UNIVERSITY OF LATVIA
FACULTY OF ECONOMICS AND MANAGEMENT

GERTRUD CAROLIN EGGER

THE IMPACT OF ORGANIZATIONAL VALUES ON PRODUCT INNOVATION IN MANUFACTURING COMPANIES

DOCTORAL THESIS

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Supervisor: Prof. Dr.oec. **Ērika Šumilo**, University of Latvia

Reviewers:

1) Prof. Dr.oec. **Signe Bāliņa** , University of Latvia,
2) As. Prof. Dr.sc.administr. **Ieva Brence**, Riga International School of Economics and Business Administration,
3) Prof. Dr.oec. **Gereon Schmitz**, University of Applied Sciences Kufstein, Austria.

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Chairman of the Promotional Council	Prof. Dr.habil.oec. Juris Krūmiņš
Secretary of the Promotional Council	M.b.a.Kristīne Bērziņa

ANNOTATION

The objective of the doctoral thesis is to research the impact of organizational values on product innovation in manufacturing companies on the basis of fundamental literature, the analytical exploration of previous studies and on empirical evidence from two research studies. With this, it is the purpose of this research to derive recommendations for managers and provide future fields of research for scientists. The hypothesis of the doctoral thesis is: The more a manufacturing company is characterized by innovation-supportive organizational values, the higher the product innovation performance of that organization is.

In the first section, the fundamental theories on innovation and influencing factors for it are discussed. As a conclusion, the interrelations of innovation performance with organizational values are highlighted. In the second section, an in-depth content analysis of previous studies on innovation-supportive organizational values results in a grouping and first ranking of the twelve most important value themes. Deduced from these backgrounds, the research model opens chapter three. By the use of quantitative and qualitative methods empirical evidence is gained through a survey among Austrian and German manufacturing companies, which is validated through written assessment interviews with international innovation experts.

The thesis shows the dependencies of product innovation outcomes on organizational values and analyses different perceptions of practitioners and experts on the topic. Further, the extent of the impact of organizational values on product innovation is determined and illustrated. Additionally, a condensed value profile necessary for product innovations consisting of trust and encouragement, intrinsically motivated performance, pioneering spirit, and market-driven debate and discussion is recommended to managers. Most of all, a lack of fit between what managers find important for innovation and what they judge their own manufacturing companies to be characteristic of is revealed. As validated by international expert interviews, this fit comes as a challenge to managers throughout European nations. The thesis is limited to the industry sector of manufacturing companies and does not address other types of innovation than product innovations. It focuses particularly on companies in Austia and Germany and only includes limited, qualitative insights from other European nations.

The work concludes with recommendations for scientists to further research the topic and for managers to enhance the innovation capability of their companies. Additionally, suggestions are put forward for European universities to educate students accordingly and for the Chamber of Economics to provide platforms for open exchange on the issue presented here.

Keywords: Organizational values, product innovation, manufacturing companies.

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LIST OF ABBREVIATIONS

CIS	Community Innovation Survey
DK	Denmark
E.g.	Latin, short for exempli gratia, meaning “for example”
Et al.	Latin, short for et alia, meaning “and others”
EU	European Union
GER	Germany
Ibid	Latin, short for ibidem, meaning "in the same place"
IT	Italy
KMO	Kaiser-Meyer-Olkin Measure of Sampling Adequacy
K-S-Test	Kolmogorov-Smirnov-Test
LV	Latvia
NPD	New product development
NTF	New to firm (as a classification of innovation level)
NTM	New to market (as a classification of innovation level)
OECD	Organisation for Economic Cooperation and Development
R&D	Research and Development
SVS	Schwartz’ Value Survey
TO	Turnover
UnCh	Unchanged products (as a classification of innovation level)

INTRODUCTION

Topicality

With markets that are mostly saturated, innovation has been a topic of relevance for politicians, economists, scholars and managers in industrialized countries for a long time. Especially in countries relatively poor in natural resources, enhanced innovation will provide the decisive basis for growth, new jobs and prosperity[1] - advantage must come from the capability to design and then commercialize new products and processes. Today, it goes without doubt that the capability to innovate decides which companies will still be successful in the market in the forthcoming years and decades. Without innovation, companies and, as a result, whole economies look at a difficult and little promising future.

Even though the United States and Switzerland maintain the top positions regarding innovative capacity of the OECD countries, other nations such as Japan and Germany have invested heavily in the conditions underpinning national innovative capacity and improved their relative standing as innovators[2]. Therefore, global competition regarding innovation capacity of companies seems only at the rise.

However, on the Global Innovation Index 2013, Germany and Austria ranked only 15th and 23rd[3]. Considering that smaller countries, such as Iceland (13th), but also Hong Kong or Singapore (8th and 9th) for example, overtake these two countries with a similar cultural background here, it goes without saying that there is room (and necessity) for improvement of the enhancement of innovation outcomes from a national, but also from a managerial perspective. The Centre for European Economic Research recently published its report on the innovation behaviour of the German manufacturing industry revealing that the percentage of companies who plan to be active in innovations shows a decrease of 10% in 2014 compared to 2013. Companies are very conservative and cautious here for 2014: only 32% firmly plan the implementation of innovation activities whereas 16% still feel unsure[4]. Clearly, innovation always goes in line with risk – investing in product development and never being 100% sure that the product will be an entire market success is what keeps managers from the

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[1] Federal Ministry of Education and Research. Research and Innovation for Germany, p. 4. Retrieved 25.05.2013 from: http://www.bmbf.de/pub/forschung_und_innovation_fuer_deutschland_en.pdf.

[2] Porter, M. E. and Stern, S. Innovation: Location matters. *MIT Sloan Management Review*. 2001, vol. 42, no. 4, p. 32.

[3] Cornell University et al. The Global Innovation Index 2013: The Local Dynamics of Innovation, p. XX. Retrieved 14.01.2014 from: http://www.globalinnovationindex.org.

[4] Rammer, C. et al. Innovationsverhalten der deutschen Wirtschaft, pp. 2-3. Retrieved 14.04.2014 from: ftp://ftp.zew.de/pub/zew-docs/mip/13/mip_2013.pdf.

financial efforts needed for innovation. Since this is only understandable from an individual's point of view, it is still a risk that has to be taken if companies want to survive. More research on success factors and organizational preconditions for innovation in Germany and Austria is needed in order to reduce the perceived risk that managers and companies experience here.

For sure, innovation depends on a variety of different factors and includes extremely complex backgrounds. Looking into the literature on success factors for innovation reveals a very wide range of research studies and opinions immediately. Recommendations by scientists, managers, or consultants take a very different focus sometimes. However, many authors agree that the soft factors in companies, such as organizational culture and values play a vital role for innovation performance. Different authors emphasize the importance of culture as a major determinant[5]. Even though there is no consensus about the term of organizational culture, the importance of common values is often highlighted[6]. Nonetheless, particularly the idea how employee and management values relate to different aspects of organizational performance has received only scant treatment in business management research and can be seen as a research gap. More systematic research into the topic of values is needed for organizational researchers to increase the understanding of the function that values play in organizational processes[7], such as product innovations. Actually, only little empirical, and especially quantitative research is available when it comes to values, norms and assumptions involved in promoting and implementing creativity and innovation, indeed[8].

Taking this as a background, the necessity for more intensive research on the interrelationship of organizational values und successful innovation becomes clear. Not only do values come as a prerequisite of successful innovators, they also directly shape organizational behaviour and practices. For this reason, they must be seen as a very strong management instrument that companies can work with. Moreover, they do not directly relate to financial efforts for innovation, but can contribute to originality and novelty on a different level, which may be just as decisive. Thus, the impact of organizational values on product innovation must be seen as an issue hardly researched yet, but providing immense potential for companies and nations to become more innovative and ensure future growth and economic wealth.

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[5] Prajogo, D. I. and Ahmed, P. K. Relationships between innovation stimulus, innovation capacity, and innovation performance. *R&D Management*. 2006, vol. 36, no. 5, p. 501.

[6] Hofstede, G. et al. Measuring organizational cultures: A qualitative and quantitative study across twenty cases. *Administrative Science Quarterly*. 1990, vol. 35, p. 286.

[7] Connor, P. E. and Becker, B. W. Values and the Organization: Suggestions for Research. In: Rokeach, M. ed. *Understanding Human Values*. New York: The Free Press - Simon & Schuster Inc., 1979, pp. 71-81.

[8] Martins, E. C. and Terblanche, F. Building organisational culture that stimulates creativity and innovation. *European Journal of Innovation Management*. 2003, vol. 6, no. 1, p. 69.

Research object

Manufacturing companies

Research subject

Organizational values and their contribution to and impact on product innovations

Purpose

The purpose of the dissertation at hand is to provide managers in manufacturing companies with recommendations regarding appropriate organizational values for the enhancement of product innovations and to provide future fields of research for scholars and scientists.

Objective

The objective of this thesis is to research the impact of organizational values on product innovation in detail. On the basis of fundamental innovation literature and the analytical exploration of previous studies on values and innovation it seeks to examine the influence and role of organizational values for product innovations. Further, by generating empirical evidence from manufacturing companies and international innovation experts it aims to prove the interrelationship of the two phenomena. Based on this, it is the target of this research to derive recommendations for managers and scientists alike.

Tasks to achieve the research objective

1. To analyse and explore the theoretical concepts of success factors for innovation in general with a particular focus on organizational values and culture and to compare the different contemporary views about the topic.
2. To perform an in-depth content and frequency analysis regarding organizational values supportive to product innovation in previous, similar studies in order to result in a defined and condensed value profile.
3. To assess and discuss the different measurement approaches applicable to product innovation performance and organizational values and to develop an appropriate research design from it.
4. To examine empirically the impact of organizational values on product innovation outcomes and to collect data from manufacturing companies.
5. To analyse the results with statistical methods and structure the data in order to make predictions and explanations from it.

6. To validate the findings with insights from international innovation experts to understand the multiple implications of the topic.
7. To derive managerial implications for business managers and leaders important to comprehend for any further enhancement of product innovation performance in manufacturing companies.
8. To develop recommendations for future research areas to scientists and to recommend possible directions to practitioners, universities and governmental institutions to increase innovation capabilities in manufacturing companies.

Hypothesis and research questions

The main hypothesis of this dissertation is phrased as follows:

H_0: The more a manufacturing company is characterized by innovation-supportive organizational values, the higher the product innovation performance of that organization is.

From the information provided in the topicality section the following research questions arise:

1. What does a general organizational value profile in organizations look like that is supportive to successful product innovations?
2. Are there certain organizational values that contribute more to product innovation than others, respectively: is there a different impact intensity in-between the identified values?
3. How much are the identified innovation-supportive organizational values characteristic of manufacturing companies?
4. To what extent do innovation-supportive organizational values explain and determine product innovation outcomes?

Theses presented for Defense

Aligned with the main hypothesis and the research questions mentioned above, the following additional propositions have been developed as a basis for all research and analysis.

1. **Proposition 1**: For manufacturing companies, there is a particular profile of a limited number of organizational values that has a positive impact on product innovation performance.

2. **Proposition 2**: Innovation-supportive organizational values determine product innovation outcomes to some extent and can therefore be used as a normative management tool that does not harm financial resources directly.
3. **Proposition 3**: Today's manufacturing companies do not yet accord to the most important organizational values for product innovations. Instead, there is a gap between what is important for product innovations and and what is characteristic of manufacturing companies.

Methodology

Using scientific databases, fundamental literature by authors such as Joseph Schumpeter, Milton Rokeach and Peter Drucker is embedded in this dissertation as well as contemporary scientific research encapsulating comparable earlier research on the topic under investigation. This dissertation includes secondary and primary research methods. It was elaborated using various diverse qualitative methods (content analysis, written interviews) and also quantitative methods (survey questionnaires, grouping, comparisons, rankings, frequency analysis, correlation analysis, principal component analysis).

Scientific novelty and practical usability of the research

The scientific novelty and practical usability of this research is established through the following three main points:

- Categorization and advanced structure of organizational values supportive to innovation, which allows for an evaluation of their dissimilar influence and importance for innovation success.
- Development of a model for the relationship between organizational values and product innovation to point at the impact of values on innovations.
- Illumination and assessment of current management challenges to use organizational values for better innovation performance in manufacturing companies in Europe using empirical research methods.

Research limitations

This thesis does not address such issues as the overall influence of innovations on company success. It only deals with the aspects of organizational values and their impact on product innovation. Neither the theoretical, nor the analytical, nor the empirical part analyses other types of innovations (process, marketing, organizational, or service innovation) in detail. Moreover, this thesis is limited to the industry sector of manufacturing companies. It focuses

particularly on companies in Austria and Germany and only includes very limited, qualitative insights from other European nations. It encompasses the period of time from 2011 to 2014 and discloses the author's personal point of view.

Approbation of results of research

Results of the research were presented and discussed in 8 scientific publications and 9 scientific international conferences (in Latvia, Lithuania, Bulgaria, Croatia, Austria, and Germany).

Author's scientific publications in reviewed publications[9]:

- Kuhn, C. and Šumilo, Ē. Leaders must learn how to create an organisational climate where others apply innovative thinking to solve problems and develop new products and services. *Humanities and Social Sciences Latvia*. 2012, vol. 20, no. 1, pp. 77-94. ISSN 1022-4483, available from http://www. lu.lv/fileadmin/user_upload/lu_portal/ apgads/PDF/Humanities_and_social_sciences_2012.pdf
- Kuhn, C. and Dubra, I. and Šumilo, Ē. Influential determinants of innovation: Case study of Latvia and Germany. *Journal of Social Sciences - Regional Formation and Development Studies Lithuania*. 2012, vol. 2, no. 7, pp. 74-85. ISSN 977-2029-93-700-1, available from http://www.ku.lt/leidykla/files/2012/09/Regional_formation _27.pdf
- Bolzern-Konrad, B. and Egger, C. and Šumilo, Ē. Values - Soft issue or valuable capital? *Humanities and Social Sciences Latvia*. 2013, vol. 21, no. 2, pp. 74-90. ISSN 1022-4484, available from http://www.lu.lv/apgads/izdevumi/elektroniskieizdevumi volume-21-issue-2-autumn-winter-2013/
- Egger, C. Valuable values for innovation? *Impulse in Zeiten des Wandels - 8. Forschungsforum der österreichischen Fachhochschulen*. Tagungsband 2014, pp. 454-455. ISBN 978-3-9503491-9-1
- Bolzern-Konrad, B. and Egger, C. Trust as an enduring organizational value for competitive advantage in a constantly changing business world: Theoretical analysis and empirical findings from two research studies. In: Gomes, J.F.S., Coelho, J.P. eds. *Values in Shock: The role of contrasting management, economic, and religious paradigms in the workplace*. Los Angeles: ISSWOV - International Society of the Study of Work & Organizational Values, 2014, pp. 323-330. ISBN 978-09817997-35.

[9] During the period of research, the author changed her surname from Kuhn to Egger.

- Egger, C. Organizational Values for Product Innovations in Manufacturing Companies. In: *Conference Proceedings for Political Sciences, Law, Finance, Economics & Tourism*. Sofia: SGEM International Multidisciplinary Scientific Conferences on Social Sciences and Arts, 2014, pp. 381-388. ISBN 978-6197105-278.
- Egger, C. An international perspective on the impact of organizational values on product innovations in manufacturing companies. In: Hair, J. et al. eds. *Global Business Conference 2014 Proceedings - Questioning the Widely-held Dogmas*. Dubrovnik: Innovation Institute Zagreb, 2014, pp. 94-104. ISSN 1848-2252.
- Egger, C. Towards a Categorization of Influencing Factors for Innovation in Organizations. In: Neuert, J. ed. *Contemporary Approaches of International Business Management, Economics, and Social Research*. Berlin, 2014, pp. 11-19. ISBN 978-3-7375-1329-6.

Author's presentations in scientific conferences:

- Kuhn, C. Innovation management & values-based management. *International conference on Global Business Management Research*. 2nd – 4th of December 2011, Fulda, Germany. Faculty of Business of the Fulda University of Applied Sciences.
- Kuhn, C. Innovation power and values-based management. *International conference on New challenges of economic and business development*. 10th – 12th of May, 2012, Riga, Latvia. Faculty of Economics and Management of the University of Latvia.
- Kuhn, C. and Dubra, I. Methods of measurement for innovation capacity. *International conference on Innovative approaches of management research for regional and global business development*. 3rd – 5th of August 2012, Kufstein, Austria. International Business School University of Applied Sciences Kufstein.
- Egger, C. and Bolzern-Konrad, B. Hospitality as an organizational value impacting customer satisfaction. *International conference of 15th Facility & Real Estate Management Congress - Hotel & Leisure facilities*. 6th – 8th of February 2013, Kufstein, Austria. University of Applied Sciences Kufstein.
- Egger, C. Investigating the impact of organizational values on innovation – Research Design (Best Session Presenter Award and Best Conference Presenter Award). *International conference on Current approaches of modern management and strategy research*. 29th – 30th of November 2013, Kufstein, Austria. International Business School University of Applied Sciences Kufstein.
- Egger, C. The impact of organizational values on product innovation – Results of content analysis of 40 articles (Best Session Presenter Award and Best Conference

Presenter Award). *National Conference on 8. Forschungsforum der österreichischen Fachhochschulen*. 23rd – 24th of April 2014, Kufstein, Austria. 8th Research Forum of Austria's Universities of Applied Sciences.

- Egger, C. and Bolzern-Konrad, B. Trust as an enduring organizational value for competitive advantage in a constantly changing business world. *14th Biennial ISSWOV Conference on Values in shock: The role of contrasting management, economic, and religious paradigms in the workplace*. 29th of June – 2nd of July 2014, Riga, Latvia. International Society for the Study of Work and Organizational Values and the University of Latvia.
- Egger, C. Organizational Values for Product Innovations in Manufacturing Companies. *International Multidisciplinary Scientific Conferences on Social Sciences and Arts*. 2nd – 9th of September 2014, Varna, Bulgaria. Bulgarian Academy of Sciences.
- Egger, C. An International Perspective on the Impact of Organizational Values on Product Innovations in Manufacturing Companies. *Global Business Conference on Questioning the widely-held Dogmas*. 1st – 4th of October 2014, Dubrovnik, Croatia. Zagreb Innovation Institute.

Content and structure of dissertation

In the first section of the work, a review of the fundamental literature on innovation and organizational values is performed. The necessary terminology is clarified and the topic of innovation is brought together with classical approaches of organization theory and measurement approaches are outlined. Influencing factors for innovation are classified into factors from the general environment, the competitive environment and the company environment. The first chapter concludes with a discussion of different concepts on organizational culture revealing values as predominant contributor to innovation.

In the second section, an analytical exploration of previous studies on organizational values and innovation uncovers the diversity of viewpoints on the topic. Besides, the second chapter discusses different measurement approaches for organizational and human values. It terminates with 12 value themes that are clustered from all the values mentioned in earlier research on values for innovation and shows a frequency analysis that indicates the most important value themes. As a result, a common understanding for the study at hand about innovation-supportive organizational values is created.

The third section comprises the empirical part of the thesis. It introduces the research model and the research design for two empirical studies. Further, it reveals empirical findings from a survey among 81 manufacturing companies in Austria and Germany. Additionally, it includes the validation of these findings by showing results of written assessment interviews with 13 international innovation experts. The chapter concludes with managerial implications drawn from the research presented and addresses the limitations of the study.

The final part of the doctoral thesis presents the main conclusions and suggestions for practitioners and scientists in accordance with the initially proposed hypothesis and research questions and propositions.

1 THE ESSENCE OF INNOVATION AND FUNDAMENTAL THEORIES ON INFLUENCING FACTORS FOR INNOVATION

The first part of this thesis provides a literature review on the fundamental opinions and ideologies of innovation. It analyses theoretically how innovation can be defined and embedded in an organization theory context. Further, it shows different measurement approaches for the phenomenon. The main part of this chapter focuses on a theoretical investigation and classification of influencing success factors for innovation, which arise from the general and the competitive environment of companies, but also from within an organization itself. Finally, it is derived how organizational values, as the core of organizational culture and one factor from within the company must be seen as a major impact on innovation performance. It is the aim of this part of the dissertation to illuminate the fundamental theories on innovation and organizational values in order to deliver a rich basis for the analytical and the empirical part in chapters two and three.

1.1 Innovation and company success, terminology and focus of the study

Innovation is to be one of the main terms of the study at hand and in order to clarify its understanding and importance, the following section shows different approaches to a definition of innovation and how this is specified for the further investigation of this work. Moreover, this section argues the general contribution of innovations to company success[10].

In many terms, innovation is considered to be a fundamental element of long-term success[11] for organizations and also to matter increasingly as the origin for national economic growth[12]. It is considered to be a characteristic of healthy organizations and enables companies to change according to market needs and therefore stay competitively advanced[13]. Other authors even consider innovation to be decisive for a company's survival[14]. Since finding a customer is the only purpose of any organization, Drucker even considers innovation, apart from

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[10] Parts of this reasoning were already used by the author in Kuhn, C. and Šumilo, Ē. Leaders must learn how to create an organisational climate where others apply innovative thinking to solve problems and develop new products and services. *Humanities and Social Sciences Latvia*. 2012, vol. 20, no. 1, pp. 77-94; Kuhn, C. et al. Influential determinants of innovation: Case study of Latvia and Germany. *Journal of Social Sciences - Regional Formation and Development Studies Lithuania*. 2012, vol. 2, no. 7, pp. 74-85.

[11] Davila, T. et al. *Making innovation work*. New Jersey: Wharton School Publishing, 2006, p. 16.

[12] Tidd, J. and Bessant, J. *Managing innovation*. West Sussex: John Wiley & Sons Ltd., 2009, p. 5.

[13] Delbecq, A. L. and Mills, P. K. Managerial practices that enhance innovation. *Organizational Dynamics*. 1985, vol. 14, no. 1, p. 24.

[14] Jamrog, J. et al. Building and sustaining a culture that supports innovation. *Human Resource Planning*. 2006, vol. 29, no. 3, p. 9.

marketing, to be the primary task for management[15]. Innovation has become a core driver of growth, performance, and valuation[16]. 70% of organizations with a positive attitude towards innovation declare that they outperform their competitors and it is those companies that have seen an increase in profits over the past years[17]. The need to innovate in order to keep competitive advantages is already known to be crucial for sustainable success in many companies. In the future, the only reliable security for any company is the ability to innovate better and longer than competitors[18]. Actually, it goes without doubt that the ability to continuously innovate is of critical importance to the long-term success of any organization[19]. For this dissertation at hand, this background is taken as a given starting point. The general contribution of innovation to company success is not put into question here nor further examined in the work presented.

To start with an ancient perspective, the word innovation originates in the Latin vocabulary "innovare" – to make something new. Invention on the other hand goes back to "invenire", also Latin – to discover something[20]. Innovation implies significant change within an organization or its product or service range. Therefore, it requires substantial adjustments in functions and structures and, most importantly, it needs to be successfully introduced, decided upon and incorporated into the organization[21]. Only a successfully marketed invention can be defined as an innovation. Hence, it is related to entrepreneurship as well and can be seen as the true effort to create change in the economic and social potential of a company that is purposeful and focused[22]. Innovation uses the opportunity of a new idea and turns this into widely used practice. Therefore, for profit-oriented organizations it is innovation, not only invention that helps them to gain economic growth. Being a good inventor is never a guarantee of commercial success[23]. In this regard, innovation is also different from creativity. Through creativity, novel and useful ideas in basically any domain can be gained. Innovation implies the successful implementation of these ideas, though. Therefore, creativity can be

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[15] Drucker, P. F. *Was ist Management? Das Beste aus 50 Jahren*. Berlin: Ullstein Buchverlage GmbH, 2001, p. 37.

[16] Barsh, J. et al. Leadership and innovation. In: The McKinsey Quarterly, 2008, p. 37. Retrieved 26.12.2013 from: http://www.mckinsey.com/insights/innovation/leadership_and_innovation.

[17] Von Stamm, B. *Managing innovation, design, and creativity*. West Sussex: John Wiley & Sons Ltd., 2008, p. 480.

[18] Davila, T. et al. *Making innovation work*. New Jersey: Wharton School Publishing, 2006, p. 3.

[19] Terziovski, M. *Building innovation capability in organizations*. London: Imperial College Press, 2007, p. 19.

[20] Langenscheidt. *Großes Schulwörterbuch Lateinisch-Deutsch*. Berlin & München: Langenscheidt Verlag, 2001, p. 653 & 684.

[21] Delbecq, A. L. and Mills, P. K. Managerial practices that enhance innovation. *Organizational Dynamics*. 1985, vol. 14, no. 1, p. 25.

[22] Drucker, P. F. The discipline of innovation. *Harvard Business Manager*. 1985, no. May-June, p. 67.

[23] Tidd, J. and Bessant, J. *Managing innovation*. West Sussex: John Wiley & Sons Ltd., 2009, pp. 16-17.

seen as a necessary precondition or a starting point for innovation. However, innovation is not only about products. It may also be found in the means for creating or delivering it and basically describes the implantation of creative ideas within an organization[24]. Not necessarily does it have to be technical – there are great social innovations in history such as the newspaper, for example. Still, innovation is essentially about changing value and creating satisfaction for customers[25].

The Organisation for Economic Cooperation and Development (OECD) distinguishes four types of innovation: product innovation, process innovation, marketing innovation, and organizational innovations. Whereas product innovation relates to goods or services that are introduced to the market with new or significantly improved specifications, materials, software, or other functional characteristics, process innovation focuses on new or significantly improved production or delivery methods. Improvements in product design, packaging, promotion or even pricing are subsumed under marketing innovation according to the OECD. Finally, organizational innovation highlights changes and novelties in business practices, workplace organizations or external relations[26].

The Community Innovation Survey 2010 revealed that the percentage of innovative companies is higher in industry than in services in most European countries. The German economy accounted for a percentage of 30% of innovative companies in 2012. However, it is only a few industries that drive an increase of investments in innovations in 2012 to 2014. Except for financial services these are all related to manufacturing: the car industry realizes more than half of all investment efforts. The German chemical and pharmaceutical industry ranks second when it comes to justifications of expenditures for innovations followed by telecommunications and manufacturing systems engineering companies[27]. In Austria over 40% of enterprises claimed to be active in product and / or process innovations. Improving the quality of goods and services, increasing the range of those, and entering new markets were stated to be the main objectives for innovations in Austria[28]. Generally, product innovations

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[24] Amabile, T. M. Creativity and innovation in organizations. *Harvard Business School*. 1996, no. January, pp. 1-3.

[25] Drucker, P. F. *Innovation and Entrepreneurship*. New York: HarperCollins Publishers, Inc., 1985, pp. 31-33.

[26] OECD and Eurostat. *Oslo Manual - Guidelines for collecting and interpreting innovation data*. Paris: OECD Publisher, 2005, pp. 47-51.

[27] Rammer, C. et al. Innovationsverhalten der deutschen Wirtschaft, pp. 3-6. Retrieved 14.04.2014 from: ftp://ftp.zew.de/pub/zew-docs/mip/13/mip_2013.pdf.

[28] Eurostat - European Commission. Science, technology and innovation in Europe - 2013 edition, pp. 68-78. Retrieved 25.02.2014 from: http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-GN-13-001/EN/KS-GN-13-001-EN.PDF.

can be seen as being tightly linked to the primary activity of the company[29]. However, research shows that, generally, success rates in new product development are below 25%[30].

Therefore, for the context of the study and to enable focus, **product innovations** are the main interest, excluding services – in accordance with the OECD, this is understood as **the successful market-introduction of new or significantly improved goods with respect to characteristics or intended use**[31].

1.2 Organization theory perspectives on the topic of innovation[32]

To give the issues of product innovation and its interrelations with organizational values a broader context, a look into organization theories follows.

According to Joseph A. Schumpeter, economic development can only be seen as such if changes in economic life arise by its own initiative. If economy does only adapt continuously to the economic sphere surrounding it, this does not include the revolutionary character that can be called economic development[33]. For Schumpeter, the natural cycle of business includes booms and depressions and a depression is only the economy's natural reaction to prosperity. Thus, each boom initially creates a situation out of itself that leads to crisis, depression and finally to temporary steadiness. Only then, there is room for the next possible economic development. Without crisis and depression true development cannot arise[34].

With a macroeconomic perspective, Schumpeter argues that it is new consumer goods, new ways of production or transportation, new markets, or new organizational forms that keep capitalism alive. To do so, the economic system always needs to underrun some sort of mutation and revolution from within – it needs to be destroyed first, before there can be room and space for something new. Schumpeter calls this process Creative Destruction and states that competition must not be primarily about prices. Much more, it needs to be about new commodities, technologies, supplying sources, or organizational forms. Thus, it is not about

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[29] Naranjo-Valencia, J. C. et al. Organizational culture as determinant of product innovation. *European Journal of Innovation Management*. 2010, vol. 13, no. 4, p. 468.

[30] Evanschitzky, H. et al. Success Factors of Product Innovation: An Updated Meta-Analysis. *Journal of Product Innovation Management*. 2012, no. 29, p. 21.

[31] OECD and Eurostat. *Oslo Manual - Guidelines for collecting and interpreting innovation data*. Paris: OECD Publisher, 2005, p. 48.

[32] The ideas of this chapter were published and used in a shorter version by the author in Egger, C. Towards a Categorization of Influencing Factors for Innovation in Organizations. In: Neuert, J. ed. *Contemporary Approaches of International Business Management, Economics, and Social Research*. Berlin, 2014, pp. 11-19. ISBN 978-3-7375-1329-6.

[33] Schumpeter, J. A. *The theory of economic development*. New Brunswick, New Jersey: Transaction Publishers, 1934, p. 63.

[34] Ibid, pp. 224-236.

the margins of profits for companies, but about the very foundations of a company's life and business model[35]. In history, each wave of economic development comes to an end because of major shortcomings and the following wave fundamentally changes and restructures these shortcomings. This Schumpeterian or evolutionary theory of the development of dynamic firm capabilities to enable economic waves of innovation and growth still has a very great impact on business management research today. Clearly, the capability to acquire and utilize knowledge in a way that results in new products determines a company's success in the future[36].

This is where the resource-based view to strategic management comes in. The analysis of resources was focused on single activities of the value chain for quite some time. Only then intangible assets such as specific knowledge, controlling competences, or organizational culture became interesting as well. With that, the interrelation of different competences across business units has to be seen as essential. However, most importantly these competences need to be of strategic relevance for the organization, which means that other companies must not have similar or even better capabilities in that regard. Only then one can speak of core competences of an organization[37]. Claver et al., too, consider technological innovation and corporate culture as an attribute of firm capability theory. According to the authors, the development of core competences results from an organizational culture that fosters collective learning. With that, they address the aspect of tangible as well as intangible assets of companies and argue that the topic has to be seen in a resource based, respectively competence based context[38].

On the other hand, organizations always acquire resources from their environment. Therefore, they are never fully independent of their contexts. In contrast, the only way to be successful for organizations is to interact with their surroundings. Actually, contextual factors are responsible for and help to foresee organizational performance as well[39]. Tang, for example, explains the mutual dependency of innovation and the external environment of organizations. On the one hand, changes in the external environment trigger innovations in organizations.

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[35] Schumpeter, J. A. *Capitalism, Socialism and Democracy*. New York: Harper Perennial Modern Thought, 1950, pp. 83-84.

[36] Trott, P. *Innovation management and new product development*. Essex: Pearson Education Limited, 2008, p. 9 & p. 51.

[37] Steinmann, H. et al. *Management*. Wiesbaden: Springer Gabler, 2013, pp. 198-199.

[38] Claver, E. et al. Organizational Culture for innovation and new technological behavior. *The Journal of High Technology Management Research*. 1998, vol. 9, no. 1, p. 57.

[39] Pfeffer, J. and Salancik, G. R. External control of organizations: A resource dependence perspective. In: Boardman, P.J. ed. *Classics of Organization Theory*. Boston: Wadsworth Cengage Learning, 2011, pp. 458-459.

On the other hand, innovative products disperse into the external environment in turn[40]. Therefore, the innovative organization must be seen as heavily interrelated to its environment, which brings the discussion to the theory of organizations as open systems.

Generally, an open systems perspective to organizations explains how dependent companies are on their wider surroundings. Not only do they import financial, material, and human resources, they also secure social support and legitimacy. This means that any change in any element of the system might also change the other elements. An open systems perspective makes the theory of an organization very complex because it includes not only its processes, but also all inputs, outputs, and feedback loops with the environment. Thus, organizations wanting to survive have to be very dynamic to adapt to their shifting environments constantly. Conversely, whatever an organization decides affects its context as well. According to Shafritz et al., it is no longer appropriate to see companies with clear boundaries and as closed systems. A separation from their environment can no more be argued from an organization theory point of view. Much more, the interrelations between organizations and their environment need to come into focus and have to be understood as becoming more complex and dynamic, but still interdependent[41]. Katz and Kahn totally form the fundament of this argumentation. According to these authors, it is a big misconception of typical models on organization theory to not admit how dependent organizations are on their environments. While these typical models focus on internal functions and processes, open systems approaches recognize cycles of renewed inputs, transformations and outputs, which determine how organizations work[42]. On the other hand, open systems are generally able to achieve self-maintenance due to their fundament of throughput of resources from the environment. They source maintenance, variety and diversity from their surroundings and that is what makes them successful survivors. Additionally, their contexts also determine their complexity[43].

To discuss the issue of a classification of innovations from a different angle clearly brings theories of organizational culture and change into focus. Generally, a culture perspective questions the rational and structural approaches of organizations. It tries to understand how organizations make decisions and why they – and the individuals in an organization – behave the way they do from the assumptions about relationships. Although the cultural perspective

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[40] Tang, H. K. An integrative model of innovation in organizations. *Technovation*. 1998, vol. 18, no. 5, p. 301.

[41] Shafritz, J. M. et al. *Classics of Organization Theory*. Boston: Wadsworth Cengage Learning, 2011, pp. 401-404.

[42] Katz, D. and Kahn, R. L. Organizations and the System Concept. In: Boardman, P.J. ed. *Classics of Organization Theory*. Boston: Wadsworth Cengage Learning, 2011, pp. 415-416.

[43] Scott, R. W. *Organizations - Rational, Natural, and Open Systems*. New Jersey: Pearson Education, 2003, pp. 89-91.

to organizations is still quite young with most of its literature having been published in the last 30 years the topic underwent a turning point in the 1980s. Authors such as Peters and Waterman or Deal and Kennedy made the topic a heavily discussed issue when making a claim about its major impact on company success[44]. When it comes to studies and research about organizational culture and values, different authors again favour an open systems approach. Aadland, for example, argues that values are clearly educated by social constructs from the environment surrounding any organization. Therefore, for the topic of values the author supports an open system approach and includes environmental influences on organizations to their analysis[45]. Based on the conclusion that a holistic approach which allows the investigation of the interdependence, interrelationship and interaction of different sub-systems and elements of organizational culture is most appropriate to describe organizational culture, Martins and Terblanche favour an open systems approach to do so, too[46].

To conclude, innovations and organizational values cannot clearly be embedded in one single organization theory. But different perspectives have to be taken into account. Clearly, competences play an essential role. Thus, any strategic management approach including the analysis of core competences must be valued. However, this is only one side of the story. The interrelations with the organizational environment and context can no longer be neglected. Additionally, cultural perspectives themselves need to be considered.

1.3 Measurement approaches for innovation and product innovation specifically

Having explained the background and general classification of organizational values and innovations, the following chapter searches into measurement approaches for product innovation. On the basis of the definitions of the term in chapter 1.1, an innovation has to be successful in the market. Therefore, it is confusing to name companies innovative just because they have a lot of patents. Altogether, there seems to be no generally accepted indicator for innovation performance as yet[47].

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[44] Shafritz, J. M. et al. *Classics of Organization Theory*. Boston: Wadsworth Cengage Learning, 2011, pp. 338-342.

[45] Aadland, E. In Search of Values – Reporting from Eight Norwegian Organizations. *Electronic Journal of Business Ethics and Organization Studies*. 2010, vol. 15, no. 2, p. 24.

[46] Martins, E. C. and Terblanche, F. Building organisational culture that stimulates creativity and innovation. *European Journal of Innovation Management*. 2003, vol. 6, no. 1, p. 73.

[47] Wentz, R.-C. *Die Innovationsmaschine - Wie die weltbesten Unternehmen Innovationen managen*. Berlin & Heidelberg: Springer Verlag, 2008, p. 12 & 25.; Dömötör, R. *Erfolgsfaktoren der Innovativität von kleinen und mittleren Unternehmen*. Wiesbaden: Gabler Verlag, 2011, p. 61.

To provide an overview of measurement approaches this section shows two different kinds of instruments:

- Measurement techniques driving a holistic approach to grasp innovation performance of companies such as the Publicly Available Specification No. 1073 published by the Fraunhofer Institute and the Innovation Capability Maturity Model;
- Measurement approaches specifically related to performance in product innovation and used in previous academic research such as by Cooper and Kleinschmidt, Atuahene-Gima and Ko, OECD Oslo Manual, Prajogo and Ahmed, and Naranjo-Valencia et al..

With product life cycles becoming shorter and shorter and spending less time to amortize investments in innovation projects, longer research and development times become a very big challenge for sustainable competitiveness for today's companies[48]. In an extensive research project and with a strong focus on practice, the Fraunhofer Institute Center IAO developed an approach for regularly measuring and assessing the innovation capability of small and mid-sized manufacturing companies in Germany. By providing a comprehensible and documented rating about the innovation capability of a company the authors strived for helping smaller companies to get financial support for their innovation projects. As a matter of fact, the Fraunhofer method of measuring describes pre-identified success factors and indicators for innovation capability. It is published in a Publicly Available Specification (No. 1073), however, at the time, there were no other national or international norms regarding the topic to be found. With a holistic point of view, the authors identified nine different sectors of design for innovation. At the core, this is strategy, competence and knowledge, technology, product and services, process, structure and network, and the market. As an overarching frame the authors see innovation culture and project management as significant. In addition to continously developing innovation capability, the tool can provide support in the aspects of relationships with customers, financial institutions or even for auditing suppliers[49]. With this approach, hard factors as well as soft factors, such as innovation culture, seem to be covered. In a standardized questionnaire containing 36 different statements the Fraunhofer measurement method asks companies to evaluate these statements on a four-point Likert-scale. What comes out is a value between one and four, four meaning "fully apply" and

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[48] Slama, A. and Potinecke, T. *Erfolgreiche Technologieentwicklung - Krisensicher durch die Zukunft*. Stuttgart: Fraunhofer Verlag, 2012, p. 12.

[49] DIN Deutsches Institut für Normung e.V. Slama, A. and Spitzley, A. An approach for measuring and assessing the innovation capability of manufacturing companies. Berlin: Beuth Verlag, 2008, pp. 3, 7 & 14. Reference Number: PAS 1073:2008-02.

therefore highly capable of innovation, for every sector. The tool can be accessed via the official website of the Fraunhofer Institute and holds over 3.000 data records as benchmarks[50].

With the intention to increase the understanding about the phenomenon of innovation and the necessary ingredients for it, Essman and du Preez created the Innovation Capability Maturity Model. The construct includes different categories such as strategy and objectives, function and processes, organization and management, data and information relating to environments and communication, customers and suppliers. Based on a 42-items questionnaire companies can be rated according to different maturity levels regarding their innovativeness. Accomplishing the questionnaire at level one means that innovations happen more or less accidentally, outputs are inconsistent and unpredictable and the company is consumed with day-to-day operations. Level five, on the other hand, indicates a future-oriented scanning and exploring of activities to provide strategic input even on latent opportunities. Outputs here offer sustained competitive advantage. Respondents have to relate the situation within their organization to the maturity level descriptions and mark the level that corresponds most with the internal situation. Having proved validity the authors conclude that the model perfectly covers the "what" of innovations and prescribes the requirements for it[51].

In academic research, several approaches specified to new product development or product innovation have already been accomplished. Cooper and Kleinschmidt, for example, use ten performance indicators for the success in new product development and made senior corporate officers rate them in questionnaires. The first two performance metrics, namely commercial success rates of development projects and percentage of company sales represented by new products, are directly measured as percentages. A one to five-point Likert scale with anchor phrases captures the remaining eight metrics, specifically profitability relative to spending, technical success rating, sales and profit impact, success in meeting sales and profit objectives, and finally, profitability and overall success relative to competitors[52].

