, D. (2010). Learning to Play, playing to learn: A case study of a ludic learning space. *Journal of Organisational Change Management*. Vol. 23(1), 26-50.
142. Kolb, A, Kolb D., (1984). *Experiential learning: experience as the source of learning and development*. Englewood Cliffs, Prentice-Hall.
143. Kotter, J. P. (2012). *Leading change*. Boston, Mass.: Harvard Business Review Press.
144. Kotter, J.P. & Heskett, J.L. (2008). *Corporate Culture and Performance*. New York, NY: Free Press.
145. Kramer, A., Willis, S. (2003). Cognitive plasticity and aging. *Psychology of Learning and Motivation: Advances in Research and Theory*, Vol 43, 267-302.
146. Kruse K. (2012). *Employee engagement 2.0: How to Motivate Your Team for High Performance*. CreateSpace.
147. Kumar, H., Raghavendran, S. (2015). Gamification, the fine art: fostering creativity and employee engagement. *Journal of Business Strategy*, Vol. 36 (6), 3-12.
148. Kuszewski, A. (2011). You can increase your intelligence: 5 ways to maximize your cognitive potential. <https://blogs.scientificamerican.com/guest-blog/you-can-increase-your-intelligence-5-ways-to-maximize-your-cognitive-potential/>
149. Landers, R.N., Armstrong, M.B. (2017). Enhancing instructional outcomes with gamification: An empirical test of the Technology-Enhanced Training Effectiveness Model. *Computers in Human Behavior*. Vol. 71(2017), 499-507.
150. Landers, R.N., Auer, R.N., Collmus, E.M., Armstrong, MB. (2018), Gamification Science, It's History and Future: Definitions and a Research Agenda, *Simulation & Gaming*, Vol. 49(3), 315-337.
151. Lee, H., Voss, M.W., Prakash, R.S., Boot, W.R., Vo, L.T.K., Basak, C., Van Patter, M., Gratton, G., Fabiani, M., Kramer, A. (2012). Videogame training strategy-induced

- change in brain function during a complex visuomotor task. *Behavioural Brain Research*, Vol. 232(2), 348-357.
152. Lewin, K. (1936). Principles of topological psychology. NY, US, McGraw-Hill.
153. Littman-Ovadia, H., Lavy, S. (2014). Hebrew Adaptation of the VIA Inventory of Strengths. *European Journal of Psychological Assessment*, Vol. 28(1), 41-50.
154. Long, J. M. (2003). Permission to play: Taking time to renew your smile. Naperville, IL, Sourcebooks.
155. Ludviga, I. & Kalvina, A., 2016. Exploring the Relationships between Job Satisfaction, Work Engagement and Loyalty of Academic Staff. *International Journal of Social, Behavioural, Educational, Economic, Business and Industrial Engineering*, Vol. 10 (1), 99-105.
156. Lusher, C. (2013). Case Study: Gamification at SAP Community Network. Ovum. www.bunchball.com/resources/ovum-case-study-gamification-sap-community-network.
157. Machin, S., Murphy, S. (2011), Improving the Impact of Teachers on Pupil Achievement in the UK: Interim Findings, London, Sutton Trust.
158. Maguire, E., Woollett, K., & Spiers, H. (2006). London taxi drivers and bus drivers: a structural MRI and neuropsychological analysis. *Hippocampus*, Vol. 16, 1091-1101.
159. Marczewski, A. (2015). Even Ninja Monkeys Like to Play: Gamification, Game Thinking and Motivational Design. UK: Createspace Independent Publishing Platform.
160. Marin, I. (2018). Jugamos? Cómo el aprendizaje lúdico puede transformar la educación. Paidós.
161. Markos, S., Sridevi, M. S., (2010). Employee Engagement: The Key to Improving Performance. *International Journal of Business and Management*, Vol. 5 (12), 89-96.
162. Marr, B. (2012). Key Performance Indicators (KPI) 1st ed. Harlow: Pearson.
163. Marsha, R. (2002). Narrative and Stories in Adult Teaching and Learning. Columbus (Ohio), Eric Digest.
164. Martin, C., Tulgan, B. (2001). Managing Generation Y: Global Citizens Born in the Late Seventies and Early Eighties. Amherst: HRD Press inc.
165. Martínez-Martí, M., Ruch, W. (2014). Character strengths and well-being across the life span: data from a representative sample of German-speaking adults living in Switzerland. *Frontiers In Psychology*, Vol. (5), 1-10.
166. Maslow, A.H. (1943). A theory of human motivation. *Psychological Review*. Vol 50 (4), 270-296.

167. May, D., Gilson R., Harter, L. (2004). The psychological conditions of meaningfulness, safety and availability and the engagement of the human spirit at work. *Journal of Occupational and Organizational Psychology*, Vol 77(1), 11-37.
168. Mayer, I. (2012). Towards a Comprehensive Methodology for the Research and Evaluation of Serious Games. *Procedia Computer Science*, Vol. 15, 233-247.
169. Maylett T., Warner P. (2014). *MAGIC: Five Keys to Unlock the Power of Employee Engagement*. Greenleaf Book Group Press.
170. McCarthy, N. (2015). These are the world's most punctual airlines. <http://www.forbes.com/sites/niallmccarthy/2015/01/12/these-are-the-worlds-most-punctual-airlines-and-very-few-of-them-are-american-infographic/>
171. McGonigal, J. (2011). *Reality is Broken: Why Games Make Us Better and How They Can Change the World*. Penguin Books.
172. McCrindle, M., Wolfinger, E. (2014), *The ABC of XYZ: Understanding the Global Generations*. McCrindle Research.
173. Meister, J. C. (2013). How Deloitte Made Learning a Game. <https://hbr.org/2013/01/how-deloitte-made-learning-a-g>
174. Meister, J. C., Willyerd, K. (2010) *The 2020 Workplace*. Harper-Collins Publishers.
175. Michael, D. R., Chen, S. (2006), *Serious Games: Games that Educate, Train and Inform*, Thomson Course Technology.
176. Millennial Branding. (2014). Gen Y and Gen Z Global Workplace Expectations Study. <http://millennialbranding.com/2014/geny-genz-global-workplace-expectations-study/>.
177. Mishra, K., Boynton, L., & Mishra, A. (2014). Driving Employee Engagement: The Expanded Role of Internal Communications. *International Journal of Business Communication*, Vol. 51(2), 183-202.
178. Monahan, K., Harr, C., Knight, M., Crump, J. (2016). Gaming away the leadership gap. www2.deloitte.com/insights/us/en/focus/behavioral-economics/gaming-away-leadership-gap-developing-leaders.html.
179. Morgan, C.A. (2015). *Employee Satisfaction Surveys: Measuring Staff Engagement*. B2B International Publications. www.b2binternational.com/publications/employee-satisfaction/.
180. Mollick , E. R., Rothbard, N. (2014). *Mandatory Fun: Consent, Gamification and the Impact of Games at Work*. Philadelphia, The Wharton School Research Paper Series.

181. Mouaheb, H., Fahli, A., Moussetad, M., Eljamalic, S. (2012). The Serious Game: What Educational Benefits? *Procedia - Social and Behavioral Sciences*, Vol. 46 (2012), 5502-5508.
182. Muntean, C.I., 2011, Raising engagement in e-learning through gamification, *Proceedings of the 6th International Conference on Virtual Learning ICLV*, Vol. 1, 323-329.
183. Murrey, N. (2014). World's first airline to accept bitcoin misses a big opportunity. <http://www.coindesk.com/airbaltic-accepts-bitcoin-missed-opportunity/>.
184. Nakamura, J., Csikszentmihalyi, M. (2001). Flow Theory and Research. *Handbook of Positive Psychology*, 196-206. Oxford University Press.
185. Narayanan, A. (2014). Gamification for Employee Engagement. Impact Publishing.
186. Neuhauser, P. C. (1993). Corporate Legends and Lore: The Power of Storytelling as a Management Tool. New York, NY: McGraw-Hill.
187. Nicholson, S. (2012). A User-centered theoretical framework for meaningful gamification. *Games+learning+Society*, pp. 1-7. Madison, WI: School of Information Studies, Syracuse University.
188. Noe, R.A., Hollenbeck, J.R., Gerhart, B., Wright, P.M. (2015). Human Resource Management: Gaining a Competitive Advantage, 9th edition, McGraw-Hill Education, UK.
189. OECD. (2012). The Programme for International Student Assessment (PISA). <https://www.oecd.org/pisa/aboutpisa/>.
190. Oprescu, F., Jones, C., Katsikitis, M. (2014). I play at work – ten principles for transforming work processes through gamification. *Frontiers in Psychology*. Vol. 5, article 14. www.frontiers.org.
191. Park, N., Peterson, C. (2006). Character Strengths and Happiness among Young Children: Content Analysis of Parental Descriptions, *Journal Of Happiness Studies*, Vol. 7 (3), 323-341.
192. Park, N., Peterson, C., Seligman, M. (2004). *Strengths of character and well-being*. *Journal of Social and Clinical Psychology*. Vol. 23 (5), 603-619.
193. Pinho, J.C., Rodrigues, A.P., Dibb, S. (2014). The role of corporate culture, market orientation and organisational commitment in organisational performance: The case of non-profit organisations. *Journal of Management Development*, Vol.33(4), 374-398.
194. Pink, D. H. (2008). *A Whole New Mind, Why Right-Brainers Will Rule the Future*, Marshall Cavendish International.

195. Pink, D.H. (2009). *Drive: The Surprising Truth About What Motivates Us*. Riverhead Books.
196. Poggi, J. (2013). Nickelodeon Targets 'Post-Millennials' in Upfront. *Advertising Age*. www.adage.com/article/special-report-tv-upfront/nickelodeon-targets-post-millennials-upfront/240045.
197. Prensky, M. (2001). *Fun, Play and Games: What Makes Games Engaging: Digital Game-Based Learning*. New York: McGraw-Hill.
198. Prezant, P. (2013). 63% of CRM Initiatives Fail. <http://www.dmnews.com/crm/63-of-crm-initiatives-ail/article/303470/>.
199. Pumphery, J., & Slater, J. (2002). *An Assessment of Generic Skills Needs: A comprehensive summary of generic skills requirements*. London: DfES Publications.
200. Redman, T., Wilkinson, A., 2009, *Contemporary Human Resource Management: Text and Cases*, Pearson Education
201. Rich, B., Lepine, J. & Crawford, E., 2010. Job engagement: antecedents and effect on job performance. *Academy of Management Journal*, Vol. 53(2), 617-635.
202. Recruiterbox. (2018). *Gamification in Recruitment*. <https://recruiterbox.com/blog/gamification-in-recruiting>.
203. Ries, E. (2013). *The lean start-up: How constant innovation creates radically successful business*. UK: Penguin business.
204. Ringle, C. M., Wende, S., Becker, J. M. (2014). *SmartPLS*. Hamburg: Smart-PLS.
205. Roberts, B. (2014). *Gamification: Win, Lose or Draw?* www.shrm.org/hr-today/news/hr-magazine/pages/gamification-win-lose-or-draw-for-hr.aspx
206. Robbins S. P., Coulter, M. (1999). "Management", 6 ed., Prentice Hall.
207. Robinson, D., Perryman, S., & Hayday, S. (2004). *The drivers of Employee Engagement*. Institute for employment studies , Report 408.
208. Robson, K., Plangger, K., Kietzmann, J., McCarthy, I., & Pitt, L. (2015). *Is it all a game? Understanding the principles of gamification*. Elsevier.
209. Roelfsema, P., van Ooyen, A., Watanabe, T. (2010). Perceptual learning rules based on reinforcers and attention. *Trends in Cognitive Sciences*, Vol. 14(2), 64-71.
210. Rossiter, M. (2002). *Narrative and Stories in Adult Teaching and Learning*. ERIC Digest, ERIC Clearinghouse on Adult Career and Vocational Education Columbus OH.
211. Royal, K., Sorenson, S. (2015). *Employees are Responsible for their Engagement*. www.gallup.com/businessjournal/183614/employees-responsible-engagement.aspx?g_source=Engagement+Survey&g_medium=search&g_campaign=titles

212. Ruch, W., Huber, A., Beermann, U., Proyer, R. T. (2007). Character strengths as predictors of the “good life” in Austria, Germany and Switzerland. *Studies and Researches in Social Sciences*, Vol. 16, 123–131.
213. Ryan, R. M. (1995). Psychological needs and the facilitation of integrative processes. *Journal of Personality*, 63, 397-427.
214. Ryan, R., Rigby, C., Przybylski, A. (2006). The Motivational Pull of Video Games: A Self-Determination Approach. *Motivation and Emotion*, Vol. 30 (4), 344-360.
215. Sands, F. (2013). Case Study: Gamification as a Strategic Human Resource Tool to Gain Organisational Competitive Advantage Via Increased Employee Engagement. <http://trap.ncirl.ie/856/1/fionasands.pdf>
216. Saran, C. (2013). A business case for gameplay at work. www.computerweekly.com/feature/A-business-case-for-games-play-at-work
217. Sarangi, S., Shan, S. 2015. Individuals, teams and organizations score with gamification. *Human Resource Management International Digest*, Vol. 23(4), 24-27.
218. Sarner, A. (2013). Why game based marketing is relevant for anyone who markets anything. <http://blogs.gartner.com/adam-sarner/2013/09/13/why-game-based-marketing-is-relevant-for-anyone-who-markets-anything/>
219. Savitz, E. (2012). Let`s Play: To Keep Gen Y Staffers, Gamify Their Work. www.forbes.com/sites/ciocentral/2012/07/03/lets-play-to-keep-gen-y-staffers-gamify-their-work/#123f5349150a
220. Schaufeli, W. B., Bakker, A. B., Salanova, M., 2006. The Measurement of Work Engagement with a Short Questionnaire. *Educational and Psychological Measurement*, Vol. 66(4), 701-716.
221. Scheffknecht, S. (2011). Multinational Enterprises – Organizational Culture vs National Culture. *International Journal of Management Cases, Special Issue: CIRCLE Conference*, 73-78.
222. Schein, E. (1992). *Organisational Culture and Leadership*. San Francisco, CA: Jossey-Bass Publishers.
223. Schein, E. H. (2009). *The corporate culture survival guide*. San Francisco, CA, Jossey-Bass.
224. Seaborn, K. & Fels, D. (2015). Gamification in theory and action: A survey. *International Journal of Human-Computer Studies*, Vol. 74, 14-31.
225. Seligman, M., Csikszentmihalyi M. (2000). Positive psychology: An introduction. *American Psychologist*. Vol. 55, 5–14.

226. Shayon, S. (2013). KLM Makes travel more social with crowd-sourced map. <http://brandchannel.com/2013/02/13/klm-makes-travel-more-social-with-crowd-sourced-map/>.
227. Shayon, S. (2013). Gamification with new aviation empire game. <http://brandchannel.com/2013/06/13/klm-readies-full-on-social-gamification-with-new-aviation-empire-game/>.
228. Shimai, S., K. Otake, N. Park, C. Peterson, Seligman, M.E.P. (2006). Convergence of character strengths in American and Japanese young adults, *Journal of Happiness Studies* Vol. 7, 311–322.
229. Shuck, M. B., (2011). Exploring employee engagement from the employee perspective: implications for HRD. *Journal Of European Industrial Training*, Vol. 35, 300-325.
230. Shuck. M. B., Wollard, K.K. (2009). Exploring the Convergence of Two Frameworks and Implications for Leadership Development in HRD. *Sage Journal*. Vol. 11(2), 156-181.
231. Shuck, M. B., Wollard, K.K. (2009). Employee engagement and HRD: a seminal review of the foundations, *Human Resource Development Review*, Vol. 9, No. 1: 89-110.
232. Shu-Hua Yeh, C. (2015). Exploring the effects of videogame play on creativity performance and emotional responses. *Computers in Human Behavior*, Vol. 53, 396-407.
233. Shute, V., Venture, M., Ke, F. (2015). The power of play: The effects of Portal 2 and Lumosity on cognitive and noncognitive skills. *Computers & Education*, Vol. 80, 58-67.
234. Sims, S. (2018). How Gamification can improve HR Management. <https://www.thebalancecareers.com/gamification-hr-management-improvement-1917995>.
235. Simson, J., Jenkins, P. (2015). Gamification and Human Resources: an overview. <https://www.brighton.ac.uk/research-and-enterprise/groups/mer/research-projects/gamification-in-human-resources.aspx>.
236. Simons, D. J., & Boot, W. (2012). Advances in video game methods and reporting practices (but still room for improvement): A commentary on Strobach, Frensch, and Schubert (2012). *Acta Psychologica*, Vol. 141, 276-277.

237. Skinner, B.F. (1938). *The behavior of Organisms. An Experimental Analysis*. NY, Appleton-century-crofts, Inc.
238. Skinner, H., Sarpong, D. & White, G. R., (2018). Meeting the needs of the millennials and Generation Z: gamification in tourism through geocaching. *Journal of Tourism Futures*, Vol. 4(1), 93-104.
239. Slagter, H., Davidson, R., & Lutz, A. (2011). Mental training as a tool in the neuroscientific study of brain and cognitive plasticity. *Frontiers in Human Neuroscience*, 5, 17.
240. Smith, R. (2011). The future of work is play: Global shifts suggest rise in productivity games. IEEE International Games Innovation Conference (IGIC).
241. Smith, J. L. & Meyerson, D., (2015). *Strategic Play*. Wordzworth Publishing.
242. Sørensen, J.B. (2002). The Strength of Corporate Culture and the Reliability of Firm Performance. *Administrative Science Quarterly*, Vol. 47(1), 70-91.
243. Stone, D. L., Deadrick, D.L., Lukaszewski K.M., Johnson, R.. (2015). The Influence of Technology on the Future of Human Resource Management. http://takmaghale.com/uploads/product/ssgdgd_14975983571423.pdf.
244. Sungur, H., Boduroglu, A. (2012). Action video game players form more detailed representation of objects. *Acta psychologica*, Vol. 139(2), 327-334.
245. Suttie, N., Louchart, S., Lim, T., Macvean, A., Westera, W., Djaouti, D., Brown, D. (2012). In Pursuit of a 'Serious Games Mechanics. VS-Games 2012. Genoa, Heriot Watt University.
246. TeleMedia SIA. (2014). Top 500 companies. www.balticmarket.com/en/top500/
247. Thorndike, E. (1932). *The Fundamentals of Learning*. NY, Teachers College Press.
248. TNS. (2015). airbaltic corporation TRI*M Employee Commitment Survey. Riga, TNS.
249. Ulrich, D. (1997). *Human resource champions: the next agenda for adding value and delivering results*. Boston, Harvard business school press.
250. Ulrich, D., Brockbank, W., Johnson, D., Sandholtz., K., Younger, J. (2008), *HR Competencies: Mastery at the Intersection of People and Business*, Society For Human Resource Management.
251. Ulrich, D., Younger, J., Brockbank, W., Ulrick, M. (2012), *HR from the Outside In: Six Competencies for the Future of Human Resources*, McGraw-Hill Education.
252. Van Den Berg, J., Behrer, M. (2013). *How Cool Brands Stay Hot*. Lodon, Kogan Page Ltd.

253. Van den Bergh, J., Behrer, M. (2011). Branding to generation Y. London, Kogan Page Ltd.
254. Venture Spirit. (2015). References. www.venturespirit.com/references/.
255. Villaroel, J., Reis, F. (2011). A stock Market Approach to Online Distributed Innovation: the Trade-off between Speculation and Innovation Performance. *Workshop on social computing and user generated content ACM-EC'11*, San Jose, CA.
256. Villaroel, J., & Reis, F. (2010). Intra-Corporate crowdsourcing (ICC): leveraging upon rank and the site marginality for innovation. *CrowdConf 2010* San Francisco, CA.
257. Vorončuka, I. (2009). Personāla vadība. Monogrāfija. Latvijas Universitāte, Rīga, Latvija.
258. Voronchuk, I., Starineca, O. (2014). Knowledge management and possibilities of professional development in public sector. *European Integration Studies*. Vol.8 (2014), 168-179.
259. Vorochuk, I., Starineca, O. (2015). Human Development under Knowledge Economy Circumstances: Case of the Baltic States' Rural Areas. Proceedings of the conference *Economic Science for Rural Development : 1. Marketing and Sustainable Consumption ; 2. New Dimensions in the Development of Society*, N 40 (2015), 186-195.
260. Voss, M.W., Prakash, R.S., Erickson, K.I, Boot, W.R., Chandramallika, B., Neider, M.B., Simons, D.J., Fabiani, M., Gratton, G., Kramer, A.F. (2012). Effects of training strategies implemented in a complex videogame on functional. *NeuroImage*, Vol. 59(1), 138-147.
261. Welch, D.E. & Welch, L.S. (2006). Commitment for hire? The viability of corporate culture as a MNC control mechanism. *International Business Review*, Vol. 15(1), 14-28.
262. Werbach, K. & Hunter, D. (2012). For the win: How game thinking can revolutionize your business. Philadelphia, Wharton Digital Press.
263. Werback, K. (2014). (Re)Defining Gamification: A Process Approach. *Persuasive Technology: Lecture Notes in Computer Science*, Vol. 8462, 266-272.
264. West, G. L., Al-Aidroos, N., & Pratt, J. (2011). Action video game experience affects oculomotor performance. *Acta Psychologica*, Vol. 142(1), 38-42.
265. West, M., Dawson, J. (2012). Employee Engagement and NHS Performance. The King's Fund.
266. Whitehurst J. (2015). The Open Organization: Igniting Passion and Performance. Harvard Business Review Press.

267. Whyte, D. (2016) Training trends for 2016.
<https://www.trainingjournal.com/blog/training-trends-2016-0>.
268. Wilms, I., Petersen, A., & Vangkilde, S. (2013). Intensive video gaming improves encoding speed to visual short-term memory in young male adults. *Acta psychologica*, Vol. 142(1), 108-118.
269. Wilson, K.A., Bedwell, W., L., Lazarra, E., H., Burke, C., S., Estock., J., L. et al. (2009). Relationships between game attributes and learning outcomes. *Simulation and Gaming*. Vol. 40 (2), 217-266.
270. World Economic Forum. (2016). Global challenge Insight Report "The Future of Jobs". Geneva, World Economic Forum.
271. Wozniak, J. (2015). The use of gamification at different levels of e-recruitment. *Management Dynamics in the Knowledge Economy*. Vol. 3, 257-278.
272. Xu, Y. (2011). Literature review on web application gamification and analytics. CSDL Technical report 11-05, Honolulu, Collaborative Software Development Lab, University of Hawaii.
273. Yang, G.H., Lee, J.Y. (2016). Learning While Playing: A Fast Growing Company Turned to Mobile Gamification to Improve Knowledge Management Among Its Employees. www.questia.com/magazine/1G1-453916658/learning-while-plaing-a-fast-growing-company-turned.
274. Zichermann, G., Cunningham, C. (2011). Gamification by Design. Canada: O'Reilly Media.
275. Zielinski, D. (2015). The gamification of Recruitment. *HR Magazine*, Nov. 2015, 59-60.
276. Zyda, M. (2005). From visual simulation to virtual reality to games. *Computer* Vol. 38(9), 25 – 32.

4 APPENDICES

Appendix 1: TRI*M results

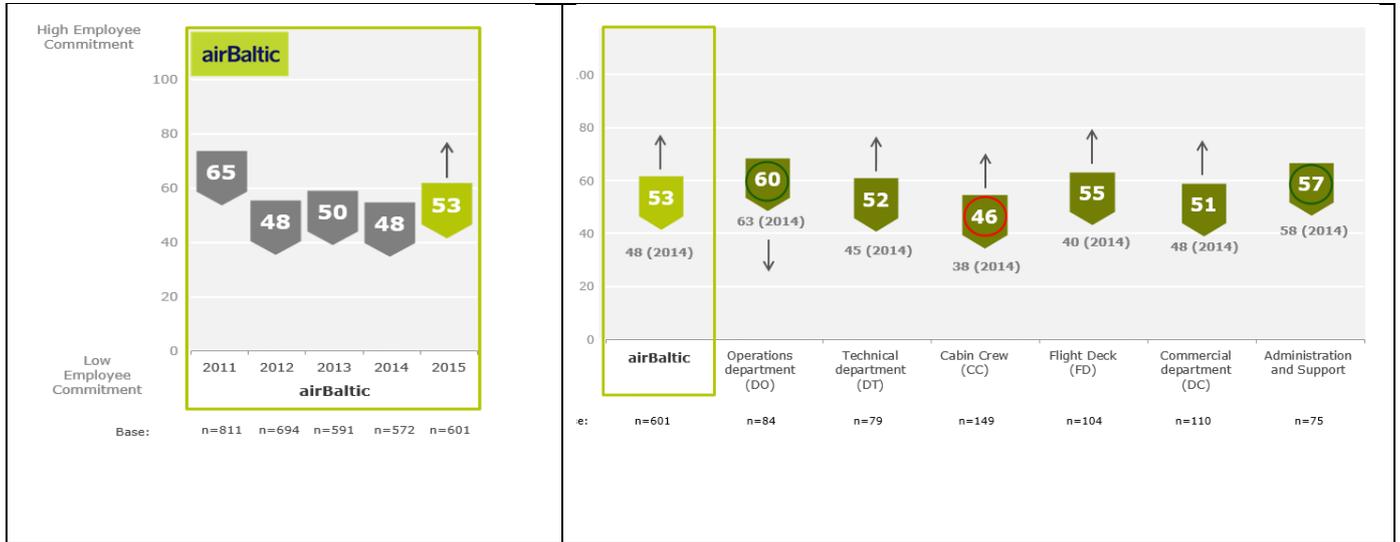


Figure 4.1.M index airBaltic 2015

Source: Kantar TNS, 2015

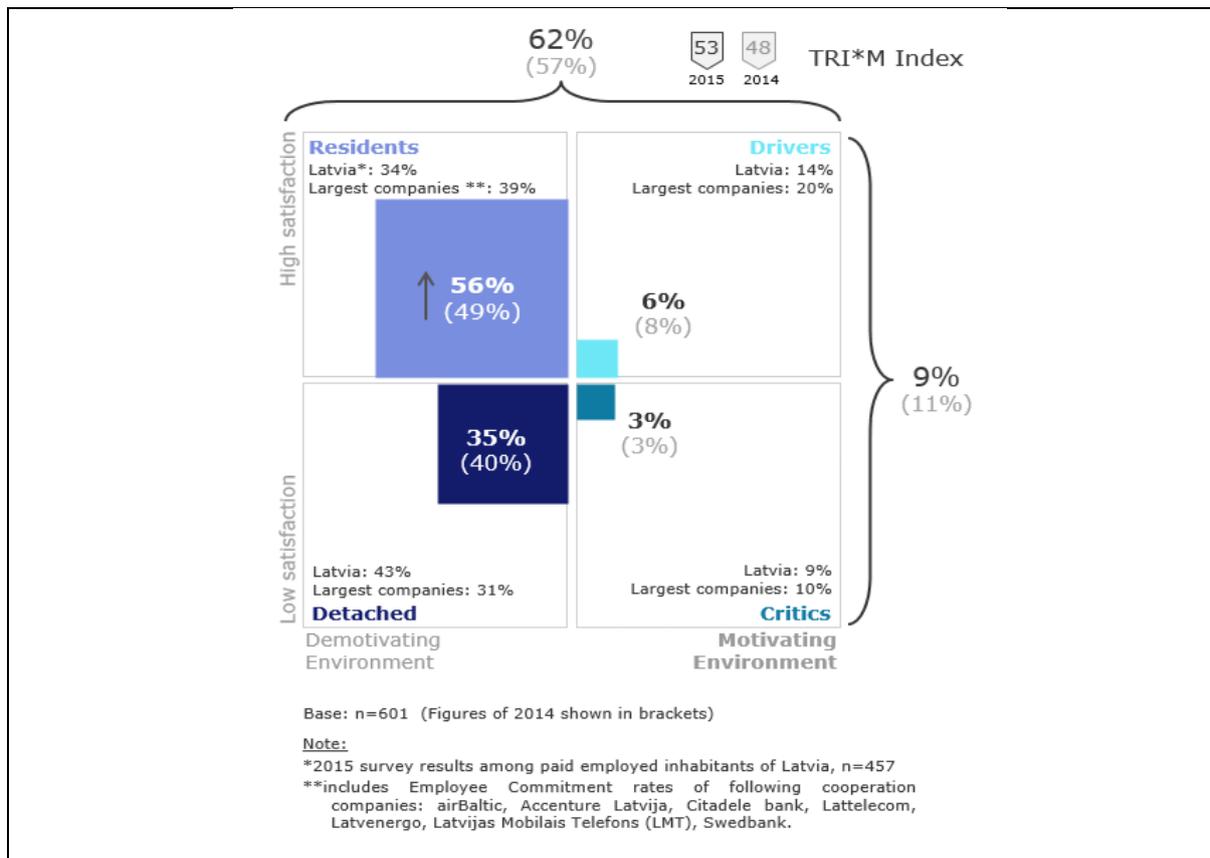


Figure 4.2. TRI*M Typology: results for airBaltic in comparison with Latvia and the largest companies in Latvia