Atuahene-Gima and Ko follow a more simplified approach. Even though their questionnaires were sent to CEOs or senior managers who were asked to pass it on to someone most knowledgeable about the firm and its recent new product projects, they used only six

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[50] Fraunhofer IAO. InnoAudit Innovationsfähigkeit. In: *Official Webpage of the Fraunhofer Institute Germany*, retrieved 03.05.2014 from: http://www.iao.fraunhofer.de/lang-de/tim/673-innovationsfaehigkeit.html.

[51] Essmann, H. and Preez, N. An Innovation Capability Maturity Model – Development and initial application. *International Journal of Human and Social Sciences*. 2010, vol. 5, no. 1, pp. 48-53.

[52] Cooper, R. G. and Kleinschmidt, E. J. Benchmarking the firm's critical success factors in new product development. *Journal of Product Innovation Management*. 1995, no. 12, pp. 378-379.

indicators for determining the innovation performance of companies within their sample. Respondents were asked to use a four-item scale reflecting the extent to which the new product is perceived to have achieved its market share, its sales and customer use, its sales growth, and its profit objectives since its launch. Additionally, respondents had to indicate the percentage of profits and sales derived from new products less than three years old as well as the percentage of average profits over the last three years because of new products[53].

The Organization for Economic Cooperation and Development gives a recommendation in its Oslo Manual on Guidelines for collecting and interpreting innovation data as well. The Manual recommends asking enterprises to estimate the percentage share of total turnover in a certain reference year or period that is due to different product categories (products new to the market, products new to the firm, unchanged products). Moreover, enterprises should also estimate the average length of their products' life cycles to weight the outcome indicators for turnover shares and take different product life cycles into account[54]. To define a certain length of observation period ensures comparability among respondents. However, even though a longer period helps to collect discontinuous innovation activities where product life cycles are longer, a shorter observation period increases respondents' recall capabilities. Therefore, the OECD suggests an observation period of at least one to a maximum of three years[55].

Accordingly, more recent measurement approaches for product innovation basically seem to ground their indicators on the OECD recommendation with some smaller adjustments. Prajogo and Ahmed bring in the aspect of minimizing industry effects by having respondents rate their answers against their major competitors on a self-evaluation Likert-scale. Naranjo-Valencia et al. follow this and limit their indicators to four or five basic items that managers need to rate. To summarize, these recent approaches to measures that are clearly focussed on product innovation mainly use the following criteria:

- The level of newness (novelty) of new products / Pioneer character / Pioneer disposition to introduce new products / services.
- The number of new products / services introduced to the market.
- The speed of new product development.

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[53] Atuahene-Gima, K. and Ko, A. An Empirical Investigation of the Effect of Market Orientation and Entrepreneurship Orientation Alignment on Product Innovation. *Organzation Science*. 2001, vol. 12, no. 1 January - February, pp. 62-63.

[54] OECD and Eurostat. *Oslo Manual - Guidelines for collecting and interpreting innovation data*. Paris: OECD Publisher, 2005, pp. 109-110.

[55] Ibid, pp. 129-130.

- The number of new products that is first-to-market (early market entrants) / Importance of being the first company to introduce or bring new products to the market.
- Clever response to new products / services introduced by other companies in the same sector (rivals) / Rapid response to competitors' actions.
- R&D / Financial efforts to develop new products / services.
- Additional efforts to develop new products / services in terms of hours per person, teams and training involved[56].

To finalize, this section showed two holistic measurement instruments for innovation performance first. Although both are highly valid and reliable they do not specifically focus on product innovation. Moreover, they include cultural perspectives on the topic as well. Hence, for the purpose of this research they do not seem entirely appropriate. Much more, an approach that is clearly limited to product innovation and also takes into account the recommendations given by the OECD is favoured for the purpose of this study. Thus, recently used measures to product innovation in combination with the OECD recommendations as outlined above seem most realistic and feasible. Overall, having managers rate the indicators on a Likert-scale comparing their companies to industry competitors easily and appropriately assesses the innovation performance of a company for scientific purposes.

1.4 Conceptualizations of success factors for innovation[57]

Assuming the complexity of innovation from the parts about its definitions and measurement approaches already, the following chapter outlines its influencing and success factors.

Even though there is so much research published on influencing factors for innovation already, success rates or research and development output have not really increased, yet[58]. Researchers have worked on a wide range of thoughts on innovations related to different

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[56] Prajogo, D. I. and Ahmed, P. K. Relationships between innovation stimulus, innovation capacity, and innovation performance. *R&D Management*. 2006, vol. 36, no. 5, p. 115; Naranjo-Valencia, J. C. et al. Organizational culture as determinant of product innovation. *European Journal of Innovation Management*. 2010, vol. 13, no. 4, p. 471; Naranjo-Valencia, J. C. et al. Innovation or imitation? The role of organizational culture. *Management Decision*. 2011, vol. 49, no. 1, p. 61.

[57] The ideas of this chapter were published and used in a shorter version by the author in Egger, C. Towards a Categorization of Influencing Factors for Innovation in Organizations. In: Neuert, J. ed. *Contemporary Approaches of International Business Management, Economics, and Social Research*. Berlin, 2014, pp. 11-19. ISBN 978-3-7375-1329-6.

[58] Cooper, R. G. From Experience: The Invisible Success Factors in Product Innovation. *Journal of Product Innovation Management*. 1999, vol. 16, no. 2, p. 3.

influencing variables in companies, though[59]. Still, innovation in itself is mostly unique, which is the reason why an entirely valid model for fruitful innovation has not yet appeared[60]. In times of a crisis, companies often cut down investments for innovations although they would be helpful to stop the downward tendency. For this reason, it is essential that companies recognize their innovation potentials and actively observe where innovations might come from[61]. Persistent working on perfection is a must for today's companies[62]. Thus, a deeper understanding of the dynamics impacting on innovation in organizations from outside and inside the company is needed, indeed. Only then firms can know and start to control the accordant factors to improve their superiority and the usefulness of originality[63].

As science and policy suggest, a broad perspective on innovation is important[64]. Actually, successful innovations mostly result from conscious and purposeful search for opportunities much more than from a flash of a genius. Mostly, it is hard work rather than mastermind. It falls out of the careful analysis of different sources for opportunities and only strives for success under diligence, persistence and commitment[65]. According to Drucker there are particular sources that need monitoring, and which can be classified into sources lying within the company and sources involving changes outside the enterprise[66]. Tidd and Bessant name a variety of sources for innovations such as watching competitors, changing rules and regulations, inspirations, users who become innovators, system shocks which change the world and the way we think about it, and also pushed frontiers of science[67]. Basically, ideas come from all over as Zien and Buckler's conceptual model indicates[68].

Thus, it comes as a challenge to develop a classification of factors influencing innovation success. The next section groups the contents on influencing and success factors for innovation according to the following structure. Firstly, influencing factors from the general

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[59] Medina, C. C. et al. Characteristics of Innovative Companies: A Case Study of Companies in Different Sectors. *Creativity and Innovation Management*. 2005, vol. 14, no. 3, p. 272.

[60] Delbecq, A. L. and Mills, P. K. Managerial practices that enhance innovation. *Organizational Dynamics*. 1985, vol. 14, no. 1, p. 24.

[61] Vahs, D. and Schmitt, J. Determinanten des Innovationserfolgs. *OrganisationsEntwicklung*. 2010, no. 3, p. 40.

[62] Porter, M. E. and Stern, S. The Global Competitiveness Report 2002: National Innovative Capacity, p. 2. Retrieved 29.05.2013 from: http://www.isc.hbs.edu/Innov_9211.pdf.

[63] Enkel, E. et al. Open innovation maturity framework. *International Journal of Innovation Management*. 2011, vol. 15, no. 6, pp. 1162 – 1163.

[64] OECD and Eurostat. *Oslo Manual - Guidelines for collecting and interpreting innovation data*. Paris: OECD Publisher, 2005, p. 28.

[65] Drucker, P. F. The discipline of innovation. *Harvard Business Manager*. 1985, no. May-June, pp. 67 & 72.

[66] Drucker, P. F. *Innovation and Entrepreneurship*. New York: HarperCollins Publishers, Inc., 1985, pp. 35-36.

[67] Tidd, J. and Bessant, J. *Managing innovation*. West Sussex: John Wiley & Sons Ltd., 2009, p. 230.

[68] Zien, K. A. and Buckler, S. A. Dreams to market: Crafting a culture of innovation. *Journal of Product Innovation Management*. 1997, vol. 14, p. 279.

environment are discussed. Secondly, influencing factors from the competitive environment are outlined. To conclude and to build a bridge to the analytical part of this dissertation in chapter 2, the section shows how organizational culture and values build the core of influencing factors for innovations from within the company, while soft and hard factors are divided here. Steinmann et al. argue that a broad perspective is needed to find strategic orientation for companies[69]. As mentioned above, the same is needed for understanding the sources of innovation. For this reason, the strategic management tool of analysing environments and contexts according to special segments is equally helpful and borrowed here to group the immense content on success factors for innovations. Figure 1.1 shows the interrelations and different levels of the environments playing a role in innovation. Accordingly, the next sections proceed with explanations on each level.

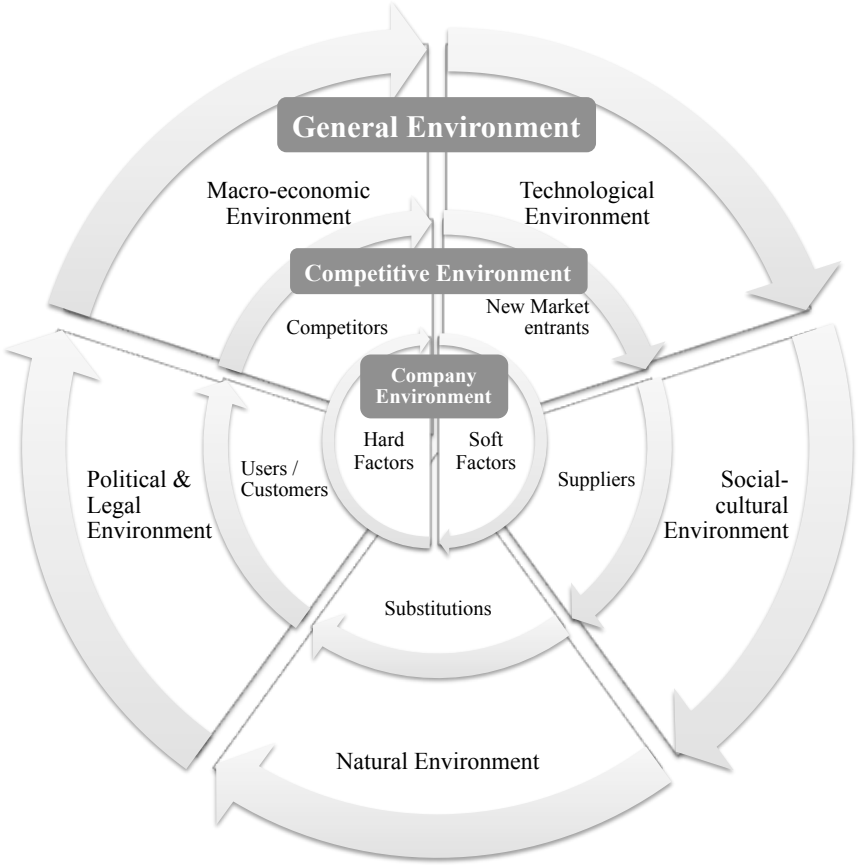

Figure 1.1: Segments of influencing factors for innovation in companies[70]

[69] Steinmann, H. et al. *Management*. Wiesbaden: Springer Gabler, 2013, p. 166.

[70] Figure created by author and modified after Steinmann, H. et al. *Management*. Wiesbaden: Springer Gabler, 2013, p. 169 & 181.

1.4.1 Influencing factors from the general environment

In general terms, competitiveness advances when the public and private sectors together promote a favourable environment for innovation[71]. Therefore, innovation in organizations also depends on the external environment that can be subdivided into politics, economics, society, technology, or even nature[72]. The following part shows how each of these segments can foster or hinder innovation. Table 1.1 shows the topics that are covered in this section.

Table 1.1: Grouping of influencing factors for innovation from the general environment[73]

Political & Legal Environment	Macro-economic Environment	Society / Social-cultural Environment	Technological Environment	Natural Environment
Education & university systems	Macro-economic settings	National culture	Communication infrastructure	Ecological developments
Legislative settings	Availability of financial institutions	Societies with certain values	Market accessibility	
Innovation policies		Changes in demographics	New knowledge	
Intensity of spending on higher education		Number of scientists and technologists in the workforce		
Effectiveness of intellectual property protection				
Location				

The influence of broader parameters on innovation such as education and university systems, legislative and macroeconomic settings, communications infrastructure, availability of financial institutions, market accessibility, and innovation policies or other government policies as well as sectoral or regional aspects cannot be denied[74]. These aspects already address the political and legal, but also the macro-economic environment. Moreover, communication infrastructure relates to how much a country or a location is technologically advanced. Market accessibility even touches the natural environment, since it not only includes infrastructural aspects, but also how much a market is ecologically interesting for

[71] Porter, M. E. and Stern, S. The Global Competitiveness Report 2002: National Innovative Capacity, p. 2. Retrieved 29.05.2013 from: http://www.isc.hbs.edu/Innov_9211.pdf.

[72] Tang, H. K. An integrative model of innovation in organizations. *Technovation*. 1998, vol. 18, no. 5, p. 301.

[73] Table made by author from literature contents and using Figure 1.1 as a basis for the grouping.

[74] OECD and Eurostat. *Oslo Manual - Guidelines for collecting and interpreting innovation data*. Paris: OECD Publisher, 2005, pp. 37-39.

certain products. Ecological developments can offer attractive opportunities for innovations to companies[75].

To address the social-cultural environment, Kaasa and Vadi's findings reveal that the capability to innovate depends on national culture to a certain extent – cultures that focus on relationships with non-family members and are open to different backgrounds can provide rich sources for new ideas due to their broader worldview[76]. Besides, societies ranking high on self-expression values such as social toleration, life satisfaction, or aspiration to liberty in general possess a high degree of interpersonal trust, which is fundamentally important to innovation activities[77]. Additionally, changes in demographics, perceptions or moods must be seen as part of the socio-cultural context organizations act in and are considered as sources for innovation from outside the company. Astonishingly, new scientific knowledge must not be seen as the most reliable or most predictable source of successful innovations, but, in fact, it accounts for technological sources from outside the company[78].

To sum up, the overall location matters for innovation as the findings of Porter and Stern's research reveal, and companies have to make sure that they choose R&D locations according to national advantages relating to the number of scientists and technologists in the workforce (social environment), the effectiveness of intellectual property protection, or the intensity of spending on higher education (political environment). Using location-based advantages in innovation by establishing a presence in countries whose innovation environments are most favourable can be a decisive determinant for organizations[79]. Additional findings reveal the remarkable degree to which the national background matters for success in innovations, indeed. Actually, building innovative capacity has a strong connection to a country's general attractiveness and level of wealth and it must be seen as one of the biggest challenges for many countries in Latin America, Southern and Eastern Europe for the years to come[80]. Due to this background, it is essential that companies are able to see connections, to spot opportunities from the general environment they act in and to take advantage of them[81].

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[75] Steinmann, H. et al. *Management*. Wiesbaden: Springer Gabler, 2013, p. 173.

[76] Kaasa, A. and Vadi, M. How does culture contribute to innovation? Evidence from European countries. In: Tartu University Press, 2008, pp-23-24. Retrieved 27.10.2013 from: ftp://ftp.repec.org/opt/ReDIF/RePEc/mtk/febpdf/febawb63.pdf.

[77] Jucevičius, G. The Innovation Culture in Modern Lithuanian Organizations: Values, Attitudes and Practices. *Social Sciences / Socialiniai mokslai*. 2009, vol. 1, no. 63, p. 40.

[78] Drucker, P. F. *Innovation and Entrepreneurship*. New York: HarperCollins Publishers, Inc., 1985, pp. 35-36.

[79] Porter, M. E. and Stern, S. Innovation: Location matters. *MIT Sloan Management Review*. 2001, vol. 42, no. 4, pp. 30-36.

[80] Porter, M. E. and Stern, S. The Global Competitiveness Report 2002: National Innovative Capacity, p. 15. Retrieved 29.05.2013 from: http://www.isc.hbs.edu/Innov_9211.pdf.

[81] Tidd, J. and Bessant, J. *Managing innovation*. West Sussex: John Wiley & Sons Ltd., 2009, p. 3.

Companies have to communicate with the external environment and know the external forces that impact innovation[82].

1.4.2 Influencing factors from the competitive environment

The next segment in Figure 1.1 addresses the competitive environment and how it influences the innovation capability of a company. Successful innovation also depends on economic rules and forces that shape industries such as potential new entrants to the market, possible substitutes for current products, suppliers, competitors, and the bargaining power of buyers[83]. Actually, this is where the general and the competitive environment become interlinked: depending on policies and regulations, industries can be politically protected from new market entrants which makes them more attractive to established companies[84]. As a result, less dangerous competition arises. Moreover, suppliers definitely shape the competitive environment and with a wide range of possible suppliers companies have more options to choose from in order to make strategic goals such as innovation work. Furthermore, products used substitutionally for a certain offer are a factor that can influence new ideas and innovation in an industry sector[85].

Most of all, customers or users and their bargaining power have to be taken into account as a source and success factor for innovation. In excellent companies, a lot of innovation comes directly from the market. These companies pay attention and listen to what customers want and what lead users propose[86]. Wentz confirms this by stating that even though it is a lot of work to search for consumer insights in detail, it is what makes innovation successful in the end. Innovation projects with regular customer input have a success probability that is twice as high and a market share that is 70% higher than projects with insufficient market input. Besides, the most successful companies in the market work together with customers much more closely to get to know their needs and problems than those companies being less successful[87]. High-innovation companies interact with their clients intensively and consult with contacts from inside and outside the firm to ensure appealing solutions by creating different product models and discussing them with users first[88]. Also, scientists need exposure

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[82] Tang, H. K. An integrative model of innovation in organizations. *Technovation*. 1998, vol. 18, no. 5, p. 302.

[83] Ibid, p. 302.

[84] Steinmann, H. et al. *Management*. Wiesbaden: Springer Gabler, 2013, p. 181.

[85] Ibid, pp. 187-189.

[86] Peters, T. and Waterman, R. H. *In search of excellence*. London: Profile Books Ltd., 1982, pp. 193-197.

[87] Wentz, R.-C. *Die Innovationsmaschine - Wie die weltbesten Unternehmen Innovationen managen*. Berlin & Heidelberg: Springer Verlag, 2008, p. 111-112.

[88] Delbecq, A. L. and Mills, P. K. Managerial practices that enhance innovation. *Organizational Dynamics*. 1985, vol. 14, no. 1, p. 30.

to external inputs. Isolation is not what enhances innovative output[89]. Surely, the product itself needs to have clear, unique advantages as well as to deliver superior value to the customer. Moreover, it needs to be defined sharply, clearly and early regarding characteristics and features before development begins in order to make the project a success[90]. It has to be beneficial from the customers' perspective and the understanding for that must come from deep market insights of customer needs, wants, likes and dislikes. Therefore, market research and market orientation including test markets, market studies and analyses must determine the entire product development process to be successful[91]. Since current and future users have always enforced innovation, customer centricity is the top-ranked factor that relates to influencing aspects from outside the company for developing and maintaining innovation[92].

1.4.3 Influencing factors from within the company

Having discussed factors from outside the company, namely the general and the competitive environment, the elements from within in the company, classified into hard and soft factors and illustrated in Figure 1.2 now need attention.

Figure 1.2: Classification of influencing factors for innovation from within the company[93]

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[89] Pelz, D. C. Conditions for Innovation. *Trans-Action*. 1965, vol. 2, no. 2, p. 33.

[90] Cooper, R. G. From Experience: The Invisible Success Factors in Product Innovation. *Journal of Product Innovation Management*. 1999, vol. 16, no. 2, p. 5.

[91] Cooper, R. G. New Products: The Factors that Drive Success. *International Marketing Review*. 1994, vol. 11, no. 1, pp. 64-66.

[92] Jamrog, J. et al. Building and sustaining a culture that supports innovation. *Human Resource Planning*. 2006, vol. 29, no. 3, p. 12.

[93] Figure developed by author from literature contents outlined in this section.

Generally, the explanations for the success of innovative companies can differ widely. Depending on the company, they range from the number of patents, over the scientific freedom of employees to the speed of product development[94]. To start with, more on the **hard factors**, which summarize structure, strategy, resources, and professional project management, is explained here.

Looking into organizational **structure**, Cooper sees bureaucracy and organizational inflexibility as a blocker for product innovation[95]. Ahmed agrees and sees bureaucratic bottlenecks as counterproductive to innovation and promotes autonomy and flexibility in organizational structure[96]. Amabile and Gryskiewicz warn about excesses of formal structures and procedures[97] and for Martins and Terblanche organizational structure must allow for adaptability[98]. Various authors highlight the importance of organic-style organizational structure[99] and flexibility[100] for innovation. It seems broadly accepted that organic structures encourage innovation since here, jobs are less formalized and defined in a broader sense. Moreover, companies need to agree on collaboration with other organizations and consider themselves as working in alliances and networks. With clients' requests for customized products and solutions, companies need a structure that enables even more flexibility than traditional innovative companies[101]. For other authors having multiple structural linkages inside and outside the organization is clearly seen as a success factor for innovation[102]. To summarize, the organizational design for product innovation is critical and must overcome traditional functional barriers to evolve as a cross-functional team approach[103].

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[94] Trott, P. *Innovation management and new product development*. Essex: Pearson Education Limited, 2008, p. 25.

[95] Cooper, R. G. From Experience: The Invisible Success Factors in Product Innovation. *Journal of Product Innovation Management*. 1999, vol. 16, no. 2, p. 13.

[96] Ahmed, P. K. Culture and climate for innovation. *European Journal of Innovation Management*. 1998, vol. 1, no. 1, pp. 38-41.

[97] Amabile and Gryskiewicz, 1989. In: Amabile, T. M. Motivating Creativity in Organizations: On doing what you love and loving what you do. *California Management Review*. 1997, vol. 40, no. 1, p. 53.

[98] Martins, E. C. and Terblanche, F. Building organisational culture that stimulates creativity and innovation. *European Journal of Innovation Management*. 2003, vol. 6, no. 1, p. 70.

[99] Prajogo, D. I. and Ahmed, P. K. Relationships between innovation stimulus, innovation capacity, and innovation performance. *R&D Management*. 2006, vol. 36, no. 5, p. 503.

[100] Cummings, L. Organizational Climates for Creativity. *Academy of Management Journal*. 1965, vol. 8, no. 3, p. 226; Medina, C. C. et al. Characteristics of Innovative Companies: A Case Study of Companies in Different Sectors. *Creativity and Innovation Management*. 2005, vol. 14, no. 3, p. 275.

[101] Medina, C. C. et al. Characteristics of Innovative Companies: A Case Study of Companies in Different Sectors. *Creativity and Innovation Management*. 2005, vol. 14, no. 3, pp. 275-281.

[102] Kanter, 1988. In: McLean, L. D. Organizational Culture's Influence on Creativity and Innovation: A Review of the Literature and Implications for Human Resource Development. *Advances in Developing Human Resources*. 2005, vol. 7, no. 2, p. 232.

[103] Cooper, R. G. New Products: The Factors that Drive Success. *International Marketing Review*. 1994, vol. 11, no. 1, p. 70.

Regarding **strategy**, Atuahene-Gima and Ko argue that companies aligning market and entrepreneurship orientations in their strategy are harder to imitate, create valuable and rare resources, and develop products that are clearly superior to competitors'. According to this, companies need both: a product innovation process that is highly technology driven as well as the capability to meet customer needs[104]. Kahn et al.'s results show that no matter where a company resides, strategy is seen to be essentially important to new product development[105]. Several authors confirm that innovation needs to be aligned to strategy[106] while no formal strategy for innovation hinders it[107]. Other authors encourage a consequent focus on innovation[108] and name a distinctive strategic orientation on innovation[109] as decisive factors.

Research also shows that it is common for companies to work on too many projects at a time with too little manpower. For positive results, management must commit to (financial and human) **resources** and time frames aligned with the new product objectives, strategy and processes. Although Cooper acknowledges the need for product cycle time reductions in global competition, he strongly emphasizes that this must not compromise with quality of execution. Hence, realistic timelines in accordance with the resources available must be agreed on[110]. Highly innovative companies ensure that there is money available entirely meant and dedicated to the stimulation of new activities or feasibility studies[111]. Unless the organization and top management commit to emotional, financial, and leadership support, innovation cannot be successful[112]. Cangemi and Miller clearly see time constraints as impeding innovation, since under pressure quick solutions are favoured and people are rather

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[104] Atuahene-Gima, K. and Ko, A. An Empirical Investigation of the Effect of Market Orientation and Entrepreneurship Orientation Alignment on Product Innovation. *Organzation Science*. 2001, vol. 12, no. 1 Jan-Feb, pp. 55-58.

[105] Kahn, K. B. et al. An Examination of New Product Development Best Practice. *Journal of Product Innovation Management*. 2012, vol. 29, no. 2, p. 189.

[106] Newman, J. L. Building a creative high-performance R&D culture. *Research Technology Management*. 2009, no. Sept-Oct, p. 26; Brooke Dobni, C. The DNA of Innovation. *Journal of Business Strategy*. 2008, vol. 29, no. 2, p. 48.

[107] Jamrog, J. et al. Building and sustaining a culture that supports innovation. *Human Resource Planning*. 2006, vol. 29, no. 3, pp. 14-17.

[108] Vahs, D. and Schmitt, J. Determinanten des Innovationserfolgs. *OrganisationsEntwicklung*. 2010, no. 3, p. 43.

[109] Boerner, S. and Gebert, D. Zur Förderung von Innovationen: Freiheit um jeden Preis? *OrganisationsEntwicklung*. 2002, vol. 2, p. 35.

[110] Cooper, R. G. From Experience: The Invisible Success Factors in Product Innovation. *Journal of Product Innovation Management*. 1999, vol. 16, no. 2, pp. 19-20.

[111] Delbecq, A. L. and Mills, P. K. Managerial practices that enhance innovation. *Organizational Dynamics*. 1985, vol. 14, no. 1, p. 28.

[112] Schneider, B. et al. Creating the Climate and Culture of Success. *Organizational Dynamics*. 1994, vol. 23, no. 1, p. 21.

blamed instead of problems being solved[113]. On the other hand, some deadline and termination point can be helpful for management to encourage scientists to work on a new exciting problem and with this, keep development processes fresh and alive[114]. Moreover, getting new products to market introduction right on time is a primary goal in the innovation competition[115].

Finally, Tang names a **professional project management** which includes the raising and doing of projects as an essential factor for innovation[116]. Actually, this goes in line with the resource thought outlined above. A healthy, realistic but still challenging plan on new project regarding manpower, time and money definitely is part of a professionalized project management and necessary to be a successful innovator.

Tang summarizes even more internal enablers of innovation such as **effective information and communication** within the organization, **knowledge and skills**, behaviour, **integration of people**, and **supportive management** guidance[117], which are all subsumed under the **soft factors** here. Cross-functional and international teams are another important aspect contributing to innovation[118]. Scientific teams need **diversity** of technical skills and apparently, they are more productive if they have specialized knowledge in three or four areas than just in one[119]. Jamrog et al. highlight cross-functional teamwork and team diversity as factors encouraging innovation as well. Generally, the ability of **collaboration** is an enabler for innovation. If innovation is supposed to be really effective and successful, it has to take place at every level of the organization and cannot be compartmentalized[120]. Thus, innovation activity and performance does not at all rely on Research and Development (R&D) activities only. Much more it also depends on the willingness to interact with other firms and public research institutions, too[121].

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[113] Cangemi, J. and Miller, R. Breaking-out-of-the-box in organizations: Structuring a positive climate for the development of creativity in the workplace. *Journal of Management Development*. 2007, vol. 26, no. 5, p. 402.

[114] Pelz, D. C. Conditions for Innovation. *Trans-Action*. 1965, vol. 2, no. 2, p. 34.

[115] Cooper, R. G. New Products: The Factors that Drive Success. *International Marketing Review*. 1994, vol. 11, no. 1, p. 74.

[116] Tang, H. K. An integrative model of innovation in organizations. *Technovation*. 1998, vol. 18, no. 5, pp. 303-306.

[117] Ibid.

[118] Cooper, R. G. From Experience : The Invisible Success Factors in Product Innovation. *Journal of Product Innovation Management*. 1999, vol. 16, no. 2, p. 5.

[119] Pelz, D. C. Conditions for Innovation. *Trans-Action*. 1965, vol. 2, no. 2, p. 33.

[120] Jamrog, J. et al. Building and sustaining a culture that supports innovation. *Human Resource Planning*. 2006, vol. 29, no. 3, pp. 10 & 13.

[121] OECD and Eurostat. *Oslo Manual - Guidelines for collecting and interpreting innovation data*. Paris: OECD Publisher, 2005, p. 28.

In excellent companies, innovation is pursued with high **organizational commitment**, reassignment, and full dignity after a failure of a risky project[122]. Even though innovation includes complexity and uncertainty, effective organizations design conditions that enable people to balance today's tasks with tomorrow's requests[123]. Product innovation arises when research and sales on the one hand, and research and production on the other hand work together closely. Thus, these departments must develop a critical level of **trust** and mutual confidence. That is the reason why members of different departments need similar ground rules about what is important to work together effectively[124].

Finally, **leadership** and management must be addressed as determining success factors for innovation[125]. There is evidence for the great importance of the role of management in creating an environment supportive to product innovation[126]. According to Matzler et al., the innovation orientation of top management decisively influences other success factors for innovation such as culture and market orientation and, thus, plays an essential role in determining success[127]. In a 2007 survey, business executives, managers, and professionals of 600 global companies pointed to leadership as the best predictor of innovation performance[128]. Not only is top management responsible for providing the right amount of human and financial resources, but also does its commitment to new product development highly influence a company's success in new product efforts[129]. Even though a leader cannot plan discovery and creative thought[130], innovation management depends on the leadership at the top. The team at the top must want it to happen and trust their people to make it happen[131].

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[122] Delbecq, A. L. and Mills, P. K. Managerial practices that enhance innovation. *Organizational Dynamics*. 1985, vol. 14, no. 1, p. 32.

[123] Tushman, M. and Nadler, D. Organizing for Innovation. *California Management Review*. 1986, vol. 28, no. 3, p. 78.

[124] Lorsch, J. W. and Lawrence, P. R. Organizing for Product Innovation. *Harvard Business Review*. 1965, no. 43, pp. 111-114.

[125] Ideas about leadership for innovation were already argued and used by the author in Kuhn, C. and Šumilo, Ē. Leaders must learn how to create an organisational climate where others apply innovative thinking to solve problems and develop new products and services. *Humanities and Social Sciences Latvia*. 2012, vol. 20, no. 1, pp. 77-94.

[126] Atuahene-Gima, K. and Ko, A. An Empirical Investigation of the Effect of Market Orientation and Entrepreneurship Orientation Alignment on Product Innovation. *Organzation Science*. 2001, vol. 12, no. 1 Jan-Feb, p. 68.

[127] Matzler, K. et al. Sustaining corporate success: what drives the top performers? *Journal of Business Strategy*. 2010, vol. 31, no. 5, p. 8.

[128] Barsh, J. et al. Leadership and innovation. In: The McKinsey Quarterly, 2008, p. 39. Retrieved 26.12.2013 from: http://www.mckinsey.com/insights/innovation/leadership_and_innovation.

[129] Cooper, R. G. and Kleinschmidt, E. J. Benchmarking the firm's critical success factors in new product development. *Journal of Product Innovation Management*. 1995, no. 12, p. 388.

[130] Klemm, W. R. Leadership: Creativity and Innovation. In: Lester, R.I., Morton, A.G. eds. *Concepts of Air Force Leadership*. Alabama: Air University Press, 2001, p. 452.

[131] Davila, T. et al. *Making innovation work*. New Jersey: Wharton School Publishing, 2006, p. 13.

The last part of this section addresses **organizational culture and values** as success factors for innovations. Both topics are mentioned very often and unambiguously in the fundamental literature about innovation performance. Cooper and Kleinschmidt conducted a research that explores different constructs that drive performance in new product development. Their findings quantitatively demonstrate the undeniable impact of an entrepreneurial climate and innovation-supportive culture on new product performance[132]. In general, answers are often linked to culture when organizations fail. To scientists as well as managers, it is clear that culture has a powerful influence on people and organizations[133]. Sustained success of companies often has less to do with market forces, resource advantages, or competitive positioning than with company values, personal beliefs, and a clear vision[134]. Especially in the long run, there is little doubt that organizational culture affects performance, even if longitudinal analyses to prove this are hardly feasible[135]. Denison's results indicate that companies with a certain participative culture, for example, gain a return on investment that is nearly twice as high as those in firms with less efficient cultures[136]. Furthermore, Gordon and DiTomaso confirm that where managers follow widely accepted corporate patterns companies do not suffer from missed opportunities[137]. Ojo empirically proves a clear positive relationship between organizational culture and corporate performance in his research[138]. Furhter, Baetge et al. reconfirm this in their meta-analysis on empirical studies regarding the connection of organizational culture and performance. So far, empirical evidence results in a positive relationship between the level and the strength of an organizational culture and a company's success assuming that culture is responsible for achievements[139]. In fact, unsuccessful companies have a different cultural profile from that of successful companies[140].

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[132] Cooper, R. G. and Kleinschmidt, E. J. Benchmarking the firm's critical success factors in new product development. *Journal of Product Innovation Management*. 1995, no. 12, pp. 388-390.

[133] Leidner, D. E. and Kayworth, T. A review of culture on information systems research: Toward a theory of information technology culture conflict. *MIS Quarterly*. 2006, vol. 30, no. 2, pp. 357-358.

[134] Cameron, K. S. and Quinn, R. E. *Diagnosing and changing organizational culture*. San Francisco: Jossey Bass, 2011, p. 5.

[135] Hofstede, G. Attitudes, Values and Organizational Culture: Disentangling the Concepts. *Organization Studies*. 1998, vol. 19, no. 3, p. 491.

[136] Denison, D. R. Bringing corporate culture to the bottom line. *Organizational dynamics*. 1984, vol. 13, no. 2, p. 6.

[137] Gordon, G. G. and DiTomaso, N. Predicting corporate performance from organizational culture. *Journal of Management Studies*. 1992, vol. 29, no. 6, November, pp. 794-795.

[138] Ojo, O. Organisational Culture and Corporate Performance: Empirical Evidence from Nigeria. *Journal of Business Systems, Governance and Ethics*. 2005, vol. 5, no. 2, p. 11.

[139] Baetge, J. et al. Unternehmenskultur und Unternehmenserfolg: Stand der empirischen Forschung und Konsequenzen für die Entwicklung eines Messkonzeptes. *Journal für Betriebswirtschaft*. 2007, vol. 57, no. 3-4, pp. 215-216.

[140] Schönborn, G. Value Performance. *Zeitschrift für Psychologie / Journal of Psychology*. 2010, vol. 218, no. 4, p. 240.

In an extensive literature research on success and failure of innovation projects that included 43 studies dating back to 1972, Van der Panne, Van Beers, and Kleinknecht identified and classified major success factors for innovation[141]. It comes as an interesting insight here, that as a conclusion, the authors confirm a firm's culture that is dedicated to innovation and recognizes the collective nature of innovation efforts explicitly to be one of the most important factors for successful innovation[142]. Vahs and Schmitt developed a model for innovation success based on culture variables such as leadership, communication, values, and orientation towards innovation and organization variables consisting of organizational form, instruments of coordination, and orientation towards value creation. The model was tested on 85 mostly small and mid-sized German companies and revealed innovation culture to have a high correlation with the organization itself, which indicates that the two factors cannot be looked at independently from each other. On the contrary, the study proves that innovative companies do not only have an organizational form and structure, but also a culture that encourages innovation[143].

Despite the fact that Kahn et al. identify seven dimensions contributing to new product development in their framework, they found a missing understanding of best practice elements for climate, culture, and metrics by managers in Western countries. For this reason, they suggest continued work on these weak areas for academics since the examined relatively low importance of climate and culture seems dangerous to them in most businesses[144].

Based on 233 empirical studies, Evanschitzky et al. identify 33 predictive antecedents in an updated meta-analysis on success factors of product innovation. Conversely, their results show a diversified picture: market orientation and product advantage clearly have positive effects as well as process and strategy characteristics when it comes to the prediction of new product success. On the contrary, the organization itself and the marketplace are less important. The authors conclude with the insight that the identified success factors diminish in importance over time. Additionally, the identified factors are already widespread among managers and no longer determine competitive advantage. Therefore, science calls for more

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[141] Van der Panne, G. et al. Success and Failure of Innovation: A Literature Review. *International Journal of Innovation Management*. 2003, vol. 7, no. 3, pp. 312-315.

[142] Ibid, p. 327.

[143] Vahs, D. and Schmitt, J. Determinanten des Innovationserfolgs. *OrganisationsEntwicklung*. 2010, no. 3, pp. 41-45.

[144] Kahn, K. B. et al. An Examination of New Product Development Best Practice. *Journal of Product Innovation Management*. 2012, vol. 29, no. 2, pp. 184-191.

differentiated investigations of national and also organizational culture as key factor for new product success according to the authors[145].

To summarize, for increasing innovation performance a company has to consider a variety of factors form within the company[146]. In general, for becoming an innovative company a broader perspective, a look into the company as a whole system including hard and soft factors such as strategy, processes, and culture is required[147]. Tushman and Nadler design a model summarizing critical factors in managing innovation in accordance with their famous Congruence Model of Organizational Behaviour[148]. Again, the informal organization is essential here. It consists of core values encouraging innovation, communication networks, critical roles, and conflict resolution processes, which are all decisively important for innovation[149]. Up to now, there is no general definition of success factors for innovation from within the company that all experts would agree on, though[150]. Today, more than 300 different studies regarding the success factors for innovation are published[151]. Consensus about poor practice might be much easier to achieve and document[152]. Although this makes the topic hard to grasp there is a common consent in scientific research that innovation culture is a very important factor. Company culture is undisputedly considered crucial to the firm's technological capabilities in the long term[153]. Higgins and McAllaster state that the real key contributor to innovation is the management of shared values and organizational culture. Strategy needs alignment to culture and if innovation is a strategic company goal cultural

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[145] Evanschitzky, H. et al. Success Factors of Product Innovation: An Updated Meta-Analysis. *Journal of Product Innovation Management*. 2012, no. 29, pp. 29-30.

[146] An earlier version of this summary was already discussed by the author in Kuhn, C. and Šumilo, Ē. Leaders must learn how to create an organisational climate where others apply innovative thinking to solve problems and develop new products and services. *Humanities and Social Sciences Latvia*. 2012, vol. 20, no. 1, pp. 77-94.

[147] Jamrog, J. et al. Building and sustaining a culture that supports innovation. *Human Resource Planning*. 2006, vol. 29, no. 3, p. 18.

[148] For details on this model: Scott, R. W. and Davis, G. F. *Organizations and Organizing - Rational, Natural, and Open System Perspectives*. New Jersey: Pearson Education, Inc., 2007, p. 20.

[149] Tushman, M. and Nadler, D. Organizing for Innovation. *California Management Review*. 1986, vol. 28, no. 3, pp. 82-92.

[150] A similar conclusion was used in an earlier version of these ideas by the author in Kuhn, C. et al. Influential determinants of innovation: Case study of Latvia and Germany. *Journal of Social Sciences - Regional Formation and Development Studies Lithuania*. 2012, vol. 2, no. 7, pp. 74-85; and in Kuhn, C. and Šumilo, Ē. Leaders must learn how to create an organisational climate where others apply innovative thinking to solve problems and develop new products and services. *Humanities and Social Sciences Latvia*. 2012, vol. 20, no. 1, pp. 77-94.

[151] Dömötör, R. *Erfolgsfaktoren der Innovativität von kleinen und mittleren Unternehmen*. Wiesbaden: Gabler Verlag, 2011, p. 44.

[152] Kahn, K. B. et al. An Examination of New Product Development Best Practice. *Journal of Product Innovation Management*. 2012, vol. 29, no. 2, p. 191.