Source: Kantar TNS, 2015

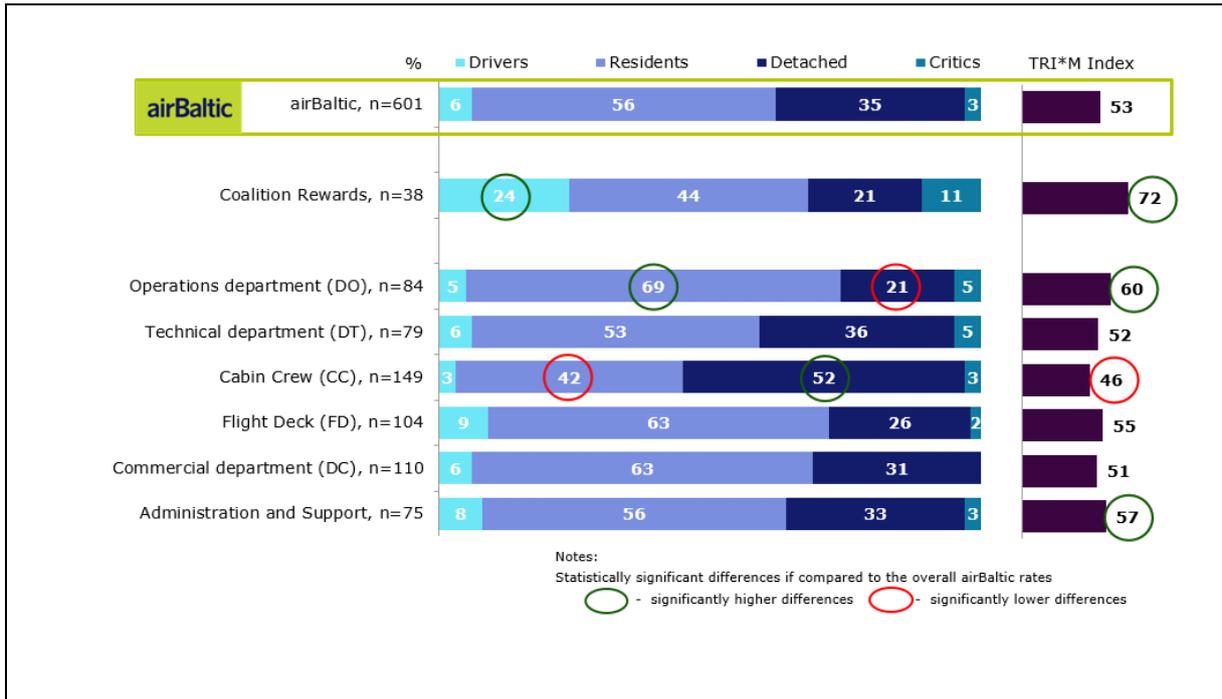


Figure 4.3. TRI*M Typology: Results for airBaltic per department . Coalition rewards is a benchmarking company

Source: Kantar TNS, 2015

Summary of Strengths (Maintainable Factors) – airBaltic (BT)

Top Priority Strengths



None

High Priority Strengths



- E04. The working atmosphere is positive
- D01. Direct manager regularly, clearly and directly provides information necessary to carry out my job responsibilities
- E07. My job is interesting
- E06. My job responsibilities have been clearly formulated
- F04. Discounts on flights

Medium Priority Strengths



- B01. I am proud of the company I work for
- H05. I know whom to contact if I need an expert's advice and support
- D02. Direct manager is available when I have questions or need help
- C01. Colleagues support and help each other when necessary
- E03. The company provides materials and equipment necessary to carry out my job responsibilities
- E05. The job corresponds to my knowledge and skills
- C02. Colleagues share their knowledge
- E02. I have an opportunity to keep balance between work and private life

*Figure 4.4. Summary TRI*M grid results airBaltic strengths*

Source: Kantar TNS, 2015

Summary of Weaknesses (Improvable Factors)– airBaltic (BT)

Top Priority Weaknesses



- F01. Remuneration is adequate to the work performed
- B04. Financially strong company
- A04. Company management ensures that the company’s strategy is clear to all employees
- F02. Remuneration is adequate to the overall situation in the market

High Priority Weaknesses



- G02. Career and personal growth opportunities
- A02. Company management works effectively
- A03. Company management acts as a team to achieve the company’s business goals
- B03. The company is able to adapt to the changing trends in the market

Medium Priority Weaknesses

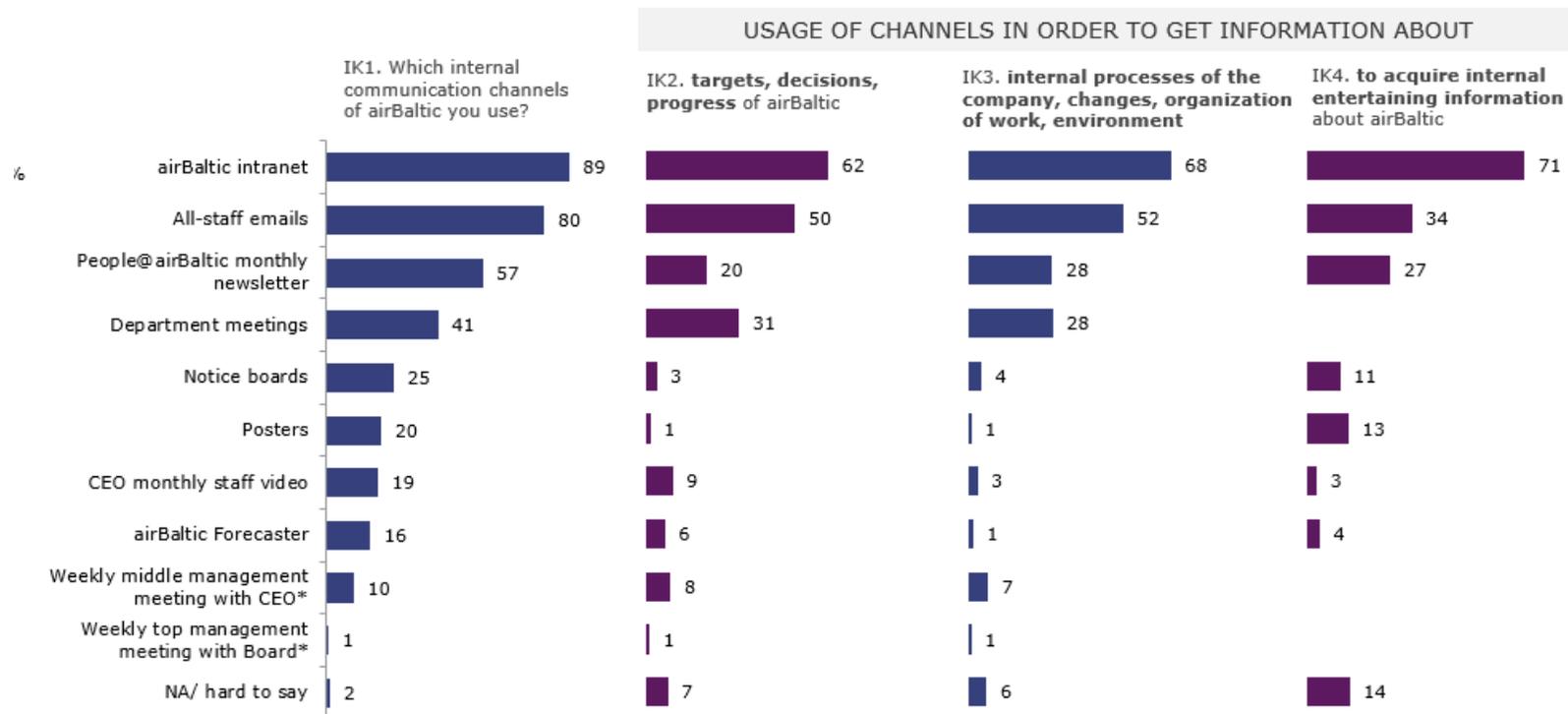


- A01. Company management is reliable
- G03. The plans regarding my individual growth are clear
- B02. The company is highly transparent
- H01. I am aware of the company’s plans and goals
- B05. The company does everything to satisfy its customers

Figure 4.5. Summary TRI*M grid results airBaltic weaknesses)

Source: Kantar TNS, 2015

Usage of internal communication channels – airBaltic (BT)



Base: All airBaltic (BT) employees: 2015, n=601
 Note: *Asked only for middle and/or top managers

Figure 4.6. Results usage internal communication airBaltic

Source: Kantar TNS, 2015

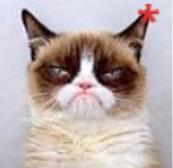
Appendix 2: Forecaster game play design

Forecaster basically works as a small market where the projects are traded on. Projects get launched with a target date and a starting price. Most of the time the projects start with a price of 50 BT coins. A project can reach a price between 1 and 100 BT coins. The price of a project share should reflect the probability of the project. Players get 5000 BT coins that allow them to buy shares. If the employee believes that the project will be successful he/she buys the shares at the current price. When the project reaches his targets the shares are sold for 100 BT coins. The profit can be used again to buy more shares and try to get the most value of assets. Forecaster also allows betting against projects if you don't believe they will make the target. This is called short selling. You sell shares without owning them. So you can own negative shares. You buy them at 100-BT coins minus current price. When the project fails you get 100 BT coins per share. When the projects are running profit can be made by the change in price. The player can cash in on this before the end of the project. Insider trading is allowed if you post your information after your transaction. By providing comments employees share their opinion about the project and also managers who own the project can give an update on the projects through these comments. There is always a spread of two BT coins between buying and selling price. This to discourage real price speculation and avoid a too volatile market. A game runs for about a month, after that month the game is closed however the exact date of closing is always a mystery. At the beginning of a new season everyone starts again with 5000 BT coins. The top 10 gets 6000 BT coins as an extra price. The top 3 gets 200 euro for the first place, 100 euro for the second place and 50 euro for the third place. These winners are announced on the intranet of airBaltic. Employees who have an account on Forecaster get an email every time a new project is announced on Forecaster. Next to that they also get an email when a project is closed. At last they receive a monthly email with a news update about the most exiting projects on Forecaster.

airBaltic Forecaster

Projects
 Old projects
 Top
 Market data
 My Account
 Market Settings
 Market stats

Glenda [Logout](#)



Glenda

Joined 08.05.15

Last seen online

Role admin

[Edit](#)

Name

E-mail address gvc@airbaltic.lv

Paid for shares of active projects	4987
Value of shares for active projects	7002
Profit for active projects	+2015

Available funds **13**

Project	Remaining	Shares	Paid	Value	Profit	Buy	Sell
Web check-in upgrade to business class option...	3 d.	-13	1071	1170	+99	11 +	9 -
airBaltic will approve its new strategy at the...	4 d.	-72	3805	5832	+2027	19 +	17 -
The new fare families will be launched no later...	26 d.	0	95	0	-95	63 +	61 -
Public Relations department will hire a new...	28 d.	0	10	0	-10	74 +	72 -
By end of Oct 31 airBaltic will launch...	161 d.	0	6	0	-6	61 +	59 -

Figure 4.7. Screenshot Forecaster: player holding negative shares

Source: Author's construct based on airBaltic internal materials, 2015

airBaltic Forecaster

- Projects
- Old projects
- Top
- Market data
- My Account
- Market Settings
- Market stats

Glenda Logout

airBaltic will approve its new strategy at the Supervisory Board level before 18:00 on May 29th, 2015.

airBaltic has hired Boston Consulting Group to assist in developing Latvia's aviation strategy. In parallel airBaltic will work on its future strategy considering the latest developments in the aviation market and competitive environment. The new strategy will be presented to the Supervisory Board. Will we be able to approve the strategy by May 29th, 2015?

Project leader: Martin Gauss



Time left:
4d 3h 52m 52s

20
Buy

18
Sell

My data

Shares:	-72
Value:	5832
Paid:	3805
Profit/loss:	2027

Price:

Last 24h

Last 30 deals

All deals

Price change in from start

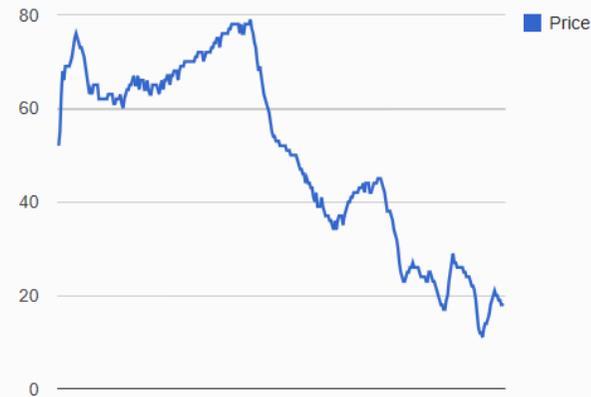


Figure 4.8. Screenshot Forecaster: Example project
Source: airBaltic internal materials, 2015

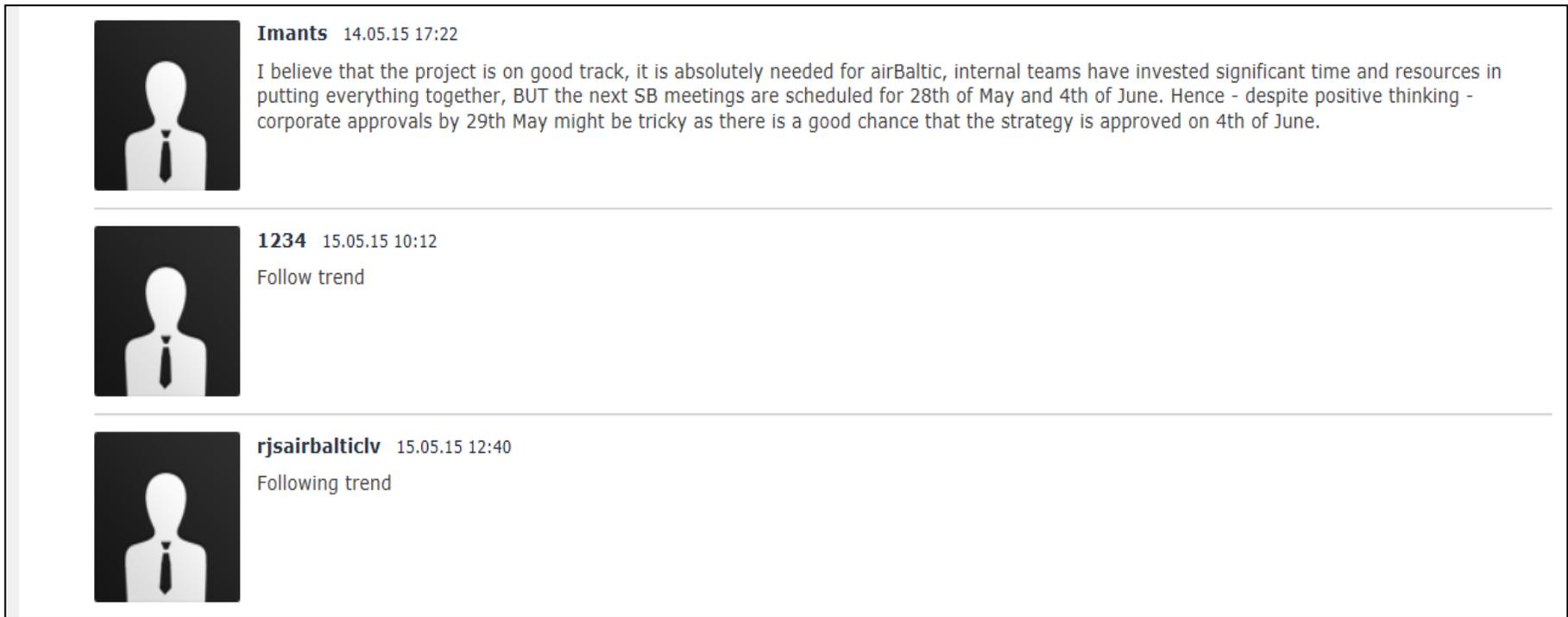


Figure 4.9. Screenshot Forecaster: Example of insider trading and sharing information(taken from the example project)