[153] Van der Panne, G. et al. Success and Failure of Innovation: A Literature Review. *International Journal of Innovation Management*. 2003, vol. 7, no. 3, p. 312.

artefacts must support it[154]. To survive in today's business environment, companies must see innovation as a way of corporate life[155]. Davila explains that innovation needs to be an integral part of the way a company operates every day and of the whole business mentality[156]. Kahn et al. see an innovative climate and company culture as a determining factor for new product development. In their framework they speak of culture as a company management value system that contributes to product development thinking and collaboration with external partners manifested in managerial support, various sources for new product ideas and rewards for creativity[157]. A McKinsey Quarterly study from 2008 found that senior executives almost unanimously – 94 per cent – say that people and corporate culture are the most important drivers for innovation[158]. Thus, the capability of an organization to create value out of innovation heavily depends on a strong innovation culture[159]. Other authors strengthen the thought that an appropriate climate makes employees strive for excellence and being entrepreneurial[160]. Generally, one cannot deny that there are companies having strongly anchored **values**, which support innovation and it is culture that enhances innovation capability[161]. The literature on organizational innovation, both anecdotal and empirical, emphasizes the importance of culture as a major determinant[162]. In 1983 already, Wallach identified several characteristics to innovative cultures. According to her, these places need to be filled with challenge and risk to make people creative. Even though innovative companies are not easy to work for, because they do request high levels of stress tolerance and might make it hard to balance family and private life, they do create a certain entrepreneurial environment for employees, which is exciting and dynamic[163].

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[154] Higgins, J. M. and McAllaster, C. Want Innovation? Then Use Cultural Artifacts that Support It. *Organizational Dynamics*. 2002, vol. 31, no. 1, pp. 76-77.

[155] Tushman, M. and Nadler, D. Organizing for Innovation. *California Management Review*. 1986, vol. 28, no. 3, p. 74.

[156] Davila, T. et al. *Making innovation work*. New Jersey: Wharton School Publishing, 2006, p. 11.

[157] Kahn, K. B. et al. An Examination of New Product Development Best Practice. *Journal of Product Innovation Management*. 2012, vol. 29, no. 2, p. 185.

[158] Barsh, J. et al. Leadership and innovation. In: The McKinsey Quarterly, 2008, p. 38. Retrieved 26.12.2013 from: http://www.mckinsey.com/insights/innovation/leadership_and_innovation.

[159] Terziovski, M. *Building innovation capability in organizations*. London: Imperial College Press, 2007, p. 213.

[160] Enkel, E. et al. Open innovation maturity framework. *International Journal of Innovation Management*. 2011, vol. 15, no. 6, p. 1167.

[161] Steinmann, H. et al. *Management*. Wiesbaden: Springer Gabler, 2013, p. 672.

[162] Prajogo, D. I. and Ahmed, P. K. Relationships between innovation stimulus, innovation capacity, and innovation performance. *R&D Management*. 2006, vol. 36, no. 5, p. 501.

[163] Wallach, E. J. Individuals and organizations - The cultural match. *Training*. 1983, no. February, p. 33.

To finalize, the figure that opened up this very chapter on the different segments of influencing factors for innovation (Figure 1.1) can even be argued from a reversed perspective: it all starts in the centre of the cycle and everything is interlinked as Figure 1.3 shows.

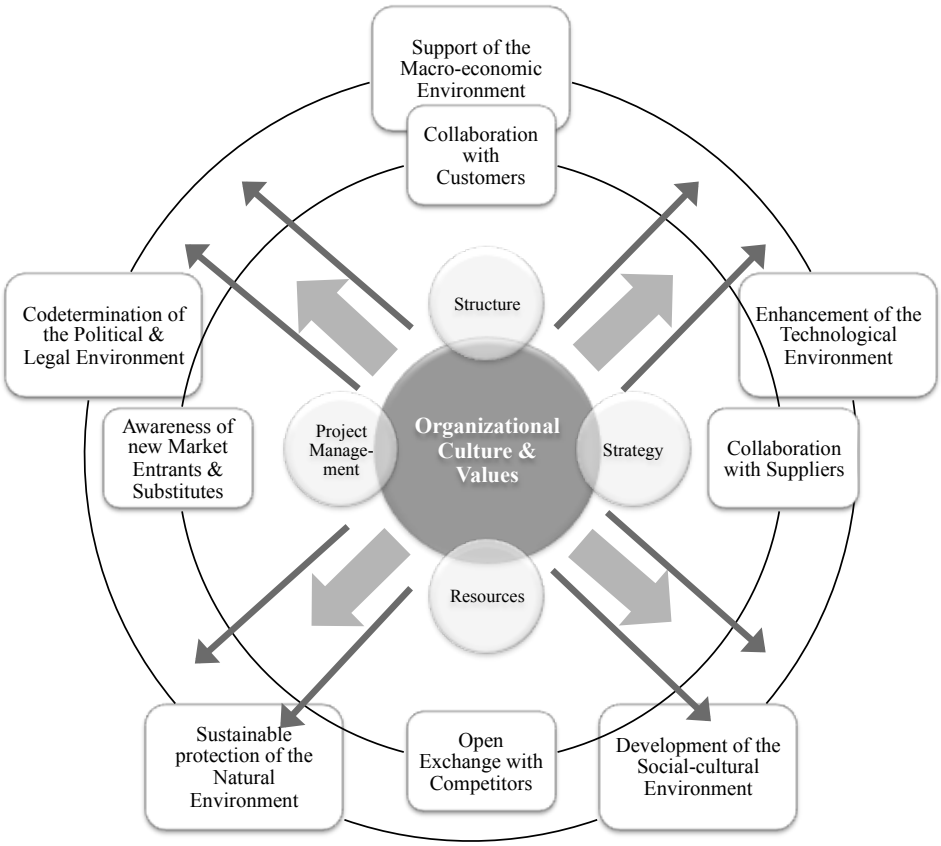

Figure 1.3: Conceptual framework on innovation factors and influences[164]

Accordingly, it is organizational culture and values that impact on structure, strategy, resources, and project management, which in turn determine how a company deals with its competitive and even the general environment. An open-minded, curious, and experimental attitude that shapes organizational culture in a company might lead to enhanced collaboration with customers and suppliers, an open exchange with competitors and the awareness of new market entrants and substitutes. From this perspective, a company can even shape the general environment it acts in through the enhancement of the technological environment, support and development of the economic and socio-cultural environment, or protection of the natural environment by innovative solutions. Eventually, this can even lead to the possibility to codetermine the political and legal environment, which, conversely, is partly responsible for the competitive environment. Figure 1.3 illustrates how all these aspects are interlinked and

[164] Figure developed by author from the discussion in chapter 1.4.

mutually related to each other, while organizational culture and values stand at the core of influence regarding success factors for innovation.

From this point of view, it becomes obvious how organizational culture and values essentially guide innovation performance of companies. For managers, it should come as a prerequisite that they start to develop the accordant values and cultural attributes from within the company to enhance their power to the outer cycles, especially, because it does not work the other way round. Managers have to start where they can directly influence things first. Only then the other layers of influencing factors can be codetermined in the long run. One can picture that like a stone thrown into water: concentric waves spread out into the water. However, it is the centre that determines how far they reach and how powerful they are. Accordingly, a much deeper understanding of the concepts and models on organizational culture and values is needed for the work at hand. For this reason, the next chapter outlines and examines different concepts and discusses various models and approaches to organizational culture.

1.5 Approaches and models on organizational culture with values at the core

Even some 20 years ago, organizational culture had acquired a status similar to structure, strategy, and control[165]. Until today, it highly influences academic research studies, literature, and business practice[166].

In the 1960s, attributing cultures to organizations appeared to the English-language literature and made organizational culture become a synonym for organizational climate[167]. However, the term climate does have an evaluative connotation according to Hofstede. Cultures, on the contrary, can be different without one being objectively better than the other. Moreover, climate is more closely linked to motivation and behaviour[168]. In former times, the distinction between the two concepts was quite easy according to Denison. If researchers worked with qualitative data such as field notes, stories, or quotes they were studying culture. Climate studies used quantitative analysis collected through questionnaires to support ideas. Accordingly, culture refers to a deeper structure of an organization, exploring values, attitudes

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[165] Hofstede, G. et al. Measuring organizational cultures: A qualitative and quantitative study across twenty cases. *Administrative Science Quarterly*. 1990, vol. 35, p. 286.

[166] Leidner, D. E. and Kayworth, T. A review of culture on information systems research: Toward a theory of information technology culture conflict. *MIS Quarterly*. 2006, vol. 30, no. 2, pp. 357-358.

[167] Hofstede, G. et al. *Cultures and Organizations - Software of the Mind*. New York: McGraw Hill, 2010, p. 343.

[168] Hofstede, G. Attitudes, Values and Organizational Culture: Disentangling the Concepts. *Organization Studies*. 1998, vol. 19, no. 3, pp. 485-486.

and beliefs, which are established through socialization[169]. In spite of this, Denison concludes, that culture and climate must be viewed as differences in interpretation rather than differences in the phenomenon. They both address the creation and influence of social contexts in organizations. Since business and management researchers should adopt the natural language that organizational members use to describe their own context, the culture term must be assumed to be the more prominent at the current time and therefore, more appropriate[170]. For this reason, the work at hand refers to the term of organizational culture in the following parts.

Certainly, it is beyond dispute that every company has a culture. Every company develops a set of values, symbols and rituals describing the way things are done in the organization and this is based on the experience and formula for success[171]. The culture of an organization has something to do with the basic underlying assumptions people share within the company. These do exist in every company, even if individuals working there do not really recognize them. Following Pieler, organizational culture is never static. On the contrary, it usually survives short-term trends and fashions. Moreover, organizational culture offers the chance to achieve sustainable competitive advantages, because competitors can hardly copy it[172]. That any organizational culture is more or less unique is one of the few parts of general consensus among scientist. However, successful companies still show similar value patterns such as high quality or customer satisfaction[173].

For Apfelthaler et al. various layers of culture – national, organizational, professional culture or others – are interwoven and cannot be separated for organizational contexts. According to the authors' research, cultural elements need to be brought together to create competitive advantage and the main issue is that tasks are always negotiable, whereas cultures are not[174]. For using culture as a competitive advantage, Chatman and Jehn bring in a different point of view, though. Their results indicate that cultural dimensions vary more across industries than within them[175]. As a conclusion, the authors argue that rather than attempting to establish

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[169] Denison, D. R. What is the difference between culture and climate? A Native's point of view on a decade of paradigm wars. *The Academy of Management Review*. 1996, vol. 21, no. 3, pp. 621-624.

[170] Ibid, pp. 645-646.

[171] Kerka, F. et al. *Cultivating Corporate Innovation*. Gütersloh: Verlag Bertelsmann Stiftung, 2008, p. 13.

[172] Pieler, D. *Neue Wege zur lernenden Organisation*. Wiesbaden: Gabler Verlag, 2001, pp. 145-148.

[173] Martin, J. Organizational Culture: Pieces of the puzzle. In: Boardman, P.J. ed. *Classics of Organization Theory*. Boston: Wadsworth Cengage Learning, 2011, pp. 357-368.

[174] Apfelthaler, G. et al. Corporate global culture as competitive advantage: learning from Germany and Japan in Alabama and Austria? *Journal of World Business*. 2002, vol. 37, no. 2, pp. 110-113.

[175] Chatman, J. A. and Jehn, K. A. Assessing the relationship between industry characteristics and organizational culture: How different can you be? *Academy of Management Journal*. 1994, vol. 37, no. 3, pp. 537-538.

unique cultures, companies should consider imitating the cultural characteristics of successful organizations[176].

Referring to the elements of organizations described in the Congruence Model of Organizations by Nadler and Tushman, organizational culture and values are part of the informal organization. Components of the informal organization include the organization's culture, norms and values, social networks inside and outside the enterprise, power and politics, and even the actions of leaders[177]. According to Scott, behaviour influences norms and beliefs as do norms and beliefs the other way round. Participants share an understanding of their situation and appropriate way of achieving goals. Therefore, an organization cannot be seen as independent from the social structure that evolves in between and around it[178].

Edgar H. Schein describes culture as a deep phenomenon, merely manifested in a variety of behaviour. According to Schein, organizational culture consists of three levels: artefacts, espoused values, and basic underlying assumptions. Artefacts are easy to find and see in an organization and the level of espoused values can be described as the publicly preached values of a company. But, when it comes to the basic underlying assumptions things become invisible. This level consists of beliefs, perceptions, thoughts and feelings that a group of people has been successful with for years[179]. The model clearly brings to light that the fundamental basement of organizational culture is values. Behind norms lie deeper taken-for-granted assumptions that most members of a culture are not even aware of and never question nor examine[180]. Culture can also be seen as a group phenomenon. If a way of solving problems continues to work people begin taking it for granted as *the* correct way. However, we cannot judge whether a culture is good or bad, right or wrong[181]. Every culture can work under certain circumstances and fail completely under others[182].

Leidner and Kayworth reconfirm that culture is a very subtle attribute of groups and most of the time people are unaware of their culture as long as they do not encounter a different

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[176] Chatman, J. A. and Jehn, K. A. Assessing the relationship between industry characteristics and organizational culture: How different can you be? *Academy of Management Journal*. 1994, vol. 37, no. 3, p. 548.

[177] Scott, R. W. and Davis, G. F. *Organizations and Organizing - Rational, Natural, and Open System Perspectives*. New Jersey: Pearson Education, Inc., 2007, pp. 19-23.

[178] Scott, R. W. *Organizations - Rational, Natural, and Open Systems*. New Jersey: Pearson Education, 2003, pp. 18-19.

[179] Schein, E. H. *Organisationskultur*. Bergisch Gladbach: Edition Humanistische Psychologie, 2010, pp. 30-35.

[180] Schein, E. H. Culture: The Missing Concept in Organization Studies. *Administrative Science Quarterly*. 1996, vol. 41, no. 2, p. 236.

[181] Schein, E. H. *Organisationskultur*. Bergisch Gladbach: Edition Humanistische Psychologie, 2010, pp. 31-41.

[182] Ibid, p. 59.

culture[183]. Brannen shares this perspective and sees culture as historically situated and an obvious set of meanings that is common to the people in an organization. Thus, for her, culture is not just given to a particular firm, but developed and shaped through people's interactions and their strategic choices in an enterprise[184].

Organizational cultures are indeed unique and any generalization is neither feasible nor ethical[185]. For Wallach, a culture is good in the sense of effective if it reinforces the mission, purposes, and strategies of the organization[186]. Moreover, Schein takes the viewpoint that the researcher's culture itself will influence every investigation. The researchers' own culture might lead scientists to assumptions about what is important to study and what not, which makes the topic limited in a sense unless crossing cultural boundaries is encouraged[187].

Hofstede et al. describe culture to work like different skins of an onion with values at the core. The three first layers consisting of symbols, heroes, and rituals, are visible to outsiders and therefore find their manifestation in practices. Still, their meaning is only clear to insiders. Values, as being the core of culture, are seen as nonspecific feelings of good and evil, beautiful and ugly, normal and abnormal, rational and irrational. They are invisible, unconscious, and rarely discussable – but they determine behaviour[188]. Furthermore, Hofstede et al. point out that the implementation of values is very much determined through shared practices[189].

Various authors can share this point of view. Quinn and Rohrbaugh describe values to be a primary building block for culture[190]. Wallach understands culture as the shared understanding of an organization's employees and states that beliefs, norms, and values determine expected standards of behaviour[191]. Chatman and Jehn conceptualize and quantify organizational culture in terms of widely shared and strongly held values. The authors suggest

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[183] Leidner, D. E. and Kayworth, T. A review of culture on information systems research: Toward a theory of information technology culture conflict. *MIS Quarterly*. 2006, vol. 30, no. 2, p. 373.

[184] Brannen, M. Y. Culture as the critical factor in implementing innovation. *Business Horizons*. 1991, no. November - December, p. 59.

[185] Howard, L. W. Validating the competing values model as a representation of organizational cultures. *International Journal of Organizational Analysis*. 2008, vol. 6, no. 3, p. 233.

[186] Wallach, E. J. Individuals and organizations - The cultural match. *Training*. 1983, no. February, p. 32.

[187] Schein, E. H. Culture: The Missing Concept in Organization Studies. *Administrative Science Quarterly*. 1996, vol. 41, no. 2, p. 239.

[188] Hofstede, G. et al. Measuring organizational cultures: A qualitative and quantitative study across twenty cases. *Administrative Science Quarterly*. 1990, vol. 35, p. 291.

[189] Ibid, p. 311.

[190] Khazanchi, S. et al. Innovation-supportive culture: The impact of organizational values on process innovation. *Journal of Operations Management*. 2007, vol. 25, no. 4, p. 872.

[191] Wallach, E. J. Individuals and organizations - The cultural match. *Training*. 1983, no. February, p. 29.

that every company has some core values that are shared across the entire organization[192]. However, this is only meaningful if there is a high consensus about organizational values among members[193]. Vargas-Hernández and Noruzi state that cultures are very powerful, but also unconscious. The authors describe cultures to be dissident waterways that run through our lives and interactions, giving us notes that shape our observations, ascriptions, conclusions and ideas of self and others[194]. Other authors describe organizational culture as a common sense of "who we are as an organization"[195]. Homma and Bauschke describe organizational culture as a pyramid consisting of different building blocks. Here, again, values are part of the assumptions that people develop and according to which they behave[196].

In their literature review of 82 papers regarding the relevance of culture to the field of IT, Leidner and Kayworth state that the definition of culture comes as a first challenge to scientists. The authors explain that the research about national culture and organizational culture has emerged in quite different, separate directions. Still, they both share a focus on defining values that help to distinguish one group from another. Besides, the authors admit that the focus of different approaches on organizational culture has mostly been on values, which is why they also follow this path[197]. Their taxonomy of values counts around 26 different values and ranges from adaptability to task orientation. As a result, the authors clarify that national, organizational and subunit cultures are often interrelated and cannot be looked at separately[198].

Reynierse and Harker see culture as a profile and a statistical phenomenon that describes an organization. The authors state that there may be significant identifiable sub-cultures within successful companies, since different departments might actually need different cultures to fulfil their mission and tasks[199]. Sun, on the other hand, states that it is widely accepted to define organizational culture as values and beliefs that are deeply rooted and shared by the

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[192] Chatman, J. A. and Jehn, K. A. Assessing the relationship between industry characteristics and organizational culture: How different can you be? *Academy of Management Journal*. 1994, vol. 37, no. 3, p. 524.

[193] Ibid, p. 531.

[194] Vargas-Hernández, J. G. and Noruzi, M. R. An Exploration of the Organizational Culture in the International Business Relationships and Conflicts Era. *American Journal of Economics and Business Administration*. 2009, vol. 1, no. 2, p. 189.

[195] Puusa, A. and Tolvanen, U. Organizational Identity and Trust. *Electronic Journal of Business Ethics and Organization Studies*. 2006, vol. 11, no. 2, p. 30.

[196] Homma, N. and Bauschke, R. *Unternehmenskultur und Führung*. Wiesbaden: Gabler Verlag, 2010, p. 17.

[197] Leidner, D. E. and Kayworth, T. A review of culture on information systems research: Toward a theory of information technology culture conflict. *MIS Quarterly*. 2006, vol. 30, no. 2, pp. 359-360.

[198] Ibid, p. 381.

[199] Reynierse, J. H. and Harker, J. B. Measuring and Managing Organizational Culture. *Human Resource Planning*. 1986, vol. 9, no. 1, p. 7.

personnel in an organization[200]. The author concludes that culture is merely unconscious and crucially based on the values of top management or the founders of an organization[201].

Hofstede et al. find different attributes that can be assigned to organizational culture: it is holistic in a sense that it refers to a whole which is more than the sum of its parts, it is historically determined, related to anthropology studying symbols and rituals, socially constructed, created and preserved by a group of people, it is soft, and still, it is hard to change. Consequently, the authors see organizational culture as a mental program that distinguishes the members of one organization from those of others[202]. Through their research, they introduce six cross-organizational poled dimensions that reflect different characteristics of organizational cultures[203]. However, strongly contradicting Peters and Waterman, the authors state that there is no one best way towards excellence. Much more, it is a matter of strategic choice, which will vary from one organization to another[204].

To sum these different approaches to organizational culture up, one must accept that there is no final consensus about the term[205]. Martin, for example, summarizes twelve different definitions of organizational culture ranging from very short statements to extremely detailed explanations[206]. However, most of the approaches on organizational culture come down to values[207]. Cram states that there is a wide range of frameworks existing that attempt to articulate the elements of organizational culture. For now, it remains challenging for researchers to build comparisons with past studies due to varying definitions of culture and value[208]. Baetge et al. reconfirm that the notion of organizational culture as well as its dimensions are very diversified in research so far. Even though there are a lot of theoretical concepts dealing with the topic their relevance when it comes to measurement is limited[209]. Undeniably, management scholars have not succeeded in finding agreement on the definition

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[200] Sun, S. Organizational Culture and Its Themes. *International Journal of Business and Management*. 2008, vol. 3, no. 12, pp. 137-138.

[201] Ibid, p. 140.

[202] Hofstede, G. et al. *Cultures and Organizations - Software of the Mind*. New York: McGraw Hill, 2010, pp. 344-345.

[203] Ibid, p. 354.

[204] Ibid, p. 370.

[205] Hofstede, G. et al. Measuring organizational cultures: A qualitative and quantitative study across twenty cases. *Administrative Science Quarterly*. 1990, vol. 35, p. 286.

[206] Martin, J. Organizational Culture: Pieces of the puzzle. In: Boardman, P.J. ed. *Classics of Organization Theory*. Boston: Wadsworth Cengage Learning, 2011, pp. 364-365.

[207] Ibid, pp. 379-380.

[208] Cram, W. A. Aligning organizational values in systems development projects. *Management Research Review*. 2012, vol. 35, no. 8, p. 711.

[209] Baetge, J. et al. Unternehmenskultur und Unternehmenserfolg: Stand der empirischen Forschung und Konsequenzen für die Entwicklung eines Messkonzeptes. *Journal für Betriebswirtschaft*. 2007, vol. 57, no. 3-4, p. 206.

of the term yet[210]. Still, for Denison, most authors agree that corporate culture refers to the set of values, beliefs and behaviour patterns that form the core identity of an organization[211].

As a matter of fact, a number of researchers believe in shared values to be responsible for outstanding organizational performance[212]. For Deal and Kennedy, it is clear that organizations have gained great strength from shared values. According to the authors, employees much more likely make decisions that support the company's standards if they know what the company stands for. Therefore, shaping and enhancing values must be of primary concern and relevance to managers and leaders to make a company successful[213]. Ultimately, it is organizational values that drive business and reduce counterproductive behaviour. Moreover, it is clear to scientists that well-shared organizational values empower people and improve organizational performance in the long run[214]. Clearly, they are part of the "software" of a company, the part that is intuitive, informal, and irrational even[215].

What makes studying values so attractive is that it holds the possibility to predict people's behaviour[216]. Clearly, the challenges of defining values for research purposes are many, but most crucially, it is the choice between a broad and a narrow definition. Concepts and methods have been suggested from several different fields of study including philosophy, social sciences, but also cybernetics and physical sciences. Therefore, the study of values cannot be confined to a single discipline or a narrow range of methods. Even though quantitative, decisive data is not yet available to provide evidence for values' influence on subsequent behaviour, Williams vehemently argues that values make a difference[217].

In general, scientists have employed values in two different ways: the values as inhering in objects or as being possessed by persons. Whereas viewing values as inhering in objects leads to countless values, the second view is usually preferred by social scientists. Rokeach states

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[210] Howard, L. W. Validating the competing values model as a representation of organizational cultures. *International Journal of Organizational Analysis*. 2008, vol. 6, no. 3, p. 231.

[211] Denison, D. R. Bringing corporate culture to the bottom line. *Organizational dynamics*. 1984, vol. 13, no. 2, p. 5.

[212] Parts of the literature review in this section about the concepts of organizational values were already discussed in an earlier version by the author for Bolzern-Konrad, B. et al. Values - Soft issue or valuable capital? *Humanities and Social Sciences Latvia*. 2013, vol. 21, no. 2, pp. 74-90.

[213] Deal, T. E. and Kennedy, A. A. *Corporate Cultures - The rites and rituals of corporate life*. New York: Basic Books - Perseus Books Publishing, L.L.C., 1982, p. 22.

[214] Zhang, X. et al. Toward collective organizational values: a case study in UK construction. *Construction Management and Economics*. 2008, vol. 26, no. 10, pp. 1011-1025.

[215] Peters, T. and Waterman, R. H. *In search of excellence*. London: Profile Books Ltd., 1982, pp. 9-11.

[216] Gibbins, K. and Walker, I. Multiple interpretations of the Rokeach Value Survey. *The Journal of Psychology*. 1993, vol. 133, no. 6, p. 797.

[217] Williams, R. M. J. Change and Stability in Values and Value Systems: A Sociological Perspective. In: Rokeach, M. ed. *Understanding Human Values*,. New York: The Free Press - Simon & Schuster Inc., 1979, pp. 19-23.

that a value is an enduring belief and formally defines a value as something that is personally or socially preferable to some other state of existence. Therefore, only humans can possess values and the number of values that humans can possess is limited. These limited end-states of existence that humans strive for can be considered as enduring priority systems, which are a result of socialization by culture, society, reference groups, or personal needs. This value concept can link societal and individual concepts. With this, one can measure and speak of cultural, institutional or organizational values about as easily as of individual values[218]. Moreover, values are abstract, positive or negative ideals that are not tied to any specific attitude, object or situation, but represent a person's ideal modes of conduct and ideal terminal goals[219]. It is values that lead people to certain positions or ideologies, make them judge or evaluate and compare whether a certain behaviour or attitude of others is worth challenging, arguing about, protesting, or worth trying to influence and change. Finally, values help humans to rationalize when feelings of morality and competence are threatened in order to maintain and enhance self-esteem. Seeing values as an independent variable, they are assumed to have far reaching effects on virtually all human endeavour that is of interest for scientists[220]. Others regard values as evaluations of abstract concepts or standards that help people to evaluate other people, actions, attitudes, or objects[221]. Consciously or unconsciously, internalized values become a criterion for guiding action, for maintaining attitudes, for justifying and judging self and others, and for comparisons. Therefore, a person's value system can be considered to represent a learned organization of rules for making choices and resolving conflicts between two or more modes of behaviour[222].

For Hofstede et al., values are broad tendencies. They are related to feelings indicating a plus and a minus side to certain states of affairs[223]. In an organizational context, Connor and Becker call for acceptance that values cannot be operationalized as attitudes, or as goals, objectives or preferred outcomes. To have a useful meaning apart from these concepts they have to be operationalized as desirable end- states of existence that underlie behaviour and

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[218] Rokeach, M. and Regan, J. F. The role of values in the counseling situation. *The personnel and guidance journal*. 1980, no. May, p. 577.

[219] Rokeach, M. *Beliefs, Attitudes, and Values. Ed.W.E. Henry, N. Sanford*. London: Jossey Bass, Inc., 1968, p. 124.

[220] Rokeach, M. *The Nature of Human Values*. New York: The Free Press - Macmillan Publishing Co., Inc., 1973, pp. 12-23.

[221] Maio, G. R. et al. Rankings, Ratings, and the Measurement of Values: Evidence for the Superior Validity of Ratings. *Basic and Applied Social Psychology*. 1996, vol. 18, no. 2, pp. 171-172.

[222] Rokeach, M. *Beliefs, Attitudes, and Values. Ed.W.E. Henry, N. Sanford*. London: Jossey Bass, Inc., 1968, pp. 160-161.

[223] Hofstede, G. et al. *Cultures and Organizations - Software of the Mind*. New York: McGraw Hill, 2010, p. 9.

attitudes[224]. Deal and Kennedy regard values as the basic concepts and beliefs of an organization shared by employees that define success and establish standards of achievement[225]. Values provide a sense of shared course of action for all employees and standards for their day-to-day behaviour. And, it is values that indicate what matters are to be attended to most importantly[226].

In their research, Zhang et al. state that values are fundamental and enduring aspects of both people and organizations. People use them as criteria to select and justify actions and to evaluate people, events, or even the self[227]. Values inform an underlying belief structure and reinforce daily practice[228]. They can be considered as psychological constructs, which are linked to personality, motivation, and behaviour. Besides, they contribute to any sort of evaluation, justification, or selection of action[229]. Cultural values can exist at a broad, organizational level. However, similar values can also be found in business, departments, and teams. Therefore, they determine not only how people behave in a company, but are also decisive when it comes to projects, daily practices, and result orientation[230].

To finalize, it must be stated that **organizational values** form the heart and brain of organizational culture. In the context of this study, they are considered as **a set of underlying shared norms and standards which the employees of a company agree to and which they find valuable and worth pursuing, and which lead their activities and determine their daily organizational behaviour and decision-making**. With that, they really do stand at the core of companies. Still, they are influenced by a variety of different layers and cannot be considered in an isolated way. The aspects of certain attitudes and behaviours in different teams and departments (subunits) cannot be denied. Further, national culture certainly does play a role for values as well. Additionally, the linkages between the internal and the external environment of companies become obvious here again. In chapter 1.4.1 on influencing factors for innovation from the general environment, national culture was classified as part of the

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[224] Connor, P. E. and Becker, B. W. Values and the Organization: Suggestions for Research. In: Rokeach, M. ed. *Understanding Human Values*,. New York: The Free Press - Simon & Schuster Inc., 1979, p. 73.

[225] Deal, T. E. and Kennedy, A. A. *Corporate Cultures - The rites and rituals of corporate life*. New York: Basic Books - Perseus Books Publishing, L.L.C., 1982, p. 14.

[226] Ibid, pp. 21-31.

[227] Zhang, X. et al. Toward collective organizational values: a case study in UK construction. *Construction Management and Economics*. 2008, vol. 26, no. 10, pp. 1009-1011.

[228] Khazanchi, S. et al. Innovation-supportive culture: The impact of organizational values on process innovation. *Journal of Operations Management*. 2007, vol. 25, no. 4, p. 873.

[229] Lindeman, M. and Verkasalo, M. Measuring Values With the Short Schwartz's Value Survey. *Journal of Personality Assessment*. 2005, vol. 85, no. 2, p. 178.

[230] Cram, W. A. Aligning organizational values in systems development projects. *Management Research Review*. 2012, vol. 35, no. 8, pp. 711-715.

socio-cultural environment that companies act in. Hence, with organizational values at the centre, firms depend on the outer elements and vice versa, which accords with the open systems theory the whole topic was classified into in chapter 1.2. What becomes clear, though, is that it is values that establish common manifestations, interpretations, meanings, beliefs, or assumptions between the members of organizations. Moreover, organizational values regulate leadership actions, daily practices, and the way internal and external social networks are dealt with. Figure 1.4 visualizes the conceptual model of organizational values and their interrelations derived from this part of the thesis.

Figure 1.4: Conceptual model of organizational values and their interrelations[231]

In the context of this study, the question arises how certain values can support innovation then. Some hints and ideas have already been sketched in the previous sections on influencing success factors for innovation from within the firm (see chapter 1.4.3). To gain a deeper understanding of what values are really needed and have to be espoused in companies that want to be more innovative, the next chapter analytically explores previous theoretical and empirical studies on the relationship between organizational values and innovation. With this, the thesis fundamentally argues a set of innovation-supportive values.

[231] Figure developed by author from literature review in chapter 1.5.

2 IDENTIFICATION OF CORE ORGANIZATIONAL VALUES FOR INNOVATION – ANALYTICAL EXPLORATION OF PREVIOUS STUDIES

Having discussed the principles of innovation and the influencing factors from different levels and segments for it, the previous chapter argued that organizational values are generally accepted as a major determinant for innovation performance. Based on different concepts of organizational culture it was outlined that, consequently, managers have to care about organizational values for enhancing innovation capability in their companies.

Various scientists have discussed and empirically researched the aspects of values and their impact on innovation for quite some time. The following chapter analytically explores previous studies on this particular issue. Some of them are literature based only while others include empirical evidence already. With that, it is the purpose of this chapter to identify a concrete number of values that are seen to be supportive to product innovation from earlier research and to come up with a specific understanding of what these values hold and mean. To achieve this, an in-depth content analysis of 40 academic articles was performed. The methodological backgrounds to this are outlined in the following section.

2.1 Methodological background: Selection and Content Analysis of relevant articles

A content analysis is a set of procedures for collecting and organizing information in a standardized format to see relationships of characteristics and meanings in written and other recorded material[232]. It is an approach to analyse documents and texts and it seeks to quantify their content in terms of predetermined categories or themes in a systematic and replicable manner[233]. According to Krippendorff, the most appropriate data for content analysis are texts to which meanings are conservatively attributed[234].

The United States General Accounting Office defines a very distinctive process for structuring and analysing the content of written material in Transfer Paper 10.1.3, which was taken as a reference for the following analysis[235]. Accordingly, the articles and previous

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[232] Untited States General Accounting Office. Content Analysis: A Methodology for Structuring and Analyzing Written Material, p. 6. Retrieved 21.12.2013 from: http://archive.gao.gov/d48t13/138426.pdf.

[233] Bryman, A. and Bell, E. *Business Research Methods*. Oxford: Oxford University Press, 2011, p. 291.

[234] Krippendorff, K. Content Analysis. In: Barnouw, E. et al. eds. *International Encyclopedia of Communications*,. New York, Oxford: Oxford University Press, 1989, p. 404.

[235] Untited States General Accounting Office. Content Analysis: A Methodology for Structuring and Analyzing Written Material, pp. 11-14. Retrieved 21.12.2013 from: http://archive.gao.gov/d48t13/138426.pdf.

empirical studies under consideration and analysis for this research date back to 1965 with the latest one published in 2011. To define a universe, all articles were sourced from international databases such as Emerald, EBSCO, or SpringerLink and the like. To ensure topic relevance of the selected sample the following criteria for selection of an article were determined in advance. The exact wordings in the title of the paper or its key words had to include at least one, preferably a combination of the following: creative, creativity, culture, organizational culture, innovation, product innovation, values, success factors. In addition to that, the articles were defined to be usable for further analysis according to their detailed content and contribution to the research topic. Preferably, the studies had to include empirical evidence to show and discuss previous findings on the issue under investigation. After having analysed 40 articles on the topic the authors of these articles were noticed to refer back and forth mostly to the same original sources. Hence, the selective sample size of 40 articles seems appropriate enough to cover the topic under research. The unit of analysis were words or parts of sentences dealing with organizational culture or climate and values that have a positive or negative influence on innovation.

When the process of coding is thematic and a more interpretative approach is needed, analysts do not just search for manifest content but also for latent content in order to ask deeper questions about phenomena beneath the surface such as organizational culture or values, for example[236]. The concern of searching for manifest content is to uncover the apparent content of an item in question and what it is all about. In contrast, latent content conducts an analysis in terms of what meanings, ideas or themes lie beneath the superficial indicators of content and includes interpretations[237]. Generally, it is suggested to structure inputs into manifest and latent content[238]. Following this, as a first intermediate step, the exact content and wording in each article under research was documented by the author and resulted in a list of more than 500 identified values, naturally still including redundancies. For the manifest content the author searched for explicit wordings whereas the latent content more relates to ideas and themes that open up possibilities of interpretation.

Furtheron, the most common way to summarize data is to look into frequencies among them[239], which was used for the study at hand, too. Drawing inferences is the most important phase in content analysis because it accounts for how the coded data relate to the phenomenon

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[236] Bryman, A. and Bell, E. *Business Research Methods*. Oxford: Oxford University Press, 2011, p. 297.

[237] Ibid, p. 290.

[238] Friedrichs, J. *Methoden empirischer Sozialforschung*. Opladen: Westdeutscher Verlag GmbH, 1990, p. 319.

[239] Untited States General Accounting Office. Content Analysis: A Methodology for Structuring and Analyzing Written Material, p. 20. Retrieved 21.12.2013 from: http://archive.gao.gov/d48t13/138426.pdf.

the researcher wants to know about[240]. Researchers generally base their results on two assumptions if they include frequency measures into their content analysis as it was done in the research at hand: 1. Frequency indicates importance, 2. All sources are equally important and valuable[241].

To assure validity, the results of content analysis have to go in line with other data or other procedures, which are understood as valid indicators of the phenomenon under investigation[242]. Thus, to develop categories and themes previous research regarding the investigation and measurement of values as outlined in section 2.3 was consulted. To ensure trustworthiness regarding the analysis process as recommended by Elo and Kyngäs[243], the full list of documented values including subjects, themes, classifications of manifest or latent content and frequencies indicating authors and sources can be looked up in the Appendix A2 for each value theme dealt with in this dissertation.

To address some limitations to the method, content analysis usually does not use many units of analysis; it is therefore not entirely quantitative research. Furthermore, it is hard to make results unambiguously replicable and observer-independent. Thirdly, it only uses data given already, so if those data were not generalizable the analysis of it would not be either[244]. Particularly, when the method aims at imputing latent rather than manifest content such as leadership or values, it holds the potential for invalid inference. Since the method tries to emphasize measurement it also might actually place an accent on what is measurable instead of on what is theoretically important and significant[245]. Clearly, each inquiry is very distinctive and the results highly depend on the skills, insights, analytic capabilities, and style of the investigator. On the other hand, this entirely makes content analysis a very flexible tool that is perfectly well suited for analysing multifaceted, sensitive phenomena – such as organizational values. Besides, the method can deal with large amounts of textual data and can use different textual sources to corroborate evidence[246]. Furthermore, it is a very transparent research method since the sampling and coding can be set out clearly. Kabanoff et

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[240] Krippendorff, K. Content Analysis. In: Barnouw, E. et al. eds. *International Encyclopedia of Communications*,. New York, Oxford: Oxford University Press, 1989, p. 407.

[241] Untited States General Accounting Office. Content Analysis: A Methodology for Structuring and Analyzing Written Material, p. 16. Retrieved 21.12.2013 from: http://archive.gao.gov/d48t13/138426.pdf.

[242] Ibid, pp. 19 & 22.

[243] Elo, S. and Kyngäs, H. The qualitative content analysis process. *Journal of advanced nursing*. 2008, vol. 62, no. 1, pp. 112-113.

[244] Krippendorff, K. Content Analysis. In: Barnouw, E. et al. eds. *International Encyclopedia of Communications*,. New York, Oxford: Oxford University Press, 1989, p. 407.

[245] Bryman, A. and Bell, E. *Business Research Methods*. Oxford: Oxford University Press, 2011, p. 308.

[246] Elo, S. and Kyngäs, H. The qualitative content analysis process. *Journal of advanced nursing*. 2008, vol. 62, no. 1, pp. 113-114.

al. suggest content analysis to be an important method for the cultural study of organizations since it enables researchers to analyse organizational values indeed[247]. For these reasons, the use of content analysis to structure the outcomes of previous studies on the research topic was decided upon. To complete, the identified innovation-supportive organizational values were rechecked with all the literature used in this dissertation to ensure validity. Thus, the summarized results in section 2.4 show a finalized version of organizational values that are most frequently named to be supportive to innovation in previous studies on the topic.

2.2 Top-rankers of innovation-supportive organizational values supportive, additional beliefs and controversial concepts

To provide a clear understanding of the results developed from the analytical exploration of previous theoretical and empirical studies on the interelations of product innovations and organizational values, part 2.2 of this dissertation is subdivided as follows.

Firstly, the top ranked innovation-supportive organizational values are outlined. In this section, different authors are discussed to show that there is a consensus about some values, indeed. Secondly, additional innovation-supportive values are explained. For this part, literature still shows a consistent picture of values that are mentioned to be contributing to innovation. However, some of them are named less frequently or less explicitly. Thirdly and finally, there are a couple of values that lack consensus in academic research. While some studies claim these values to be supportive, others see them as hindering mechanisms to innovation. With this, a comprehensible framework is built to eventually enable condensation of the many ideas stated on innovation-supportive organizational values.

2.2.1 Top ranked innovation-supportive values of consensus

One of the terms that many different authors mention in their research on the interrelations of innovation and cultural values is commitment or **involvement**. Several authors speak of commitment explicitly, or commitment to change and innovation[248]. For Germany, GALLUP strategy consultancy published a press release about their research on the engagement of German employees. Their results clearly reveal that more than 50% of the emotionally uncommitted employees brought in not a single idea in 2012. Additionally, committed

[247] Bryman, A. and Bell, E. *Business Research Methods*. Oxford: Oxford University Press, 2011, p. 305.

[248] E.g. Drucker, P. F. The discipline of innovation. *Harvard Business Manager*. 1985, no. May-June, p. 72; Zien, K. A. and Buckler, S. A. Dreams to market: Crafting a culture of innovation. *Journal of Product Innovation Management*. 1997, vol. 14, p. 284. For a full list of authors naming commitment explicitly see Appendix A2.

employees also have better ideas: 51% of this group state that their ideas have already been realized whereas it is only 27% of realization for ideas from emotionally less committed staff[249]. For Jassawalla and Sashittal commitment relates to a collective commitment to new-product quality, senior management's commitment to innovation, but also to an emotional commitment to the product innovation process. In their exploratory, qualitative research on the dependency of product innovation processes on organizational culture, the authors highlight several other values as contributing to innovation excellence such as involvement and sharing responsibilities[250]. According to Schneider et al., low innovators lack formal organizational commitment whereas in highly innovative companies people throughout the organization provide commitment and support to innovation's advocates[251]. Internally based commitment or excitement is a prerequisite for scientists to get totally absorbed by a problem and make innovation occur[252]. This also relates to enthusiasm and enthusiastic work groups, both of which are highly important to achieve innovation[253]. Feldman confirms that innovation activity needs long-term commitment in general and passionate commitment to goals, but also commitment to product quality and service[254] in his case analysis. Other authors emphasize passion[255], corporate identification[256] and deep involvement as enablers for product innovation[257]. For Kesting and Ulhøi ordinary workers are underutilized sources of ideas. That is the reason why the authors argue that employee participation and the involvement of ordinary workers influence idea generation in a positive way[258]. Other authors reconfirm the importance of employee participation. Cangemi and Miller, for example, argue that creative companies manage to encourage their employees' participation far beyond job

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[249] GALLUP Strategy consultancy. Innere Kündigung bedroht Innovationsfähigkeit deutscher Unternehmen. Retrieved 12.11.2013 from: http://www.gallup.com/strategicconsulting/160901/pressemitteilung-zum-gallup-engagement-index-2012.aspx.

[250] Jassawalla, A. R. and Sashittal, H. C. Cultures that support product innovation processes. *Academy of Management Journal*. 2002, vol. 16, no. 3, pp. 44-51.

[251] Schneider, B. et al. Creating the Climate and Culture of Success. *Organizational Dynamics*. 1994, vol. 23, no. 1, p. 21.

[252] Pelz, D. C. Conditions for Innovation. *Trans-Action*. 1965, vol. 2, no. 2, p. 33.

[253] Claver, E. et al. Organizational Culture for innovation and new technological behavior. *The Journal of High Technology Management Research*. 1998, vol. 9, no. 1, p. 59; Amabile, T. M. Motivating Creativity in Organizations: On doing what you love and loving what you do. *California Management Review*. 1997, vol. 40, no. 1, p. 52.

[254] Feldman, S. P. How organizational culture can affect innovation. *Organizational Dynamics*. 1988, vol. 17, no. 1, pp. 59 & 61.

[255] Zien, K. A. and Buckler, S. A. Dreams to market: Crafting a culture of innovation. *Journal of Product Innovation Management*. 1997, vol. 14, p. 268.

[256] Ahmed, P. K. Culture and climate for innovation. *European Journal of Innovation Management*. 1998, vol. 1, no. 1, p. 38.

[257] Amabile, T. M. How to kill creativity. *Harvard Business Review*. 1998, vol. Sept-Oct, p. 85.

[258] Kesting, P. and Ulhøi, J. P. Employee-driven innovation: extending the license to foster innovation. *Management Decision*. 2010, vol. 48, no. 1, pp. 73-75.

descriptions[259]. Boerner and Gebert's results show that integrating employees enhances creative solutions to conflicts and problems[260]. Additional points of involvement are the aspects of motivation and the freedom and will to take responsibilities. In promoting creativity in organizations employees' intrinsic motivation is key[261]. In Amabile's component model of creativity, task motivation is one decisive factor as well. According to her, it is the motivation to work on something because it is interesting, involving, exciting, satisfying, or a personal challenge that makes people most creative[262]. Furthermore, Delbecq and Mills see the organizational motivation to innovate as a variable highly interacting with the innovation process[263]. In Ahmed's point of view, involvement and participation automatically create a sense of responsibility for employees[264] and if they are granted such, innovation is more likely to occur[265]. Jucevičius' respondents found a feeling of responsibility of greatest importance, which indicates an innovation-friendly attitude according to the author[266]. So, apart from (emotional) involvement and commitment as such, there are several attributes linked to these themes that are consistently seen to be encouraging innovation.

The next issue dealt with and stressed by different authors is the general **support** for innovations in an organization. Amabile, for example, highlights the importance of organization-wide support for work groups, creativity and innovation, specifically provided by top management. Additionally, it is essential that ideas be judged in a constructive manner since insensitive criticism only hinders the exploration of new ideas[267]. Jassawalla and Shashittal reconfirm this in their research and observe accusations and finger pointing in less

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[259] Cangemi, J. and Miller, R. Breaking-out-of-the-box in organizations: Structuring a positive climate for the development of creativity in the workplace. *Journal of Management Development*. 2007, vol. 26, no. 5, p. 402.

[260] Boerner, S. and Gebert, D. Zur Förderung von Innovationen: Freiheit um jeden Preis? *OrganisationsEntwicklung*. 2002, vol. 2, p. 35.

[261] McLean, L. D. Organizational Culture's Influence on Creativity and Innovation: A Review of the Literature and Implications for Human Resource Development. *Advances in Developing Human Resources*. 2005, vol. 7, no. 2, p. 237.

[262] Amabile, T. M. Motivating Creativity in Organizations: On doing what you love and loving what you do. *California Management Review*. 1997, vol. 40, no. 1, p. 39.

[263] Delbecq, A. L. and Mills, P. K. Managerial practices that enhance innovation. *Organizational Dynamics*. 1985, vol. 14, no. 1, p. 25.

[264] Ahmed, P. K. Culture and climate for innovation. *European Journal of Innovation Management*. 1998, vol. 1, no. 1, p. 34.

[265] Ibid, p. 39.

[266] Jucevičius, G. The Innovation Culture in Modern Lithuanian Organizations: Values, Attitudes and Practices. *Social Sciences / Socialiniai mokslai*. 2009, vol. 1, no. 63, p. 43.

[267] Amabile, T. M. Motivating Creativity in Organizations: On doing what you love and loving what you do. *California Management Review*. 1997, vol. 40, no. 1, pp. 48-52.

innovative companies[268]. Other researchers identify a lack of management support as one of the top barriers to innovation[269]. In fact, less innovative companies do not offer support in financial or emotional terms to employees, although creative people do need organizational commitment and support from all levels of an organization to innovate successfully[270]. Amabile emphasizes the significance of organization-wide or overall organizational support and most notably the encouragement of supervisors for innovations in different publications[271]. According to Prajogo and Ahmed, it is of utmost importance that the organizational environment is supportive and management has to take care about a working life for its employees that serves their needs in terms of overall contentment, skills development, and occupational career[272]. Kesting and Ulhøi even differentiate management support in two aspects: Firstly, managers have to support employees in terms of allowing them to work on their own ideas and projects. Secondly, support also includes the "mentoring" of innovative initiatives in terms of functional or technical support[273]. Ellonen et al.'s research found that leaders determine the gathering of new thoughts and innovations by offering support to their employees in mistake handling, idea generating, and the encouragement of change[274]. Therefore, innovations can only arise when accompanied by social support for initiative behaviour and safety[275]. McLean also suggests socio-emotional support to be decisive. Following McLean, employees increase their efforts for creative ideas when they feel their organization has their benefit and well-being in mind, too[276]. Other authors confirm a similar perspective and argue that employees happily go the extra mile for innovations if leadership is supportive[277]. Obviously, with (management) support also aspects

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[268] Jassawalla, A. R. and Sashittal, H. C. Cultures that support product innovation processes. *Academy of Management Journal*. 2002, vol. 16, no. 3, p. 45.

[269] Jamrog, J. et al. Building and sustaining a culture that supports innovation. *Human Resource Planning*. 2006, vol. 29, no. 3, p. 14.

[270] Schneider, B. et al. Creating the Climate and Culture of Success. *Organizational Dynamics*. 1994, vol. 23, no. 1, p. 21.

[271] Amabile, T. M. Creativity and innovation in organizations. *Harvard Business School*. 1996, no. January, p. 8; Amabile, T. M. How to kill creativity. *Harvard Business Review*. 1998, vol. Sept-Oct, pp. 80-81.

[272] Prajogo, D. I. and Ahmed, P. K. Relationships between innovation stimulus, innovation capacity, and innovation performance. *R&D Management*. 2006, vol. 36, no. 5, p. 514.

[273] Kesting, P. and Ulhøi, J. P. Employee-driven innovation: extending the license to foster innovation. *Management Decision*. 2010, vol. 48, no. 1, pp. 75-76.

[274] Ellonen, R. et al. The role of trust in organisational innovativeness. *European Journal of Innovation Management*. 2008, vol. 11, no. 2, p. 177.

[275] Eigenstetter, M. and Löhr, A. Ethikprogramm in Unternehmen: Unterstützung einer innovationsföderlichen Gestaltung von Unternehmenskultur? *FORUM Wirtschaftsethik*. 2008, vol. 16, no. 3, p. 22.

[276] McLean, L. D. Organizational Culture's Influence on Creativity and Innovation: A Review of the Literature and Implications for Human Resource Development. *Advances in Developing Human Resources*. 2005, vol. 7, no. 2, p. 235.

[277] Cangemi, J. and Miller, R. Breaking-out-of-the-box in organizations: Structuring a positive climate for the development of creativity in the workplace. *Journal of Management Development*. 2007, vol. 26, no. 5, p.

such as encouragement and empowerment should be considered. Prajogo and Ahmed, for example, mention empowerment explicitly to be encouraging innovation. They specify that organizations need to encourage idea generation and revitalize people's creativity through the development of new concepts[278]. Brooke Dobni shares this point of view and argues that successful innovators need to foster a corporate culture full of empowerment and employee constituency[279].

An organizational value closely linked to support and also to innovation performance is **trust**. Employees who trust their organisation will most likely enjoy working there. According to Puusa and Tolvanen trust and the creation of such are the key in creating greater commitment to the organization. Generally trust implies the readiness to be defenceless, to take a risk, and, it implies that there is something of significance to be lost[280]. With a higher level of trust, employees might contribute to innovative ideas to a higher extent[281]. In Markos and Sridevi's point of view, trust has something to do with feeling honoured of being a member of that organization and taking innovative initiatives, proactively looking for occasions to give one's best even if this includes more efforts that any contract pays off for[282]. Feeling trusted makes people brave enough to undertake a risky course of action, because they are confident that all persons involved will act competently and dutifully[283]. According to Agin and Gibson, leaders are not only responsible for providing a safe environment where trust and candour are highly valued. They also have to show versatility and foster innovative ideas among their followers[284]. Taking this as a background, it comes as no surprise that numerous other authors state trust to be an innovation-supportive value. For Jassawalla and Sashittal all participants of an innovative organization are seen capable of being trusted in innovative companies[285]. Additionally, they feel comfortable when they have to seek for clarifications and are willing

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409; Vahs, D. and Schmitt, J. Determinanten des Innovationserfolgs. *OrganisationsEntwicklung*. 2010, no. 3, p. 41.

[278] Prajogo, D. I. and Ahmed, P. K. Relationships between innovation stimulus, innovation capacity, and innovation performance. *R&D Management*. 2006, vol. 36, no. 5, pp. 501-502.

[279] Brooke Dobni, C. The DNA of Innovation. *Journal of Business Strategy*. 2008, vol. 29, no. 2, pp. 48-49.

[280] Puusa, A. and Tolvanen, U. Organizational Identity and Trust. *Electronic Journal of Business Ethics and Organization Studies*. 2006, vol. 11, no. 2, pp. 30-31.

[281] Hosmer, L. T. Trust: The Connecting Link between Organizational Theory and Philosophical Ethics. *The Academy of Management Review*. 1995, vol. 20, no. 2, p. 391.

[282] Markos, S. and Sridevi, M. S. Employee Engagement: The Key to Improving Performance. *International Journal of Business and Management*. 2010, vol. 5, no. 12, p. 91.

[283] Barber, 1983. In: Lewis, J. D. and Weigert, A. Trust as a Social Reality. *Social Forces, University of North Carolina Press*. 1985, vol. 63, no. 4, p. 971.

[284] Agin, E. and Gibson, T. Developing an innovative culture. *American Society for Training & Development*. 2010, no. July, p. 54.

[285] Jassawalla, A. R. and Sashittal, H. C. Cultures that support product innovation processes. *Academy of Management Journal*. 2002, vol. 16, no. 3, p. 42.

to make themselves exposed to other members' criticism[286]. On the contrary, for these authors less innovative organizations are full of distrust, lack of confidence in others, and paranoia[287]. Clegg et al. explicitly research implicating trust in the innovation process. The authors argue that if people trust that their ideas will be heard and taken seriously and that they will benefit themselves from idea suggestions they are more likely to participate in innovation processes[288]. In fact, Clegg et al.'s findings reveal that both forms of trust forecast innovations in terms of the suggestions of ideas and in terms of their implementation[289]. Ellonen et al. critically emphasize that the role of trust in organizational innovativeness lacks empirical research. However, the authors assume that there is a clear interrelationship between high levels of trust and its impact on effectiveness, knowledge sharing and innovation[290]. The authors' results prove institutional and interpersonal trust to be important for innovation, indeed. Further, results indicate that behavioural innovativeness relates to trust in leaders' reliability, which is interpreted as leaders' reliability supporting employees' energies for innovation[291]. Trust is mentioned unambiguously so frequently by different authors that it undoubtedly must play an essential role as an organizational value for product innovation (see Appendix A2 for a detailed list of authors). Even in the 1960s, Lorsch and Lawrence claim mutual trust and confidence to be decisive requirements for product development[292]. More recent authors transfer that to an emotional context. For creative actions members of an organization must feel emotionally safe[293]. Moreover, successful innovation can only arise when accompanied by a cultural setting that promises emotional safety when experimenting new ways of solving old problems[294].

An additional dimension to trust is self-confidence. Brooke Dobni mentions self-determination as an essential feature of successful innovators[295] while Amabile calls it a sense

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[286] Jassawalla, A. R. and Sashittal, H. C. Cultures that support product innovation processes. *Academy of Management Journal*. 2002, vol. 16, no. 3, p. 51.

[287] Ibid, p. 48.

[288] Clegg, C. et al. Implicating trust in the innovation process. *Journal of Occupational and Organizational Psychology*. 2002, vol. 75, no. 4, p. 411.

[289] Ibid, p. 419.

[290] Ellonen, R. et al. The role of trust in organisational innovativeness. *European Journal of Innovation Management*. 2008, vol. 11, no. 2, pp. 164-165.

[291] Ibid, p. 171, p. 176.

[292] Lorsch, J. W. and Lawrence, P. R. Organizing for Product Innovation. *Harvard Business Review*. 1965, no. 43, p. 111.

[293] Martins, E. C. and Terblanche, F. Building organisational culture that stimulates creativity and innovation. *European Journal of Innovation Management*. 2003, vol. 6, no. 1, p. 73.

[294] Eigenstetter, M. and Löhr, A. Ethikprogramm in Unternehmen: Unterstützung einer innovationsföderlichen Gestaltung von Unternehmenskultur? *FORUM Wirtschaftsethik*. 2008, vol. 16, no. 3, p. 22.

[295] Brooke Dobni, C. The DNA of Innovation. *Journal of Business Strategy*. 2008, vol. 29, no. 2, p. 49.

of pride in the organization's members[296]. Cangemi and Miller explicitly name self-confidence and employees' positive self-esteem feelings as contributors to innovation[297]. On the other hand, Cooper warns that one's own capabilities should not be overestimated[298] and votes for a self-critical perspective regarding market knowledge and customer needs in product development[299]. However, other authors include that employees in successful companies need to keep on with full dignity and humour after a failure in product development[300]. In a culture that enhances innovation employees must accept that defeat will occur as well[301]. Hence, this only works with a healthy level of self-confidence.

Further, dimensions that can be considered as complementary areas of trust are teamwork and collaboration. Both show significant mentions in previous studies. For example, Jamrog et al. show survey results that reveal collaboration with others and teamwork as the second most important factor for developing an innovative culture. Furthermore, this is the reason why the authors highlight the impact of skilled leadership for teams and teamwork on innovation[302]. Jassawalla and Sashittal see various similar aspects as drivers for product development excellence: they name co-creative endeavour, collaborative behaviour and teamwork, close human contact to people from other departments, and the spanning of functional boundaries[303]. Other authors can reconfirm the significance of collaboration, cooperation, and team working indeed[304]. Various authors also mention other related topics to trust such as friendship[305], togetherness[306] or a sense of sharing[307] when it comes to the development of new concepts. In summary, trust must have a high impact on product innovations.

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[296] Amabile, T. M. Motivating Creativity in Organizations: On doing what you love and loving what you do. *California Management Review*. 1997, vol. 40, no. 1, p. 52.

[297] Cangemi, J. and Miller, R. Breaking-out-of-the-box in organizations: Structuring a positive climate for the development of creativity in the workplace. *Journal of Management Development*. 2007, vol. 26, no. 5, p. 403.

[298] Cooper, R. G. From Experience: The Invisible Success Factors in Product Innovation. *Journal of Product Innovation Management*. 1999, vol. 16, no. 2, p. 8.

[299] Ibid, p. 15.

[300] Delbecq, A. L. and Mills, P. K. Managerial practices that enhance innovation. *Organizational Dynamics*. 1985, vol. 14, no. 1, p. 32.

[301] Matzler, K. et al. Sustaining corporate success: what drives the top performers? *Journal of Business Strategy*. 2010, vol. 31, no. 5, p. 11.

[302] Jamrog, J. et al. Building and sustaining a culture that supports innovation. *Human Resource Planning*. 2006, vol. 29, no. 3, p. 13.

[303] Jassawalla, A. R. and Sashittal, H. C. Cultures that support product innovation processes. *Academy of Management Journal*. 2002, vol. 16, no. 3, pp. 43-49.

[304] E.g. Kesting, P. and Ulhøi, J. P. Employee-driven innovation: extending the license to foster innovation. *Management Decision*. 2010, vol. 48, no. 1, p. 79; Naranjo-Valencia, J. C. et al. Innovation or imitation? The role of organizational culture. *Management Decision*. 2011, vol. 49, no. 1, p. 65. For a full list of authors discussing these terms ovenly see Appendix A2.

[305] Eigenstetter, M. and Löhr, A. Ethikprogramme in Unternehmen: Unterstützung einer innovationsförderlichen Gestaltung von Unternehmenskultur? *FORUM Wirtschaftsethik*. 2008, vol. 16, no. 3, p. 26.

Following Amabile et al., creativity is a necessary precondition for idea generation and innovation[308]. Therefore, companies have to create a work environment that fosters **self-determination** and flexibility in order to encourage employees' curiosity, entrepreneurship, experimentation, and imagination. Martins and Terblanche mention a continuous learning culture, adaptability, and flexibility in their model of influencing cultural factors for innovation and creativity[309]. Zien and Buckler found that individuals in creative organizations share a sense of curiosity and wonder while their organizations seek to be truly experimental especially in the beginning of any innovation process[310]. Even almost 30 years ago, Feldman announces managerial implications in his publication on how organizational culture can affect innovation that include the acceptance of entrepreneurial managers as a major contributor[311]. Various authors share this point of view and emphasize employee initiative[312] and managerial support for it[313], dynamism[314], or entrepreneurship[315] as values that need to be anchored in organizational culture of innovative companies. Even though flexibility is a topic of organizational structure, some others also report about it in terms of a mindset and value background one can relate to as employees' self-determination that differentiates innovative companies from others. In their research on the integration of the human and technological aspects of innovation management, Prajogo and Ahmed use employee flexibility and multi-skilling as an indicator for innovative outcomes[316]. Jucevičius, too, uses mobility and flexibility as a dimension of organizational culture to operationalize innovative practices in

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[306] Anonymous. Managing numbers and knowledge: Some ways to boost innovation. *Strategic Direction*. 2010, vol. 26, no. 11, p. 30.

[307] Ahmed, P. K. Culture and climate for innovation. *European Journal of Innovation Management*. 1998, vol. 1, no. 1, p. 42.

[308] Amabile, T. M. et al. Assessing the work environment for creativity. *Academy of Management Journal*. 1996, vol. 39, no. 5, p. 1155.

[309] Martins, E. C. and Terblanche, F. Building organisational culture that stimulates creativity and innovation. *European Journal of Innovation Management*. 2003, vol. 6, no. 1, p. 70.

[310] Zien, K. A. and Buckler, S. A. Dreams to market: Crafting a culture of innovation. *Journal of Product Innovation Management*. 1997, vol. 14, pp. 281 & 284.

[311] Feldman, S. P. How organizational culture can affect innovation. *Organizational Dynamics*. 1988, vol. 17, no. 1, p. 67.

[312] Brooke Dobni, C. The DNA of Innovation. *Journal of Business Strategy*. 2008, vol. 29, no. 2, p. 48.

[313] Eigenstetter, M. and Löhr, A. Ethikprogramme in Unternehmen: Unterstützung einer innovationsförderlichen Gestaltung von Unternehmenskultur? *FORUM Wirtschaftsethik*. 2008, vol. 16, no. 3, p. 22.

[314] Ahmed, P. K. Culture and climate for innovation. *European Journal of Innovation Management*. 1998, vol. 1, no. 1, p. 37; Matzler, K. et al. Sustaining corporate success: what drives the top performers? *Journal of Business Strategy*. 2010, vol. 31, no. 5, p. 11.

[315] E.g. Naranjo-Valencia, J. C. et al. Organizational culture as determinant of product innovation. *European Journal of Innovation Management*. 2010, vol. 13, no. 4, p. 475. For a full list of authors mentioning entrepreneurship directly see Appendix A2.

[316] Prajogo, D. I. and Ahmed, P. K. Relationships between innovation stimulus, innovation capacity, and innovation performance. *R&D Management*. 2006, vol. 36, no. 5, p. 507.

addition to an emphasis on learning[317]. Undeniably, a culture of experimentation is a must for different authors when it comes to cultural values that enhance innovation[318]. Moreover and very importantly, organizations seeking for innovation excellence have to ensure a work environment stimulating and encouraging creativity and ingenuity as numerous authors highlight in their research publications[319] by providing organizational members with the opportunity to determine parts of their practices and ways to solutions themselves.

Supplementary aspects that emerge consistently in previous studies on innovation success include value concepts of **debate and discussion**, diversity, internal communication, and openness. Lorsch and Laurence reveal that the encouragement of open confrontation and disagreement between members helps employees to understand their differences and makes them find creative solutions. Even though this takes great efforts sometimes personnel feels highly committed to the way of action after a common resolution has been found[320]. The authors also underline that in departments with uncertain, non-routine tasks, such as research, it is open consultation among colleagues, which helps to find clarification and results[321]. As part of the informal organization, Tushman and Nadler regard conflict resolution patterns, problem-solving processes[322], and informality in problem solving as critical factors in managing innovation[323]. Expressing disagreement and managing conflict is one of the social rituals most essential for innovative high-technology companies. Safeguarding high levels of information exchange and idea sharing is definitely a success factor for innovative companies[324]. Minimizing of constraints in order to create an innovation-supportive organizational context must be a primary concern for innovation[325]. Again, Prajogo and Ahmed also use communication as an item to research into innovation performance[326]. To be

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[317] Jucevičius, G. The Innovation Culture in Modern Lithuanian Organizations: Values, Attitudes and Practices. *Social Sciences / Socialiniai mokslai ISSN 1392-0758*. 2009, vol. 1, no. 63, p. 42.

[318] E.g. Delbecq, A. L. and Mills, P. K. Managerial practices that enhance innovation. *Organizational Dynamics*. 1985, vol. 14, no. 1, p. 33. For a full list of authors outlining experimentation openly see Appendix A2.

[319] E.g. Drucker, P. F. The discipline of innovation. *Harvard Business Manager*. 1985, no. May-June, p. 72. For a full list of authors mentioning creativity explicitly see Appendix A2.

[320] Lorsch, J. W. and Lawrence, P. R. Organizing for Product Innovation. *Harvard Business Review*. 1965, no. 43, p. 118.

[321] Ibid, p. 113.

[322] Tushman, M. and Nadler, D. Organizing for Innovation. *California Management Review*. 1986, vol. 28, no. 3, p. 82.

[323] Ibid, p. 87.

[324] Jassawalla, A. R. and Sashittal, H. C. Cultures that support product innovation processes. *Academy of Management Journal*. 2002, vol. 16, no. 3, pp. 47 & 49.

[325] Prajogo, D. I. and Ahmed, P. K. Relationships between innovation stimulus, innovation capacity, and innovation performance. *R&D Management*. 2006, vol. 36, no. 5, p. 503.

[326] Ibid, p. 507.

effective continuously groups have to maintain a high rate of interaction according to Pelz[327]. Following Medina et al. organizations that want to stay innovatively competitive in today's globalized environment have to achieve an effective informal communication system to succeed[328]. Several other authors can reconfirm this and framework the implementation of information exchange – in-house, but also through external meetings or trainings[329], and (internal and external) transfer and sharing of knowledge[330] as core management task in innovative organizations. Further, other authors name the differentness of individuals in a group[331] and an insistence on multiple viewpoints[332] as influential determinants for innovation. In general, it is diversity that enriches a group or a team. Humans have a natural desire to belong to a group and companies should take their benefits from this[333]. Experiments indicate that groups find it easier to develop many new ideas and also to develop more flexible solutions than individuals would on their own[334]. At a national level, Berggen and Elinder suggest that the most important effect of tolerance in terms of openness and a broader outlook on life is its dynamic effects on the generation and spread of new ideas[335]. Actually, there is proof that tolerance is positively related to economic development in different ways, for example, by affecting the innovative capacity of minority groups[336]. Generally, numerous authors state openness to be an organizational value supportive to innovation[337]. In fact, be it in the context of communication and various viewpoints or in the context of tolerance against diverse backgrounds of other participants openness seems fundamental. Thus, it is considered as an important dimension of debate and critical discussion.

To sum up, organizational values such as involvement, support, trust, self-direction, and debate and discussion appear repeatedly and with very high emphasis in previous studies on

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[327] Pelz, D. C. Conditions for Innovation. *Trans-Action*. 1965, vol. 2, no. 2, p. 33.

[328] Medina, C. C. et al. Characteristics of Innovative Companies: A Case Study of Companies in Different Sectors. *Creativity and Innovation Management*. 2005, vol. 14, no. 3, p. 277.

[329] Kesting, P. and Ulhøi, J. P. Employee-driven innovation: extending the license to foster innovation. *Management Decision*. 2010, vol. 48, no. 1, p. 76.

[330] Anonymous. Managing numbers and knowledge: Some ways to boost innovation. *Strategic Direction*. 2010, vol. 26, no. 11, p. 30.

[331] Zien, K. A. and Buckler, S. A. Dreams to market: Crafting a culture of innovation. *Journal of Product Innovation Management*. 1997, vol. 14, p. 286.

[332] Feldman, S. P. How organizational culture can affect innovation. *Organizational Dynamics*. 1988, vol. 17, no. 1, p. 67.

[333] Puusa, A. and Tolvanen, U. Organizational Identity and Trust. *Electronic Journal of Business Ethics and Organization Studies*. 2006, vol. 11, no. 2, p. 30.

[334] Tidd, J. and Bessant, J. *Managing innovation*. West Sussex: John Wiley & Sons Ltd., 2009, p. 123.

[335] Berggren, N. and Elinder, M. Is tolerance good or bad for growth? *Public Choice*. 2012, vol. 150, no. 1-2, p. 290.

[336] Ibid, p. 287.

[337] E.g. Ahmed, P. K. Culture and climate for innovation. *European Journal of Innovation Management*. 1998, vol. 1, no. 1, p. 37. For a full list of authors naming openness directly see Appendix A2.

cultural preconditions for innovations in organizations. Furthermore, additional terms that involve similar ideas of an innovation-supportive mindset substantiate them. Therefore, these values can be seen as top rankers for a value profile enhancing innovation. However, various authors bring in complementary concepts on the issue of organizational values for creative companies. Thus, the next section shows further value dimensions that evidently are seen as important for the context of the topic under research.

2.2.2 Additional innovation-supportive values of consensus

Amongst scientists one can find a definite consensus on the organizational values of **freedom**, autonomy, and independence impacting positively on innovation excellence. If one narrows an individual's scope of influence, one diminishes the motivation to dream, imagine, and contribute[338]. Hamel's case study on a company called Morning Star reveals that providing employees with freedom at work makes them personally do better and much more committed to what they do every day[339]. When employees receive a certain degree of autonomy or freedom, they develop not only a sense of responsibility. It also motivates them to continuously learn and make improvements at work. However, there is a downside to the aspects of freedom as an organizational value as well. For example, granting decision latitude beyond a certain level can indicate that a manager is lazy or not well organized in giving clearer directions[340]. Still, Agin and Gibson clearly illustrate that when leaders give followers the freedom to make decisions, they enable their employees to experiment with ideas in a safe setting and confront themselves to a new way of thinking[341]. For this reason, the authors see the adoption of more committed and less controlling behaviour in leadership styles as an indispensable development for more innovative cultures in organizations[342]. Various authors can reconfirm this. Cummings, for example, sees broadened spans of control and autonomy as characteristics of creative organizations[343]. Tushman and Nadler state that jobs with increased autonomy provide intrinsic motivation to achieve something[344]. Furthermore, Claver et al. conclude that in innovative organizations employees possess considerable degrees of

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[338] Hamel, G. First, let's fire all the managers. *Harvard Business Review*. 2011, no. December, p. 50.

[339] Ibid, p. 57.

[340] Chua, R. Y. J. and Iyengar, S. S. Perceiving freedom givers: Effects of granting decision latitude on personality and leadership perceptions. *The Leadership Quarterly*. 2011, vol. 22, no. 5, pp. 864-865.

[341] Agin, E. and Gibson, T. Developing an innovative culture. *American Society for Training & Development*. 2010, no. July, p. 53.

[342] Ibid, p. 55.

[343] Cummings, L. Organizational Climates for Creativity. *Academy of Management Journal*. 1965, vol. 8, no. 3, p. 226.

[344] Tushman, M. and Nadler, D. Organizing for Innovation. *California Management Review*. 1986, vol. 28, no. 3, p. 86.

autonomy[345]. Commonly, autonomy is an organizational value that is named explicitly in relation with product innovation success[346]. As an additional dimension related to freedom, Jucevičius associates independence with creative people and organizations[347]. Other authors emphasize the significance of open-ended, non-structured tasks for creativity to arise[348], speak of the freedom to consider and attempt different courses of action to gain performance[349], and underline behavioural freedom as ingredient of innovation-supportive culture[350]. Freedom itself is addressed so frequently and openly[351] that it undeniably must be seen as an organizational value highly important for product innovation.

Further catchwords that appear unambiguously in previous studies on cultural enablers for innovation are **risk taking**, risk tolerance, and the tolerance of failures. Prajogo and Ahmed outline that at such a highly innovative company as 3M nearly 60% of the creative ideas fail, which indicates a very high level of tolerance for risks and failures[352]. Kesting and Ulhøi conclude that from a theoretical point of view it does seem essentially important to involve members of an organization in innovation decisions. According to the authors, this must include tolerance of failures and accepting them as an opportunity and milestone to success[353]. In addition to that, managers of innovative companies have to agree on high levels of uncertainty, because past experiences will not necessarily make them successful with present or future problems[354]. According to Ahmed, unless employees know that they can take some risks safely they will not be eager on trying untraditional ways of solving problems and developing creative activities. The freedom to take risks highly increases intrinsic motivation,

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[345] Claver, E. et al. Organizational Culture for innovation and new technological behavior. *The Journal of High Technology Management Research*. 1998, vol. 9, no. 1, p. 65.

[346] Amabile, T. M. et al. Assessing the work environment for creativity. *Academy of Management Journal*. 1996, vol. 39, no. 5, p. 1156.

[347] Jucevičius, G. The Innovation Culture in Modern Lithuanian Organizations: Values, Attitudes and Practices. *Social Sciences / Socialiniai mokslai ISSN 1392-0758*. 2009, vol. 1, no. 63, p. 39.

[348] Ahmed, P. K. Culture and climate for innovation. *European Journal of Innovation Management*. 1998, vol. 1, no. 1, p. 35.

[349] Lorsch, J. W. and Lawrence, P. R. Organizing for Product Innovation. *Harvard Business Review*. 1965, no. 43, p. 113.

[350] Anonymous. Managing numbers and knowledge: Some ways to boost innovation. *Strategic Direction*. 2010, vol. 26, no. 11, p. 30.

[351] E.g. Cangemi, J. and Miller, R. Breaking-out-of-the-box in organizations: Structuring a positive climate for the development of creativity in the workplace. *Journal of Management Development*. 2007, vol. 26, no. 5, p. 409. For a full list of authors expressing freedom openly see Appendix A2.

[352] Prajogo, D. I. and Ahmed, P. K. Relationships between innovation stimulus, innovation capacity, and innovation performance. *R&D Management*. 2006, vol. 36, no. 5, p. 502.

[353] Kesting, P. and Ulhøi, J. P. Employee-driven innovation: extending the license to foster innovation. *Management Decision*. 2010, vol. 48, no. 1, pp. 78-80.

[354] Ibid, p. 68.

which is a prerequisite for creativity[355]. Describing the DNA of innovation, Brooke Dobni actually focuses on the management of values and outlines that employees need to be granted recovery and the opportunity to learn from failures that unavoidably will occur when experimenting. It is tolerance of mistakes that brings up unexpected market success[356]. Consequently, a culture valuing risk taking clearly supports innovative behaviour[357]. Vahs and Schmitt's results reveal tolerance for failures as an indicator for creative organizations as well. In fact, various authors phrase risk tolerance[358], trial-and-error learning[359], small fear of taking risks and the acknowledgement that the future is uncertain[360] in the context of innovation-supportive organizational values. An orientation toward risk instead of always wanting to keep the status quo[361] and risk taking combined with tolerance of failure makes innovation flourish[362]. Several authors substantiate the significance of risk taking as a cultural value that facilitates innovation excellence and new product development processes[363], which is why it is considered as one of the dimensions worth to further examine in detail.

Midst different scientists, there exists a common understanding about values of **achievement**, challenge and result orientation needed for innovation. This includes ideas about discipline and determination as well and evidently contributes to organizations' capability to implement new products on the market successfully. Having conducted a lot of research on creativity and the preconditions for its occurrence Amabile, for example, strongly emphasizes how important a sense of personal challenge is for scientists. According to the author motivation by the interest and challenge in the work itself, not by external pressures, makes people creative and imaginative[364]. In another research, Amabile et al. actually prove the high influence of challenge on creative organizational behaviour even though the dimension does

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[355] Ahmed, P. K. Culture and climate for innovation. *European Journal of Innovation Management*. 1998, vol. 1, no. 1, pp. 35-40.

[356] Brooke Dobni, C. The DNA of Innovation. *Journal of Business Strategy*. 2008, vol. 29, no. 2, p. 47.

[357] Brooke Dobni, C. Measuring innovation culture in organizations: The development of a generalized innovation culture construct using exploratory factor analysis. *European Journal of Innovation Management*. 2008, vol. 11, no. 4, p. 544.

[358] Newman, J. L. Building a creative high-performance R&D culture. *Research Technology Management*. 2009, no. Sept-Oct, p. 24.

[359] Delbecq, A. L. and Mills, P. K. Managerial practices that enhance innovation. *Organizational Dynamics*. 1985, vol. 14, no. 1, p. 33.

[360] Claver, E. et al. Organizational Culture for innovation and new technological behavior. *The Journal of High Technology Management Research*. 1998, vol. 9, no. 1, p. 61.

[361] Amabile, T. M. Creativity and innovation in organizations. *Harvard Business School*. 1996, no. January, p. 8.

[362] Tushman, M. and Nadler, D. Organizing for Innovation. *California Management Review*. 1986, vol. 28, no. 3, p. 87.

[363] E.g. Ellonen, R. et al. The role of trust in organisational innovativeness. *European Journal of Innovation Management*. 2008, vol. 11, no. 2, p. 177. For a full list of authors phrasing risk taking openly see Appendix A2.

[364] Amabile, T. M. How to kill creativity. *Harvard Business Review*. 1998, vol. Sept-Oct, p. 79.

not appear prominently in previous research or theory. Therefore, it is considered as an unexpectedly strong dimension for innovation[365]. In addition to that, other authors mention discipline[366], diligence and persistence as well as hard, or self-determination[367] as essential values for innovation. According to Delbecq and Mills companies need the will to follow up and follow through on ideas because creativity alone is not enough for innovation[368]. Drucker calls this "to be focused"[369] and Tushman and Nadler speak of disciplinary and organizational effectiveness and "high performance standards for short and long run" as part of the informal organization and core values that boost innovation[370]. Brooke Dobni concludes that successful innovators are quick in decision-making, seek for value and solutions[371], and expect their employees to be quick in reaction time[372]. Cooper highlights a very tough and clear decision-making process to be one additional success factor for product innovation[373] and Martins and Terblanche share this point of view by perceiving the speed of decision-making as an enabler for innovation[374]. Other authors can reconfirm this and claim the promotion of decision-making to be an ideal precondition for innovation to occur[375]. By asking team members to look at decisions as if they owned the company, faster cycle times and a culture of continuous improvement can be achieved according to Newman[376], which makes innovation processes much more effective. Thus, to sum up, even though innovations need a friendly and

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[365] Amabile, T. M. et al. Assessing the work environment for creativity. *Academy of Management Journal*. 1996, vol. 39, no. 5, pp. 1178-1179.

[366] Khazanchi, S. et al. Innovation-supportive culture: The impact of organizational values on process innovation. *Journal of Operations Management*. 2007, vol. 25, no. 4, p. 881.

[367] Cangemi, J. and Miller, R. Breaking-out-of-the-box in organizations: Structuring a positive climate for the development of creativity in the workplace. *Journal of Management Development*. 2007, vol. 26, no. 5, p. 403.

[368] Delbecq, A. L. and Mills, P. K. Managerial practices that enhance innovation. *Organizational Dynamics*. 1985, vol. 14, no. 1, p. 34.

[369] Drucker, P. F. The discipline of innovation. *Harvard Business Manager*. 1985, no. May-June, p. 72.

[370] Tushman, M. and Nadler, D. Organizing for Innovation. *California Management Review*. 1986, vol. 28, no. 3, p. 87.

[371] Brooke Dobni, C. Measuring innovation culture in organizations: The development of a generalized innovation culture construct using exploratory factor analysis. *European Journal of Innovation Management*. 2008, vol. 11, no. 4, p. 544.

[372] Brooke Dobni, C. The DNA of Innovation. *Journal of Business Strategy*. 2008, vol. 29, no. 2, p. 47.

[373] Cooper, R. G. From Experience: The Invisible Success Factors in Product Innovation. *Journal of Product Innovation Management*. 1999, vol. 16, no. 2, p. 6.

[374] Martins, E. C. and Terblanche, F. Building organisational culture that stimulates creativity and innovation. *European Journal of Innovation Management*. 2003, vol. 6, no. 1, p. 71.

[375] Anonymous. Managing numbers and knowledge: Some ways to boost innovation. *Strategic Direction*. 2010, vol. 26, no. 11, p. 30.

[376] Newman, J. L. Building a creative high-performance R&D culture. *Research Technology Management*. 2009, no. Sept-Oct, p. 26.

supportive environment to arise, they need a sense of efficiency[377], result orientation or discipline to succeed.

Cangemi and Miller identify characteristics such as appreciation, respect and recognition to organizations that enhance creativity in the workplace[378]. Leaders need to understand the emotional needs their employees have in the work environment and these are highly associated to any sort of **social recognition**. To make team members feel valued, appreciated, being important to the organization and treated with dignity starts an environment where innovative thinking can grow[379]. On the other hand, Pelz brings in the need for intellectual, scientific competition between individuals or groups that keeps innovations alive. However, these competitive relationships still have to be friendly – in its worst forms they can be a big threat to the development of new concepts[380]. Amabile even warns from too much competition and sees destructive internal competitions as a clear organizational impediment for innovation[381]. Instead, the author votes for a fair evaluation of work[382]. Kesting and Ulhøi explain the importance of appreciation for innovations in terms of incentives and of the promotion of innovative championship to show people how management recognizes their efforts. Furthermore, the authors find the general acknowledgement of ordinary workers whose opinions are valued and appreciated exceptionally critical[383]. For Ahmed, personalized recognition particularly of intrinsic nature drives innovative employee behaviour. Extrinsic rewards are mostly part of the less innovative companies' toolbox[384]. Moreover, Jucevičius sees tolerance and respect for other people as attributes of innovative companies in his research on the innovation culture in Lithuanian organizations[385]. Thus, it can be concluded that philosophies about social recognition values such as respect, appreciation, or recognition do play a major role in the organizational context of innovative companies.