Source: airBaltic internal materials, 2015

Appendix 3: Interview questions airBaltic employees

Managers:

1. Do you play the Forecaster game yourself? How often do you use Forecaster per week?
If you play, what attracts you to play?
2. How often do you discuss the projects in the Forecaster with your colleagues? Or have you ever discussed the Forecaster project with colleagues? Do you remember the details of that discussion?
3. Has there ever been any information about any project that was news to you? Was that information relevant to your job?
4. What problem do you think Forecaster is trying to solve?
5. Is it actually successful in solving that problem?
6. What needs to change for it to become a solution for that problem?
7. What problem would you like Forecaster to solve? How can Forecaster be of value for you?
8. What information would you like Forecaster to provide to be useful for you personally?
9. Do you know anyone who really uses Forecaster a lot or talks about Forecaster a lot?
What are they getting out of it?
10. Do you think Forecaster would be popular if there were no financial reward for the winners?
11. Has information in the Forecaster ever influenced any decisions you have made?
12. Would you like the option to review new ideas before you go to the board with them?
13. Would you like input from other employees that could impact your decision?
14. Do you have any suggestions to improve Forecaster
 - to make it more attractive
 - to increase value for the organization

Employees

1. How often do you use Forecaster per week? What attracts you in playing Forecaster? (what is the reason you play the game?)
2. How often do you discuss the projects in the Forecaster with your colleagues? Or have you have ever discussed the Forecaster project with colleagues? Do you remember the details of that discussion?
3. Has there ever been any information about any project that was news to you? Was that information relevant to your job?
4. What problem do you think Forecaster is trying to solve?
5. Is it actually successful in solving that problem?
6. What needs to change for it to become a solution for that problem?
7. What problem would you like Forecaster to solve? What information would you like the Forecaster to provide to be useful for you personally?
8. Do you know anyone who really uses Forecaster a lot or talks about Forecaster a lot? What are they getting out of it?
9. Do you think Forecaster would be popular if there were no financial reward for the winners?
10. Has information in the Forecaster ever influenced any decisions you have made?
11. Would you like to post some projects?
12. Would you enjoy projects that did not come from managers?
13. Which projects do you usually go for
14. What would make Forecaster more fun?
15. Do you think it is easy to play?
16. Do you have any suggestions to improve Forecaster
 - to make it more attractive
 - to increase value for the organization

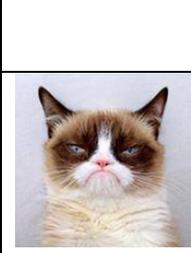
Non-players

1. Do you know Forecaster? Have you ever heard about Forecaster
2. “show + explain” what do you think of the concept?
3. After seeing it...what is your first impression?
4. After seeing it. Would you be interested to play? Why (not)
5. What problem do you think Forecaster is trying to solve?
6. When would you be motivated to play, how must Forecaster change?
7. Do you know anyone who really uses Forecaster a lot or talks about Forecaster a lot?
What are they getting out of it?
8. Do you think Forecaster would be popular if there were no financial reward for the winners?
9. Would you like to post some projects?
10. Would you enjoy projects that did not come from managers?
11. Do you think it is easy to play?

Appendix 4: Example Newscaster

Table 4.1.

Example Newscaster

	<p>Dear Forecasters,</p> <p>Glenda the intern is here with the honours to give you this month's NEWScaster</p> <p>This month I and my partner Eveline got the honours to run Forecaster. We hope you liked it and we hope you keep sending in exciting projects.</p>
	<p>Public relations department quest for a new internal communication manager did not make its target. HR and Janis worked their fingers to the bone to find the skilled, willing and able for this job. But sifting through 100 resume's in a short amount of time was no easy task. There was in any case no lack of mental support. Aiga cheered Janis on and also gave some legal support to why this project could succeed. We are still very much looking forward to meet the new internal communication manager.</p> <p>We imagine it will only be the best and brightest. Hey maybe I should send in my resume?</p>
	<p>In last NEWScaster we promised you a cliff-hanger. Well the New Fare Families project was a cliff-hanger to say the least. Rumours spread that this would prove to be a really big challenge. bbl believed from the start that failure was not an option and bbl's believe stayed strong during the duration of the project. btmne and BTLGV kept giving updates and kept the faith alive. But there were doubters. Myself, Eef, Kalvfs and Aiga, were afraid that glitches in IT would slow the project down. Lasma also feared that the deadline was a tough cookie although she had no doubt the project was in good hands.</p> <p>All Forecasters however recognised that this project was a real challenge but kept rooting for Laura and her team.</p>

The believers were the ones who were right because Laura and her team succeeded in this very challenging project. A happy ending for this exciting story. 1234 was so kind to tell us a bit more about the results! When I say more I mean 1234 almost wrote a master thesis about it. But very interesting thank you!

Congratulations to everybody involved in making this project succeed. Well done!



If any of these people have a time machine to check the future please let me know. These are the current top Forecasters :

1. 1234

2. btmve

3. G.B.

But don't think this is final. Maybe Forecaster has one of its volatile moods, and when will this season be closed?

So much excitement I need to go and lay down for a while.

Next seasons cliff-hangers



[Summer party project](#) is promising to be very interesting.

We know it will BE WILD, but how many of your colleagues will join this event? How big will the herd of party animals be? Don't forget to join the party! Because you will never forgive yourself when you will hear the stories!



[Auto Document Check functionality in Amadeus Altea](#) project is in its final stretch. Very important project as it will make checking passengers identity faster and more accurate. We are rooting for Sabine Natrina and her team.

Appendix 5 4finance Values introduction Game Pilot

Table 4.2.

Player Type Survey

Survey title	Date	Nr of questions	Nr of people asked	Nr of participants	% of response
What Player Type are you?	May 28	2	2056	452	22%

Source: Author's construct, based on 4finance internal aterials, 2018



Figure 4.10. Poster Player Type Survey

Source: 4finance internal materials, 2018

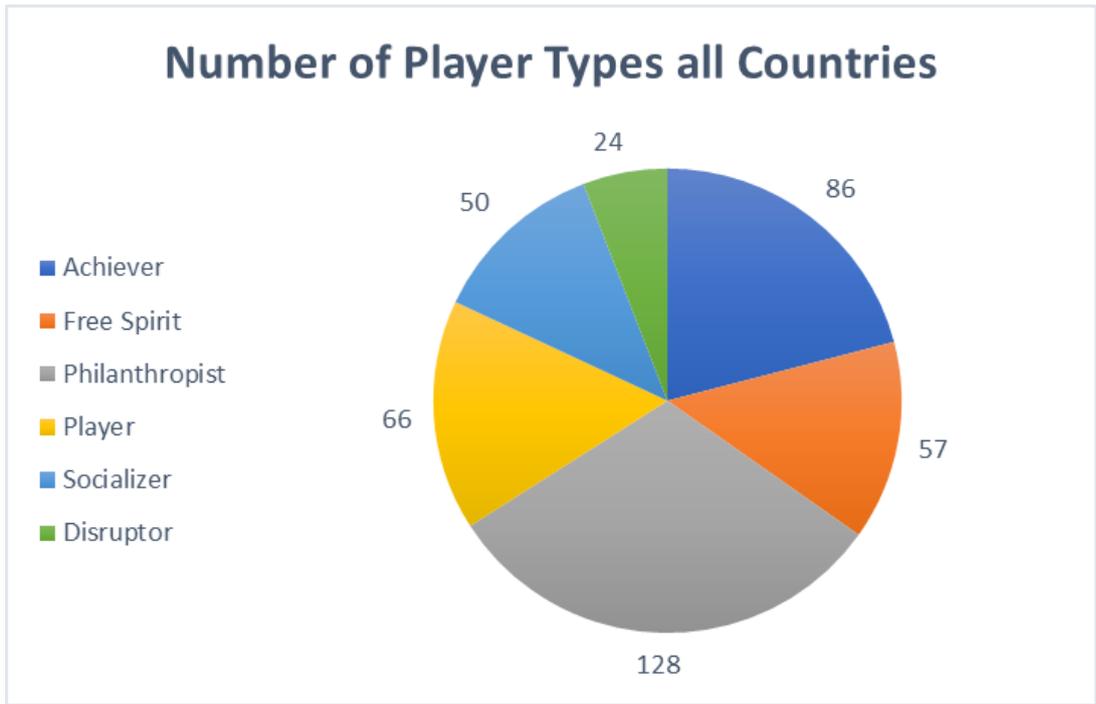


Figure 4.11. Pie chart visualizing the absolute number of player types in the 4finance group
Source: 4finance internal materials, 2018

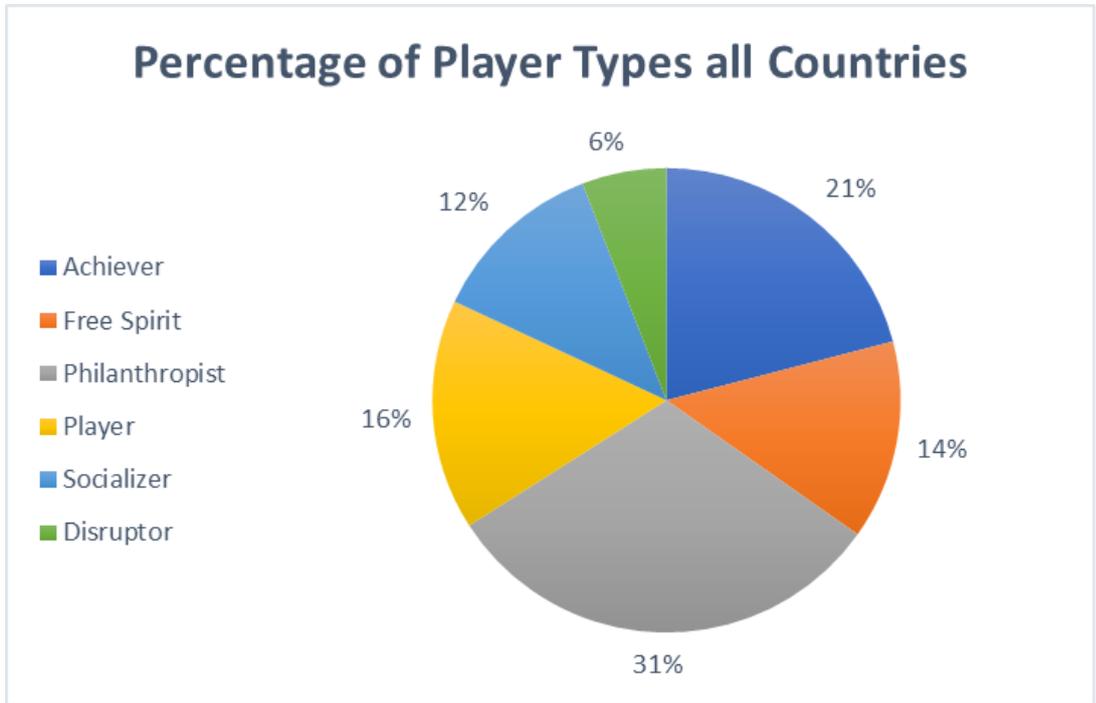


Figure 4.12. Pie chart visualizing the percentage of player types in the 4finance group
Source: 4finance internal materials, 2018

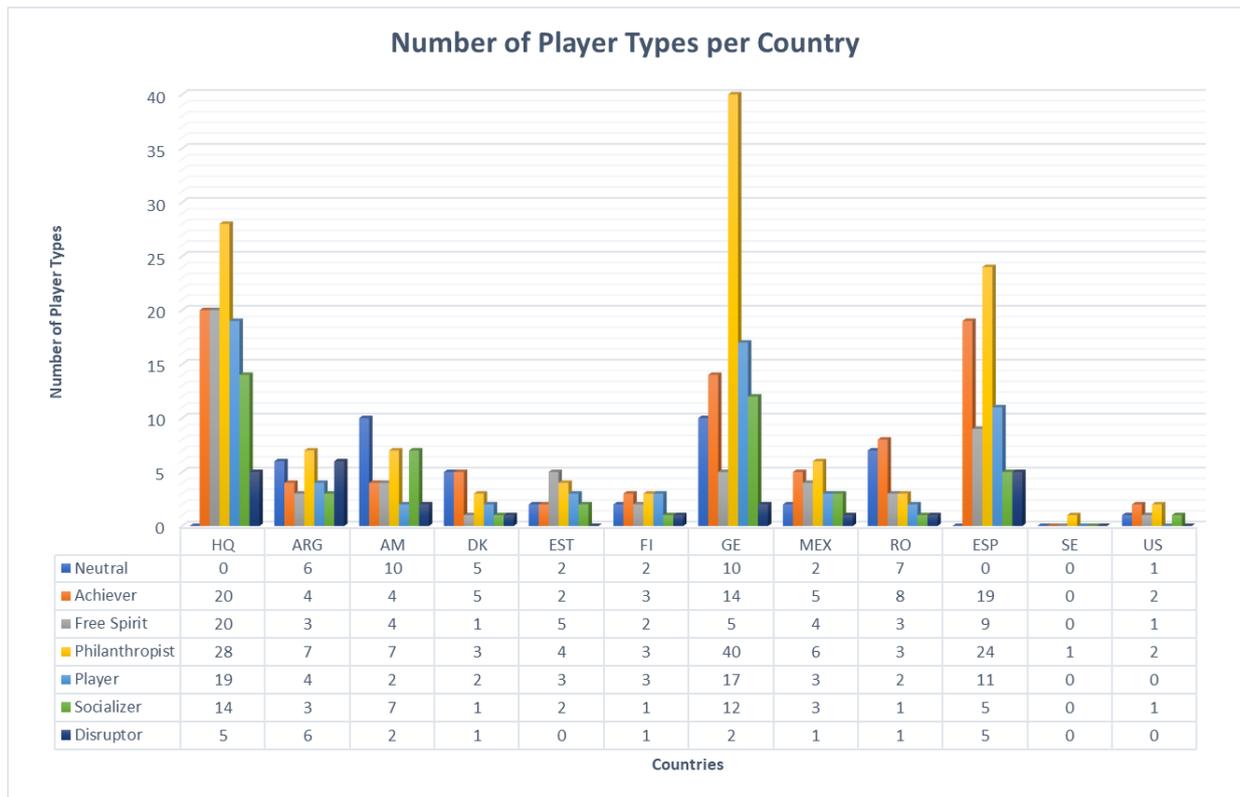


Figure 4.13. Bar chart visualizing the absolute number of player types in different countries
Source: 4finance internal materials, 2018