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[377] Eigenstetter, M. and Löhr, A. Ethikprogramm in Unternehmen: Unterstützung einer innovationsföderlichen Gestaltung von Unternehmenskultur? *FORUM Wirtschaftsethik*. 2008, vol. 16, no. 3, p. 27.

[378] Cangemi, J. and Miller, R. Breaking-out-of-the-box in organizations: Structuring a positive climate for the development of creativity in the workplace. *Journal of Management Development*. 2007, vol. 26, no. 5, p. 405.

[379] Ibid, p. 409.

[380] Pelz, D. C. Conditions for Innovation. *Trans-Action*. 1965, vol. 2, no. 2, p. 33.

[381] Amabile, T. M. Motivating Creativity in Organizations: On doing what you love and loving what you do. *California Management Review*. 1997, vol. 40, no. 1, p. 49.

[382] Ibid, p. 55.

[383] Kesting, P. and Ulhøi, J. P. Employee-driven innovation: extending the license to foster innovation. *Management Decision*. 2010, vol. 48, no. 1, pp. 74-79.

[384] Ahmed, P. K. Culture and climate for innovation. *European Journal of Innovation Management*. 1998, vol. 1, no. 1, pp. 41-42.

[385] Jucevičius, G. The Innovation Culture in Modern Lithuanian Organizations: Values, Attitudes and Practices. *Social Sciences / Socialiniai mokslai ISSN 1392-0758*. 2009, vol. 1, no. 63, pp. 42-43.

Some authors bring in an **altruistic** mindset for successful innovation. Jassawalla and Shashittal, for example, label unequal distribution of power on low innovation-supportive settings. They see equality of team members and stakeholders as an attribute of highly innovative companies and encourage fostering a social environment of integrity[386]. Others see good citizenship behaviour in terms of voluntarily helping each other and preserving and protecting the organization as enhancing innovation[387]. Where participants view others as equals and organizational characteristics include loyalty and integrity, innovation is more likely[388]. From a psychological point of view, it can be argued that people help others or treat them equally, mainly because humans feel uncomfortable when watching someone else suffering in general[389]. Therefore, altruistic behaviour can perfectly include the hope or expectation to receive something back for one self (from the organization or from society) according to Steven Pinker – this might actually include enhanced social recognition, improved image or status, or higher achievements for managers. However, that does not undermine altruistic behaviour in itself at all, because a later benefit is not the explicit aim of behaving unselfishly. Further, experiments indicate that in absentia, we tend to help others or treat them well to relieve our own pain and feeling of responsibility. But, as soon as we empathize with a wounded the motive to reduce the victim's suffering is much stronger – no matter if it lightens our own distress or not[390]. Looking into the concepts of treating others altruistically with fairness and equality does reveal it is not only about making the world a better place, although it certainly does help to do so. Much more it is about creating agreements that are long lasting and durable. If one side finds out later that an arrangement or an organizational responsibility is unfair, they might not be willing to work on it and most likely will conclude things to be untrustworthy[391]. Thus, although altruism seems a very complex concept, it is included in studies about innovation success in the sense of treating others with fairness and equality, helping others and working on a social environment. Claver et al. even state that an innovation-based culture relates to ethical behaviour in research[392]. Eigenstetter and Löhr explicitly researched the interrelationship of ethics and its contribution

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[386] Jassawalla, A. R. and Sashittal, H. C. Cultures that support product innovation processes. *Academy of Management Journal*. 2002, vol. 16, no. 3, pp. 44-51.

[387] Schneider, B. et al. Creating the Climate and Culture of Success. *Organizational Dynamics*. 1994, vol. 23, no. 1, p. 17.

[388] Brooke Dobni, C. The DNA of Innovation. *Journal of Business Strategy*. 2008, vol. 29, no. 2, p. 48.

[389] Pinker, S. *The better angels of our nature*. New York: Penguin Group, 2011, p. 575.

[390] Ibid, pp. 583-584.

[391] Fisher, R. et al. *Getting to Yes*. New York: Penguin Group, 2011, pp. 157 – 158.

[392] Claver, E. et al. Organizational Culture for innovation and new technological behavior. *The Journal of High Technology Management Research*. 1998, vol. 9, no. 1, p. 65.

to innovation-supportive culture. Their findings reveal a positive correlation between social responsibility and innovation culture[393]. Due to these indicators and point of argumentation, altruism as a concept of an organizational value as just described above undergoes further analysis in the context of this study.

Chapter 1.4 illustrated how customer proximity is one major determinant for success in innovation processes. This is also understood as a way of thinking and mindset throughout the organization by several authors. Medina et al., for example, find customization is basically continuous innovation required by users, which is why the innovative company must be highly responsive to that[394]. Other authors stress customer centricity[395], customer sensitivity and market analysis[396], or the dedication to the voice of the customer[397] to be decisive for succeeding in innovation outputs. According to Newman, building the philosophy of customer focus into an R&D organization is not an easy task. Still, real innovation success arises from a balance between technology and market orientation[398]. Brooke Dobni argues that market sensing is one of the key attributes to organizations that act market oriented, which is crucial to innovation[399]. In a different article, the same author uncovers competitive awareness in the sense of being sensitive to industry trends and competitors' positioning efforts as a key knowledge area for innovative companies[400]. For Delbecq and Mills, it is the extensive and intensive interaction with clients and organizational boundary spanners that helps to successfully reconceptualise products in an innovative way[401]. An innovation-supportive cultural norm for Ahmed is that companies are able to adopt the customer's perspective and that they can build relationships with all external interfaces such as suppliers and distributors. Moreover, such companies combine a certain degree of future orientation

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[393] Eigenstetter, M. and Löhr, A. Ethikprogramm in Unternehmen: Unterstützung einer innovationsföderlichen Gestaltung von Unternehmenskultur? *FORUM Wirtschaftsethik*. 2008, vol. 16, no. 3, p. 26.

[394] Medina, C. C. et al. Characteristics of Innovative Companies: A Case Study of Companies in Different Sectors. *Creativity and Innovation Management*. 2005, vol. 14, no. 3, p. 282.

[395] Jamrog, J. et al. Building and sustaining a culture that supports innovation. *Human Resource Planning*. 2006, vol. 29, no. 3, p. 12.

[396] Schneider, B. et al. Creating the Climate and Culture of Success. *Organizational Dynamics*. 1994, vol. 23, no. 1, p. 21.

[397] Cooper, R. G. From Experience: The Invisible Success Factors in Product Innovation. *Journal of Product Innovation Management*. 1999, vol. 16, no. 2, p. 5.

[398] Newman, J. L. Building a creative high-performance R&D culture. *Research Technology Management*. 2009, no. Sept-Oct, p. 23.

[399] Brooke Dobni, C. Measuring innovation culture in organizations: The development of a generalized innovation culture construct using exploratory factor analysis. *European Journal of Innovation Management*. 2008, vol. 11, no. 4, p. 542.

[400] Brooke Dobni, C. The DNA of Innovation. *Journal of Business Strategy*. 2008, vol. 29, no. 2, p. 45.

[401] Delbecq, A. L. and Mills, P. K. Managerial practices that enhance innovation. *Organizational Dynamics*. 1985, vol. 14, no. 1, p. 30.

with the willingness to forget the past and move on[402]. Naranjo-Valencia et al. share this point of view and conclude that companies hinder innovation, indeed, if they focus on an internal orientation. On the contrary, an external orientation involving customers, community relations, suppliers, and all other external components must be favoured[403]. Ultimately, from the articles under investigation here it must be concluded unambiguously that **market orientation** as an organizational value highly contributes to product innovation excellence.

As the previous section shows, scientists share various concepts of organizational values for innovation success. Topics highlighted here include ideas about freedom, risk taking, achievement, social recognition, altruism, and market orientation. The consensus about their positive interrelation with an increase of creativity, idea generation, and hence, product innovation addressed from different perspectives in previous studies makes them remarkable enough for further consideration in the research at hand.

2.2.3 Organizational values for product innovation lacking consensus

When it comes to values related to **authority** such as bureaucracy, control or formalization, the earlier findings investigated for this research do no longer provide such a clear picture. Several authors see too much bureaucracy and hierarchy with a negative influence on innovation[404]. In their study on the interrelations of organizational culture, creativity and innovation in organizations Martins and Terblanche outline that values like rigidity, control, predictability and stability mostly hinder creativity and innovation[405]. Other authors support this point of view by advising against an overemphasis on status quo[406]. McLean finds control as the dimension that impedes organizational creativity and innovation[407]. According to the author this can relate either to control in decision-making or to control of information flows, but also as perceived control of rewards, which all result in decreased intrinsic motivation[408]. Jamrog et al. agree on this by stating that too much control certainly can inhibit creativity and

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[402] Ahmed, P. K. Culture and climate for innovation. *European Journal of Innovation Management*. 1998, vol. 1, no. 1, p. 37.

[403] Naranjo-Valencia, J. C. et al. Organizational culture as determinant of product innovation. *European Journal of Innovation Management*. 2010, vol. 13, no. 4, p. 470.

[404] Cooper, R. G. From Experience: The Invisible Success Factors in Product Innovation. *Journal of Product Innovation Management*. 1999, vol. 16, no. 2, p. 13; Naranjo-Valencia, J. C. et al. Innovation or imitation? The role of organizational culture. *Management Decision*. 2011, vol. 49, no. 1, p. 64.

[405] Arad et al., 1997. In: Martins, E. C. and Terblanche, F. Building organisational culture that stimulates creativity and innovation. *European Journal of Innovation Management*. 2003, vol. 6, no. 1, p. 70.

[406] Amabile, T. M. Motivating Creativity in Organizations: On doing what you love and loving what you do. *California Management Review*. 1997, vol. 40, no. 1, p. 49.

[407] McLean, L. D. Organizational Culture's Influence on Creativity and Innovation: A Review of the Literature and Implications for Human Resource Development. *Advances in Developing Human Resources*. 2005, vol. 7, no. 2, p. 241.

[408] Ibid, p. 238.

innovation[409]. Naranjo-Valencia et al.'s findings suggest internal control orientations as having a constraining effect on the generation of product and service innovations as well. Moreover, the authors notify close adherence to rules and regulations to be counterproductive[410]. A small degree of formalization of relationships among the organizational positions generally contributes to innovation in a positive way[411]. Additionally, high power distance can be seen as a potentially unfavourable characteristic to innovative performance[412].

In contrast, Adler and Borys argue that formalization does help companies to capture previous learning, which is a prerequisite for innovation[413]. Eigenstetter and Löhr's research even results in the conclusion that additional rules and standardization does not hinder competitive advantage. Instead, rules and processes show a corresponding link to innovation culture[414]. Khazanchi et al. share an additional perspective on the topic[415]. They describe innovation-supporting values as a very complex, even paradoxical phenomenon: they have to provide an overarching frame of reference and meet paradoxical demands for control and flexibility. In their research on the impact of organizational values on a particular process innovation the authors reveal that flexibility values stressing creativity, change and empowerment better encourage innovation than control values inspiring efficiency, productivity and stability[416]. Still, as a result, the authors state that control values enable flexibility values and their benefits. Giving employees stable routines and clear goals, for example, will encourage trust. Therefore, control values must be seen as an enabling potential for flexibility values such as freedom or empowerment[417].

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[409] Jamrog, J. et al. Building and sustaining a culture that supports innovation. *Human Resource Planning*. 2006, vol. 29, no. 3, p. 15.

[410] Naranjo-Valencia, J. C. et al. Organizational culture as determinant of product innovation. *European Journal of Innovation Management*. 2010, vol. 13, no. 4, pp. 472 & 475.

[411] Cummings, L. Organizational Climates for Creativity. *Academy of Management Journal*. 1965, vol. 8, no. 3, p. 226.

[412] Jucevičius, G. The Innovation Culture in Modern Lithuanian Organizations: Values, Attitudes and Practices. *Social Sciences / Socialiniai mokslai*. 2009, vol. 1, no. 63, p. 41.

[413] Naranjo-Valencia, J. C. et al. Innovation or imitation? The role of organizational culture. *Management Decision*. 2011, vol. 49, no. 1, p. 64.

[414] Eigenstetter, M. and Löhr, A. Ethikprogramm in Unternehmen: Unterstützung einer innovationsföderlichen Gestaltung von Unternehmenskultur? *FORUM Wirtschaftsethik*. 2008, vol. 16, no. 3, p. 27.

[415] Khazanchi et al.'s research was already used in a similar form by the author for a discussion in Kuhn, C. and Šumilo, Ē. Leaders must learn how to create an organisational climate where others apply innovative thinking to solve problems and develop new products and services. *Humanities and Social Sciences Latvia*. 2012, vol. 20, no. 1, pp. 77-94.

[416] Khazanchi, S. et al. Innovation-supportive culture: The impact of organizational values on process innovation. *Journal of Operations Management*. 2007, vol. 25, no. 4, p. 873.

[417] Ibid, p. 881.

To sum up, different authors do not see the aspects of bureaucracy, control and formalization consistently as yet. However, these authority values seem to have some relevance to innovation success since different authors mention them repeatedly. For this reason, they undergo further consideration in this study, despite the fact that their positive contribution to innovation success is controversial and disputed.

In conclusion, the previous subchapters showed how different authors address many diverse value topics and dimensions in the context of innovation-supportive organizational cultures. Some of them are clearly highlighted; some of them rather show a lot of interrelated statements and concepts that seem connected to each other. In order to structure the insights gained so far in a qualitative and descriptive kind of way a look into measurement approaches for organizational values is necessary. Other scientists do have valid value categories and value themes already that are helpful to get the qualitative results outlined so far into an order that can be operationalized for empirical testing. For this reason, the next section highlights different measurement approaches for organizational values. Eventually, this results in distinct abstraction levels and a clear structure of the content investigated by now on innovation-supportive organizational values.

2.3 Analysis of previous measurement approaches for organizational values[418]

Generally, a very wide range of instruments for the examination of organizational culture has evolved in the last couple of years some of which highlight organizational values[419]. Eventually, the choice of an instrument highly depends on the purpose of the study: different instruments reveal different things and while some aspects might be revealed by a certain method, others might be cast in shadow[420]. No questionnaire on organizational culture sufficiently covers a wide range of generic and distinct cultural traits, although most of them overlap on some core dimensions[421]. Still, most questionnaires take a value-based or a norms-

[418] Different measurement approaches to organizational values were already discussed and therefore, used in an earlier version of this chapter by the author for Bolzern-Konrad, B. et al. Values - Soft issue or valuable capital? *Humanities and Social Sciences Latvia*. 2013, vol. 21, no. 2, pp. 74-90.

[419] Jung, T. et al. Instruments for Exploring Organizational Culture: A Review of the Literature. *Public Administration Review*. 2009, vol. 69, no. 6, p. 1087.

[420] Jung, T. et al. Instruments for Exploring Organizational Culture: A Review of the Literature. *Public Administration Review*. 2009, vol. 69, no. 6, p. 1094.

[421] Delobbe, N. et al. Measuring Core Dimensions of Organizational Culture: A Review of Research and Development of a New Instrument, p. 9. Retrieved 04.12.2013 from: www.uclouvain.be/cps/ucl/doc /iag/documents/WP_53_Delobbe.pdf.

based point of view, which implies that values and behavioural patterns may well reflect common cultural factors[422].

In search of an appropriate measurement instrument to explore organizational values in connection with product innovation some notable approaches find consideration here. The selection of these particular instruments is driven by the approach to measure organizational values – not any other dimension of organizational culture such as artefacts, symbols, rituals, leadership, or strategy alignment. Thus, although the Competing Values Framework, for example, has been used for more than one hundred published studies to explore relationships between culture and many other factors[423], the technique is more a holistic approach to examine organizational culture than needed here. Most of all, the instruments under closer consideration have a link to innovation or creativity in order to provide helpful dimensions and categories for building applicable themes out of the content analysis in the previous section. Each of them has advantages and, on the other hand, difficulties[424].

The following overview can be divided into two kinds of instruments:

- Instruments exploring organizational culture with a special focus on values, sometimes assessing the relationship to innovation such as: The Organizational Culture Index, the Organization Culture Profile, the Creative Climate Questionnaire respectively the Situational Outlook Questionnaire, and the Organizational Dynamics Instrument.
- Instruments researching human or individual values such as: The Rokeach Value Survey, The Schwartz' Values Survey, and the Work Values Survey. Astonishingly, these can be transferred to Business Management research in a way, which is also shown later in this section.

The Organizational Culture Index introduced by Wallach lets respondents score how much they see a certain characteristic to describe their organization. The instrument already defines culture profiles and uses different dimensions to indicate whether a company is rather bureaucratic, innovative or supportive. Innovative companies have to rank high on the

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[422] Delobbe, N. et al. Measuring Core Dimensions of Organizational Culture: A Review of Research and Development of a New Instrument, p. 17-18. Retrieved 04.12.2013 from: www.uclouvain.be/cps/ucl/doc/iag/documents/WP_53_Delobbe.pdf.

[423] Cameron, K. S. and Quinn, R. E. *Diagnosing and changing organizational culture*. San Francisco: Jossey Bass, 2011, p. 27.

[424] Zhang, X. et al. Toward collective organizational values: a case study in UK construction. *Construction Management and Economics*. 2008, vol. 26, no. 10, p. 1012.

attributes of risk taking, results-oriented, creative, pressurized, stimulating, challenging, enterprising, and driving[425]. Unfortunately, the dimensions are not further described.

The Organizational Dynamics Instrument seeks to examine, measure and manage organizational culture in general. Originally, it was developed according to the insights of Peters and Waterman. With this, it refers to implications for human resource planning such as recruiting individuals that culturally match an organization[426]. Some of the identified factors and their description contribute to a deeper understanding of such in a value context and are used later in this dissertation. Table 2.1 shows details.

Table 2.1: Overview of the Organizational Dynamics Instrument[427]

Research Strategy: Survey format using a five-point Likert-scale (1 = Definitely agree, 2 = Inclined to agree, 3 = Inclined to disagree, 4 = Definitely disagree, 5 = Unable to answer / not applicable). Respondents include both, line and staff employees with management representation from CEO's to line supervisors.	
Dimensions:	**Description:**
Importance of people	Management values and respects employees and acknowledges their contributions
Management visibility	Management is in touch with employees and operations
Acceptability of non-conformity	Non-conformity is acceptable and provides the base for innovation
Claritiy of standards	Employees are accountable for meeting challenging performance goals
Commitment to training	Employees are well trained to enhance their career and work skills
Intimacy and values	Organizational closeness and continuity is promoted by shared beliefs and values
Internal competition	Employees are rewarded and receive recognition for achieving ambitious goals and results
Customer orientation	Customers are a priority and strong efforts are made to satisfy customer needs and wants
Internal communication	People share information freely using both formal and informal channels of communications
Action and change	Organizational structure and support departments promote action and decision making

To assess characteristics of firms, O'Reilly et al. developed the so-called Organization Culture Profile (OCP), which asks respondents to sort 54 items in terms of how characteristic each is for their organization's culture[428]. Originally, the instrument was designed to investigate personal and organizational values in order to investigate (non-) congruencies.

[425] Wallach, E. J. Individuals and organizations - The cultural match. *Training*. 1983, no. February, p. 32.

[426] Reynierse, J. H. and Harker, J. B. Measuring and Managing Organizational Culture. *Human Resource Planning*. 1986, vol. 9, no. 1, pp. 6-7.

[427] Table created by author based on Ibid, pp. 2-4.

[428] O'Reilly, C. et al. People and organizational culture - A profile comparison approach to assessing P-O-Fit. *The Academy of Management Journal*. 1991, vol. 34, no. 3, p. 495.

However, the relatively large number of values examined through the instrument also makes it appropriate for a detailed evaluation of organizational cultures. Besides, the method clearly proves reliability and validity. In addition, O'Reilly et al.'s research contributes to an empirically based definition of the pattern of values in the context of organizational culture[429]. Sarros et al. take the Organizational Culture Profile one step further and limit it to 28 items and seven factors one of which is innovation. Having proved content validity and internal reliability of the revised version, the authors provide a platform for further usage of the instrument[430]. Regrettably, their dimensions lack further explanation.

Some years later, Ekval introduced the Creative Climate Questionnaire to assess organizational structure and climate for creativity and innovation. Accordingly, innovative organizations definitely differ in the dimensions and scales introduced in Table 2.2[431]. Besides, it is found that challenge, freedom, trust, playfulness and low conflicts have positive effects on innovativeness. Seeing organizational climate as the characteristic way of life in an organization makes it describable for members and other stakeholders. Still, since the leadership style of managers usually shows substantial correlations with the climate dimensions, the author admits that the climate for innovation to a fairly large extent lies in the hands of managers[432], although the leadership dimension is not included in the technique. Isaksen et al. even improved the instrument to the Situational Outlook Questionnaire with respect to the English-speaking world and also in a further reduction of the dimensions as used for Table 2.2. Their research provides evidence for the questionnaire's internal structure[433]. Since the Situational Outlook Questionnaire explicitly assesses the climate of innovative companies, it comes very close to the topic under research for this dissertation and is of very high relevance to the study.

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[429] O'Reilly, C. et al. People and organizational culture - A profile comparison approach to assessing P-O-Fit. *The Academy of Management Journal*. 1991, vol. 34, no. 3, pp. 509-512.

[430] Sarros, J. C. et al. The next generation of the organizational culture profile, pp. 4-7. Retrieved 27.12.2013 from: http://www.buseco.monash.edu.au/mgt/research/working-papers/2003/wp15-03.pdf.

[431] Ekvall, G. Organizational climate for creativity and innovation. *European Journal of Work and Organizational Psychology*. 1996, vol. 5, no. 1, pp. 105 & 111.

[432] Ibid, pp. 121-122.

[433] Isaksen, S. G. et al. Situational outlook questionnaire: A measure of the climate for creativity and change. *Psychological Reports*. 1999, vol. 85, p. 671.

Table 2.2: Overview of the Situational Outlook Questionnaire[434]

Research Strategy: Paper-and-pencil self-report. Respondents are asked how people in the organization ususally behave. They use a scale anchored by 0 = (not at all applicable) and 3 (applicable to a high degree) to indicate to which extent each statement describes their work situation. Every dimension as several statements that respondents have to rate. Apart from Conflict all dimensions have a positive relationship to creativity and change. Conflict has a negative relationship according to the authors.	
Dimensions:	**Description:**
Challenge / Involvement	The degree of emotional involvement, commitment, and motivation in the operations and goals.
Freedom	The level of autonomy, discretion, and initiative in behaviour exerted by individuals to acquire information, make decisions etc..
Trust / Openness	The degree of emotional safety, and openness found in relationships.
Idea Time	The amount of time people can (and do) use for elaborating new ideas.
Playfulness / Humour	The display of spontaneity, ease, good-natured joking, and laughing that is displayed.
Conflict	The presence of personal and emotional tensions or hostilities.
Idea Support	The degree to which new ideas and suggestions are attended to and treated in a kindly manner.
Debate	The expressing and considering of many different viewpoints, ideas and experiences.
Risk taking	The tolerance of ambiguity and uncertainty.

For researching individual or human values, Rokeach developed the Rokeach Value Survey as a measurement instrument for eighteen human values, which distinguishes between end-states (such as "Freedom", "Equality" or "Self-respect") and modes of behaviour (such as "Cheerful", "Honest", or "Obedient") shown in Table 2.3. According to its inventor, wisdom, for example, would be a terminal value, but education would be not[435]. This instrument has been used in many researches and studies already and validity is clearly proved[436]. However, it can be discussed how applicable this way of measurement is for business management research. Johnston states that the Rokeach Value Survey is widely used and accepted by economists as well. Apparently, the instrument has proved to be quite adequate for measuring individual and group value structures. However, Johnston explains that some values might be very similar to others, even though the instrument survived several factor analyses[437]. The technique is so popular, because information about people's basic values can be revealed in only a couple of minutes. On the other hand, Gibbins and Walker put the instrument into

[434] Table created by author based on Isaksen, S. G. et al. Situational outlook questionnaire: A measure of the climate for creativity and change. *Psychological Reports*. 1999, vol. 85, pp. 668-669.

[435] Gibbins, K. and Walker, I. Multiple interpretations of the Rokeach Value Survey. *The Journal of Psychology*. 1993, vol. 133, no. 6, p. 789.

[436] Rokeach, M. and Regan, J. F. The role of values in the counseling situation. *The personnel and guidance journal*. 1980, no. May, pp. 578-579.

[437] Johnston, C. S. The Rokeach Value Survey - Underlying structure and multidimensional scaling. *The Journal of Psychology*. 1995, vol. 129, no. 5, pp. 583-584.

question, because in their research, they proved that one value can have different meanings and interpretations by different people – they might be even contradictory. That is the reason why the authors claim the Rokeach Value Survey not to be the perfect instrument to reveal insights about the value system used by individuals or to reveal differences across individuals[438]. Another scientific discussion here is whether rankings or ratings are appropriate for measurement when it comes to values. The Rokeach Value Survey uses rankings. But, Maio et al. state that ratings have a better validity, since rankings might force people to make a differentiation between the importances of values where there actually is none[439]. In their research, ratings clearly seemed to have a better predictive validity than rankings, which is why the authors recommend using value ratings instead of rankings for academic researchers[440].

Table 2.3: Overview of the Rokeach Values Survey[441]

Research Strategy: Respondents are asked to arrange the following values in order of their importance to themselves, as guiding principles for their lives.	
Values:	
A comfortable life (a prosperous life)	Ambitious (hard-working, aspiring)
An exciting life (a stimulating, active life)	Broadminded (open-minded)
A sense of accomplishment (lasting contribution)	Capable (competent, effective)
A world at peace (free of war and conflict)	Cheerful (lighthearted, joyful)
A world of beauty (beauty of nature and the arts)	Clean (neat, tidy)
Equality (brotherhood, equal opportunity for all)	Courageous (standing up for your beliefs)
Family security (taking care of loved ones)	Forgiving (willing to pardon others)
Freedom (independence, free choice)	Helpful (working for the welfare of others)
Happiness (contentedness)	Honest (sincere, truthful)
Inner harmony (freedom from inner conflict)	Imaginative (daring, creative)
Mature love (sexual and spiritual intimacy)	Independent (self-reliant, self-sufficient)
National security (protection from attack)	Intellectual (intelligent, reflective)
Pleasure (an enjoyable, leisurely life)	Logical (consistent, rational)
Salvation (saved, eternal life)	Loving (affectionate, tender)
Self-respect (self-esteem)	Obedient (dutiful, respectful)
Social recognition (respect, admiration)	Polite (courteous, well-mannered)
True friendship (close companionship)	Responsible (dependable, reliable)
Wisdom (a mature understanding of life)	Self-controlled (restrained, self-disciplined)

[438] Gibbins, K. and Walker, I. Multiple interpretations of the Rokeach Value Survey. *The Journal of Psychology*. 1993, vol. 133, no. 6, pp. 797-803.

[439] Maio, G. R. et al. Rankings, Ratings, and the Measurement of Values: Evidence for the Superior Validity of Ratings. *Basic and Applied Social Psychology*. 1996, vol. 18, no. 2, p. 172.

[440] Ibid, pp. 178-180.

[441] Table created by author based on Rokeach, M. *The Nature of Human Values*. New York: The Free Press - Macmillan Publishing Co., Inc., 1973, pp. 358-361.

One instrument using ratings rather than rankings is the Schwartz' Value Survey, which has been empirically used and proved validity in many different countries[442]. The Schwartz' values theory is based on universal requirements of humans' existence and, from samples of over 60.000 individuals from over 60 nations, derives ten motivational distinct values. The instrument assesses how important these values are as guiding principles of one's life. Therefore, it seems similar to the Rokeach Value Survey instrument, but it is said to be more comprehensive for respondents. That is the reason why Zhang et al. used it in their research, which had the development of organizational core values in alignment with employees' values as primary goal[443]. The authors adapted the instrument to an organizational context as shown in Table 2.4.

Table 2.4: Schwartz' Value Survey adapted to an organizational context[444]

Research Strategy: Respondents have to rate how important the following values are as guiding principles of one's life.	
Dimensions:	**Description:**
Self direction	Curious, choosing own goals, independent, creativity, freedom
Universalism	Equality, peace between people, unity with nature, wise in issue of ethics, social justice, broadminded, protecting the environment
Others oriented (Benevolence)	Loyal, honest, helpful, responsible, forgiving
Tradition	Respect for tradition, moderate, humble, accepting proportion in life, faithful
Conformity	Politeness, self-discipline, honouring older more experienced ones, dutiful and professional
Security	Social order, social security, reciprocation of favours, security of friends and family, clan
Power	Social power, wealth, authority, preserving public image
Achievement	Successful, capable, influential, ambitious
Hedonism	Learning, enjoying work, aesthetics, pleasure
Stimulating activity	Daring, innovation, excitement at work

Originally, the values in this instrument range from security, over power to openness to change. Thus, the Schwartz' Value Survey (SVS) checks individual and cultural differences in certain abstract ideals through making respondents rate 57 value items. Even though the SVS has proved validity in a lot of research already, a scale with 57 items can be too time-consuming for some studies. Therefore, Lindemann and Verkasalo developed a short version

[442] Maio, G. R. et al. Rankings, Ratings, and the Measurement of Values: Evidence for the Superior Validity of Ratings. *Basic and Applied Social Psychology*. 1996, vol. 18, no. 2, p. 180.

[443] Zhang, X. et al. Toward collective organizational values: a case study in UK construction. *Construction Management and Economics*. 2008, vol. 26, no. 10, pp. 1013-1014.

[444] Table created by author based on VALiD, 2005. In: Zhang, X. et al. Toward collective organizational values: a case study in UK construction. *Construction Management and Economics*. 2008, vol. 26, no. 10, p. 1015.

of the instrument, which asks respondents to rate only the ten basic values directly[445]. In four studies, the short version proved to be a practical alternative with good internal consistency and temporal stability. However, the authors admit that with measuring only the ten value dimensions, the results can only give a first insight and broad overview of values. For a deeper understanding the original instrument might be more applicable. Although they obtained good reliability and validity, their short version of the SVS needs additional research in order to analyse its validity in more detail[446].

Using Schwartz' value dimensions as a starting point, Cable and Edwards describe value orientations within the economic context and with relation to behaviour in the work environment. For their research combining psychological need fulfilment and value congruence they adopted Schwartz' universal values, turned them into work values dimensions, and identified specific items for measurement. Table 2.5 shows details.

Table 2.5: Overview of Cable and Edwards' Work Values Survey[447]

Research Strategy: For organizational values, respondents are asked how important a value is at their organization.	
Dimensions:	**Description:**
Altruism	Making the world a better place, being of service to society, contributing to humanity
Relationships with others	Forming relationships with coworkers, getting to know fellow workers quite well, developing close ties with coworkers
Pay	Salary level, total compensation, the amount of pay
Prestige	Gaining respect, obtaining status, being looked up to by others
Security	Being certain of keeping the job, being sure one will always have a job, being certain one's job will last
Authority	Distinct reporting relationships, a clear chain of command, definite lines of authority
Variety	Doing a variety of things, doing something different every day, doing many different things on the job
Autonomy	Doing work in one's own way, determining the way one's work is done, making own decisions

For their research, the authors asked over 950 respondents to evaluate the different constructs in four different ways: (1) How much is the right amount for you?, (2) How much is present in your work?, (3) How important is this to you?, (4) How important is this at your organization?[448]. As a conclusion, the authors consider this instrument to examine a

[445] Lindeman, M. and Verkasalo, M. Measuring Values With the Short Schwartz's Value Survey. *Journal of Personality Assessment*. 2005, vol. 85, no. 2, pp. 170-171.

[446] Ibid, pp. 177-178.

[447] Table created by author based on Cable, D. M. and Edwards, J. R. Complementary and supplementary fit: a theoretical and empirical integration. *The Journal of applied psychology*. 2004, vol. 89, no. 5, p. 834.

[448] Ibid, p. 825.

comprehensive set of work dimensions while permitting a direct competitive test at the same time[449].

Clearly, the last three instruments – the Rokeach Value Survey, the Schwartz' Values Survey and the Work Values Survey, open up a very individual perspective. Only if all members in a group shared the same value rankings or ratings according to these instruments one could talk about organizational values. Schwartz' values methodology has been successfully deployed in an organizational context in Zhang et al.'s research. Cable and Edwards extended the Schwartz' instrument to an organizational context and include concrete issues used for measurement. Of course, a differentiation between personal and organizational values is necessary for business management research. However, people follow their values in personal life, but these can become quite decisive for their ideas towards job, colleagues, and their workplace and performance. Since they ultimately motivate and shape one's behaviour, the two dimensions cannot be seen as completely independent. Thus, it remains a challenge to identify organizational values[450]. According to Cable and Edwards, individual values define what people think is important and they guide decisions and behaviour. Organizational values, on the other hand, provide norms and thus, determine how resources should be used and how members of an organization should behave[451].

In the context of this study, a combined approach seems most feasible and applicable. In the author's point of view, management research can and has to learn from approaches that originally rather relate to social sciences such as Rokeach's and Schwartz'. Therefore, the most reasonable way for the author's premises is defining themes and clusters of values in accordance with other research on organizational values while not ignoring the benefits and lessons learned from approaches investigating individual values.

According to Hofstede, the study of values assumes a basic interest and information about values does not necessarily lead to clear practical solutions. Besides, one has to be very careful with the way of questioning in order to distinguish attitudes from values. By checking the importance of an attribute or characteristic researchers can assume that this relates to a value and not only to an attitude. However, if employees are unsatisfied with a certain situation in their company, e.g. career opportunities, this might make them rate these much

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[449] Cable, D. M. and Edwards, J. R. Complementary and supplementary fit: a theoretical and empirical integration. *The Journal of applied psychology*. 2004, vol. 89, no. 5, p. 832.

[450] Zhang, X. et al. Toward collective organizational values: a case study in UK construction. *Construction Management and Economics*. 2008, vol. 26, no. 10, pp. 1010-1012.

[451] Cable, D. M. and Edwards, J. R. Complementary and supplementary fit: a theoretical and empirical integration. *The Journal of applied psychology*. 2004, vol. 89, no. 5, p. 823.

more important. So, the two constructs have to be measured independently. Besides, the author claims that organizational culture and values should neither be studied solely by case studies, nor solely by questionnaires[452].

On the other hand, it can be assumed that questionnaires for exploring organizational culture and values would be cheaper to administer than more complex approaches that are likely to require considerable administrator input. Self-report questionnaires seem to be the most prominent approach, not only because they are cost-effective and easy to administer, but also because they allow an extensive research. The downside is that one will gain less intensive and deep insights. In the end, it is a trade-off choice between depth and breadth of data – qualitative approaches offer detailed insights, while quantitative methods allow for larger sample sizes[453]. Applying the same method to many organizations in the same way is a strength of the survey method indeed. On the other hand, there is no safeguard against overgeneralization with it[454].

Gordon and DiTomaso find that choosing the upper and middle level of management as respondents for measuring organizational values has both advantages and disadvantages. Clearly, it cannot be a representative sample of a company. However, this level will be most predictive of future behaviour and performance of a firm. Besides, as long as every survey only uses upper and middle management, results become highly comparable[455].

To conclude, for the research at hand the author sees the following criteria for an investigation of organizational values and their impact on product innovations: As outlined above, themes and categories for the content analysis in the previous section have to accord to dimensions of other organizational culture instruments. This ensures comprehensiveness and facilitates explaining the themes in accordance with previous research. Using questionnaires sent to managers and therefore collecting quantitative data is considered to be possible and applicable for other scientists as long as the way of questioning is done in a distinctive way. This relates to approaches that investigate into individual and human values and these actually do provide good techniques to be able to search into organizational values in a reliable and valid way.

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[452] Hofstede, G. Attitudes, Values and Organizational Culture: Disentangling the Concepts. *Organization Studies*. 1998, vol. 19, no. 3, p. 479.

[453] Jung, T. et al. Instruments for Exploring Organizational Culture: A Review of the Literature. *Public Administration Review*. 2009, vol. 69, no. 6, pp. 1091-1093.

[454] Denison, D. R. Bringing corporate culture to the bottom line. *Organizational dynamics*. 1984, vol. 13, no. 2, p. 7.

[455] Gordon, G. G. and DiTomaso, N. Predicting corporate performance from organizational culture. *Journal of Management Studies*. 1992, vol. 29, no. 6, November, pp. 788-789.

2.4 Rationale for derived content structure and abstraction of 12 themes for innovation-supportive organizational values

As demonstrated in chapter 2.2, the content of previous studies on organizational values supportive to product innovation is very diversified and segmented. Having presented value themes of other researchers to relate to this section justifies the author's rationale for choosing certain generic subjects that summarize expanded value statements on abstraction level one. In a next step these subjects are attributed to overall themes on abstraction level two, which goes in line with the description of similar values sourced from other authors as indicated.

To start with, in the articles under investigation challenge, challenging work, or a sense of challenge is named as manifest content. They relate to the will to be successful and achieve something and can be subsumed under the subject of challenge. Discipline, diligence, determination, or the requirement of hard and focused work are explicitly mentioned and listed under discipline as subject. These attributes can be seen as relating to ambition and the importance of success. Result orientation as the next subject goes in line with the corresponding dimension of Wallach's Organizational Culture Index[456]. It encapsulates terms such as efficiency, effectiveness, continuous improvement, but also goal orientation and high speed in decision-making and indicates a focus on results and achievements. The three subjects of challenge, discipline, and result orientation are further abstracted to the theme of **achievement**, which Zhang et al. describe with characteristics such as successful, capable, influential, and ambitious (compare Schwartz' Values Survey in Table 2.4)[457].

The next theme, in alphabetical order, is **altruism** consisting of equality, ethical behaviour, integrity and loyalty. Seen as an attribute of making the world a better place, equality or viewing others as equals are stressed explicitly. The Rokeach Value Survey explains equality with brotherhood and equal opportunity for all (compare Table 2.3). Ethical behaviour adds up wordings such as good citizenship, ethical behaviour, or social responsibility and indicates the will to contribute to society. While integrity is addressed directly and relates to brotherhood and other-directedness, loyalty as being an original term can be seen as an indicator of companionship and therefore is related to altruism. Cable and Edwards rationalize

[456] Wallach, E. J. Individuals and organizations - The cultural match. *Training*. 1983, no. February, p. 32.

[457] Zhang, X. et al. Toward collective organizational values: a case study in UK construction. *Construction Management and Economics*. 2008, vol. 26, no. 10, p. 1015.

altruism with making the world a better place, being of service to society, contributing to humanity in their Work Values Survey (see Table 2.5)[458].

The subjects of bureaucracy, control, and formalization add up to the theme of **authority** on abstraction level two. Distinct reporting relationships, a clear chain of command, and definite lines of authority are features of authority according to Cable and Edwards[459]. Original terms like bureaucracy, hierarchy or stability indicate an emphasis on formal responsibilities whereas control of upper management and in decision-making are explicitly phrased and highly relate to a clear chain of command. Additionally, formalization, rigidity, or the respect of regulations are openly named and correspond to definite processes and authorities.

The next theme, **debate and discussion**, is based on Isaksen et al.'s Situational Outlook Questionnaire (compare Table 2.2), which portrays debate as the expressing and considering of many different viewpoints, ideas and experiences[460]. Furthermore, the Organizational Dynamics Instrument (shown in Table 2.1) explains internal communication as people sharing information freely using both formal and informal channels of communications[461]. Debate itself is emphasized as original content but as a subject also summarizes ideas about constructive conflict handling and problem solving. Diversity as a subject is directly addressed by various authors and mostly relates to cross-functional teamwork and team diversity, which enhances the exchange of different viewpoints. As an indicator for the consideration of different experiences effective, open, active and clear ways of communication as original terms are combined in the subject of internal communication. Openness is unequivocally named, but the subject additionally relates to questioning and critical awareness, which, again, contributes to open discussions.

In the 40 articles under enquiry, the expressions of autonomy, freedom, and independence all deliver manifest content. For this study, they are brought together as the overall theme labelled **freedom**, even though other authors use them separately for execution. The notion of independent is further specified by self-reliant, self-sufficient, for example, by Rokeach[462]. Cable and Edwards designate doing work in one's own way, determining the way one's work

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[458] Cable, D. M. and Edwards, J. R. Complementary and supplementary fit: a theoretical and empirical integration. *The Journal of applied psychology*. 2004, vol. 89, no. 5, p. 834.

[459] Ibid.

[460] Isaksen, S. G. et al. Situational outlook questionnaire: A measure of the climate for creativity and change. *Psychological Reports*. 1999, vol. 85, p. 668.