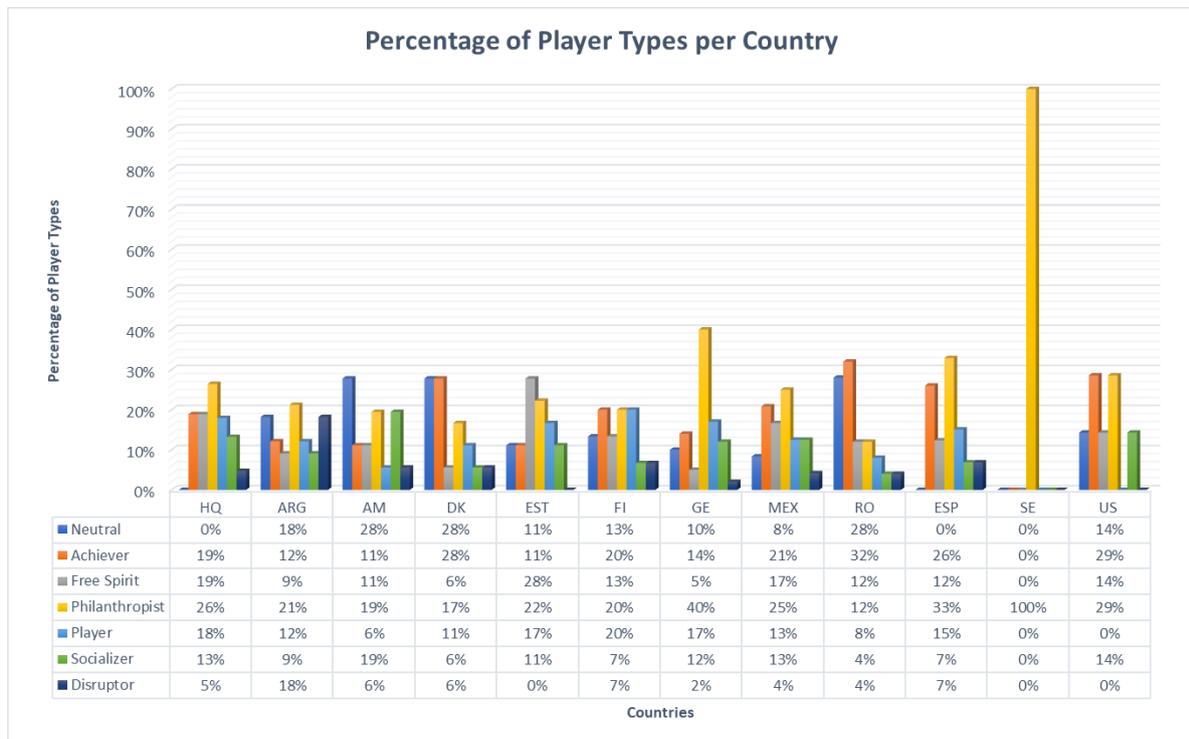


Figure 4.14. Bar chart visualizing the percentage of player types in different countries
Source: 4finance internal materials, 2018

Table 4.3.

Semi-Structured Interviews

Pilot Design: semi-structured interviews					
COUNTRY	TOTAL NR of EMPLOYEES	% WEIGHT IN THE COMPANY	PREFERED SAMPLE	NR OF ACTUAL INTERVIEWS	DURATION min/INTERVIEW
HQ	221	10%	10	1	20
IT	207	10%	10	0	0
Argentina	42	2%	4	0	0
Armenia	54	3%	5	3	30
					30
					30
Bulgaria	56	3%	5	1	45
Canada	132	6%	8	0	0
Czech Republic	90	4%		1	30
				2	30
Denmark	39	2%	3	0	0
Estonia	193	9%	8	2	30
					20
Finland	33	1%	3	1	30
Georgia	168	11%	8	0	0
Latvia	115	8%	8	1	20
Lithuania	78	3%	5	1	60
Mexico	48	2%	3	7	30
					35
					35
					25
					30
					30
Poland	318	15%	10	1	25
Romania	38	1%	3	0	0
Spain	186	9%	8	0	0
Sweden	31	1%	3	0	0
UK		0%	0	0	0
US	7	0%	1	1	30
TOTAL	2056	100%	105	21	610 MIN 10h10min

Source: 4finance internal materials, 2018

Table 4.4.

Overview of the semi-structured interviews to design the pilot

Design Pilot: people involved in semi-structured interviews		
	ABSOLUTE NUMBER	PERCENTAGE
TOTAL COMPANY EMPLOYEE	2056	100%
PREFERED SAMPLE FOR INTERVIEW	105	5% OF THE WHOLE ORG.
ACTUAL AMOUNT OF PEOPLE WE GOT	21	20% OF OUR SAMPLE 1% OF THE WHOLE ORG.

Source: 4finance internal materials, 2018

Table 4.5.

Overview of the semi-structured interviews to design the pilot in relationship with our preferred number of employee interviews and the total number of employees in 4finance

Divisions represented in the semi-structured interviews per country											
COUNTRIES (11 out of 19, 58%)	HQ	ARM	BG	CZ	EST	FI	LV	LT	MEX	PL	US
DIVISIONS (8 out of 17, 47%)											
Administration											
AML											
Business Analytics											
Change Management	X										
Compliance				X							
Corporate Management						X					
Customer Care		X							X		
Data Management											
Finance									X		X

HR			X		X		X				
IT				X	X			X		X	
Lean											
Legal											
Marketing		X							X		
Operations											
Product											
Risk											

Source: 4finance internal materials, 2018

Table 4.6.

Divisions represented in the semi-structured interviews per country

Questionnaire for the semi-structured interviews
<p><i>About the office/environment</i></p> <ul style="list-style-type: none"> ● How receptive are people to current communication channels? ● How receptive are people to new communication channels/approaches? ● How receptive are people to spontaneous/fun/colorful/slightly crazy approaches? (hindsight from a past fun event, an unusual spontaneous event...?) ● How do they feel about collective activities? (team building activities well received?) ● How representative of the general feeling in your office are your answers? ● How strong is company culture in your office? How is it shown? ● How is competition seen? If it is not based on work results, would people be interested? <p><i>About gamification/implement of gamification</i></p> <ul style="list-style-type: none"> ● How receptive are people to a game-like approach (to event, communication...)? (Hindsight from past event etc...)? ● Do you know about gamification? ● How would you implement gamification in your office? ● What would motivate you to participate to a “game”? (what rewards, what expectations) ● What do you think of: <ul style="list-style-type: none"> ○ A game composed of a succession of challenges

- Adding narrative to a "game"
- The theme of National Super Heroes (taking fictional heroes from each 4finance country to add to the narrative)
- A coin system (when you complete a challenge you get an certain amount of "coins")
- Tangible accessories (actual tokens to use as "coins", jars to pile them up)
- Team play for the challenges
- Competition play for the challenges
- Solo play for the challenges
- Integrating challenges in every day's tasks (a twist when writing emails, during coffee breaks...) / Challenges that would push people out of every day's tasks (an arm wrestle challenge...)
- A collective charity donation from 4finance at the end of the game based on the total amount of points earned during the game.
- What do you think of those challenges:
 - Examples of fun challenges: imitating a colleague for an hour, doing a mannequin challenge video...
 - Examples of quizzes and testing difficulty and relevance,
 - Examples of action challenges: arm wrestle battle, eye staring competition, clearing up the desk with before/after pictures, ...
- How would you like to be informed about results of other players and ranking?
How often would you like to be informed?
- What format would you prefer to explain the game? (word doc, video, meeting...)

Key insights from the semi-structured interviews

Project Potential

- Gamification was not a well-known concept in theory even though they did have some ideas once we explained and gave examples.
 - Small game contest (candies-filled jar, guess the number; to explore the new office, find a certain item in the office to win something...)
 - Small game-like events (health week, competition of who walked the most, Easter eggs hunt...)
- They even sometimes had examples from their offices or wished implementations:
 - Already an idea of gamifying onboarding

- Some wanted to gamify customer care's work to motivate them

Communication

- Preferred format for the game explanation: Combination of all
 - Email
 - Video
 - Meeting
- Preferred format for results communication: Combination of all
 - By email
 - By Intranet
 - By 4finance's Instagram account
- Need for general feedback during and after the project about final outcomes. People need to hear about the impact of their actions and the impact of the whole project.

Pilot Design

- Consider cultural differences:
 - Preferred types of challenges according to local culture, difference in perceptions of what is fun
 - Local office culture, some offices have their own values and strong communication campaign about them so confusion about company cultures might occur.
 - Translation needed to reach everyone!
- Suggestion for tangible rewards:
 - Actual trophy to exhibit at the office (if country competition)
 - Items/budget to improve the workplace
 - Individual small items (vouchers...)
- Use easily available items for tangible accessories
- Keep the game and the challenges simple and short
- Digitalize! Digital automatic platform, especially for the counting of the points and the ranking.
- Purpose and Values should be visible in the whole game
- Collaboration/competition are the best most motivational types of challenge. Even a country competition.
- Liked the idea of National Superheroes and meaningful narrative.

Source: 4finance internal materials, 2018

Table 4.7.

Brainstorming sessions by project team

Brainstorming sessions		
MONTH	NR OF SESSION	DURATION (hours)
May	4	25
June	1	5
TOTAL	5	30

Source: 4finance internal materials, 2018

Table 4.8.

Project team meetings

Project Team Meetings	
MONTH	NR OF SESSION
April	1
May	5
June	5
TOTAL	11

Source: 4finance internal materials, 2018

Table 4.9.

Design Outcome/Pilot Content

Action challenges	
Value	Challenges
People	<p>People Value: Mission 1</p> <p>Flaming red cape flowing around his floating body, tight panties around his hips... Is that? Yes! It's Superman! The legendary 4finance Hero came to deliver a piece of his heroic wisdom about how to fight for the People Value! You feel so honoured and ready to do pretty much anything he tells you!</p> <p>“In the 4finance League, people are at the heart of everything we do. We love what we do and we do it together as one team. So it is time for you to feel how it is to put people first.”</p>

Get a co-worker and hold eye contact in silence for 1.30 min.
Don't forget to write down the name of your practice partner for the



Accountant!

People Value: Mission 2

You are just trying to work in peace when suddenly a pair of sleepy eyes and a big nose come into view! What is Bulgarian Hero **Супер Спиро** (Super Spiro) doing awake during the day! You know he usually sleeps like the dead during the day! Maybe, he has a mission for you about the **People Value**?

“The 4finance League’s fight for the Values goes beyond national borders. **We promote diversity, we celebrate differences.** But before that, we should learn how to understand each other right?

Check in what countries is the 4finance League fighting, pick 3 countries (outside of yours), learn how to greet in their local languages and actually greet 3 different persons around you as practice!

Don't forget to write down the greetings on your battle sheet for the Accountant to check!”



Simple

Simplicity Value: Mission 1

You are finally on your way home after a long day at work when something suddenly flies at super speed right in front of you to crash in the wall! The wall is in pieces and dust is floating in the air to reveal... The Finnish Heroes **Angry Birds**? You are barely recovering from the revelation when the Red One starts to instruct you for your next mission for the **Simple Value**.

“A 4finance Hero is guided by a **clear mind thinking of simple and smart solutions to complex problems, transcending the world’s unnecessary complexity with enlightened simplicity**. (You cannot help but think those are big words for birds who propel themselves in walls). And that should be also visible in his workspace!

Clear your desk, make it simple, embellish it with some green maybe..?

And snap 2 pictures, one before and one after!”



Simplicity Value: Mission 2

Today is not a good day. You are so busy and the workload never seems to get smaller. You are about to sigh out of frustration for the 34th time this morning when you hear something like metal rattle. You turn around and the greenness is overwhelming! Polish Hero **Mister Money** really cannot go unnoticed! Is he here to deliver a **Simple Value** mission?

« Even a 4finance Hero can have his mind cluttered by unnecessary worries and stress. Not an easy job to fight for the Core Values to prevail!

Sometimes, we just need to get away from the world’s unrest and laser focus our mind back to **clarity, to strive for transparency and simplicity in the way we operate inside and out**. You could start on the inside work!

Go somewhere quiet (or stay at your desk if it is quiet enough), put on your favorite calm song or some [nature sounds](#) and do nothing but listen

	<p>attentively. It's okay to have your mind wander, but as soon as you notice it, try to bring your attention to the sounds...</p> <p>Don't forget to write down what you listened to!"</p> 
<p>Excellence</p>	<p>Excellence Value: Mission 1</p> <p>While walking leisurely this morning on your way to work, a human figure suddenly jumps out of the shadow and gives you a near-death experience. Realizing it is no villain and just Czech Hero Pérák coming to assign you a mission, you get all excited to hear from the Hero who truly incarnates the Excellence Value.</p> <p>“You know 4finance League candidates should stick together. A big battle is already looming around the corner so take the opportunity to get a sparring partner and get some battle training! Because Heroes never stop at good, they aim to be excellent, we challenge ourselves and others. Don't be scared, a Hero is not afraid of failure, we learn and celebrate success. Find someone around the same strength as you and challenge them to an arm-wrestling game! No need to fight a losing battle, if you can't find anyone that is about your strength, then challenge someone at thumb-wrestling!</p> <p>Don't forget to write down your sparring partner's name and the results of the game!”</p>



Excellence Value: Mission 2

You are happily enjoying your lunch when the table starts to shake..? The table and your plate on it are rhythmically jumping and you realize thumping noises are becoming louder and louder, and the day becomes darker..? You slowly raise your head and you are faced with a silver mask! Oh my god, is that Mexican Hero **El Santo**?! You cannot help but squeal a bit because you are such a big fan! El Santo gives you a friendly smile and you know he is here to assign you an **Excellence Value** mission.

“The first step to **become greater** every day is to be open to the world and to its infinite possibilities and opportunities. Among the 4finance League, **we encourage our heroes to be bold, curious and pioneering**. Let’s practise **curiosity**!

As much as possible, today you will not talk about yourself at all. On the contrary, when talking to other people, encourage them to talk about themselves or any other random topics that they like (why is the sky blue?), but never talk about anything related to you! **Enter the realm of the unknown and embrace it!**

Write down a few topics you talked about (with their permission of course!)”



Responsible

Responsibility Value: Mission 1

You are mindlessly sorting out the sheets of paper on your desk and about to throw them in the trash bin when your eyes spot big shiny red shoes next to the bin. You look up and actually have to blink several times to be sure you are not hallucinating. Estonian Hero **Lotte**, the famous dog girl, is grinning at you, looking like she knows something you don't. She points at the stash of sheets in your hand and you feel she is going to talk about the **Responsible Value**.