[461] Reynierse, J. H. and Harker, J. B. Measuring and Managing Organizational Culture. *Human Resource Planning*. 1986, vol. 9, no. 1, p. 4.

[462] Rokeach, M. *The Nature of Human Values*. New York: The Free Press - Macmillan Publishing Co., Inc., 1973, p. 360.

is done, making own decisions to autonomy[463]. For Isaksen et al., freedom indicates the level of autonomy, discretion, and initiative in behaviour exerted by individuals to acquire information or make decisions[464] (compare Table 2.2). The term of autonomy gives a lot of manifest content and can be perceived as a part of freedom in choosing tasks. Phrases containing freedom and free choices, again, deliver a lot of manifest content and clearly indicate doing work in one's own way. Moreover, independence is mentioned explicitly and can be seen as related to freedom and autonomy and working self-reliantly.

Involvement, as the next theme, contains different subjects all relevant to product innovation: Commitment to change, to innovation, towards goals including the aspect of emotional commitment to the organization and passion for an idea as exemplary original terms deliver a lot of manifest content and clearly relate to employees' involvement in their work. Enthusiasm is underlined unambiguously for individuals and work groups and, again, indicates a high level of involvement. Organizational identification and employees understanding their role are original wordings and indicate motivation for goals and tasks. The term involvement itself is named directly as well and is seen as a good theme due to its relevance in other measurement instruments such as the Situational Outlook Questionnaire (see Table 2.2), which defines involvement and challenge as the degree of emotional involvement, commitment, and motivation in the operations and goals[465]. Intrinsic motivation of employees as well as organizational motivation as obvious terms can be grasped as contributing to involvement and the subject of participation delivers a lot of manifest content as well. In many contexts this can be considered as a synonym for involvement. Eventually, several authors mention shared responsibilities or the freedom to take responsibility as a precondition of involvement.

With naming customers as a priority the Organizational Dynamics Instrument (illustrated in Table 2.1) includes the topic of customer orientation[466]. In the investigated articles, customer centricity or sensitivity as well as dedication to the voice of the customer are named as a way of mindset and clearly indicate market orientation in general. Furthermore, being attentive to market changes, competitive awareness and original terms such as external, future, or network orientation relate to an external competitiveness focus, which can be assigned to market

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[463] Cable, D. M. and Edwards, J. R. Complementary and supplementary fit: a theoretical and empirical integration. *The Journal of applied psychology*. 2004, vol. 89, no. 5, p. 834.

[464] Isaksen, S. G. et al. Situational outlook questionnaire: A measure of the climate for creativity and change. *Psychological Reports*. 1999, vol. 85, p. 668.

[465] Ibid.

[466] Reynierse, J. H. and Harker, J. B. Measuring and Managing Organizational Culture. *Human Resource Planning*. 1986, vol. 9, no. 1, p. 4.

orientation. Due to this background the subjects of customer orientation and external competitiveness construct the theme of **market orientation**.

Risk taking as a term is supported overtly by wordings such as an orientation towards risk or risk propensity and makes a good theme on abstraction level two. Original terms such as risk tolerance, tolerance or acceptance of uncertainty and ambiguity clearly relate to the will to take risks while the tolerance for mistakes and failures is named explicitly as well and indicates the encouragement of risk taking. Isaksen et al. label risk taking as the tolerance of ambiguity and uncertainty[467].

An additional aspect of support to product innovation is **self-direction** and its related subjects of curiosity, entrepreneurship, experimentation, flexibility, and imagination. The Schwartz' Value Survey (compare Table 2.4) adds traits such as curious, choosing own goals, creativity to self-direction[468] while Rokeach sees daring and creative as synonyms for imaginative[469]. The subject of curiosity includes continuous learning and relates to daring and creativity. The original term of entrepreneurship is stressed directly a couple of times, the subject also includes ideas such as initiative and dynamism and indicates a certain level of self-direction. Moreover, the search word experimentation delivers some quite manifest content. Flexibility or adaptability as a way of thinking is named explicitly and can be understood as an attribute to persisting on an individual direction to solve problems. Lastly, the term of imagination summarizes all named ideas about creativity indicating that this includes daring new ways and creatively imagining new solutions to organizational or market challenges.

The next theme to be highlighted is **social recognition** comprising the aspects of appreciation, internal competitiveness, recognition, and respect. The Rokeach Value Survey (exemplified in Table 2.3) synchronizes social recognition with respect and admiration, too[470]. Reynierse and Harker elaborated internal competition as situations where employees are rewarded and receive recognition for achieving ambitious goals and results[471]. Overall, appreciation is named as manifest content and relates to humans' desire to gain social recognition. Internal competition in terms of intellectual competition as original wordings can be realized as an

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[467] Isaksen, S. G. et al. Situational outlook questionnaire: A measure of the climate for creativity and change. *Psychological Reports*. 1999, vol. 85, p. 668.

[468] Zhang, X. et al. Toward collective organizational values: a case study in UK construction. *Construction Management and Economics*. 2008, vol. 26, no. 10, p. 1015.

[469] Rokeach, M. *The Nature of Human Values*. New York: The Free Press - Macmillan Publishing Co., Inc., 1973, p. 361.

[470] Ibid, p. 360.

[471] Reynierse, J. H. and Harker, J. B. Measuring and Managing Organizational Culture. *Human Resource Planning*. 1986, vol. 9, no. 1, p. 4.

attribute to achieve recognition as well. Manifest phrases including the term recognition itself as well as the notion of acknowledgement, promotion or fair evaluation are subsumed under the very same subject. To treat people with dignity as well as show respect and tolerance are original terms combined in the subject of respect, which highly relate to social recognition.

In the Situational Outlook Questionnaire (shown in Table 2.2), the degree to which new ideas and suggestions are attended to and treated in a kindly manner specifies the organizational characteristic of idea support[472]. **Support** in general, as a next theme, entails the subjects branded empowerment, encouragement, and support itself. Empowerment and empowering people, as manifest wordings, can be seen as synonyms of support. Encouragement as a subject combines original terms such as organizational and supervisory encouragement of innovation, new ideas, change, or work groups and it clearly relates to the aspects of support. The search word support delivers a lot of manifest statements regarding the topic including the combination with leadership, management, but also ideas such as constructive judgement of ideas or support in mistake handling, which makes it a good overall-theme, indeed.

Ultimately, a couple of notions related to the ideas of trust play an essential part in the analysed articles. The overall-theme of **trust** involves the following subjects: intimacy, relationships with others and collaboration, self-confidence, teamwork, and trust directly. Isaksen et al. see trust and openness as the degree of emotional safety, and openness found in relationships[473]. Cable and Edwards consider relationships with others to be about forming relationships with co-workers, getting to know fellow workers quite well, and developing close ties with co-workers[474]. For Reynierse and Harker, intimacy and values illuminate the organizational closeness and continuity that is promoted by shared beliefs and values[475]. All these aspects relate to the creation of trust. Friendship, togetherness and belongingness are original terms in the articles checked and are attributed to intimacy, because they indicate a common sense of what is important. The subject of relationships with others and collaboration condenses all terms regarding collaboration and cooperation internally and externally and relates to the level of confidence that people place into others. Self-confidence is realized as a subject combining ideas such as self-determination, collective pride and faith, but also

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[472] Reynierse, J. H. and Harker, J. B. Measuring and Managing Organizational Culture. *Human Resource Planning*. 1986, vol. 9, no. 1, p. 4.

[473] Isaksen, S. G. et al. Situational outlook questionnaire: A measure of the climate for creativity and change. *Psychological Reports*. 1999, vol. 85, p. 668.

[474] Cable, D. M. and Edwards, J. R. Complementary and supplementary fit: a theoretical and empirical integration. *The Journal of applied psychology*. 2004, vol. 89, no. 5, p. 834.

[475] Reynierse, J. H. and Harker, J. B. Measuring and Managing Organizational Culture. *Human Resource Planning*. 1986, vol. 9, no. 1, p. 4.

reassignment with full dignity after failure and it indicates that the organization trusts its employees and itself. Teamwork as a term delivers a lot of manifest content and, again, indicates the level of confidence people have in each other. Trust itself is explicitly found with different authors and therefore, can be used perfectly as an overall-theme.

To conclude, Table 2.6 gathers the ideas presented in this chapter and gives a compressed overview of the subjects identified in the 40 articles under exploration. Besides, the table shows how these subjects are subordinated to 12 themes on abstraction level two in alphabetical order. Additionally, a rationale for choosing a subject and allocating it to a theme is offered in accordance with other value measurement instruments and authors.

Table 2.6: 12 identified value themes and subjects in accordance with other instruments[476]

Theme (Abstraction level 2)	Allocated subjects (Abstraction level 1)	In accordance with
Achievement	Challenge, Discipline, Result orientation	Schwartz' Value Survey (Table 2.4)
Altruism	Equality, Ethical behaviour, Integrity, Loyalty	Work Values Survey (Table 2.5) Rokeach Value Survey (Table 2.3)
Authority	Bureaucracy, Control, Formalization	Work Values Survey (Table 2.5)
Debate & Discussion	Debate, Diversity, Internal communication, Openness	Situational Outlook Questionnaire (Table 2.2) Organizational Dynamics Instrument (Table 2.1)
Freedom	Autonomy, Freedom, Independence	Situational Outlook Questionnaire (Table 2.2) Work Values Survey (Table 2.5) Rokeach Value Survey (Table 2.3)
Involvement	Commitment, Enthusiasm, Identification, Involvement, Motivation, Participation, Responsibility	Situational Outlook Questionnaire (Table 2.2)
Market orientation	Customer orientation, External competitiveness	Organizational Dynamics Instrument (Table 2.1)
Risk taking	Risk taking, Risk tolerance, Tolerance for failures	Situational Outlook Questionnaire (Table 2.2)
Self-direction	Curiosity, Entrepreneurship, Experimentation, Flexibility, Imagination	Schwartz' Value Survey (Table 2.4) Rokeach Value Survey (Table 2.3)
Social recognition	Appreciation, Internal competitiveness, Recognition, Respect	Rokeach Value Survey (Table 2.3) Organizational Dynamics Instrument (Table 2.1)
Support	Empowerment, Encouragement, Support	Situational Outlook Questionnaire (Table 2.2)
Trust	Intimacy, Relationships with others / Collaboration, Self-confidence, Teamwork, Trust	Situational Outlook Questionnaire (Table 2.2) Work Values Survey (Table 2.5) Organizational Dynamics Instrument (Table 2.1)

[476] Table created by author as elaborated from Content Analysis and analytical exploration of previous studies in chapter 2.2 and review on measurement approaches for organizational values in chapter 2.3.

The identified value profile presented in this section compiles the first intermediate result of the dissertation at hand. Actually, it provides a first, theoretical answer to the first reseach question of this thesis (1. What does a general organizational value profile in organizations look like that is supportive to successful product innovations?). Accordingly, 12 value themes of major interest to the research have been identified.

2.5 12 finalized value themes as innovation supporters and their different frequencies of appearance in previous studies

As delineated in chapter 2.1, the most common way to better understand content sourced from different materials is analysing frequencies. Generally, there are two ways to do so:

- Absolute frequency, that is the number of times statements or issues are found in the sample
- Relative frequency, that is the number of times statements are represented by a percentage of the sample size[477].

Since the content of the 40 articles was classified into manifest and latent content and according to themes and subjects, a relative frequency analysis does not make sense. Due to this categorization, some themes offer a total number of frequencies that is even higher than the number of articles. This finds its explanation in the fact that statements were summarized and some articles speak of the same topic several times, but with different explicit wordings. Therefore, they may have been counted twice for the same theme.

Figure 2.1 provides an integrated overview of the results of the analytical exploration of previous studies derived from the academic articles dealing with organizational values and culture and its bearing on innovation outcomes[478]. It displays the number of absolute frequencies for the identified 12 themes of innovation-supportive values categorized into manifest and latent content.

[477] Untited States General Accounting Office Content Analysis: A Methodology for Structuring and Analyzing Written Material, p. 20. Retrieved 21.12.2013 from: http://archive.gao.gov/d48t13/138426.pdf.

[478] The results of this content and frequency analysis were presented and discussed in a poster on the national conference of "8. Forschungsforum der österreichischen Fachhochschulen – Impulse in Zeiten des Wandels" in Kufstein, Austria, on April 23rd to April 24th, 2014, and published in Egger, C. Valuable values for innovation? *Impulse in Zeiten des Wandels - 8. Forschungsforum der österreichischen Fachhochschulen*. Tagungsband 2014, pp. 454-455. ISBN 978-3-9503491-9-1.

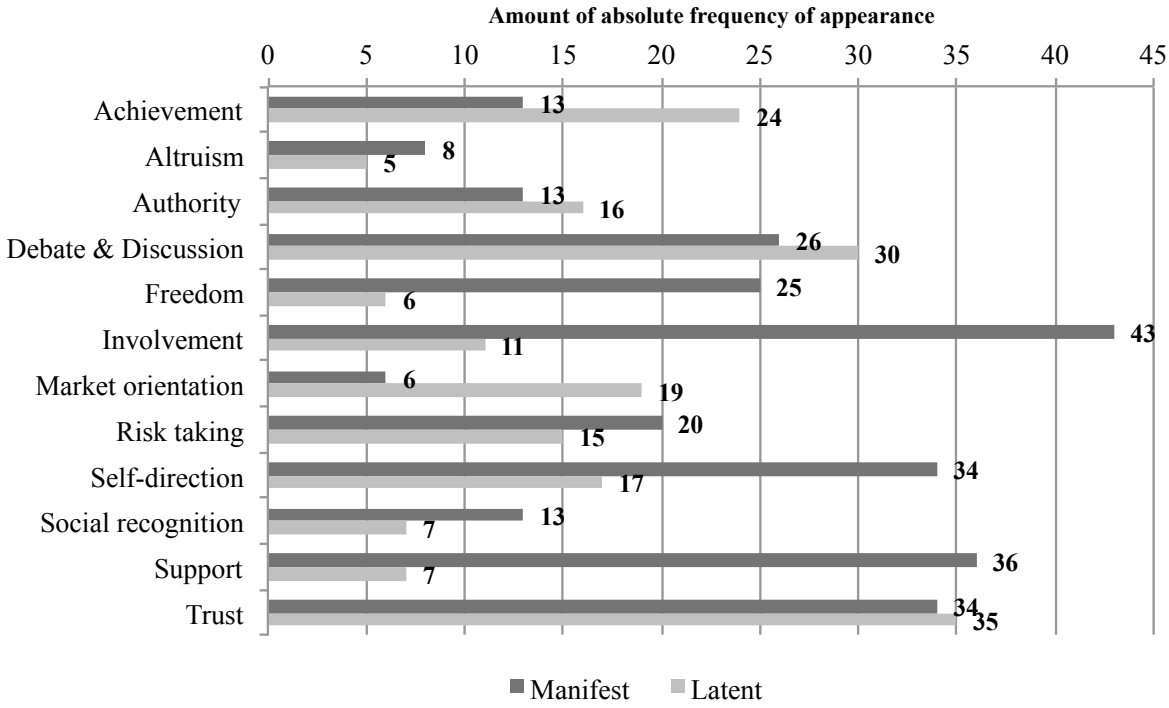

Figure 2.1: Frequency of manifest and latent content for the 12 identified value themes[479]

Thus, as a second intermediate result of this dissertation the frequency analysis specified above shows several additional outcomes. Firstly, it becomes quantifiably obvious that some themes are more frequently named than others. Assuming that this indicates importance (as explained in chapter 2.1), organizational values like involvement, self-direction, support and trust are most important to product innovation and have a higher impact on innovation outcomes than other organizational values in comparison. Correspondingly, this highlights a first, theoretical answer to research question number 2 of this thesis (2. Are there certain organizational values that contribute more to product innovation than others, respectively: is there a different impact intensity in-between the identified values?), and also supports proposition 1 (compare p. 4). Secondly, the analysis proves that some themes deliver more latent content, e.g. achievement, and market orientation, whereas others are found to have mostly manifest content, for example freedom, involvement, and support. This suggests that some ideas are not yet explicitly clear for scientists to contribute to innovation excellence. To finalize, the 12 value themes outlined here are seen to be the so-called **innovation-supportive organizational values** for the study. With this, a comprehensible fundament for empirical investigation, which is designed and executed in the next chapter, is built.

[479] Figure created by author as derived from Content Analysis in chapter 2.2.

3 INNOVATION-SUPPORTIVE ORGANIZATIONAL VALUES IN MANUFACTURING COMPANIES – 2 EMPIRICAL STUDIES

The previous chapters underlined the importance of organizational values to product innovation outcomes and, in addition, identified 12 innovation-supportive organizational values. The following section exposes these insights to empirical investigation in manufacturing companies and to the notable opinions of international innovation experts. Thus, it is the purpose here to deepen the understanding on the topic and to gain empirical evidence in order to fully answer the research questions and to test the main hypothesis and to justify the theses to defend.

3.1 Research model and research methodology

This section introduces the research model, the research methods, and explains how indicators are operationalized. It also justifies target groups and clarifies instruments of data collection.

3.1.1 Derived research model of the dissertation

From the first two chapters of this thesis the following model was developed (Figure 3.1).

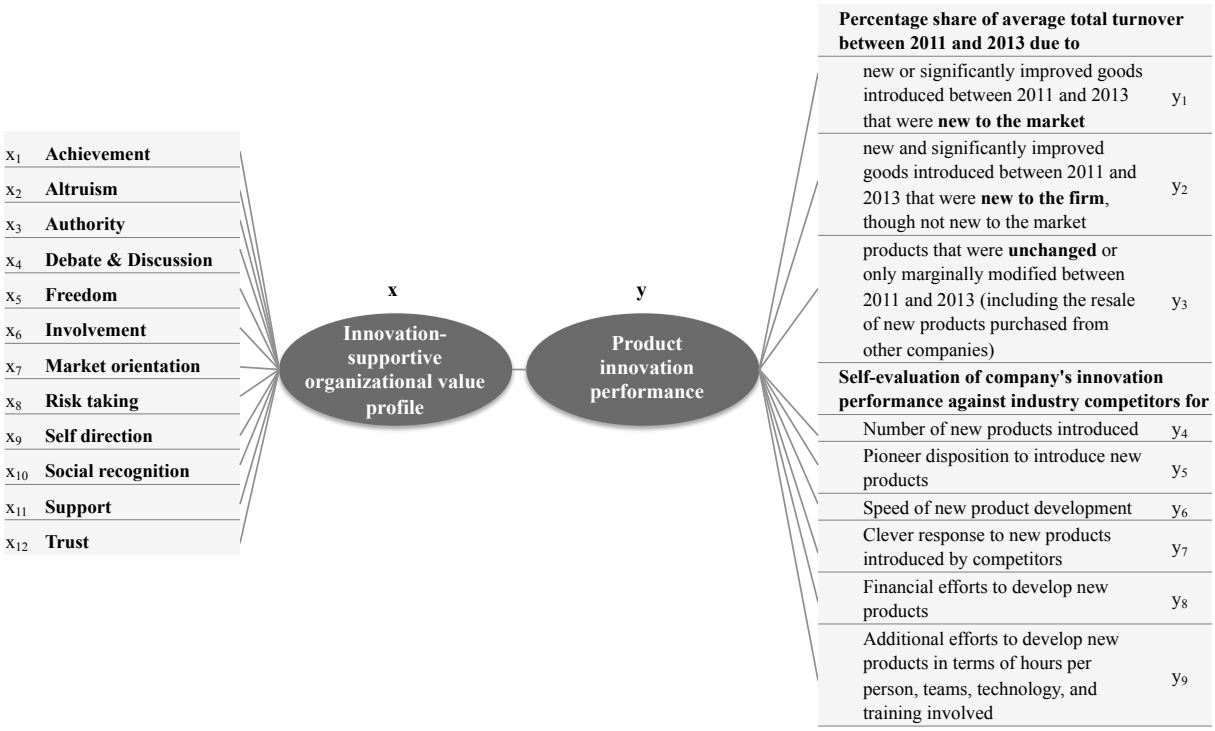

Figure 3.1: Research model of dissertation[480]

[480] Figure developed by author from literature review in chapter 1 and analytical Content Analysis in chapter 2.

The model shows how product innovation performance depends upon certain innovation-supportive organizational values as elaborated in chapter 2.4. The next part explains measures and variables' execution for testing in details.

3.1.2 Description of measures and variables' execution for testing

(x) as the cause variable concealing the innovation-supportive organizational values impacts on (y) as the effect variable of product innovation outcomes. Both variables have various indicators that are defined in the following to operationalize them and make them measurable for empirical research.

Independent variables: Organizational values

Generally, the accordant value themes need to be measured in terms of how much they are characteristic of a chosen organization. This refers to previous studies and measurement approaches on values outlined in chapter 2.3. Table 3.1 shows how the 12 independent variables are operationalized for the context of this study and describes their meanings matched with the previous instruments they go in accordance with as outlined in Table 2.6.

Table 3.1: Operationalization of the independent variables: description of the value themes[481]

Variable		Description
x_1	**Achievement**	The level of expressed importance of success, results and performance by promoting ambitious and capable people and focusing on challenging tasks, discipline and efficiency.
x_2	**Altruism**	The focus of making the world a better place, being of service to society, contributing to humanity while emphasizing equal opportunities for all, integrity and loyalty.
x_3	**Authority**	The degree to which reporting relationships are distinctive, chains of command are clear and lines of authority are definite as well as control mechanisms influence decision-making and information flows.
x_4	**Debate & Discussion**	The open expression and consideration of many different viewpoints, ideas and experiences including constructive conflict handling, questioning, critical awareness and diversity while people freely use both formal and informal channels of communication.
x_5	**Freedom**	The level of autonomy in determining the way one's work is done and in making own decisions as well as the level of initiative in individual behaviour to acquire information and work independently.
x_6	**Involvement**	The degree of emotional involvement, commitment, and motivation for operations and goals including enthusiasm, organizational identification, employee participation and shared responsibilities.
x_7	**Market orientation**	The level of awareness to customer needs and market changes as a priority as well as the will to include a certain degree of external, future, and network orientation in the organization's mindset.
x_8	**Risk taking**	The level of tolerance for making decisions under ambiguity and uncertainty accompanied by the attitude to only be able to improve from past failures including the encouragement to take risks.

[481] Table developed by the author from the analytical results of previous measurement approaches in chapter 2.3.

Variable		Description
x_9	**Self-direction**	The level of expressed importance of curiosity, creativity, experimentation, imagination, and entrepreneurship in terms of choosing own goals and daring new ways of solving problems.
x_{10}	**Social recognition**	Employees receive appreciation and recognition from the organization and from colleagues for achieving ambitious goals and people are treated with esteem, respect and dignity in general.
x_{11}	**Support**	The degree to which employees are empowered and encouraged to work on new ideas or in work groups and the level to which new solutions are attended to and judged constructively in a kind manner.
x_{12}	**Trust**	The degree of perceived emotional safety and openness found in relationships but also the importance of close ties with colleagues and external partners as well as a common understanding about what is important and a healthy level of pride in the organization.

Dependent variables: Product innovation performance

As outlined in chapter 1.3, for the context of the study, an approach that is clearly limited to product innovation and also takes into account the recommendations given by the OECD is preferred. Firstly, in accordance with the OECD Oslo Manual on Guidelines for collecting and interpreting innovation data, respondents have to estimate three different criteria limited to goods or products, excluding services: The percentage share of average total turnover from 2011 to 2013 that is due to

- new or significantly improved goods introduced between 2011 and 2013 that were **new to the market (real market innovations)**;
- new and significantly improved goods introduced between 2011 and 2013 that were **new to the firm**, though not new to the market **(imitator innovations)**; and
- products that were **unchanged** or only marginally modified between 2011 and 2013 (including the resale of new products purchased from other firms, **trading goods**).

With these indicators it is argued that the higher the percentage share of turnover due to new or significantly improved goods is, the more innovative the company is. Companies indicating a very high percentage share of turnover due to products that were unchanged during the observation period are considered as less innovative or non-innovators. Firms showing a high percentage share of turnover due to improved products that were new to the company, though not new to the firm, are labelled as imitator innovators. They are fast followers in the market, but not entirely innovative with market novelties. The length of product life cycles is not accounted for a weighting of these percentages, since it is assumed that innovative companies introduce new products to the market continuously even if their product life cycles are longer than just the two years under consideration for the percentage share of average total turnover.

Secondly, ensuing a more recent approach practised by Naranjo-Valencia et al. and Prajogo and Ahmed with specific regards to product innovation, enterprises have to evaluate their innovation performance against industry competitors in the past three years in order to limit industry effects. The following criteria are influential:

- The number of new products introduced;
- The pioneer disposition to introduce new products;
- The clever response to new products introduced by competitors;
- Financial efforts to develop new products;
- Additional efforts to develop new products in terms of hours per person, teams, technology and training involved[482].
- The speed of new product development (NPD)[483].

With these criteria as shown in Figure 3.1, a complete picture about factors indicating the objective and subjective level of product innovation performance becomes obvious.

3.1.3 Selection of the research design and combination of methods

The purpose of this research is to understand the impact of defined organizational values on product innovations. To gain a deeper understanding of the phenomenon of product innovations and organizational values, a mixed methods research has to be taken into account. Recently, mixed methods approaches have become increasingly important and accepted in business management research. With that, the results gained through an investigation can be crosschecked against results of another research strategy[484]. To this end, two different empirical approaches are used:

- One **quantitative** cross-sectional, correlational research design with the organization as level of analysis to test the hypothesis and the model, and to answer the research questions;
- One **qualitative** cross-sectional, confirmatory research design to validate the findings from the first research strategy, to compare results, and, possibly, find additional aspects that provide suggestions for further research.

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[482] Naranjo-Valencia, J. C. et al. Organizational culture as determinant of product innovation. *European Journal of Innovation Management*. 2010, vol. 13, no. 4, p. 471; Naranjo-Valencia, J. C. et al. Innovation or imitation? The role of organizational culture. *Management Decision*. 2011, vol. 49, no. 1, p. 61

[483] Prajogo, D. I. and Ahmed, P. K. Relationships between innovation stimulus, innovation capacity, and innovation performance. *R&D Management*. 2006, vol. 36, no. 5, p. 115.

[484] Bryman, A. and Bell, E. *Business Research Methods*. Oxford: Oxford University Press, 2011, pp. 630-644.

As outlined in the introduction and topicality of this thesis, quantitative research on organizational values must be seen as a research gap worth to fill in. Therefore, it is clearly the quantitative research that has a principal priority for the collection of data. Thus, the two studies do not have equal weight here – the focus is on the quantitative research, yet, the second, qualitative study can enhance and substantiate the first findings tremendously.

3.1.4 Target groups and sampling approaches

This section argues possible target groups and the sampling approaches chosen for both research strategies.

For the first, quantitative research design, the relevant industry sectors are classified according to the Bureau of Statistics Germany, which is the same as for Austria. Herein, all possible industry sectors are clarified and explained. Since this thesis focuses on manufacturing companies and product innovations only, the manufacturing sector is obviously most appropriate. This section covers food products, textiles, wood, paper products, chemicals, plastic products, basic materials, computer and electrical equipment, machinery, motor vehicles, furniture and the like[485]. According to the Bureau of Statistics Austria, 57% of Austrian companies were innovation active between the years of 2008 and 2010. Most of them (almost 70%) have 250 employees or more. Overall, manufacturing companies compile the highest percentage (27%) of product innovators with market novelties[486]. Statistics Austria's Survey on Research and experimental Development reveals that the manufacturing industries have the highest amount of total intramural R&D expenditures in the Austrian business enterprise sector. Even though there are around 200 companies less (namely, 1,504 companies) investing in R&D compared to the service sector, expenditures are almost twice as high and reached around 3,6 million € in 2011[487]. Figures for Germany reveal a similar picture. Again, manufacturing companies achieve the highest percentage (40%) of enterprises with goods innovation in the period under observation between 2010 and 2012[488]. According to the regional innovation scoreboard of the European Commission, published only recently

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[485] Statistisches Bundesamt Deutschland Klassifikation der Wirtschaftszweige, pp. 78-101. Retrieved 22.12.2013 from: https://www.destatis.de/DE/Methoden/Klassifikationen/GueterWirtschaftklassifikationen/klassifikationwz2008_erl.pdf?__blob=publicationFile.

[486] Ibid, pp. 34, 79, 87.

[487] Statistik Austria - Bundesanstalt für Statistik Österreich. Survey on Research and experimental Development 2011. In: *Official Wepage of the Bureau of Statistics Austria*, retrieved 22.01.2014 from: http://www.statistik.at/web_en/statistics/research_and_development_r_d_innovation/r_d_in_all_economic_sectors/index.html.

[488] Centre for European Economic Research (ZEW). Results of Community Innovation Survey 2012 for Germany. Retrieved 01.05.2014 from: http://www.zew.de/de/publikationen/innovationserhebungen/innovationserhebungen.php3.

for 2014, it is the southern parts of Germany (Baden-Württemberg and Bavaria) that are particularly innovative, whereas in Austria, all regions are represented in the same performance group as the country at large[489]. Therefore, to ensure appropriate companies in the sample, it came as a precondition for participation in the survey that the company or subsidiary had to be located in Austria or the southern parts of Germany.

Participants of the survey had to fulfil some additional preconditions as well. Since leaders and managers essentially form the values and culture of a company as revealed in section 1.4.3, participants of the survey had to be part of the management team of the company or had to have project responsibility. Additionally, they had to be working for the company they gave their answers on for at least 2 years to truly provide a realistic value picture of that company. Moreover, participants' daily work and function had to have a relation to the product innovations of their company. With this, the sampling method for this research obviously had to be a non-probability sampling. Managers of industrial companies across Austria and southern parts of Germany were addressed through university, private and professional social networks and were asked to forward the questionnaire to other relevant managers. To sum up, this sampling method accords to a convenience and snowball sampling. Certainly, a convenience sampling is very common in business management research today, because it holds the opportunity to achieve good response rates and get back fully filled-in questionnaires. However, findings are hard to generalize. There is no sampling frame that can be created, because the exact extent of the population is not known and also shifting. Even though this holds the downside of not generating representative results again, it was decided upon this procedure as an additional sampling approach applicable to quantitative research[490].

To provide a good control group, participants of the qualitative research strategy had to belong to a different organizational background from that of the company managers. Therefore, contact details of 63 innovation experts across the EU28 countries plus Switzerland from universities, public or private research institutions, and private communities of interest with innovation reference, governmental institutions, research laboratories, or business consultancies, and even non-profit organizations with innovation reference were researched through the Internet. Again, a precondition to fall into a possible sampling frame was participants' expertise with innovations or organizational values as stated on their web profiles. Hence, one search criterion, for example, was the degree program and the lectures

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[489] Hollanders, H. et al. Regional Innovation Scoreboard 2014. In: Official Webpage of the European Commission, 2014, pp. 11 & 16. Retrieved 03.05.2014 from: http://ec.europa.eu/enterprise/policies/innovation/files/ris/ris-2014_en.pdf.

[490] Bryman, A. and Bell, E. *Business Research Methods*. Oxford: Oxford University Press, 2011, pp. 190-193.

that university professors stated to be responsible for. A full list of all experts addressed for a written assessment interview can be found in Appendix A7. To conclude, for the qualitative written expert interviews, again a convenience sampling approach was chosen.

3.1.5 Instruments of data collection and questionnaire contents

The way of data collection most frequently used in empirical social sciences is definitely questioning[491]. For both research designs, a written, online self-completion, fully standardized questionnaire was the preferable instrument of data collection. There are several benefits to this instrument of data collection. First of all, data collection via written questionnaires or interviews is free from any interviewer bias. Additionally, it helps to address multiple respondents from different geographic regions without causing travel costs. Therefore, for the second research strategy on international experts it was the only instrument applicable. Moreover, it is assumed that written surveys result in responses that are more honest and better thought-through if there is no interviewer present and respondents can choose the time to answer the questionnaire themselves[492]. This seems particularly important for a survey among managers in leadership positions. To overcome additional risks of self-completion questionnaires such as respondents reading the whole questionnaire before answering (and risking independent answers with that) or participants skipping questions they find irrelevant[493], an online survey tool was chosen that safeguarded answering step by step and forced respondents to make a choice before moving on to the next question.

To ensure applicability and quality, both questionnaires underwent several pre-tests in February 2014 and were improved accordingly. As Stier recommends, the cover email and starting page of the survey or interview questionnaire explained the purpose of the research and why particular participants were addressed to contribute. In addition, participants were guaranteed confidentiality of their responses. Moreover, all participants of both research strategies were promised to receive a summary of the results if interested[494].

The full questionnaire of the company survey can be found in its original form in Appendix A5 and in Appendix A6 in its English translation. Moreover, Appendices A3 (Original version) and A4 (English translation) hold an exemplary cover email with which managers and manufacturing companies were addressed and kindly asked to contribute to this research

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[491] Raab-Steiner, E. and Benesch, M. *Der Fragebogen*. Wien: Facultas Verlags- und Buchhandels AG, 2012, p. 46.

[492] Ibid, pp. 198-199.

[493] Bryman, A. and Bell, E. *Business Research Methods*. Oxford: Oxford University Press, 2011, pp. 233-234.

[494] Stier, W. *Empirische Forschungsmethoden*. Berlin & Heidelberg & New York: Springer Verlag, 1999, p. 200.

project if they fulfilled all preconditions of participation as outlined in the chapter before. The company survey took place between February 25th, 2014 and April 25, 2014.

International innovation experts were addressed with a shortened and modified version of the company survey questionnaire. An exemplary cover letter (A8) and the full written interview questionnaire (A9) can be checked in the Appendices. These written assessment interviews took place between February 10th, 2014 and February 28th, 2014.

To begin with, both online questionnaires clarified the main terms of this research in accordance with the understanding summarized in chapters 1.1 and 1.5 in order to ensure a common perception among all participants. In the following, the online questionnaires mainly consisted of closed questions, which always gave indications to participants of how to answer and how many answers were possible with the same question as recommended by Bryman and Bell[495]. Further, as Stier advises, closed questions included the possibility for respondents to indicate additional statements and tick their cross on an option called "Others, namely:"[496]. For most questions, a 5-point Likert-scale was used. Following Friedrichs, this was translated to the values of one to five for the results[497]. This way of questioning might overlap with questions about attitudes and beliefs[498]. However, it goes in line with the recommendations about measurements for organizational values elaborated in chapter 2.3 and, therefore, is considered as an appropriate way of investigating the topic. As suggested by different authors, the questions on organizational values being rather sensitive and, maybe, difficult to some respondents, also offered an answer category of "I cannot judge" to prevent participants from feeling overwhelmed here and breaking up the survey[499].

In both research strategies, participants had to answer an easier question first in order to create a good climate for questioning following Stier[500]. As a next step, managers and experts were asked to share their opinions about the proposed 12 value patterns. A clarification of the value themes as defined in section 3.1.2 was outlined before and also accompanied each question in case participants wanted to recheck the understanding. Thirdly, managers had to indicate the product innovation performance of their employer using all indicators illuminated in section 3.1.2 were investigated here – the subjective criteria on a 5-point Likert-scale and the

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[495] Bryman, A. and Bell, E. *Business Research Methods*. Oxford: Oxford University Press, 2011, p. 240.

[496] Stier, W. *Empirische Forschungsmethoden*. Berlin & Heidelberg & New York: Springer Verlag, 1999, p. 176.

[497] Friedrichs, J. *Methoden empirischer Sozialforschung*. Opladen: Westdeutscher Verlag GmbH, 1990, p. 175.

[498] Bryman, A. and Bell, E. *Business Research Methods*. Oxford: Oxford University Press, 2011, p. 253.

[499] Stier, W. *Empirische Forschungsmethoden*. Berlin & Heidelberg & New York: Springer Verlag, 1999, p. 176; Bryman, A. and Bell, E. *Business Research Methods*. Oxford: Oxford University Press, 2011, p. 260.

[500] Ibid, p. 182.

objective criteria referring to a percentage share of turnover on a continuous scale[501] from zero to 100 per cent. Of course, this part of the questionnaire was excluded for the assessment interviews with international innovation experts. Finally, all participants were kindly asked to provide additional information about their organizations.

Both research strategies worked with an online self-completion questionnaire that was highly standardized and identical in some parts to make results comparable. While the company survey questionnaire sought for quantity and a variety of different cases, the expert assessment interviews strove for qualitative, valuable insights in international perspectives on the topic. The following part outlines what outcomes the researcher expected and then highlights the results of each of the research designs in detail.

3.2 Expected findings

As sampling was planned accurately, the researcher expected to have diverse industry backgrounds and company sizes in the survey. Regarding the importance of the different value themes the researcher anticipated a clear ranking of the proposed value themes. One expectation was that the rankings might differ between managers and experts, though. Moreover, from personal business experience the author estimated that companies would hardly match to values that are important for product innovations. However, one expectation clearly was that companies with a very good innovation performance had set up their company according to organizational values that are evaluated to be important for innovations. Thus, these companies would show a better match between what is important for innovation and what is characteristic of their companies. Further, correlations between the dependent and independent variables are predicted to prove the relationship between the two phenomena. Moreover, the value themes introduced in the analytical part of the thesis are expected to be limited to a condensed value profile supportive to product innovation. For the qualitative research strategy, the researcher did not expect to find tremendous differences between different levels of experts. Rather, a clear dissimilarity was assumed between managers and experts regarding the overall importance of organizational values, but also the importance of each value theme. Finally, the researcher estimated to find different outcomes in different European countries with the qualitative research strategy resulting in the fact that some countries might have achieved a better match between what is important for innovations and what is characteristic of manufacturing companies already.

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[501] Raab-Steiner, E. and Benesch, M. *Der Fragebogen*. Wien: Facultas Verlags- und Buchhandels AG, 2012, p. 59.

3.3 Organizational values and product innovation in Austrian and German manufacturing companies[502]

3.3.1 Sample of participating companies

For the purpose of this research, only fully completed questionnaires are analysed and considered. However, as explained before, some questions provided respondents with the possibility to choose an "I cannot judge" answer category in order not to force them into an answer they feel not confident about. These answers are considered as missing values in the following data analysis, which is why the number of responses might vary slightly in some questions. All data were analysed with the statistical software of IBM SPSS 21. On the whole, 81 respondents from different German and Austrian industrial companies took part in this research. Due to the snowball sampling method without knowing the exact size of the population[503], a response rate cannot be indicated here. Roughly half of the sample companies have their headquarters situated in the southern federal states of Germany, whereas the other half is situated in Austria. From this, an equal distribution of geographically different backgrounds can be claimed with a focus on Tyrol, Bavaria, and Baden-Wuerttemberg.

Question 8 asked respondents to indicate the industry sector their company is active in. In fact, there is some emphasis on the chemical industry, computer and electronics branch and the machinery industry in this study. However, the companies under research still show diversified backgrounds and no industry sector of the general classification of manufacturing companies is left out completely. Therefore, the study includes all industry sectors of interest and can claim to have investigated a good distribution of different settings.

Regarding the turnover size and number of employees, the sample of this study is no longer so perfectly stirred anymore. 78% of the participating companies indicate a total turnover in 2013 of over 50 million €. Accordingly, 78% of respondents claim to count more than 250 full-time equivalent employees in 2013 as presented in Figure 3.2.

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[502] The empirical results of this company survey (descriptive statistics, non-parametric tests, correlations and principal component analysis) were presented and discussed in a shorter version for an oral presentation on the International Multidisiplinary Conferences on Social Sciences and Arts SGEM 2014, Albena, Bulgaria, on September 2nd to 9th, 2014 and published in Egger, C. Organizational Values for Product Innovations in Manufacturing Companies. In: *Conference Proceedings for Political Sciences, Law, Finance, Economics & Tourism*. Sofia: SGEM International Multidisciplinary Scientific Conferences on Social Sciences and Arts, 2014, pp. 381 – 388. ISBN 978-619-7105-27-8.

[503] Bryman, A. and Bell, E. *Business Research Methods*. Oxford: Oxford University Press, 2011, p. 193.

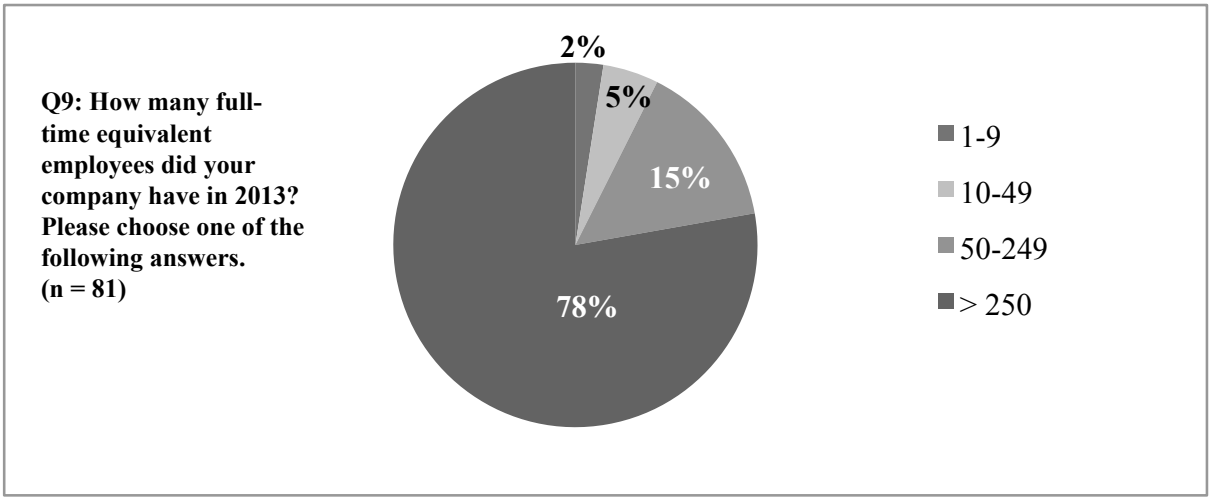

Figure 3.2: Numbers of full-time equivalent employees in 2013 for sample companies[504]

Thus, this shows the participants of this research to be rather mid-sized to large companies. When it comes to aspects of internationality of the sample companies, the results reveal a picture that goes perfectly in line with the figures presented so far. Question 11 made respondents choose in which geographic markets their company sold goods during the past three years of 2011 to 2013. Multiple answers were possible here and over 90% of the sample companies distributed their products at least to other European, EFTA, or EU-candidate countries while almost 80% ticked to sell in all other countries as well. When asked for their largest market in terms of turnover between 2011 and 2013, though, 42% of participants admit that this is their home market, meaning the national market of Germany or Austria. Still, the distribution of the answers indicates sample companies' strong linkages to international business.

Looking into the innovation performance of the sample companies the survey checked different criteria. Question 5 investigated objective criteria for innovation outcomes of the sample companies relating to the percentage shares of turnover due to different product categories in the past three years. Figure 3.3 shows the histrograms of the distributed data for the objective criteria regarding innovation performance of the sample companies. Accordingly, none of the distributions is normal for these criteria.

[504] Figure sourced from survey results.

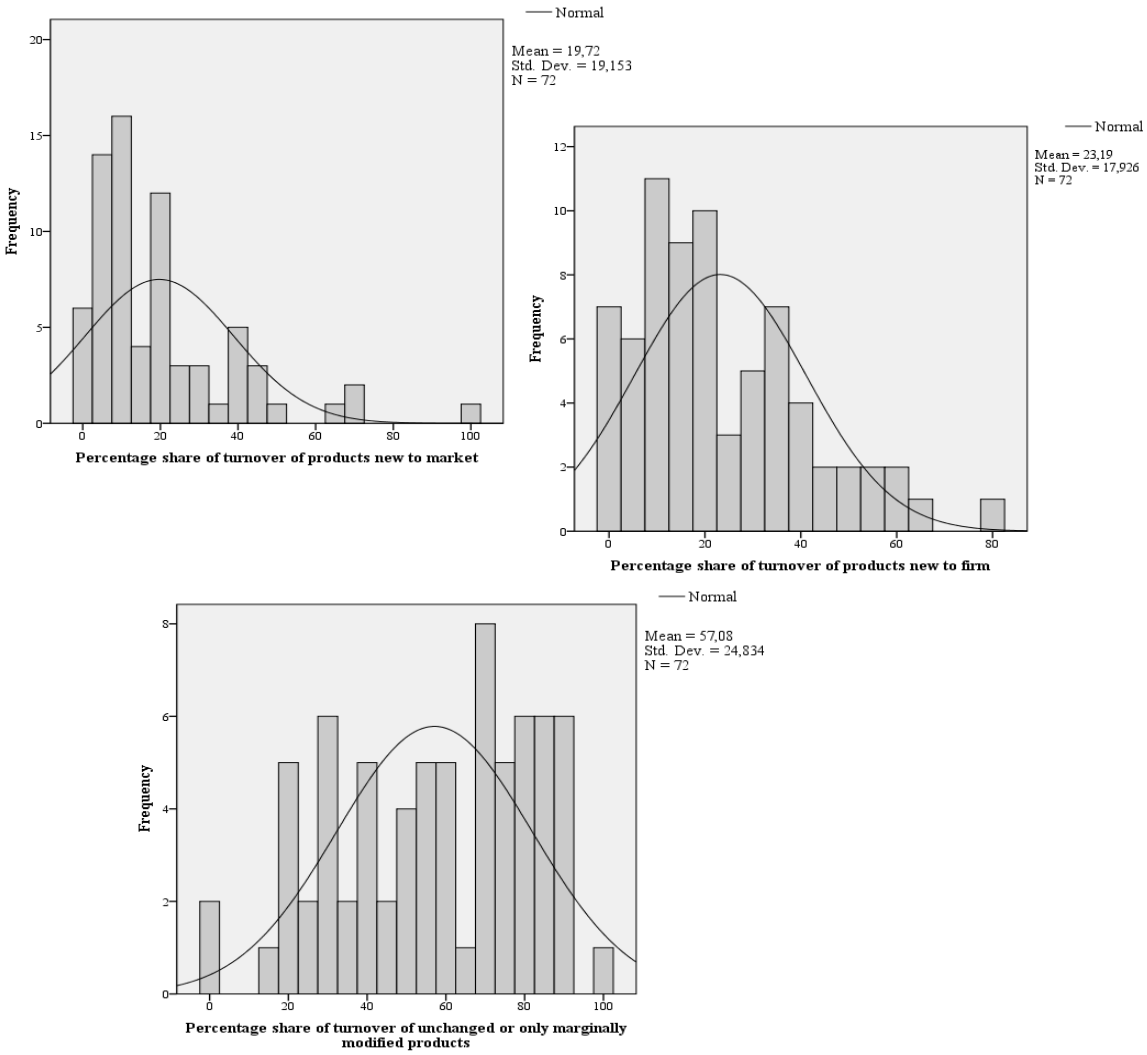

Figure 3.3: Histograms of distributed data for objective innovation performance criteria[505]

Regarding the percentage share of turnover of products that are new to the market (real innovations), the sample companies show a mean percentage of around 20% with a very high standard deviation in values. The distribution of values is askew to the right hand side and steeper than the normal distribution. For the percentage share of turnover of products new to the firm – the so-called imitator innovations – the results deliver a similar impression: Skewness and Kurtosis are smaller, but with a mean of around 24%, outcomes still show a very high standard deviation. Finally, with a mean percentage share of turnover due to unchanged products of around 57%, which indicates low to none innovativeness, values differ widely again, but the curve of distribution is less steep and askew to the left hand side compared to normal distribution. An analysis of the most extreme values for these innovation performance indicators reveals that the survey covers very different companies, indeed. Table 3.2 shows the highest and the lowest values for each criterion. One company achieves 100%

[505] Figure sourced from the survey results.

of its turnover with products new to the market and therefore, can be seen as entirely innovative. In contrast, another case declares to have a percentage share of turnover due to unchanged products of 100%, which indicates no innovation at all.

Table 3.2: Extreme values of percentage shares of turnover due to different product categories[506]

Extreme Values	Highest	Lowest
Percentage share of turnover of products new to market	100	0
Percentage share of turnover of products new to firm	80	0
Percentage share of turnover of unchanged or only marginally modified products	100	0

Overall, the sample companies achieved around 40% of their turnover with products that were new to the market or at least new to the firm in the period under research (2011 – 2013).

Question 7 asked companies to evaluate several innovation measures compared to their industry competitors. Figure 3.4 shows the summarized percentage of the top 2 ratings ("above competitors" and "slightly above competitors") and illustrates that, in general, the majority of the firms under research estimate themselves to be more innovative than their competitors. This accords with the previous results on the objective criteria for innovation performance.

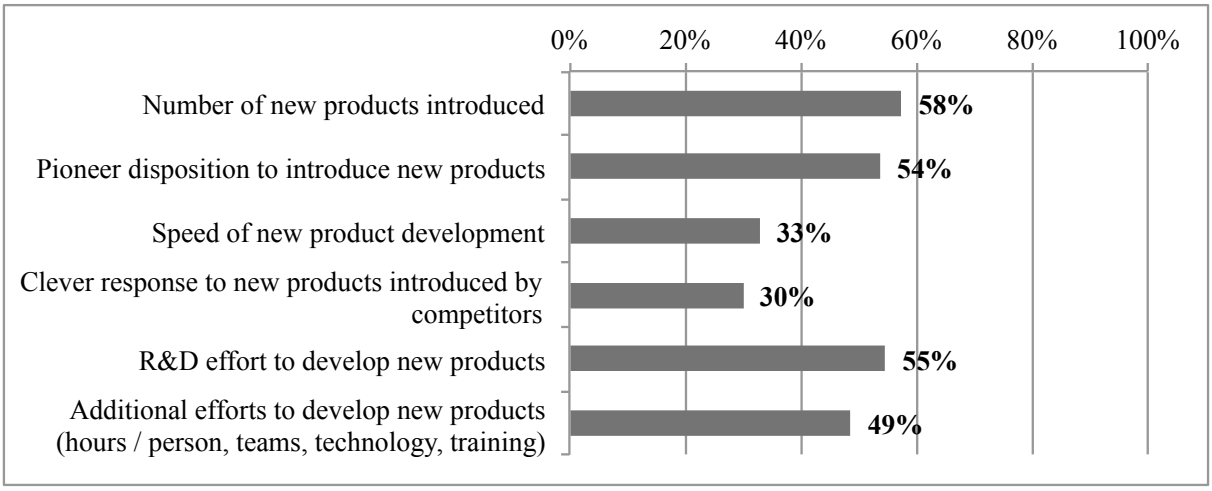

Figure 3.4: Top 2 ratings of the self-evaluation of sample companies' innovation efforts[507]

Thus, in conclusion, the companies under research of this study can be seen as rather large, rather internationally active, and rather innovative. The sample shows some distribution regarding geography and industry sectors and then focuses on international companies with employee numbers above 250. Investigating the innovation outcomes, the sample generally indicates strong innovation capabilities, however, showing very high variance while including

[506] Table sourced from the survey results.

[507] Figure sourced from the survey results.

top innovators and non-innovators alike. This mostly accords with the expectations of the researcher outlined in chapter 3.2 to find a diversified sample of companies.

Regarding the participants of the survey, it was the intention of the study to question people with management responsibilities and some task relevance to product innovations. Question 14 had participants specify the functional department they belong to. Indeed, the study contains the opinions of 19 members of a management board, which adds up to a percentage share of 23%. Moreover, 13 Research and Development opinions and 16 Marketing or Product Management opinions are included. Incorporating four additional Innovation Managers, this comes up to an accumulated percentage of 64% of participants who undoubtedly have a very strong task relationship to product innovation outcomes in manufacturing companies. Figure 3.5 shows details about the survey participants' functional departments and also illustrates the percentage shares of opinions from various other functions such as Sales, Production, or Project Management.

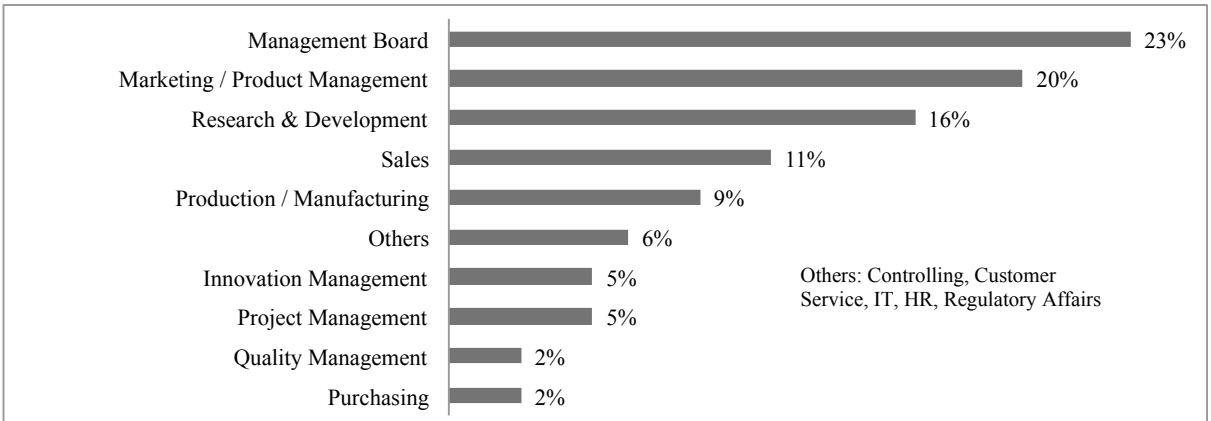

Figure 3.5: Survey participants' functional departments[508]

With these functional and managerial backgrounds of participants a high quality of the collected data can be claimed. Analysing the answers of question 1, as indicated in Figure 3.6, further substantiates respondents' expertise regarding the topic under research: not one participant ticked to not have any experiences with the issue of organizational values, yet. In contrast, almost 80% claim to have values and guidelines for their own organization that employees are supposed to follow. Likewise, almost 40% of respondents had already read about it in the business or daily press, or in academic literature.

[508] Figure sourced from the survey results.

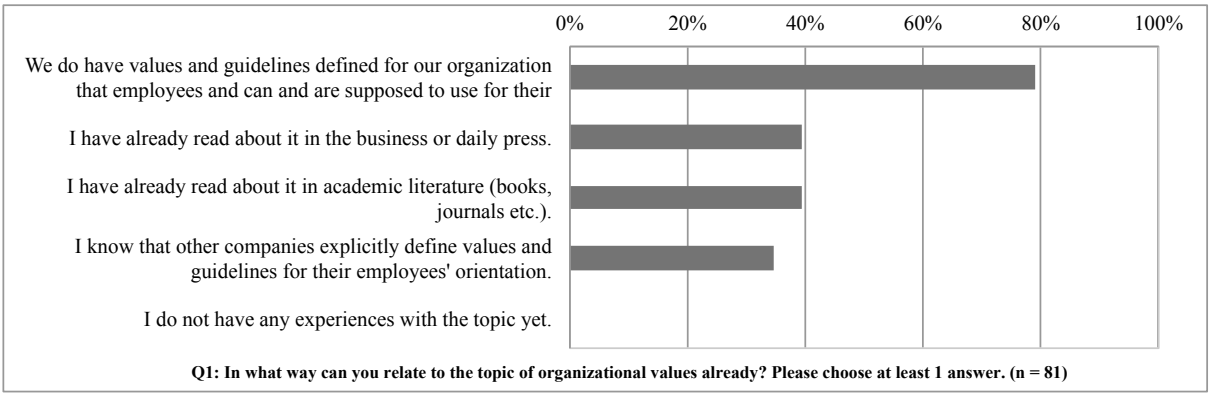

Figure 3.6: Participants' previous experience with organizational values[509]

To conclude, the opinions shared by participants of the survey seem very valuable and trustworthy due to their career positions and their previous proficiency with the topic under research. Moreover, the diversity of functional backgrounds ensures a cross-divisional perspective, which fully accords to the nature of organizational values and innovation management bringing a cross-functional process to light.

3.3.2 Data distributions and decision for further test procedures

As described above, the objective indicators for innovation performance assessing the percentage share of turnover of different product categories show various extreme values. Investigating these indicators for normality with a Kolmogorov-Smirnov-Test (K-S-Test) as summarized in Table 3.3 reveals a clear picture: results for none of these indicators are normally distributed since all significance levels are below .05[510]. The null hypothesis of the K-S-Test is that the variable is normally distributed in the whole population, which is why an insignificant result is desirable, however not the case, here[511].

Table 3.3: Test of normality for objective innovation performance indicators[512]

Percentage share of turnover of products…	Kolmogorov-Smirnov[a]	Shapiro-Wilk
	Sig.	Sig.
… new to market	,000	,000
… new to firm	,000	,001
… unchanged or only marginally modified products	,000	,004

[509] Figure sourced from the survey results.

[510] Janssen, J. and Laatz, W. *Statistische Datenanalyse mit SPSS*. Berlin & Heidelberg: Springer Gabler, 2013, p. 249.

[511] Raab-Steiner, E. and Benesch, M. *Der Fragebogen*. Wien: Facultas Verlags- und Buchhandels AG, 2012, p. 124.

[512] Table sourced from the survey results.

Even with a Shapiro-Wilk-Test, which is more appropriate for small sample sizes[513] and has the best power under comparable tests[514], no criterion reaches a significance level that could argue a normal distribution of the data.

For the decision on further tests, questions 3 (evaluation of the general importance of the pre-defined values for product innovation) and 4 (estimation of level of characteristic of the values for one's own company) are of major importance. Both questions deal with discrete values (Likert-scale), which is why a normal distribution can hardly be expected. Still, to make sure, the data were assessed by Kolmogorov-Smirnov-Tests and Shapiro-Wilk-Tests ($p < .05$) and, in fact, no scores in question 3 or 4 are normally distributed (see Appendix A10 for details). As a result of this section, it has to be admitted that tests requesting normal distribution as a precondition for preforming them, should not be used with the data gained from this data collection[515]. However, all data were rechecked for correct entry or other abnormalities. Nothing unusual was identified and thus, the data were left in their original form without adjustments and kept in the analysis[516]. As a conclusion, non-parametric tests, which enable hypothesis testing without additional assumptions regarding the functional form and distribution of the data[517], are used in the next parts of the thesis.

3.3.3 Managers' evaluations and mismatch between ideal and real business world

The following section concentrates on descriptive statistics sourced from questions 2, 3 and 4. To start with, question 2 asked participants to evaluate how important organizational values are in general for successful product innovation. As Figure 3.7 shows, 33% of all managers rate their impact to be high and another 48% judge it as rather high. Clearly, this strengthens the results from the literature research and the analytical exploration of previous studies in chapters 1 and 2: organizational values do play a major role when it comes to successful product innovation. Only 4% of respondents think that the impact of organizational values on product innovation is low or rather low.

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[513] Brosius, F. *SPSS 21*. Heidelberg: mitp, 2013, p. 405.

[514] Janssen, J. and Laatz, W. *Statistische Datenanalyse mit SPSS*. Berlin & Heidelberg: Springer Gabler, 2013, p. 249.

[515] Ibid.

[516] Dancey, C. P. and Reidy, J. *Statistics without maths for psychology*. Essex: Pearson Education Limited, 2011, p. 63.

[517] Varian, H. R. Non-parametric tests of consumer behaviour. *Review of Economic Studies*. 1983, vol. L, p. 100.

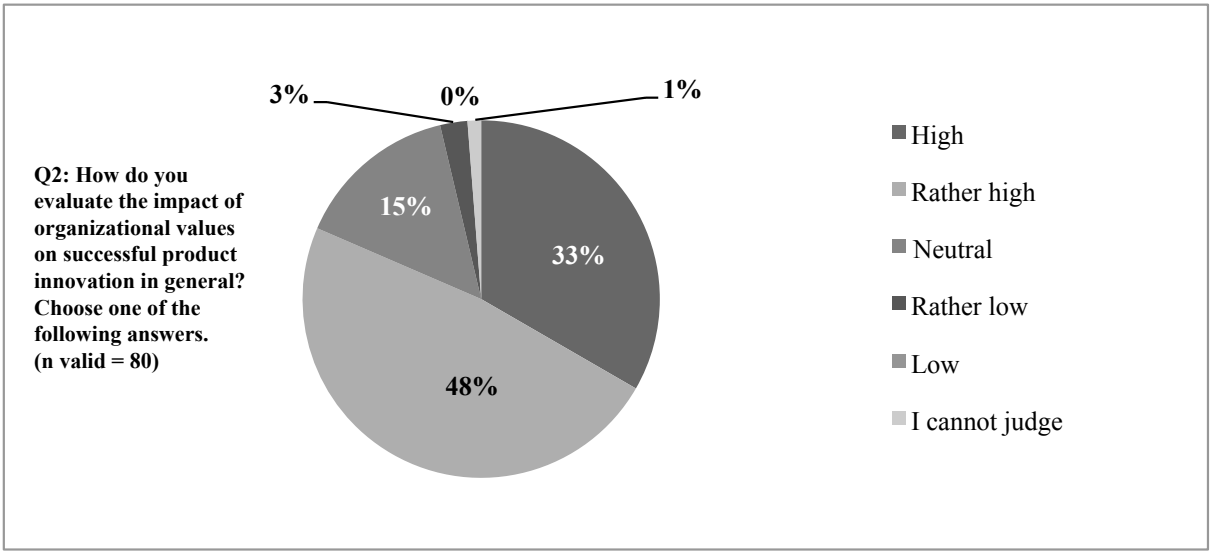

Figure 3.7: General evaluation of importance of organizational values for innovation[518]

Question 3 investigated the importance of the 12 defined value themes for successful product innovation and made participants evaluate each value theme on an ordinal scale ranging from important to unimportant. With non-normally distributed data, only the mean as an arithmetic average value delivers the necessary preciseness here. With using the median only, several value themes would end up at the same ranking position. Clearly, this is the downside of non-parametric techniques: typically, they do not summarize the data in a convenient way[519]. Figure 3.8 illustrates the explored means of managers' evaluations on the 12 pre-defined value themes. Additional bars are used to show the standard deviations in the figure, which describes the variance of each variable's distribution[520] and with that indicates the average spread around the mean[521]. Accordingly, 68% of observations lie between the interval of mean plus standard deviation and mean minus standard deviation[522], which is the area indicated by the bars in Figure 3.8.

[518] Figure sourced from the survey results.

[519] Varian, H. R. Non-parametric tests of consumer behaviour. *Review of Economic Studies*. 1983, vol. L, p. 100.

[520] Dietz, T. and Kalof, L. *Introduction to Social Statistics*. West Sussex: John Wiley & Sons Ltd., 2009, p. 543.

[521] Newbold, P. et al. *Statistics for business and economics*. New Jersey: Pearson Education, Inc., 2007, p. 54.

[522] Korner, F. Bedeutung einiger häufig gebrauchter statistischer Kennzahlen und Begriffe und ihre Interpretation. *Der Ornithologische Beobachter*. 2006, p. 2.

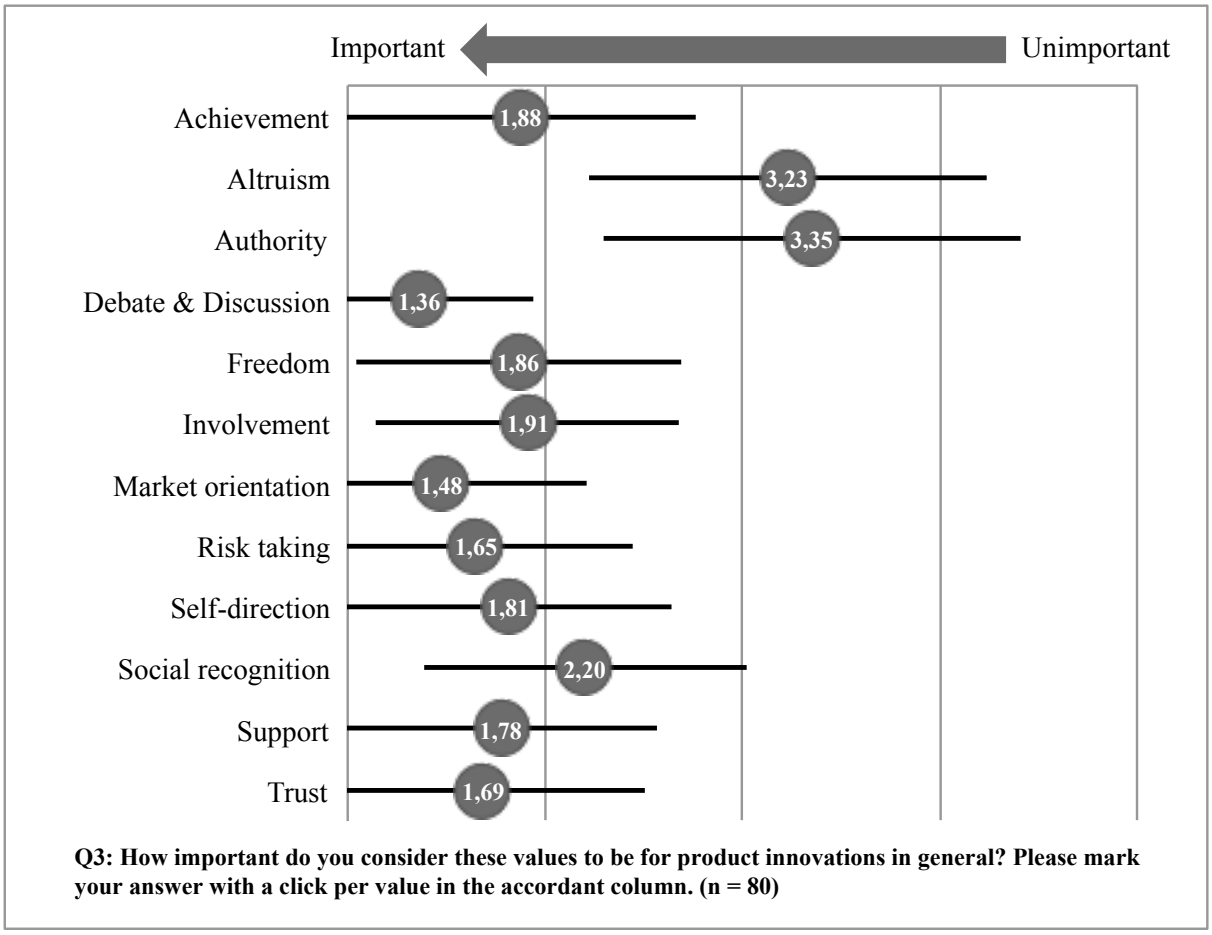

Figure 3.8: Explored means: Importance of 12 value themes by managers for innovation[523]

According to this, it is the value themes of debate and discussion, market orientation, risk taking, support and trust that are most important to product innovation while altruism and authority rank lowest compared to the other values. However, over all, most of the values themes play an integral role for product innovation in the eyes of practitioners, indeed. Summing up the percentage shares of ratings for the top 2 answer categories in this question ("important" and "rather important") further substantiates these findings. As shown in Figure 3.9, the values of debate and discussion, market orientation, risk taking, support and trust are considered to be important and rather important by the clear majority of respondents. However, around ¾ of managers rate most of the other value themes to be important and rather important as well. Only when it comes to altruism and authority, there seems to be a common opinion that these values are as less decisive for product innovations, indeed.

[523] Figure sourced from the survey results.

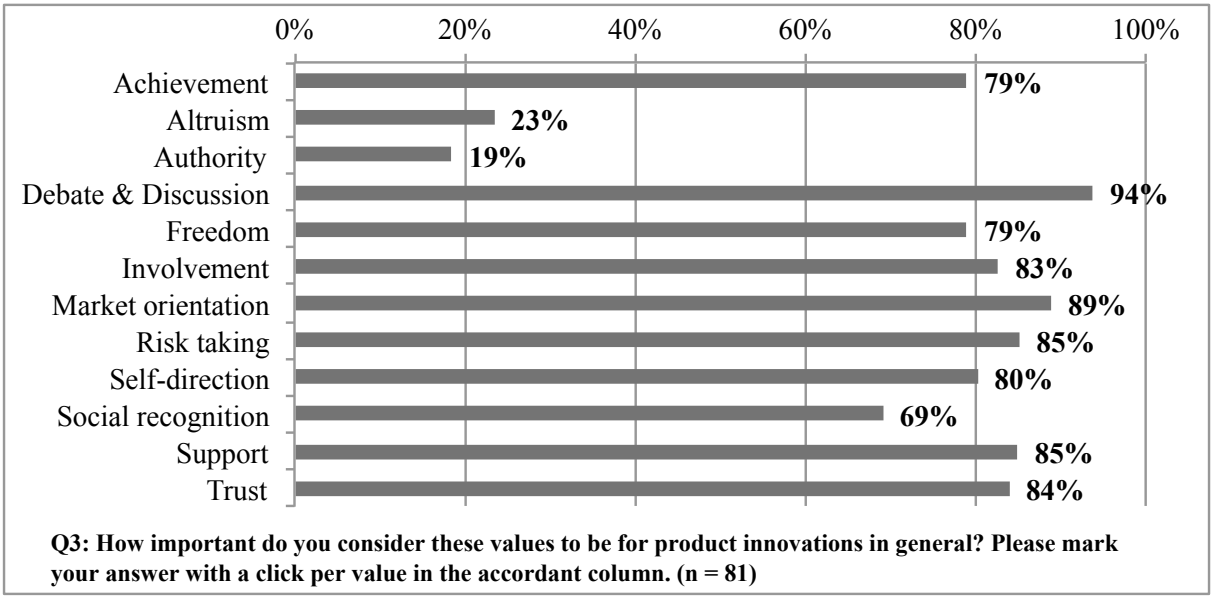

Figure 3.9: Percentage of 2 top ratings on importance of values by managers[524]

As a next step, respondents' answers on question 4 need further investigation in order to find an answer to research question number 3 of this thesis (3. How much are the identified innovation-supportive organizational values characteristic of manufacturing companies?). Correspondingly, this part of the questionnaire assessed how much the 12 value themes are characteristic of the companies under research. Figure 3.10 illustrates the explored mean for each organizational value and, again, includes bars indicating the standard deviation, which shows how much values around the mean vary and where 68% of observations lie. It reveals involvement, market orientation, achievement, and trust as most characteristic values of the sample companies. In contrast, authority, risk taking, and altruism achieve the lowest means.

Overall, most values are rated between "rather characteristic" and "neutral" on average. Additionally, all values show quite some variation. Still, altruism and risk taking are not very characteristic, while involvement, market orientation and achievement receive higher levels of characteristics. These insights help with the following.

[524] Figure sourced from the survey results. These results were presented and discussed publicly in a similar version in a poster presentation for the 14th Biennial ISSWOV Conference on Values in shock: The role of contrasting management, economic, and religious paradigms in the workplace, Riga, Latvia on June 29th to July 2nd, 2014 and published in Bolzern-Konrad, B. and Egger, C. Trust as an enduring organizational value for competitive advantage in a constantly changing business world: Theoretical analysis and empirical findings from two research studies. In: Gomes, J.F.S., Coelho, J.P. eds. *Values in Shock: The role of contrasting management, economic, and religious paradigms in the workplace*. Los Angeles: ISSWOV - International Society of the Study of Work & Organizational Values, 2014, p. 326.

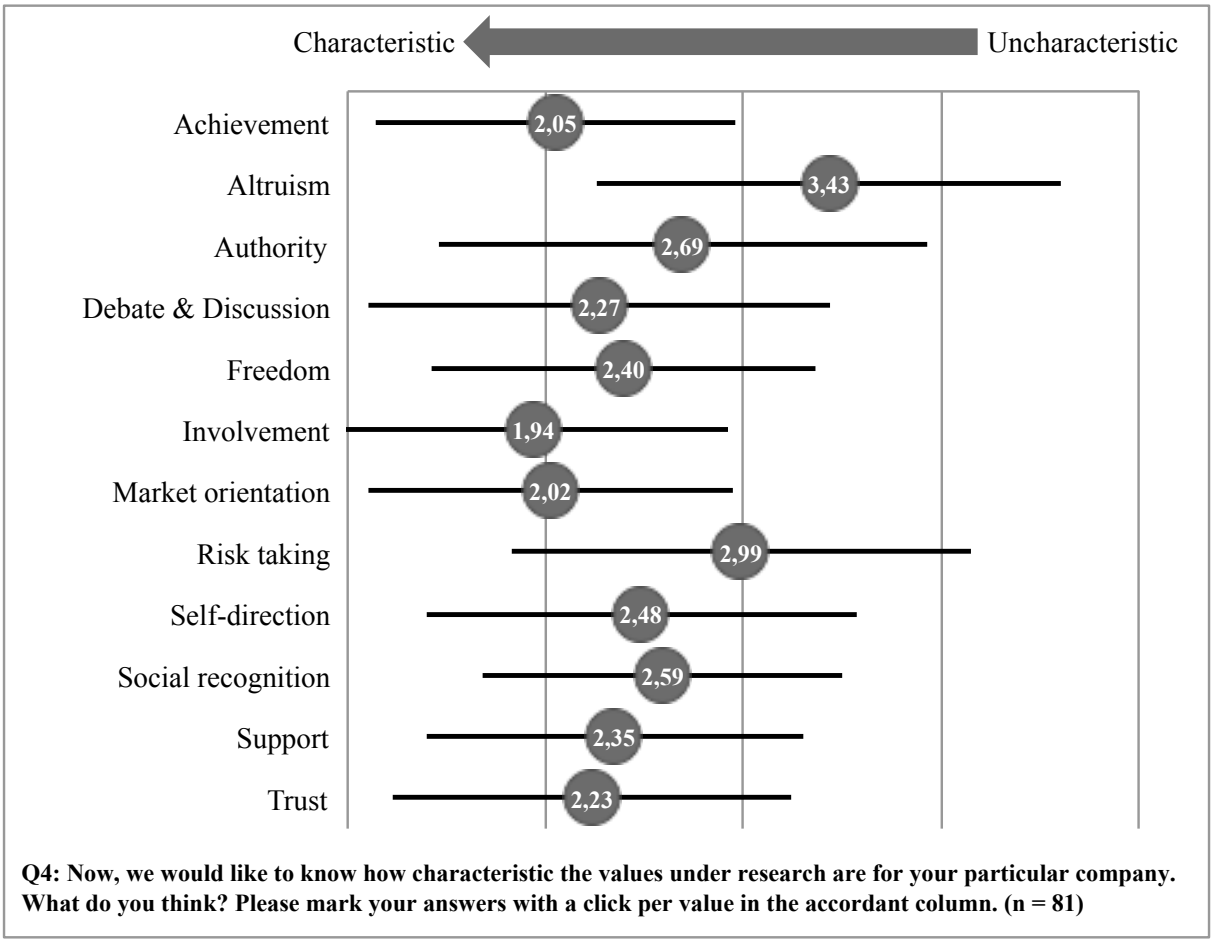

Figure 3.10: Explored means: Estimated levels of characteristics values by managers[525]

As a must, the answers of questions 3 and 4 should be compared, eventually. Such a comparison makes clear how much the values that respondents find important to product innovation are actually anchored in their businesses' daily life. To perform these comparisons, a Mann-Whitney U-Test was conducted. In the online self-completion questionnaire, question 4 followed question 3 independently from the answers given in question 3. Therefore, the Mann-Whitney U-Test is helpful procedure to assess significant disparities in the answers on the two questions as used in many experimental research designs[526] where participants answer the same questions before and after a certain treatment. Generally, values lower than the predetermined statistical threshold ($p = 0.05$ in this case) are considered significant and the alternative hypothesis is accepted[527].

The results of this test given in Table 3.4 reveal astonishing findings: there are only three value themes where the hypothesis can be accepted ($p > .05$; figures written in **bold** letters,

[525] Figure sourced from survey results.

[526] Feltovich, N. Nonparametric Tests of Differences in Medians: Comparison of the Wilcoxon–Mann–Whitney and Robust Rank-Order Tests. *Experimental Economics*. 2003, vol. 6, pp. 273-274.

[527] Nachar, N. The Mann-Whitney U: A test for assessing whether two independent samples come from the same distribution. *Tutorials in Quantitative Methods for Psychology*. 2008, vol. 4, no. 1, p. 19.

value themes bordered in Figure 3.11)! With all other nine organizational value themes, respondents delivered significantly different ratings in questions 3 and 4. The table summarizes the significance levels only, the full SPSS output can be checked in Appendix A11.

Table 3.4: Mann- Whitney U-Test comparing managers' evaluations of importance vs. levels of characteristics[528]

	Achievement	Altruism	Authority	Debate & Discussion	Freedom	Involvement
Asymp. Sig. (2-tailed)	**,195**	**,186**	,000	,000	,001	**,709**
	Market orientation	**Risk taking**	**Self-direction**	**Social recognition**	**Support**	**Trust**
Asymp. Sig. (2-tailed)	,000	,000	,000	,005	,000	,000

a. Grouping Variable: Original Question Number

Therefore, despite having a distinct opinion about the values that are important to foster product innovations, it is not what managers find characteristic of their companies. Apparently, they do not set up their businesses according to what they find important for innovation. It is only in the cases of achievement, altruism and involvement that the level of how much that value theme is characteristic of a company accords with its evaluated importance.

To illustrate how big differences in the level of characteristics versus importance for each value theme are, again, the means of answers given in question 3 and 4 were compared for all respondents. Figure 3.11 shows the evaluated importance of a value theme as a bar and includes the estimated level of characteristic by managers for the very same theme as a line in one chart. From this, it can be explained how ratings clash. Obviously, there is a gap between an ideal business world for product innovations and reality in German and Austrian manufacturing companies as the researcher expected it.

[528] Table sourced from survey results.

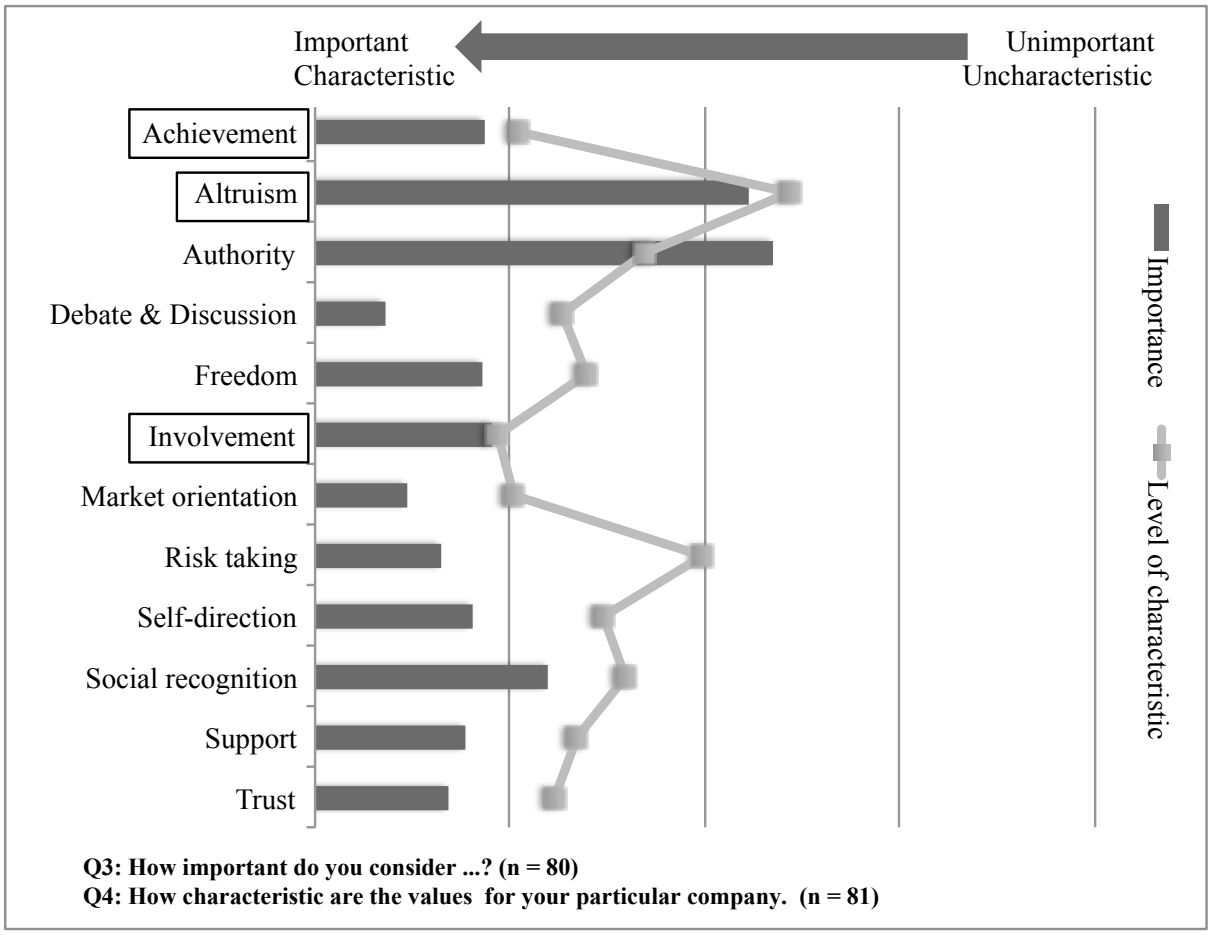

Figure 3.11: Explored means: Evaluated importance vs. levels of char. by managers[529]

Apart from the fact that three value themes (those with borders) were found where ratings accord with each other, this holds two more outcomes. Firstly, it shows that authority is perceived as a value that is rather unimportant for product innovation, though rather characteristic of the sample companies. Secondly, the figure explains that all other value themes are more important than characteristic. From this, it can be argued that the companies under research do hold astonishing opportunities for improvement regarding the choice of an appropriate organizational value profile supportive to innovation. Especially the value themes of debate and discussion and risk taking, both of which are top rankers regarding important values for innovation according to managers (compare Figure 3.9), show larger dissimilarities on average. Moreover, reflecting the results of the literature review and the analytical exploration of previous studies, an overemphasis of aspects that are summarized under the authority value theme can even be seen as a threat and as counterproductive to product innovation. Overall, proposition 3 is substantiated with these findings.