“What is a 4finance Hero if not an inhabitant of Mother Earth? Sometimes, in our fight for the Values, we tend to forget that we are still **responsible for our actions, of our impact on our planet**. Time to **lead by example!**”

Gather all the sheet of paper that your colleagues do not use anymore but can still be used as draft or doodling sheet. Make it into a stash accessible to everyone. Tell your nearest colleagues to pick from the stash if they just need a wastepaper instead of taking a new sheet.

Do not forget to get a picture for the accountant!”



	<p>Responsibility Value: Mission 2</p> <p>A heavy cape draped around his broad shoulders, Hero Harap Alb walks to you right at the beginning of the day, surprising you in your morning coffee break. You know that despite being an aristocrat, he is a deadly fighter and proved it many times fighting for his personal Responsibility Value.</p> <p>‘Don’t forget you that your goal is to join the 4finance Heroes, fight for the Values as a whole. For that, you need to trust them and they need to trust you. Remember, we respect and trust each other. Your mission is to prove that you are trust-worthy and prove them that they have your trust. Find a fellow would-be 4finance Hero. Take turns to do the “trust fall” with each other.</p> <p>If that is too easy for you, you can take turns to do the blind trust walk: Blindfold Person A and make him turn around himself a few times. Person B will go to a corner of the room and will guide Person A with oral instructions to reach the other side of the room. Person B should not be at the destination point, that would be too easy for a 4finance Hero!’</p> 
Entrepreneur	<p>Entrepreneurship Value: Mission 1</p> <p>You are on your way to the reception of your office. Apparently, someone is asking for you? You were expecting a client or maybe a colleague from another office, but definitely not Lithuanian Hero Sarunas Jasikevicius!</p> <p>You still don’t know how a basketball legend became a 4finance Hero, but you ain’t complaining! He grins at you and you know you are in for Entrepreneurship Value wisdom!</p>

“A 4finance Hero is a true **entrepreneur**. A 4finance Hero is **constantly ready for change, always up for the challenge, and never surrenders in the face of hardship!** Do you have what it takes to withstand difficulty and unfamiliar context?

So how about practising **changing** habits? During lunchbreak, eat with your non-dominant hand! (We hope your Hero suit is not white!)”



Entrepreneurship Value: Mission 2

You are in a middle of an intense daydreaming session when you hear metal rattling through the corridor, coming closer and closer. You have a weird feeling in the gut and straighten your back. The sounds are coming closer and closer and a full-armor knight just appears around the corner! The knight reaches his face and take of the helmet. Long blond hair and determined eyes... French Hero **Jeanne d’Arc** looks as tough as the legend says! She does incarnate the **Entrepreneurship Value!**

“A 4finance Hero should **face the unexpected with fierceness** and turn it to his advantage.

Go to a co-worker and ask them to give you a Truth or Dare challenge. We do not fight losing battles! If the challenge is too risky, go and ask someone else!”

	
<p>BIG CHALLENGE 1</p>	<p>We are finally approaching the end of the week and you cannot wait to relax. A loud cracking thunder sound suddenly breaks through the office. Thunder inside a building?! A low voice starts to resonate through the corridors. That can only be Super Hero Thor!</p> <p>“Tiny human, you fought and trained bravely until now! But now is the moment to actually prove your worth! Are you ready for a real challenge? Time to show us that you are a true defender of the Core Values!</p> <p>Choose a 20 min time slot with all the 4finance Heroes candidates you can and create two equal number teams. If there is one person missing to make equal teams, try to bring an innocent passer-by to complete your team. Clear a big desk and... Marshmallow and Spaghetti Tower match!</p> <p>The instructions for the Marshmallows and Spaghetti game are simple. The players get unlimited supply of marshmallows and spaghetti sticks to create the highest self-standing tower possible. That is it!</p> <p>The idea is to bring out their team playing, their speed and their creativity. If you want to share their achievement to the group, take pictures of the towers at the end and send them to liga.pildina@4finance.com to become an intranet article!</p>

	 <p>Don't forget to get feedback from a teammate, an opponent, or a passerby!"</p>
<p>BIG CHALLENGE 2</p>	 <p>You are finishing up your lunch when a fist suddenly hit the table in front of you. That really startled you and that was totally unnecessary and for these reasons, you know it can only be Deadpool. “Wow wow. Look at that, we have a tough cookie here! You passed last test but do you think you will pass this one? It is time to step up your game and skills and show us what you are made of! Choose a 20 min time slot with all the 4finance Heroes candidates you can find and create two equal number teams. If there is one person missing, try to bring an innocent passer-by to complete your team. Clear a big desk, put up the big sheets of paper flat on the desk and take out the color markers... Team drawing contest! The instructions and objectives of the game are simple. The teams have to draw as many things (from the given list) as possible in a very limited time! Set your timer to 5 min and as soon as you put up the list of things to draw (below) start the timer! If you want to share their achievement to the group, take pictures of the drawings at the end and send them to..... to become an intranet article! Don't forget to get feedback from a teammate, an opponent, or a passerby!"</p>

Storyline

Trailer

Slide 1

At the beginning of the world, life on Earth was hard. People had to struggle and suffer every day to survive, fighting back wild creatures and hostile lands.

Slide 2

To become stronger all together, they developed a set of rules to guide the whole community in the hope of growing and prospering. The sayings sounded hollow, yet they were full of wisdom:

Put People First

Keep Things Simple

Strive For Excellence

Act Responsibly

Be Entrepreneurial

People kept struggling but life was getting better and better guided by the 5 Values,

Slide 3

until the day when mankind finally settled in abundance and happiness.

But that... That was a long time ago...

Slide 4

Today is another grey day. You look around you and nothing makes sense. Everything seems to be stuck in an endless slump. People of the world got so busy that they lost sight of the Values and their behaviours are confused and confusing.

- They are selfish
- They make things so complex that nobody understands them anymore
- They are sloppy at work
- They are scared of change and are not open to new and
- They don't care about the consequences of their actions.

Slide 5

You cannot stand it anymore! You decide that something has to be done to stop this madness! You commit yourself to making the world a better place again and join the 4finance Heroes League, Defenders of the Values, known for their integrity and just general awesomeness!

Slide 6

But to be part of them, you have to show them you know that their Values and that you act on them! Show time!

Game Play:

Slide 1

So, how to prove your worth? You will show them what you are made of by taking challenging missions!

- Each day you will take out your would-be superhero suit and look out for the two types of “missions” per Value. They are designed to prove your Action Skills and your Knowledge about the Values.
- These missions are not always easy to find... but you know that the League from all over the world already got your back! On Mondays, Tuesdays and Wednesdays, they will spread QR codes throughout your city and that will lead you directly to the instructions of the missions!

The League does not expect less from you than checking the two types of missions for **each Value**, “Action time!” missions and “Outsmart them” missions. Some extra side-missions might appear. Not need to keep track of them, see it as free practice!

- Warning! You know that the League does not easily trust new Heroes. To gain their trust, you have to keep track of your missions and achievements on your “Mission Sheet”. Tick the boxes of the missions you accomplished, write down evidence of your achievements and keep your Sheet preciously, you will need it!

Slide 2

- Only after accomplishing all the missions for **each Value**, be on the lookout on Thursday. A bigger QR code to a tougher mission will appear and will require all your power! But you will gain much more... For this specific mission, don't forget to get feedback from a witness!

Slide 3

- After you complete a mission successfully and got the proof of it, you can go to the “Accountant” at the end of the week to collect your money.
- But the Accountant is not an easy person ... The Accountant does not trust easily and will only pay you if you show him real proof!
- This is where your “Missions Sheet” comes in handy. Use it to prove your actions and the Accountant will pay you out. The Accountant knows that some

achievements are hard to prove and will give you the money even if you show only small evidence. He will count all the points earned per Value, People, Simplicity, Responsibility and Entrepreneurship and the point from the Big Battle.

- Along with the money, the Accountant will give you a secret badge passed from the League. The League is keeping an eye on your progress and wants to congratulate your efforts!

Slide 4

- You put the money you collect from these jobs in your “Hero Jar”. You should keep it on your work desk at all times. It will remind you of your hard work for the Values!

Slide 5

- You know that the League also strives to help the world’s financially undeserved, to help them build stronger foundations for tomorrow.
- Good thing that your missions can get you commissions and maybe you could help raising money for the unfortunate ones!
- The more satisfied your boss is about the job you’ve done, the more money you earn. And, who knows, the more the League can donate!
- The trial period to get into the 4finance League is 2 weeks long. You think you can hold on this long?

Slide 6

- At the end of the 2 weeks, the amount you earned will be collected for charity. The 4 best Hero Candidates, the 4 Hero Candidates who earned the most coins, will then become the 4finance Fantastic4 and decide what good cause will go to. If you fight hard enough, maybe will be you one of them!

Slide 7

Let the battle for the Values begin!

Source: 4finance internal materials, 2018

LEVEL 1

Name
Country
Division

The Beginning of
A New Era

The Values

Your Mission Reports

	People	<input type="checkbox"/> Action time ! +1		
		<input type="checkbox"/> Outsmart them ! +1		
	Simplicity	<input type="checkbox"/> Action time ! +1		
		<input type="checkbox"/> Outsmart them ! +1		
	Excellence	<input type="checkbox"/> Action time ! +1		
		<input type="checkbox"/> Outsmart them ! +1		
	Responsibility	<input type="checkbox"/> Action time ! +1		
		<input type="checkbox"/> Outsmart them ! +1		
	Entrepreneurship	<input type="checkbox"/> Action time ! +1		
		<input type="checkbox"/> Outsmart them ! +1		

Suit up! This mission will be tough!



+5  +10  +15 

Witness of your epicness :

Level Total Points :

Figure 4.15. Mission Sheet Level 1 Template
Source: 4finance internal materials, 2018

Table 4.10.

Number of Game Masters by country and division

GAME MASTERS OVERVIEW									
Divisions	Administration	Customer care	Finance	HR	IT	Marketing	Operations	Risk	TOTAL
Countries									
HQ				3					3
Argentina				1					1
Armenia			1				1		2
Bulgaria	1								1
Canada					1				1
Czech Rep.					1				1
Estonia					1				1
Georgia								1	1
Latvia						1			1
Lithuania						1			1
Mexico			1						1
Poland		1		2					3
Spain						1			1
US						1			1
TOTAL	1	1	2	6	3	4	1	1	19

Source: 4finance internal materials, 2018

Table 4.11. Number of Players by country and division

PLAYERS OVERVIEW															
Countries	HQ	ARG	AM	BG	CA	CZ	EST	GE	LV	LT	MEX	PL	ESP	US	TOT
Administration				2											2
Customer Care		2										4			6
Data Management	4														4
Finance		1	3				1					2		3	10
HR	3							1			1	1			6
IT					1	2	2							1	6
Lean					1							1			2
Legal								1							1
Marketing					1				2	4	3		2		12
Operations			3						1						4
Product															
Risk								1					1		2
TOT	7	3	6	2	3	2	3	3	3	4	4	8	3	4	55

Source: 4finance internal materials, 2018

Pictures



Figure 4.16. Pictures of elements of game pilot: challenges, participants and material
Source: 4finance internal materials, 2018

Table 4.12.

Feedback surveys

FEEDBACK SURVEYS				
SURVEY TITLE	NR OF QUESTIONS	NR OF PEOPLE ASKED	NR OF PARTICIPANTS	% OF RESPONSE
Gamification Project - Before Game: Do you know the 4finance values?	2	74	45	61%
Gamification Project: In-Game Experience Feedback Survey	13	74	20	27%
Gamification Project - After Game: Do you know the 4finance values?	24	74	29	39%

Source: 4finance internal materials, 2018

Table 4.13.

Semi-structured feedback interviews

COUNTRY	TOTAL NR of Game Masters	NR OF INTERVIEWS	AVERAGE DURATION (min)
HQ	3	0	0
IT	0	0	0
Argentina	1	2	20
Armenia	2	2	20
Bulgaria	1	2	20
Canada	1	1	20
Czech Republic	1	2	20
Denmark	0	0	0
Estonia	1	2	20
Finland	0	0	0
Georgia	2	2	20
Latvia	1	0	0
Lithuania	1	2	20
Mexico	1	2	20
Poland	3	1	20
Romania	0	0	0
Spain	1	2	20
Sweden	0	0	0
UK	0	0	0
US	1	1	0
TOTAL	19	21	420 (7h)

Questionnaire for the semi-structured feedback interviews

Mid-Game

- How was it to understand the game? How was it to understand the provided materials? What helped you the most? What would have helped you more?
- How does the game look like from a non-player point of view? Difficult/Easy, Confusing/Compelling... What are the feedback from players?
- How was it to make the preparations for the game? How much time did you need?
- Did you also play? Why/Why not?
- If it was possible to improve some aspects, what would you choose to change, add or remove?
- Is there something you did differently than how we had suggested to? Why?
- Is there something you didn't do that we had suggested? Why?
- Is there something you did that we had not mentioned? Why?

After Game

- Was the second week different than the first one? How? Did the feedback about the game from the players change? Did your feedback change?
- Overall, how was it to be a Game Master? Why were you chosen to be the game master?
- Did you get anything out of this experience?
- Would you do it again if we were to implement another gamification project?
- Do you have any recommendations if we were to implement another gamification project? For players? For Game Masters?

Source: 4finance internal materials, 2018

Table 4.14.

Data Measurements

Data Measurements Week 1		
Intranet	Leader board	QR codes
74 people involved in the Pilot, yet 397 unique Intranet pageviews.	About 3,5% of the employees are participating in the pilot. Most volunteers in: Armenia and Poland; But most engaged participants in Poland and Mexico	55 QR code scans expected in total, 176 scans registered in total. Thus, 120 additional people scanning the QR codes.
Since 74 people were involved in the pilot and got 397 unique intranet pageviews, can conclude that 323 additional people visited the Intranet Gamification page(s).	After week 1, only about 20% or 1/5th of the official players have reached level 1, this indicates that people progress way slower than anticipated	total number of 451 submissions for all the missions instead of the 365 more realistic expectations assumed. thus, 88 additional submissions of missions which can hypothetically result from non-players scans.
some implication from one lower engaged country who scored even more than some higher engaged country present in the list.	After week 1, only 40% of all points that could have been earned by all the players together, has been earned. The engagement is thus lower than expected.	comparing the number of unique views with the number of participants in each country, the QR codes clearly attract attention.

Source: 4finance internal materials, 2018

Table 4.15.

Sample of monitoring metrics – Views of the Hub page per countries and week and Unique views of the Hub page per country and per week

Views of the Hub page	Week 1 Absolute	Week 1 Percentage		Unique views of the Hub page	Week 1 Absolute	Week 1 Percentage
Countries	346	100.0%		Countries	180	100.0%
ARG	8	2.3%		ARG	8	4.4%
AM	13	3.8%		AM	8	4.4%
BG	10	2.9%		BG	9	5.0%
CA	7	2.0%		CA	3	1.7%
CZ	14	4.0%		CZ	8	4.4%
DK		0.0%		DK		0.0%
EST	15	4.3%		EST	13	7.2%
FIN	1	0.3%		FIN	1	0.6%
GE	2	0.6%		GE	2	1.1%
LV	156	45.1%		LV	54	30.0%
LT	3	0.9%		LT	3	1.7%
MEX	4	1.2%		MEX	2	1.1%
PL	35	10.1%		PL	22	12.2%
ROM	1	0.3%		ROM	1	0.6%
ESP	16	4.6%		ESP	12	6.7%
SE	2	0.6%		SE	2	1.1%
UK	51	14.7%		UK	25	13.9%
US	8	2.3%		US	7	3.9%

Source: 4finance internal materials, 2018

Table 4.16.

Sample of monitoring metrics – Number of scans of the QR codes per country for week 1 and Number of submission of QR code per country for week 1

Number of times QR Code Missions on ProProfs have been scanned/opened			Number of submissions of QR Code Missions on ProProfs						
Unique Scans All Missions	Week 1 Absolute	Week 1 Percentage	Submissions All Missions	Week 1 Absolute	Week 1 Percentage	Submissions All Missions	Week 1 Absolute	Week 1 Percentage	
Countries	168	100.0%	Total	451	100.0%	Countries	451	100.0%	
ARG	6	3.6%	Quiz	198	43.9%	ARG	9	2.0%	
AM	9	5.4%	Action	161	35.7%	AM	29	6.4%	
BG	6	3.6%	Fun	73	16.2%	BG	13	2.9%	
CA	8	4.8%	Big	19	4.2%	CA	9	2.0%	
CZ	11	6.5%				CZ	17	3.8%	
DK	0	0.0%				DK	0	0.0%	
EST	15	8.9%				EST	35	7.8%	
FIN	0	0.0%				FIN	0	0.0%	
GE	17	10.1%				GE	61	13.5%	
LV	27	16.1%				LV	74	16.4%	
LT	2	1.2%				LT	3	0.7%	
MEX	8	4.8%				MEX	30	6.7%	
PL	21	12.5%				PL	97	21.5%	
ROM	0	0.0%				ROM	0	0.0%	
ESP	19	11.3%				ESP	34	7.5%	
SE	1	0.6%				SE	0	0.0%	
UK	8	4.8%				UK	0	0.0%	
US	10	6.0%				US	40	8.9%	

Source: 4finance internal materials, 2018

Table 4.17.

Sample of monitoring metrics – Analysis of the leader board scores for week 1

Number of employees officially participating in the Pilot			Number of Players on the Leader Board			Number of Players that have completed Badge Levels 1 and 2		
Employees	Absolute	Percentage	Employees	Week 1 Absolute	Week 1 Percentage	Employees	Week 1 Absolute	Week 1 Percentage
Number of Participants	74	3.6%	Number of Players registered	33	60.0%	Number of official Players	55	100.0%
Number of official Players	55	2.7%	Number of active Players	15	27.3%	Number of Players registered	33	60.0%
Number of Game Masters	19	0.9%	Number of official Players	55	100.0%	Number of active Players	15	27.3%
Total number of Employees in 4finance	2056	100.0%				Number of Players B Level 1	12	21.8%
						Number of Players B Level 2	0	0.0%
Employees: Number of Participants	Absolute	Percentage	Employees: Number of Players registered on the Leader Board	Week 1 Absolute	Week 1 Percentage	Employees: Number of Players B Level 1	Week 1 Absolute	Week 1 Percentage
Countries	74	100.0%	Countries	33	100.0%	Countries	12	100.0%
ARG	4	5.4%	ARG	1	3.0%	ARG	0	0.0%
AM	8	10.8%	AM	1	3.0%	AM	0	0.0%
BG	3	4.1%	BG	3	9.1%	BG	0	0.0%
CA	4	5.4%	CA	0	0.0%	CA	0	0.0%
CZ	3	4.1%	CZ	1	3.0%	CZ	1	8.3%
DK	0	0.0%	DK	0	0.0%	DK	0	0.0%
EST	4	5.4%	EST	2	6.1%	EST	0	0.0%
FIN	0	0.0%	FIN	0	0.0%	FIN	0	0.0%
GE	4	5.4%	GE	4	12.1%	GE	0	0.0%
HQ	10	13.5%	HQ	4	12.1%	HQ	1	8.3%
LV	4	5.4%	LV	3	9.1%	LV	3	25.0%
LT	5	6.8%	LT	0	0.0%	LT	0	0.0%
MEX	5	6.8%	MEX	4	12.1%	MEX	3	25.0%
PL	11	14.9%	PL	8	24.2%	PL	4	33.3%
ROM	0	0.0%	ROM	0	0.0%	ROM	0	0.0%
ESP	4	5.4%	ESP	2	6.1%	ESP	0	0.0%
SE	0	0.0%	SE	0	0.0%	SE	0	0.0%
UK	0	0.0%	UK	0	0.0%	UK	0	0.0%
US (Miami)	5	6.8%	US (Miami)	0	0.0%	US (Miami)	0	0.0%

Source: 4finance internal materials, 2018

Pilot Results

From the pilot analysis (surveys, interviews and data), key insights/takeaways were gathered about the pilot on 4 different topics:

- (1) Whether the participant's knowledge and understanding of the CCV improved
- (2) How the pilot was perceived by the environment (Was the pilot accepted by non-players, did other people show interest? etc.)
- (3) How did the participants feel about the communication around the pilot, was everything clear and did it motivate them to participate in the pilot?
- (4) What did participants think about the gamified experience? Did they like it?

Questions number 1 and 2 provide insights to answer the question: "Could 4finance use gamification as a communication channel to introduce and explain the renewed CCV?"

Question number 3 and 4 provide insights to answer the question: "If 4finance can use gamification [...], then what would a good gamification experience look like for 4finance employees?"

So, for each of these 4 questions or topics, the insights/key takeaways gathered from the surveys, semi-structured interviews and the data are presented below.

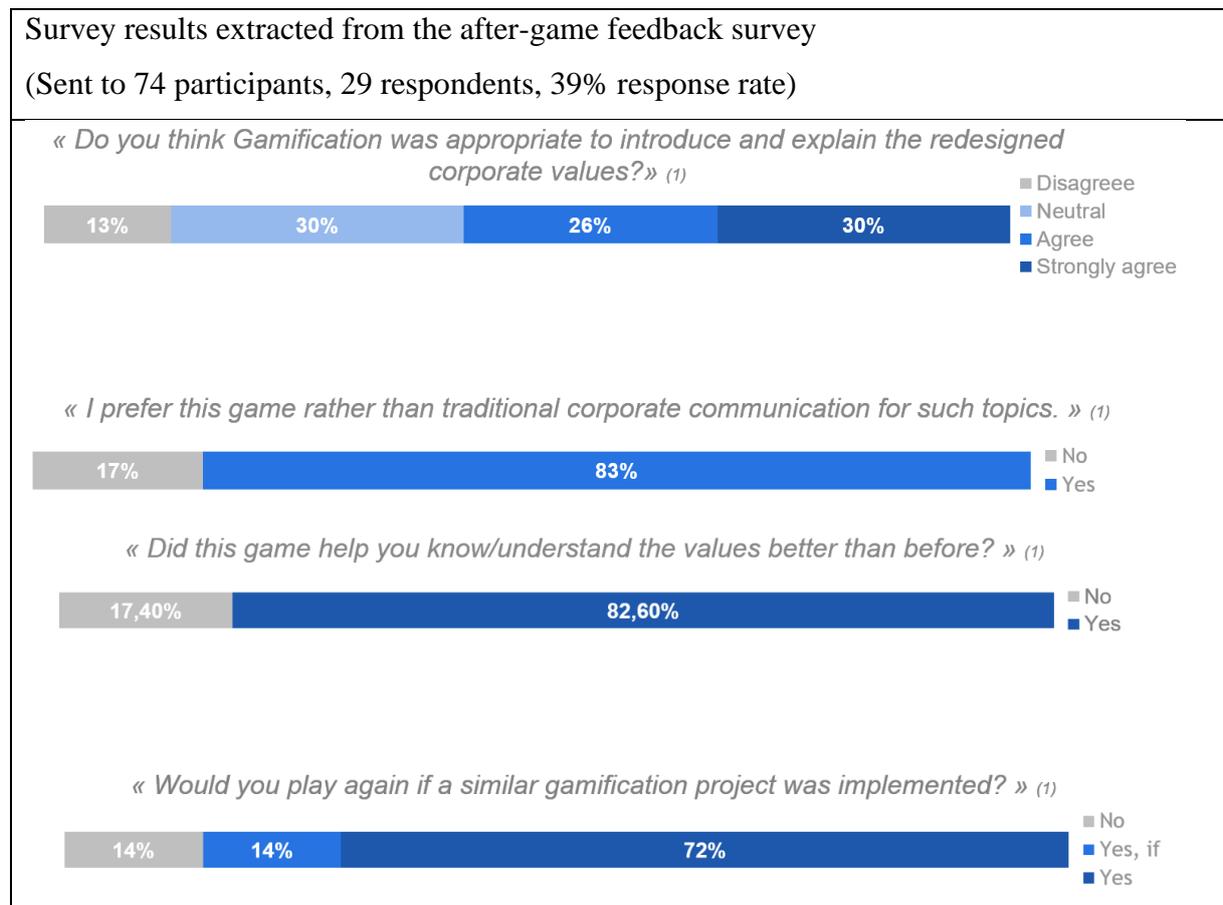


Figure 4.17. Feedback surveys

Source: 4finance internal materials, 2018

Table 4.18.

Feedback about the communication around the game

COMMUNICATION	
Negatives	Positives
<ul style="list-style-type: none"> ● Confusion because of the Pre-communication confusion (“shared folder” but there is none, then “intranet” but intranet empty) ● Too many documents, too many folders in intranet ● Too many emails ● The badges and points system should have been explained better 	<ul style="list-style-type: none"> ● Files structure very clear ● Task timeline very helpful for Game Masters ● Explanatory videos ● Explanatory Blue Jeans meeting with the Game Masters

Source: 4finance internal materials, 2018

Table 4.19.

Key takeaways from the semi-structured feedback interviews

Communication	Game experience
<p>Learnings</p> <ul style="list-style-type: none"> ● The personal gain for employees not mentioned ● Communication lacked impact (because not supported by management) 	<p>Learnings</p> <ul style="list-style-type: none"> ● Preparation time and efforts too important for Game Masters ● Differences in expectations and relevance of the challenges (country cultures, functions/division cultures) ● Not catchy enough for some people ● Play time too long and pace too fast ● Not digital
<p>Positive</p> <ul style="list-style-type: none"> ● Clear regular instruction emails ● Clear purpose of the project ● Unexpected attention on Intranet 	<p>Positive</p> <ul style="list-style-type: none"> ● Game mechanics ● Visibility through QR codes ● Big collaborative/competitive challenges ● <u>Good people experiences</u>

Source: 4finance internal materials, 2018

Table 4.20.

Data measurements

Data Measurements Week 2		
Intranet	Leader board	QR codes
In total, 6x more people than participants in the pilot visited the intranet gamification pages.	A few teams that had registered and had achieved level 1 had not be active the second week.	For the submissions of the QR codes, we can see that the following countries are the most active in pilot: Georgia, Latvia, Poland and Miami.
About 90% of the (first) visits were in week 1 of the pilot. Total nr of page views during the three weeks was +- 900 views.	Some teams fully integrated the team on the second week (Miami, Poland, Bulgaria)	We can assume that also quite some non-players are submitting missions and the pilot is thus getting much attention. (Comparing the expected number of submissions according to the number of QR codes, number of players, and the actual number of submission, we have about 90 extra submissions)
Both articles on the pilot, as well as the pilot's published pages on the intranet have been (almost always) in the top 10 of most popular items during the entire pilot.	Because the leader board was left for each Game Master to update, we know a lot of scores are not justified.	Like week 1, when we compare the number of unique views with the number of participants in each country, we can see that the QR codes clearly attract attention.

Source: 4finance internal materials, 2018

Appendix 6 Mini-questionnaire for the HRM professionals

Mini-questionnaire for the HRM professionals in Latvia to measure the penetration of gamification within HRM processes

Vai jūsu uzņēmums izmanto spēlošanu (spēles elementus – piem. elektroniskās, virtuālās realitātes spēles, sacensību elementi, žetoni vai emblēmas, progresā simboli, lomu spēles, simulācijas, kāršu/galda spēles, komandu vingrinājumi, u.c.) personālvadības procesos

Jā _____ Nē _____

1) Ja atbildējāt “Jā” uz pirmo (1.) jautājumu, lūdzu, atzīmējiet, kādos procesos pielietojat (esat pielietojuši) spēlošanu:

- a) Personāla atlase _____
- b) Jauno darbinieku adaptācija (onboarding) _____
- c) Darba snieguma izpildes vadība (performance management) _____
- d) Mācības un attīstība _____
- e) Atalgošana un atzinība (reward and recognition) _____
- f) Iekšējā komunikācija _____
- g) Citā (lūdzu, atzīmējiet, kādā) _____
- h) Citā (lūdzu, atzīmējiet, kādā) _____

2) Vai jūsu uzņēmums veic regulāru darbinieku viedokļu aptauju?

Jā _____ Nē _____

3) Ja atbildējāt “Jā” uz trešo (3.) jautājumu, lūdzu, atzīmējiet, kāda veida aptauju veicat:

- a) Darbinieku iesaistes pētījums (Employee Engagement Survey) _____
- b) Darbinieku piesaistes pētījums (Employee Commitment Survey) _____
- c) Darbinieku motivācijas pētījums (Motivation Survey) _____
- d) Darbinieku apmierinātības pētījums (Satisfaction Survey) _____
- e) Darba vides pētījums (Internal Climate Survey) _____
- f) Cits (lūdzu, atzīmējiet, kāds) _____

4) Darbinieku skaits uzņēmumā:

- a) līdz 50
- b) 51 – 100
- c) 101 – 500
- d) 501 – 1000
- e) Vairāk, kā 1000

5) Nozare:

- a) Lauksaimniecība, mežsaimniecība un zivsaimniecība

- b) Ieguves rūpniecība un karjeru izstrāde
- c) Apstrādes rūpniecība
- d) Elektroenerģija, gāzes apgāde, siltumapgāde un gaisa kondicionēšana
- e) Ūdens apgāde; notekūdeņu, atkritumu apsaimniekošana un sanācija
- f) Būvniecība
- g) Vairumtirdzniecība un mazumtirdzniecība; automobiļu un motociklu remonts
- h) Transports un uzglabāšana
- i) Izmitināšana un ēdināšanas pakalpojumi
- j) Informācijas un komunikācijas pakalpojumi
- k) Finanšu un apdrošināšanas darbības
- l) Operācijas ar nekustamo īpašumu
- m) Profesionālie, zinātniskie un tehniskie pakalpojumi
- n) Administratīvo un apkalpojošo dienestu darbība
- o) Valsts pārvalde un aizsardzība
- p) Izglītība
- q) Veselības un sociālā aprūpe
- r) Māksla, izklaide un atpūta
- s) Cita nozare (kāda) _____

Appendix 7 Research questionnaire

1. Research questionnaire distributed to respondents in Riga and Riga region

Lūdzam Jūs piedalīties aptaujā un atbildēt uz darba vidi raksturojošiem jautājumiem Latvijas Universitātes Biznesa, vadības un ekonomikas fakultātē veiktā pētījuma ietvaros. Pētījuma mērķis ir apzināt spēļu elementu (*gamification – spēles elementu izmantošana ne-spēles situācijās*) veidā izplatību Latvijas uzņēmumu personālvadības procesos un šo elementu ietekmi uz darbinieku iesaisti (*employee engagement – darbinieka emocionāla iesaistīšanās uzņēmuma procesos un mērķu sasniegšanā*). Pētījuma rezultāti tiks izmantoti, lai izstrādātu priekšlikumus iesaistošas darba vides veidošanai un darbinieku iesaistes rādītāju paaugstināšanai Latvijas uzņēmumos.

Aptauja ir konfidenciāla un saņemtās atbildes tiks izmantotas tikai apkopotā. Anketas aizpildīšanai nepieciešamas aptuveni 7 – 10 minūtes.

Lūdzu, novērtējiet skalā 1 - 10, kur 1 - noteikti nepiekrītu; 10 - pilnībā piekrītu. Vērtējamie aspekti sakārtoti pēc alfabēta.

Tagad daži jautājumi par darba vidi raksturojošiem jautājumiem

D0 Vai pašlaik Jūs esat.... ?

Ja esat strādājošs pensionārs (jeb invalīds), ja alga lielāka par pensiju - atzīmējiet atbilstošo strādājošo kategoriju. Ja alga mazāka par pensiju - atzīmējiet "pensijā".

- 1) ... pats sev darba devējs (pašnodarbinātais, uzņēmējs)
- 2) ... strādājat ģimenes uzņēmumā, zemnieku saimniecībā bez algas (saņemat atlīdzību precēs un pakalpojumos)
- 3) ... algots darbinieks
- 4) ... bērna kopšanas atvaļinājumā (līdz 1,5 gadiem)
- 5) ... bezdarbnieks, meklējat darbu
- 6) ... pensijā
- 7) ... māsaiņniece
- 8) ... skolnieks, students
- 9) ... Cits (*ierakstiet*):

FILTRS: Uz D1 atbild tikai algoti darbinieki

D1 Reģions. *Atbildes automātiski tiek pārkodētas no jautājuma: Kurā Latvijas pilsētā vai novadā Jūs dzīvojat?*

- 1) Rīga
- 2) Pierīga
- 3) Vidzeme
- 4) Zemgale
- 5) Kurzeme
- 6) Latgale

FILTRS: Uz D18 atbild tikai algoti darbinieki (D0 kods "3"), kuri dzīvo Rīgā vai Pierīgā (D1 kodi "1" vai "2")

D2 Vai Jūs strādājat Rīgā?

- 1) Jā
- 2) Nē

FILTRS: Uz tālākiem anketas jautājumiem A1-A7 atbild tikai algoti darbinieki (D0 kods "3"), kuri dzīvo Rīgā vai Pierīgā (D1 kodi "1" vai "2") un strādā Rīgā (D2 kods "1")

A. Lūdzu, novērtējiet sekojošus ar darba vidi saistītus aspektus skalā no 1 - 10, kur 1 nozīmē "noteikti nepiekrītu", bet 10 – "pilnībā piekrītu". Vērtējamie aspekti sakārtoti pēc alfabēta.

Table 4.21.

Questionnaire

1.	Iesaiste	1	2	3	4	5	6	7	8	9	10
1.1.	Darbā es labprāt ieguldu vairāk pūļu, nekā mani tiešie pienākumi liek										
1.2.	Darbā es pietiekami bieži saņemu kvalitatīvu atgriezenisko saiti										
1.3.	Darbā manu viedokli uzklausa kā svarīgu										
1.4.	Es identificēju sevi ar uzņēmuma mērķiem										
1.5.	Manam vadītājam es esmu svarīgs/ga ne tikai kā darbinieks/ce, bet arī kā personība										
1.6.	Es bieži ierosīnu jaunas idejas par to, kā darbu veikt labāk										
1.7.	Pēdējā gada laikā mana profesionālā kompetence pieaugusi										
2.	Apmierinātība	1	2	3	4	5	6	7	8	9	10
2.1.	Darbā man pieejami visi darbam nepieciešamie līdzekļi un aprīkojums										
2.2.	Mans atalgojums ir amatam atbilstošs										
2.3.	Mana darba slodze ir atbilstoša, lai darbu paveiktu kvalitatīvi										
2.4.	Mana darba vide ir veselības un drošības prasībām atbilstoša										
2.5.	Stresa līmenis darbā ir man pieņemams										
3.	Mani kolēģi...	1	2	3	4	5	6	7	8	9	10
3.1.	darbā labprāt iegulda vairāk pūļu, nekā viņu tiešie pienākumi liek										

3.2.	ir savas nozares profesionāļi, no kuriem varu mācīties										
3.3.	ir pozitīvi noskaņoti cilvēki										
3.4.	ierosina idejas par to, kā darbu veikt labāk										
3.5.	identificē sevi ar uzņēmuma mērķiem										
3.6.	veic darbu atbildīgi un kvalitatīvi										
4.	Darba saturs	1	2	3	4	5	6	7	8	9	10
4.1.	Darbs dod man iespēju attīstīt savu profesionālo meistarību										
4.2.	Darbā man pietiekami bieži ir iespēja darīt to, kas padodas vislabāk										
4.3.	Es varu brīvi izlemt, kā labāk paveikt savu darbu										
4.4.	Es zinu, pēc kādiem kritērijiem manu darbu vērtē										
4.5.	Mans darbs ir svarīgs uzņēmuma mērķu sasniegšanai										
5.	Rakstura iezīmes	1	2	3	4	5	6	7	8	9	10
5.1.	Ar savu dzīvi esmu apmierināts/ta										
5.2.	Es bieži strādāju vairāk par citiem cilvēkiem, lai sasniegtu vislabāko rezultātu										
5.3.	Es esmu optimistisks cilvēks, kas sagaida pozitīvu situāciju iznākumu										
5.4.	Es izvirzu un arī sasniežu mērķus savā dzīvē										
5.5.	Es mēdzu piedāvāt savu atbalstu arī tad, ja man to nelūdz										
5.6.	Mani panākumi ir atkarīgi no manas personīgās attieksmes un piepūles										
5.7.	Uz savām neveiksmēm raugos kā noderīgu pieredzi, kas varētu palīdzēt nākotnē būt veiksmīgākam										
6.	Mans vadītājs	1	2	3	4	5	6	7	8	9	10
6.1.	atbalsta un rūpējas par mani ne tikai kā darbinieku, bet arī personību										
6.2.	ir pozitīvi noskaņots un optimistisks cilvēks										
6.3.	ir savas nozares profesionālis, no kura varu mācīties										

6.4.	mēdz uzslavēt mani par labi paveiktu darbu										
6.5.	respektē mani un manu viedokli										
7.	Personālvadības procesi. Lūdzu, atzīmējiet, kuros personālvadības procesos jūsu uzņēmumā tiek izmantoti spēļu elementi (elektroniskās, virtuālās realitātes spēles, sacensību elementi, žetoni vai emblēmas, progresā simboli, lomā spēles, imitācijas, kāršu/galda spēles, komandu vingrinājumi, u.c.). Lūdzu, atzīmējiet izvēlēto atbildi.										
7.1.	Jauno darbinieku atlase (kandidātu piesaiste un novērtēšana)							Jā	Nē		
7.2.	Darba izpildes vadība (mērķu izvirzīšana, izpildes novērtēšana un atgriezeniskā saite)							Jā	Nē		
7.3.	Atalgošana (bonusi, papildus labumi, atzinības izteikšana)							Jā	Nē		
7.4.	Attīstība (teorētiskas vai praktiskas apmācības, projekti)							Jā	Nē		
7.5.	Iekšējā komunikācija										
7.6.	Komandas darba uzlabošana										
7.7.	Izmantojam citos augstāk minētos personālvadības procesos (lūdzu, norādiet kādos): _____ _____										

Source: Author's construction, 2017

Table 4.22.

Anketas demogrāfiskie jautājumi

D3	Cik Jums ir pilni gadi?			
D3.1.	Vecums (automātiski pārkodēt no D02)	līdz 24 g.v.	1	
		25 – 35 g.v.	2	
		36 -50 g.v.	3	
		51 g.v. un vairāk	4	
D4	Jūsu dzimums	Vīrietis	1	
		Sieviete	2	
D5	Kāda ir Jūsu tautība?	Latvietis/e	1	
		Krievs/iete	2	
		Cita	3	
D6	Kāda ir Jūsu iegūtā izglītība?	Sākumskola vai nepabeigta pamatizglītība (līdz 8-9 klasēm)	1	
		Pamatizglītība (8-9 klases)	2	
		Vidējā (pabeigta vidusskola, ģimnāzija)	3	
		Profesionālā vidējā (pabeigta arodskola, arodvidusskola, tehnikums)	4	
		Augstākā (iegūta akadēmiskā	5	

		augstākā vai profesionālā augstākā izglītība (bakalaurs), tai skaitā arī pabeigta koledža, maģistratūra, doktorantūra)		
D7	Kāds ir jūsu ieņemamais amats?	Iestādes, uzņēmuma augstākā līmeņa vadītājs (izpilddirektors, komercdirektors, valdes priekšsēdētājs) Vidējā līmeņa vadītājs (nodaļas vadītājs) Augstākā līmeņa speciālists (ārsts, skolotājs, jurists, arhitekts, vecākais grāmatvedis) Speciālists (medmāsa, laborants, tehniķis, inspektors, referents, asistents) Pakalpojumu un tirdzniecības darbinieks (sekretāre, bibliotekārs, pasta darbinieks, pārdevējs, klientu apkalpošanas speciālists, frizieris, policists, ugunsdzēsējs) Kvalificēts strādnieks un amatnieks; iekārtu un mašīnu operators (būvnieks, mehāniķis, konditors, šuvējs, galdnieks) Nekvalificēts strādnieks (apkopējs, sētnieks, kurjers, dežurants, sanitārs) Cits (lūdzu, ierakstiet)	1 2 3 4 5 6 7 8	
D8	Kādi pagājušajā mēnesī bija Jūsu PERSONĪGIE IENĀKUMI pēc nodokļu atvilkšanas, ņemot vērā visus ienākumus - algas, stipendijas, pabalstus, pensijas utt.?	Nav personīgo ienākumu līdz EUR 100 EUR 101-150 EUR 151-200 EUR 201-250 EUR 251-300 EUR 301-350 EUR 351-400 EUR 401-450	1 2 3 4 5 6 7 8 9 10	

		EUR 451-500	11	
		EUR 501-550	12	
		EUR 551-600	13	
		EUR 601-650	14	
		EUR 651-700	15	
		EUR 701-750	16	
		EUR 751-800	17	
		EUR 801-900	18	
		EUR 901-1000	19	
		EUR 1001-1100	20	
		EUR 1101-1300	21	
		EUR 1301 un vairāk	22	
		<i>Nezina, Grūti pateikt</i>	23	
		<i>Atteikums atbildēt</i>		
D8.1.	Personīgie ienākumi (<i>automātiski pārkodēt no D8</i>)	līdz EUR 300	1	
		EUR 301-500	2	
		EUR 501-700	3	
		EUR 701 un vairāk	4	
		<i>Nezina, Grūti pateikt</i>	5	

Source: Author's construction, 2017

PAPILDUS DEMOGRĀFISKIE JAUTĀJUMI TIEK UZDOTI TIKAI: algotiem darbiniekiem, kuri dzīvo Rīgā vai Pierīgā un strādā Rīgā

D9 Kādā nozarē Jūs strādājat Jūsu pamata darba vietā? *Par pamatdarbu tiek uzskatīts darbs, kurā jūs nostrādājat visvairāk stundu nedēļā. Gadījumā, ja jūs strādājat uz pusslodzi divās darba vietās, tad par pamata darba vietu uzskatiet to, kurā strādājat ar nodokļu grāmatiņu*

- 1) Lauksaimniecība un mežsaimniecība *NACE A*
- 2) Ieguves rūpniecība un karjeru izstrāde *NACE B*
- 3) Apstrādes rūpniecība *NACE C*
- 4) Elektroenerģija, gāzes apgāde, siltumapgāde un gaisa kondicionēšana *NACE D*
- 5) Ūdens apgāde; notekūdeņu, atkritumu apsaimniekošana un sanācija *NACE E*
- 6) Būvniecība *NACE F*
- 7) Vairumtirdzniecība un mazumtirdzniecība; automobiļu, motociklu remonts *NACE G*
- 8) Transports un uzglabāšana *NACE H*
- 9) Izmitināšanas un ēdināšanas pakalpojumi *NACE I*
- 10) Informācijas un komunikācijas pakalpojumi *NACE J*
- 11) Finanšu un apdrošināšanas darbības *NACE K*
- 12) Operācijas ar nekustamo īpašumu *NACE L*

- 13) Profesionālie, zinātniskie un tehniskie pakalpojumi *NACE M*
- 14) Administratīvo un apkalpojošo dienestu darbība *NACE N*
- 15) Valsts pārvalde un aizsardzība; obligātā sociālā apdrošināšana *NACE O*
- 16) Izglītība *NACE P*
- 17) Veselība un sociālā aprūpe *NACE Q*
- 18) Māksla, izklaide un atpūta *NACE R*
- 19) Citi pakalpojumi *NACE S*
- 20) Mājsaimniecību kā darba devēju darbība; pašpatēriņa preču ražošana un pakalpojumu sniegšana individuālajās mājsaimniecībās *NACE T*
- 21) Ārpusteritoriālo organizāciju un institūciju darbība *NACE U*
- 22) Cits (*ierakstiet*).....

D9.1 Kādā nozarē Jūs strādājat Jūsu pamata darba vietā? (PĀRKODĒT AUTOMĀTISKI NO D9)

NB! Datu apstrādē pārbaudīt nozares, ņemot vērā, ka mērķa grupa ir Rīgā strādājošie

- 1) Lauksaimniecība un mežsaimniecība (A)
- 2) Ražošana (B-F)
- 3) Tirdzniecība (G)
- 4) Pakalpojumi (H-N)
- 5) Cita nozare (O-U)

D10 Cik pilnus gadus Jūs strādājat šajā uzņēmumā (iestādē)? Lūdzu, atbildiet par pamata darba vietu!

- 1) mazāk par 1 gadu
- 2) 1 - 2 gadus
- 3) 3 - 5 gadus
- 4) 6 - 10 gadus
- 5) 11 - 15 gadus