[529] Figure sourced from the survey results.

3.3.4 Differences between functional departments and companies with different innovation performances

To explore even more details, two groups of analysis were formed from the survey results:

- Different functional departments
- Companies with different innovation performance.

As explained in section 3.3.1, data were collected from three main functional departments, which will be investigated for differences: Management, R&D, and Marketing / Product Management (compare Figure 3.5). Moreover, a distinction between top innovators and non-innovators in the sample can be made. Investigating the percentiles of the presumed bell curve of the answers on the objective criteria for innovation performance (percentage share of turnover due to different products), this results in the following table (Table 3.5). The right side of the assumed bell curve (>= 75) identifies the top performers per critireon. According to this, companies with a percentage share of turnover of products new to the market higher than 25% must be seen as the top innovators of the sample population. Indicating a percentage share of turnover of unchanged products higher than 80% makes a company fall into the classification of non-innovators, on the other hand.

Table 3.5: Percentiles of percentage shares of turnover due to different product categories[530]

	Percentiles (Tukey's Hinges)		
Percentage share of turnover of products…	25	50	75
… new to market (Top innovator)	5	10	**25**
… unchanged or only marginally modified (Non-innovator)	40	60	**80**

Correspondingly, the survey consists of 22 valid cases for top innovators and of 21 valid cases for non-innovating companies according to the definition above.

For the investigation of differing opinions regarding the general importance of organizational values for product innovation (question 2) according to different departments of an organization, a Kruskal-Wallis-Test was used, which tests the null hypothesis that the mean ranks of a defined number of populations are the same[531]. It is especially applicable when responses are ordinal categorical data, because the normal residual assumption rarely holds here[532]. Again, with a significance level of p = .431 (see Appendix A11 for details), the null

[530] Table sourced from the survey results.

[531] Newbold, P. et al. *Statistics for business and economics*. New Jersey: Pearson Education, Inc., 2007, pp. 647-648.

[532] Fan, C. and Zhang, D. A note on power and sample size calculations for the Kruskal-Wallis test for ordered categorical data. *Journal of Biopharmaceutical Statistics*. 2012, vol. 22, p. 1162.

hypothesis has to be accepted[533]. Obviously, managers from all three departments find organizational values equally important to successful product innovation.

As a next step, a Mann-Whitney U-Test was used to assess the differences in question 2 between the 22 top innovating companies and the 21 non-innovating companies as an appropriate non-parametric test to compare the two sample groups where ordinal scales are sufficient for the test procedure[534]. In the current analysis, with p = .781 (see Appendix A11 for details), the null hypothesis has to be accepted and no significant differences can be claimed between top innovators and non-innovators. Therefore, the impact of organizational values on product innovation apparently is estimated equally high, no matter how innovative the judging company is.

Using a Kruskal-Wallis-Test to explore the ratings of different departments on the importance of the 12 value themes (question 3) does not bring to light any significant findings. Significance levels for all value themes lie above p = .05 (see Appendix A11 for the detailed SPSS output), and, therefore, the null hypothesis is accepted. Employees of Management, R&D, and Marketing / Product Management seem to share quite a common picture of the value themes under research.

For investigating a comparison of the evaluation of the importance of the chosen value themes between innovating and non-innovating companies of the sample, again, a Mann-Whitney U-Test was performed. Interestingly, all significance levels show p-values higher than .05 except for the market orientation theme, which means that the null hypothesis should be accepted in all cases except for market orientation (written in **bold** letters). Table 3.6 illuminates these findings, the detailed SPSS output can be found in Appendix A11.

Table 3.6: Mann- Whitney U-Test comparing top innovators vs. non-innovators regarding the general importance of value themes[535]

	Achievement	Altruism	Authority	Debate & Discussion	Freedom	Involvement
Asymp. Sig. (2-tailed)	,990	,750	,951	,262	,832	,612
	Market orientation	**Risk taking**	**Self-direction**	**Social recognition**	**Support**	**Trust**
Asymp. Sig. (2-tailed)	**,008**	,152	,110	,352	,128	,504

a. Grouping Variable: Innovation Classification

Apparently, even non-innovating firms find the organizational values presented similarly important to product innovations just like top innovators. Only when it comes to market

[533] Brosius, F. *SPSS 21*. Heidelberg: mitp, 2013, p. 884.

[534] Ibid, p. 877.

[535] Table sourced from the survey results.

orientation perceptions differ significantly. Unsurprisingly, it is the top innovators who find this subject significantly more important as an exploration of the means and a comparison of the top two possible ratings ("important" and "rather important") proves shown in Table 3.7.

Table 3.7: Importance of the value theme "Market orientation" – Top innovators vs. non-innovators[536]

			Percentage share of ratings	
	Mean	Standard deviation	Important	Rather important
Top Innovator NTM>25%	**1,18**	0,395	**43%**	26%
Non-Innovator Unchanged>80%	**1,76**	0,831	**33%**	38%

The percentage share of ratings indicates that the value theme of market orientation tends to receive ratings that drift into the direction of "rather important" or even neutral for non-innovators, while, with 43%, a relative majority of respondents from top innovating companies rate it to be "important".

Assuming differences between companies with unequal innovation performance regarding the levels of characteristics of the value themes, a Mann-Whitney U-Test was accomplished. Table 3.8 shows the shortened results. The full SPSS output can be seen in Appendix A11.

Table 3.8: Mann- Whitney U-Test comparing top vs. non-innovators for levels of characteristics of value themes[537]

	Achievement	Altruism	Authority	Debate & Discussion	Freedom	Involvement
Asymp. Sig. (2-tailed)	,158	,219	,207	,091	,485	,453
	Market orientation	**Risk taking**	**Self-direction**	**Social recognition**	**Support**	**Trust**
Asymp. Sig. (2-tailed)	,766	,093	,325	,872	,314	,980

a. Grouping Variable: Innovation Classification

Surprisingly enough, top innovators vs. non-innovators do not show significant differences in the levels of characteristics regarding the value themes (all p-values above .05), although this was the expected result of the thesis.

Finally, questions 3 and 4 were compared for the 22 top innovating companies in the sample. Again, the main objective here was to investigate how much answers match for what is important to innovation and what is characteristic of the companies. Table 3.9 demonstrates the summarized results about the significance levels (full SPSS output is attached in Appendix A11). It reveals that, again, even for the top performers in the sample, the hypothesis of equal ratings for importance and level of characteristics of a defined value theme can only be accepted for the three same cases: achievement, altruism, and involvement.

[536] Table sourced from the survey results.

[537] Table sourced from the survey results.

For these value themes, significance levels lie clearly above p = .05 and are written in **bold** letters. So, at first sight, these top companies actually do not match better to the identified innovation-supportive organizational values.

Table 3.9: Mann- Whitney U-Test comparing evaluations of importance vs. levels of characteristics for the 22 top innovators[538]

	Achievement	Altruism	Authority	Debate & Discussion	Freedom	Involvement
Asymp. Sig. (2-tailed)	**,278**	**,730**	**,043**	,001	**,044**	**,621**
	Market orientation	**Risk taking**	**Self-direction**	**Social recognition**	**Support**	**Trust**
Asymp. Sig. (2-tailed)	,003	,001	,024	**,049**	,010	**,035**

a. Grouping Variable: Original Question Number

However, there are a couple of additional values that show significance levels quite close to p = .05 (written in **bold grey** letters), such as authority, freedom, social recognition, and trust. Therefore, the top innovating companies seem to have at least a slightly better fit between the importance of innovation-supportive values and their level of being characteristic of a company. This comes close to one of the expected outcomes outlined in chapter 3.2.

To sum up, this section holds various interesting results. To provide deeper insights and draw further conclusions the next parts analyse the data in an inferential way.

3.3.5 Impact of organizational values on product innovation – Correlations and Coefficients of determination

One of the most interesting concepts of a relationship between variables is to find out how one variable carries knowledge about the other[539] by using **correlational analysis**. To explore the dependence between two random variables, Spearman's rho is a very famous nonparametric measure, which has been suggested as an alternative to the traditional Pearson correlation coefficient[540], because it holds the benefit of shielding against outliers[541]. To use comparable measurement units, the following variables were used for this statistical procedure: answers of question 4, where participants estimated the levels of characteristics of value themes for their companies and answers of question 7, which included the subjective self-evaluation of innovation performance as dependent variables. Table 3.10 only shows the correlation coefficients for each combination of variables with significant findings. The full

[538] Table sourced from the survey results.

[539] Cohen, J. et al. *Applied multiple regression / correlation analysis for the behavioral sciences*. Mahwah, New Jersey: Lawrence Erlbaum Associates, 2003, p. 19.

[540] Quessy, J.-F. Theoretical efficiency comparisons of independence tests based on multivariate versions of Spearman's rho. *Metrika*. 2008, vol. 70, no. 3, p. 315.

[541] Wilcox, R. Inferences Based on a Skipped Correlation Coefficient. *Journal of Applied Statistics*. 2004, vol. 31, no. 2, pp. 131-132.

SPSS output of the analysis can be investigated in Appendix A12. The algebraic sign indicates the direction of association while the absolute value reveals its strength[542].

Table 3.10: Spearman's Rho: Levels of characteristics of values versus self-evaluated innovation performance against competitors' variables[543]

		Achievement	Altruism	Debate & Discussion	Involvement	Risk taking	Support	Trust
No of new products	Correlation Coefficient				,293**		,347**	
	Sig. (2-tailed)				,008		,002	
Pioneer disposition	Correlation Coefficient	,233*		,241*		,220*	,238*	
	Sig. (2-tailed)	,038		,031		,050	,034	
Speed of NPD	Correlation Coefficient					,369**	,285*	,241*
	Sig. (2-tailed)					,001	,011	,032
Clever and fast response	Correlation Coefficient					,232*		
	Sig. (2-tailed)					,038		
Financial efforts in R&D	Correlation Coefficient						,273*	
	Sig. (2-tailed)						,018	
Additional efforts in NPD	Correlation Coefficient		,245*				,309**	
	Sig. (2-tailed)		,036				,007	
*. Correlation is significant at the 0.05 level (2-tailed).								
**. Correlation is significant at the 0.01 level (2-tailed).								

As the table reveals, there are significant positive findings for the value themes of achievement, altruism, debate and discussion, involvement, risk taking, support, and trust[544], indeed. Generally, a correlation coefficient between 0,2 and 0,4, as in the case of this research, must be considered as a rather weak correlation. However, it is clear that innovation outcomes depend on many different factors as argued in chapter 1.4 – organizational values are just one aspect of that. Therefore, weak correlations must not be seen as confinement. Rather, it is an important result of this analysis that there is a relationship between these variables at all. From this, the hypothesis that there is no connection between these variables in the wider population must be rejected[545]. What this analysis brings to light instead is, to start with, that achievement (r_s = .233, p = .038) shows positive impacts on the pioneer disposition of new products, which means that the more success- and efficiency-oriented a company is, the more their products have pioneering character. Altruism (r_s = .245, p = .036)

[542] Brosius, F. *SPSS 21*. Heidelberg: mitp, 2013, p. 527.

[543] Table sourced from the survey results.

[544] Particularly the correlations of the value theme of trust were presented and discussed in a poster presentation for the 14th Biennial ISSWOV Conference on Values in shock: The role of contrasting management, economic, and religious paradigms in the workplace, Riga, Latvia on June 29th to July 2nd, 2014 and, in addition, the same argumentation about the impact of trust on innovation outcomes was published in Bolzern-Konrad, B. and Egger, C. Trust as an enduring organizational value for competitive advantage in a constantly changing business world: Theoretical analysis and empirical findings from two research studies. In: Gomes, J.F.S., Coelho, J.P. eds. *Values in Shock: The role of contrasting management, economic, and religious paradigms in the workplace*. Los Angeles: ISSWOV - International Society of the Study of Work & Organizational Values, 2014, p. 327.

[545] Brosius, F. *SPSS 21*. Heidelberg: mitp, 2013, pp. 523-528.

correlates positively with additional efforts, such as trainings and hours per person, in new product development. This connection seems logical, indeed, since an altruistic orientation in companies includes the effort to take care of one's employees' development and capabilities. Further, debate and discussion (r_s = .241, p = .031) show positive impacts on the pioneer disposition of new products, so, again, exchanging diverse viewpoints increases the level of novelty of products. According to this analysis, the more companies regard an organizational value of involvement as characteristic of their firm, the higher their number of new products brought to the market is (r_s = .292). This correlation is even highly significant (p = .008). Risk taking correlates positively with the pioneer disposition of new products (r_s = .220, p = .050) and clever and fast responses to new products introduced by competitors (r_s = .232, p = .038), which means that it helps with a courageous way of acting and reacting in the market. Additionally, a positive correlation with the speed of new product development is highly significant (r_s = .369, p = .001). Again, this is comprehensible, since for very challenging schedules in new product development shortcuts need to be taken sometimes, which includes the acceptance of ambigutity. Support shows various positive correlations, too: firstly, with the pioneer disposition of new products (r_s = .238, p = .034); secondly, with the speed of NPD (r_s = .285, p = .011); and thirdly, with financial efforts in NPD (r_s = .273, p = .018). Further and in particular, the correlations support shows are highly significant for the number of new products that companies introduce (r_s = .347, p = .002) and the additional efforts they put in NPD (r_s = .309, p = .007). From this, it must be assumed that companies where support is a major characteristic gain various benefits for their product innovation outcomes. Finally, trust proves to have a positive correlation with the speed of NPD (r_s = .241, p = .032) as well. This can be linked to risk taking, actually. For being fast in NPD, managers need to trust their personnel and have to accept the risk that failures may occur when under high time pressure. To sum up, a correlational analysis as assessed by Spearman's rho uncovers various positive relationships between certain values and product innovation performance. Correlation is not neccessarily the same as a causal relationship and several assumptions have to be met to argue that. But, correlation can offer very strong evidence about causation[546].

Surprisingly, no associations can be found for the value themes of authority, freedom, market orientation, self-direction, and social recognition. Thus, this section holds some additional insights. When comparing the results of this correlational analysis to the descriptive results in the previous chapter, there are some issues that need discussion. For example, the value theme of altruism was seen to be little important by managers for product innovations before

[546] Dietz, T. and Kalof, L. *Introduction to Social Statistics*. West Sussex: John Wiley & Sons Ltd., 2009, p. 185.

(compare Figure 3.9). It shows a positive correlation with additional efforts in new product development, though, which means that an altruistic mindset in companies does influence the way these organizations succeed in innovations – at least indirectly. Managers rate some other value themes to be important or rather important, that do not show correlations here: Freedom, market orientation (especially important to top innovation firms, compare Table 3.7) and self-direction. So, again managers' perceptions and evaluations differ from the statistical results given here, which will be further discussed in chapter 3.5.

As a second measure to assess the impact of organizational values on product innovations the **coefficient of determination** was examined. For this, a linear relationship between the independent variables and the dependent variables was assumed in order to calculate a regression analysis. Usually, regression analysis can be used to make inferences and it helps to understand the variability of a dependent variable due to one or more independent variables[547]. In contrast to correlational analysis, regression is normally used for the investigation of practical questions. The research question involved with it is one of prediction: researchers seek for the prediction of a dependent variable using a collection of independent variables[548]. For the research at hand, the parameter of relevance of this analysis is the coefficient of determination, R Square (R^2). It explains how much of the variation of the dependent variable is explained by the independent variable(s). R Square Adjusted takes into account the number of observations and is a measure for the quality of the model as well[549]. R Square can take only values between 0 and 1, while 0 indicates no relationship with the independent variables and 1 indicates a perfect relationship[550]. Thus, to explore how much the predefined organizational values explain the variance in innovation performance outcomes a multiple linear regression for all subjective innovation criteria was run. Table 3.11 shows the adjusted coefficients of determination for the self-evaluated performance indicators against competitors with the levels of characteristic managers indicated for their companies as independent variables. The full SPSS output and model summaries for these analyses can be checked in Appendix A13. For the indicator Clever and fast response to competitors, R^2 Adjusted was calculated as negative, which means that the model does not fit here. Therefore, it underwent no further investigation.

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[547] Dietz, T. and Kalof, L. *Introduction to Social Statistics*. West Sussex: John Wiley & Sons Ltd., 2009, pp. 436-437.

[548] Huberty, C. J. Multiple Correlation Versus Multiple Regression. *Educational and Psychological Measurement*. 2003, vol. 63, no. 2, p. 272.

[549] Janssen, J. and Laatz, W. *Statistische Datenanalyse mit SPSS*. Berlin & Heidelberg: Springer Gabler, 2013, pp. 407-408.

[550] Cohen, J. et al. *Applied multiple regression / correlation analysis for the behavioral sciences*. Mahwah, New Jersey: Lawrence Erlbaum Associates, 2003 p. 70.

Table 3.11: Adjusted coefficients of determination for dependent variables (innovation performance outcomes)[551]

Innovation performance against competitors for...	Adjusted R Square
Number of new products	**0,045**
Pioneer disposition of new products	**0,016**
Speed of new product development	**0,139**
Financial efforts in R&D	**0,112**
Additional efforts in new product develpment	**0,061**
a. Predictors: (Constant), Level of characteristic Trust, Level of characteristic Market orientation, Level of characteristic Altruism, Level of characteristic Achievement, Level of characteristic Authority, Level of characteristic Risk taking, Level of characteristic Support, Level of characteristic Social recognition, Level of characteristic Freedom, Level of characteristic Involvement, Level of characteristic Self-direction, Level of characteristic Debate & Discussion	

Accordingly, an impact of the predefined 12 value themes on product innovation is determined here. 4,5% of the variance in the number of new products and 1,6% of the variance in their pioneer disposition are explained by the organizational values under research. Further, they explain an astonishing 13,9% of the variance in the performance indicator of speed in new product development. Regarding the variables of financial efforts for R&D and additional efforts for new product development the 12 value themes explain 11,2% respectively 6,1% of the variance. Clearly, the models are rather volatile when checking the standard error of the estimate (see Appendix A13 for details), but, as explained in the theoretical part of this thesis, it is clear that innovation outcomes do have many influencing factors. Expecting a very high level of prediction for the organizational values under research here would not be very reasonable. However, these coefficients of determination are an essential outcome for the thesis at hand. Actually, they state the size of the positive impact of the organizational values on product innovation outcomes and show that they are particularly relevant for the speed of new product development with an explained variance higher than 10%! Moreover, they prove that this relationship actually exists and much further substantiate the correlational analysis argued before.

Therefore, the main hypothesis of this dissertation cannot be falsified so far. Instead, up to now, it has to be assumed indeed, that **the more a manufacturing company is characterized by innovation-supportive organizational values, the higher the product innovation performance of that organization is.** With this, another expected result of the thesis as outlined in chapter 3.2 is achieved. Additionally, research question number 4 of the thesis was answered successfully (4. To what extent do innovation-supportive organizational values explain and determine product innovation outcomes?). Further, proposition 2 is substantiated.

[551] Table sourced from the survey results.

3.3.6 Reduction of the 12 value themes via principal component analysis

To further investigate this and to prevent several values from measuring a similar phenomenon, a **principal component analysis** was performed in addition. One major target of a principal component analysis is the possible reduction of data and a smaller number of variables[552]. By building correlations it is assumed that variables showing high correlation coefficients measure a mutual phenomenon[553]. For this research an iterative, rotated principal component analysis was performed. Methodologically, the varimax-rotation based on correlations was chosen using the answers of question 3 where participants evaluated the importance of each value theme independently from its level of characteristics for their company.

Generally, it is recommended to use a sample size of at least 100 participants for the analysis and to have five times as many participants as variables[554]. However, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) was rechecked here (see Appendix A14 for the detailed SPSS output). With a value of .601 and a significance level of $p < .05$ there must be correlations between at least two of the variables under research in the wider population[555] and the number of selected variables is meritorious. Since the KMO-value lies above 0,5, the data set provides a good fundament for the analysis[556].

With the rotated component matrix, the different loadings on each component are shown. However, with non-normally distributed values as in this research, uncorrelated principal components are not inevitably independent. One principal component can share a portion of traits with another component and each loading does not convey a distinctive effect in a given dimension[557]. The absolute value of the loadings displayed in Table 3.12 explains how meaningful the extracted component is for each variable. For example, self-direction shows a higher loading on component 1 than on component 3 and 4 and therefore, must be seen as a variable that should rather be interpreted as being part of component 1. From these results, a

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[552] Stier, W. *Empirische Forschungsmethoden*. Berlin & Heidelberg & New York: Springer Verlag, 1999, p. 273.

[553] Brosius, F. *SPSS 21*. Heidelberg: mitp, 2013, p. 792.

[554] Dancey, C. P. and Reidy, J. *Statistics without maths for psychology*. Essex: Pearson Education Limited, 2011, p. 457.

[555] Brosius, F. *SPSS 21*. Heidelberg: mitp, 2013, p. 795.

[556] Janssen, J. and Laatz, W. *Statistische Datenanalyse mit SPSS*. Berlin & Heidelberg: Springer Gabler, 2013, p. 574.

[557] Kim, D. and Kim, S.-K. Comparing patterns of component loadings: principal component analysis (PCA) versus independent component analysis (ICA) in analyzing multivariate non-normal data. *Behavior research methods*. 2012, vol. 44, no. 4, p. 1239.

content-wise interpretation has to be drawn as a next step[558]. Table 3.12 also includes the cumulative percentage of total variance explained by each component. This indicates how much each component contributes to an explanation of variance[559]. In the case at hand, the four components explain around 57% of the variance in values.

Table 3.12: Rotated component matrix with answers of question 3: Evaluated importance of values[560]

	Component			
	1	2	3	4
Social recognition	,789			
Self-direction	,618		,308	,373
Altruism	,597			
Trust	,544			**-,303**
Support	,478	,408		
Involvement		,664		
Achievement		,661	,320	
Market orientation		,637		,483
Authority		,564		
Risk taking			,823	
Freedom	,353		,662	
Debate & Discussion				,841
Cumulative total variance explained	17,66%	33,66%	45,95%	56,99%

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 7 iterations.

Obviously, social recognition, self-direction, altruism, trust, and support can be seen as a mutual phenomenon according to managers. Reflecting their definitions as outlined in chapter 3.1.2, this is comprehensible. They all include value aspects that contribute to openness, participation, and emotional safety, but also independence and experimentation for which managers' trust is necessary in turn. Further, the component includes concepts of equality, friendship and readiness to help others. Therefore, this component undoubtedly can be seen as the soft enablers of product innovation around trust and encouragement.

Additionally, a performance aspect in component 2 summarizing the value themes of achievement, market orientation, and authority is comprehensibly essential. However, it is completed by the involvement theme, which indicates that managers generally would like to see participation, commitment, and emotional engagement in striving for peak performance to achieve competitive advantage.

[558] Brosius, F. *SPSS 21*. Heidelberg: mitp, 2013, p. 803.
[559] Ibid, p. 800.
[560] Table sourced from the survey results.

The third component consists of risk taking with a very high loading and freedom. This leads to the assumption that managers consider some pioneering spirit to be essential for product innovation. Further, debate and discussion make up an entire single factor in component 4. Accordingly, it must be admitted that managers find questioning, critical awareness and diversity fundamental, indeed. Since market orientation shows the second highest loading on this last component (marked in light red), it is assumed that managers find debates that are driven by market orientation most precious for product innovations. Trust even shows a negative loading here (written in **bold white letters with a dark grey background**), which means that its relationship with this component is unconstructively shaped. Apparently, too much trust would hinder fruitful and honest debates and discussions, since it might make people too blind to challenge colleagues and leaders in order to ensure the best solution to a problem.

To sum up the results of this component analysis, there seem to be four major topics that are indispensible for product innovations according to managers:

- Trust & Encouragement
- Intrinsically motivated Performance
- Pioneering Spirit
- Market-driven Debates and Discussions.

This goes in line with one of the expectations the researcher had. Chapter 3.2 outlined that it should be possible to reduce the 12 value themes identified from previous study to a number of influencing values that is better to handle and manage. The next chapter of this dissertation outlines the results of the written assessment interviews with international experts and explains how this contributes to a profounder understanding of the research topic.

3.4 An international experts' perspective on organizational values and product innovation[561]

3.4.1 Sample of international experts and data distribution

For the qualitative written assessment interviews, 63 international experts throughout the European Union countries including Switzerland were addressed. 13 experts from ten nations throughout Europe took part in the online written interview, which comes down to a response rate of almost 21%. Six participants were employed at university, three with business and management consultancy, and two with public research institutions. In addition, one person was employed with a bank and another one with a governmental institution. The nations throughout Europe, dealt with in this investigation, are: Latvia, Lithuania, Denmark, Germany, Switzerland, Italy, Slovenia, Croatia, Bulgaria, and Greece.

In question 1, where multiple statements were possible, 69% of participants (9) affirmed to have already read about the topic of organizational values in the academic literature (books, journals etc.). 46% of participants (6) declared to have already read about it in the business or daily press. Additionally, 38% of participants (5) indicated either to have already conducted research projects on the topic themselves, or to have values and guidelines defined for their organization that employees can and are supposed to use for their orientation, or to know about such guidelines. In fact, no participant stated not to have had any experience with the topic yet. Thus, the sample of participants for these written expert interviews seems highly appropriate. The next section highlights the interview results and compares them to the findings of the company survey dealt with in the previous chapter. Since the sample size of for the qualitative expert interviews is naturally small, only non-parametric tests make sense.

3.4.2 International experts' general evaluations on values for innovation

To start with, experts had to indicate how important they consider organizational values to be for product innovations in general in question 2. 62% of participants decided the issue to be highly important, 31% ticked "rather high", and the remaining 7% put their cross in the box for a "neutral" evaluation. So, the relevance of the topic cannot be questioned, which goes in line with the expected result regarding this question outlined in section 3.2.

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[561] The empirical results of these written assessment expert interviews (descriptive statistics, non-parametric tests, comparisons) were presented and discussed in a shorter version for an oral presentation on the Global Business Conference on Questioning the widely-held Dogmas, Dubrovnik, Croatia, on October 1st to 4th of October, 2014 and published in Egger, C. An international perspective on the impact of organizational values on product innovations in manufacturing companies. In: Hair, J. et al. eds. *Global Business Conference 2014 Proceedings - Questioning the Widely-held Dogmas*. Dubrovnik: Innovation Institute Zagreb, 2014, pp. 94-104. ISSN 1848-2252.

Again, the means were explored for question 3 on the importance of each value theme. Figure 3.12 shows how the value themes are rated on a European average and it includes the standard deviation of ratings as a bar, which illustrates how much the ratings vary. In fact, it can be argued from this, that achievement, altruism, and authority are seen to be less essential for product innovations by experts throughout Europe. All other value themes seem more or less equally important from an international perspective, since they all end up between a rating of "important" and "rather important" with risk taking and support slightly ranking top. This holds the surprise that achievement is particularly seen to be less important from an international perspective. It is an outcome that was not expected in this way and contradicts the managers' survey.

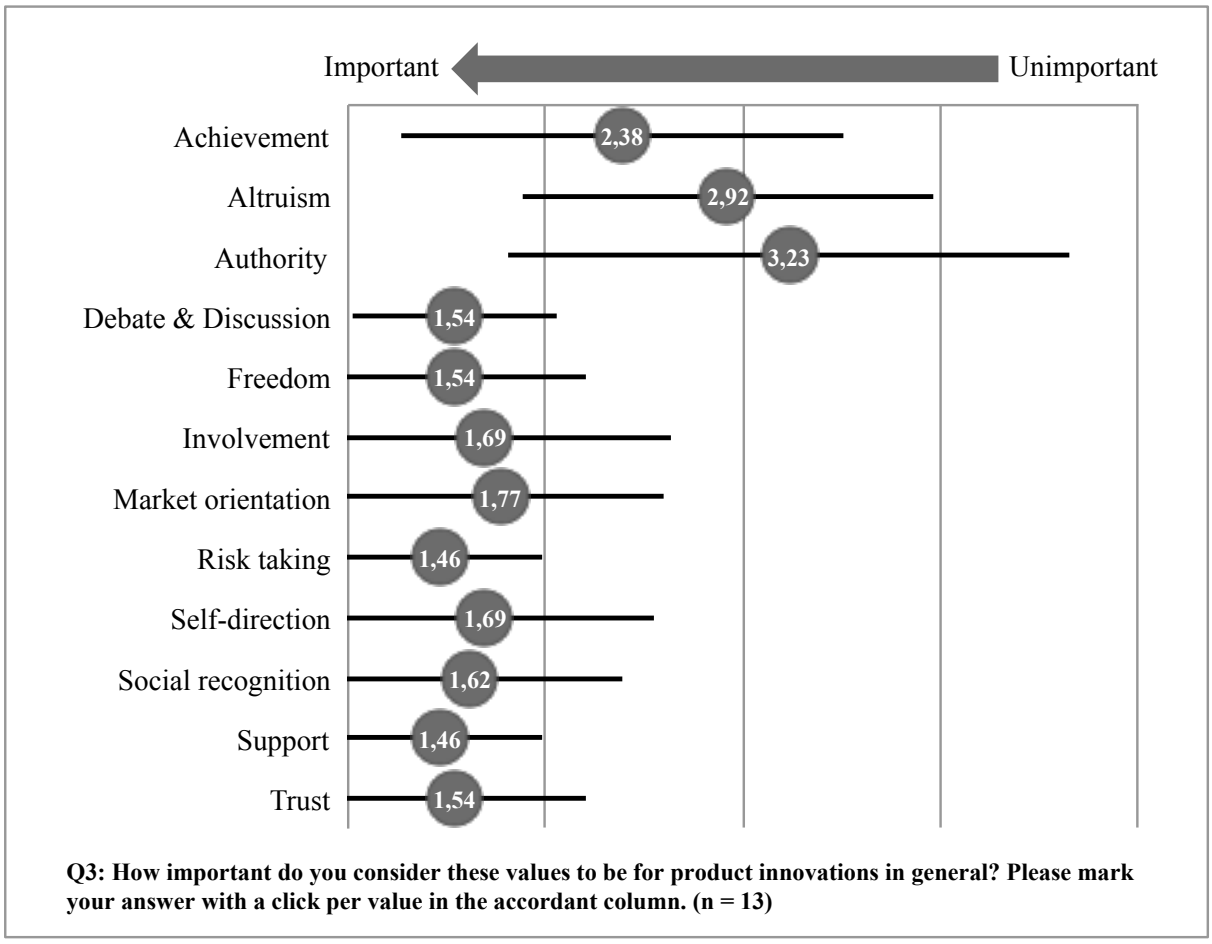


Figure 3.12: Explored means: Evaluated importance of value themes according to experts[562]

Further, the summarized percentage shares of ratings in the top 2 evaluations for this question ("important" and "rather important") substantiates these findings as Figure 3.13 shows. All experts agree that debate and discussion, risk taking and support are important or rather important for product innovations. Another 92% of respondents ticked one of the top answer

[562] Figure sourced from the written assessment interview results.

categories for the value themes of freedom, self-direction, and trust. For the value theme of freedom, only 79% of managers chose these two ratings. Thus, opinions differ slightly here.

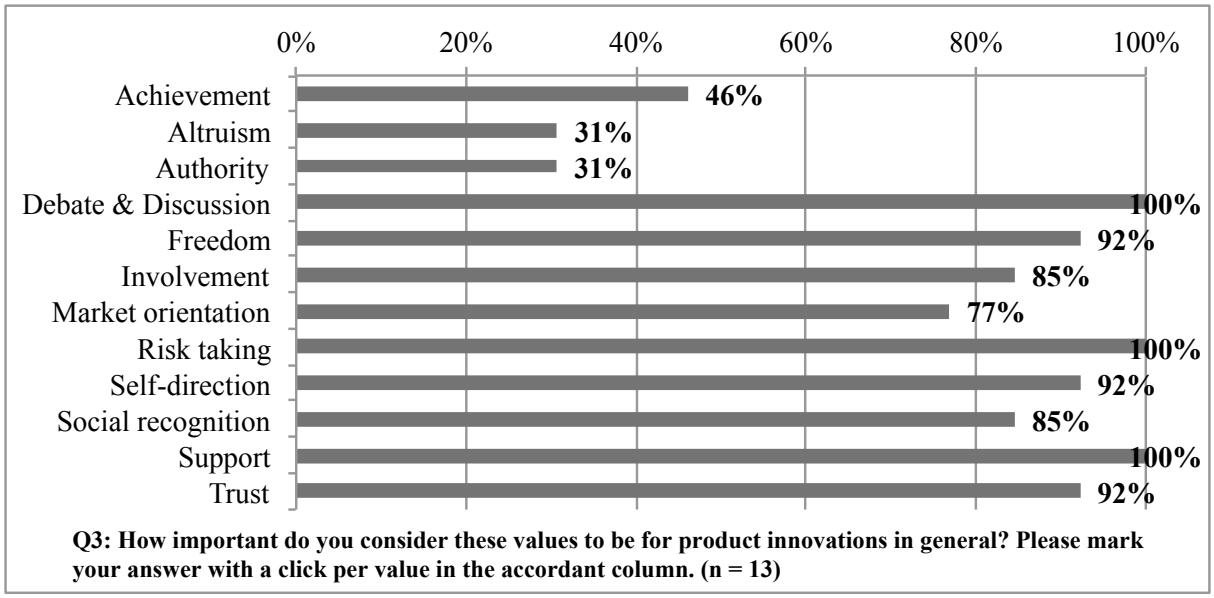


Figure 3.13: Percentage of 2 top ratings on importance of values for innovation by experts[563]

As question 4, experts had to estimate how much the values under research are characteristic of manufacturing companies in their countries. Again, this was compared to the answers in the previous question to assess the differences between what is important for innovation and what experts judge manufacturing companies in their countries to be characteristic of. Astonishingly, respondents delivered significantly different ratings in these two questions as assessed by a Mann-Whitney U-Test. Table 3.13 summarizes the significance levels of this test, the full SPSS output can be read in Appendix A15. Repeatedly, there is only a limited number of value themes where the hypothesis can be accepted ($p > .05$; figures written in **bold** letters, value themes bordered in Figure 3.14), and, thus, the importance of a value theme accords with its level of characteristic!

Table 3.13: Mann- Whitney U-Test comparing experts' evaluations of importance vs. levels of characteristics[564]

	Achievement	Altruism	Authority	Debate & Discussion	Freedom	Involvement
Asymp. Sig. (2-tailed)	**,212**	**,135**	,013	,002	,016	**,262**
	Market orientation	**Risk taking**	**Self-direction**	**Social recognition**	**Support**	**Trust**
Asymp. Sig. (2-tailed)	**,659**	,001	,002	,000	,016	,001

a. Grouping Variable: Original Question Number

[563] Figure sourced from the written assessment interview results.

[564] Table sourced from the survey results.

With the managers, it was the value themes of achievement, altrusim, involvement where the hypothesis was accepted and the evaluated importance of a value theme accorded to its level of characteristic in the companies. Thus, market orientation seems to be better anchored in business practice internationally than in German and Austrian manufacturing companies.

Including the full data set, a mean was explored for the evaluated importance of each value theme and the levels of how much these value themes are characteristic of industrial companies. Even though this is not the perfect analysis due to sample size and the nature of the data set, it visualizes ideally where business managers throughout Europe face challenges according to experts (see Figure 3.14). Apparently, it is not only in Germany and Austria that companies do not entirely set up their businesses according to values that are important for product innovation. Instead, it seems that this is a European challenge. Moreover, this comparison shows that throughout Europe we find companies that promote organizational values that are not considered to be the most important ones at all. In contrast, companies seem to be mostly characterized by values such as authority and achievement.

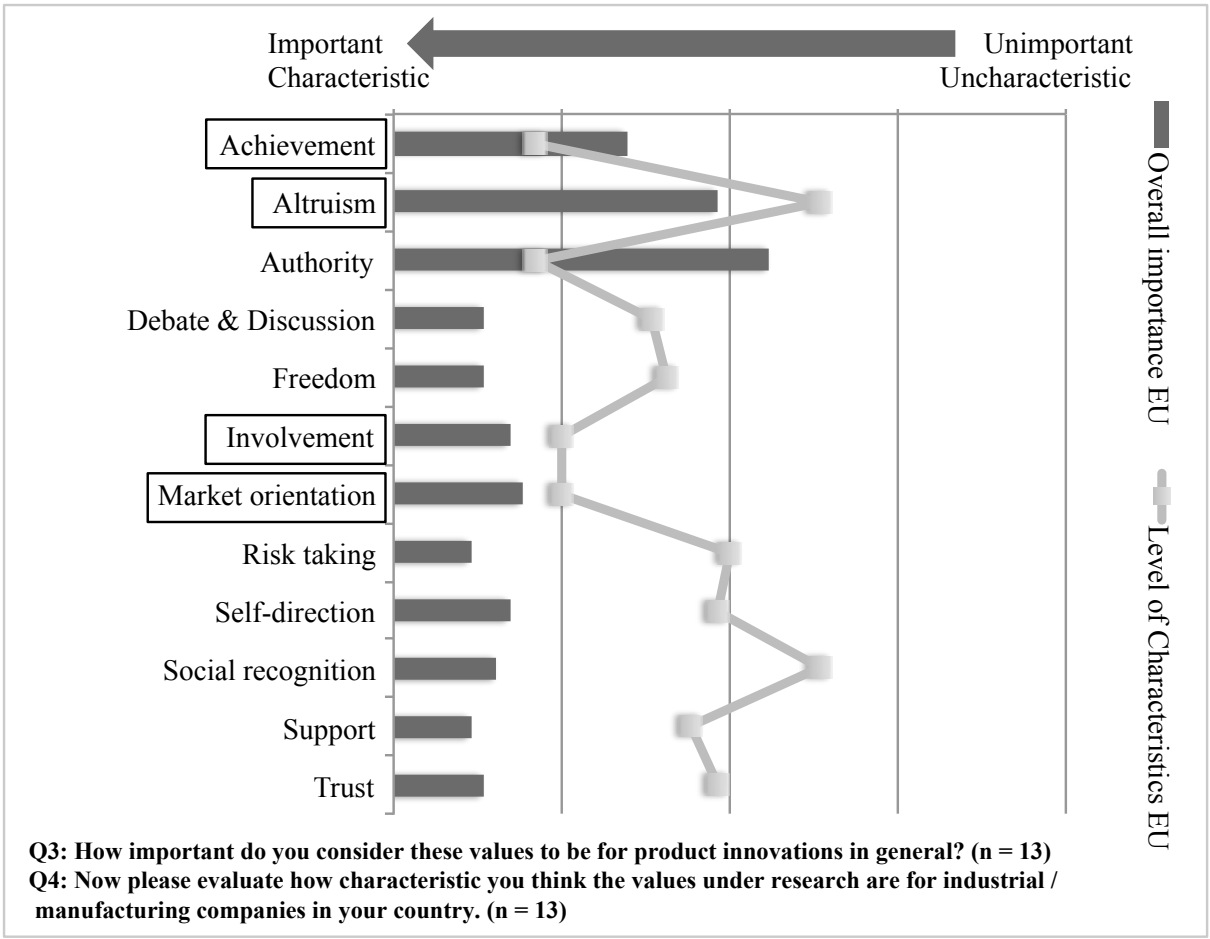


Figure 3.14: Explored means: Evaluated importance vs. levels of characteristics by experts[565]

[565] Figure sourced from the written assessment interview results.

Clearly, country individual characteristics are not displayed here and are dealt with later in chapter 3.4.4. However, from this analysis a European management challenge regarding innovation-supportive organizational values can be stated.

3.4.3 Dissimilarities between experts versus managers and academics versus non-academics

In this section, the following groups are formed for comparisons:

- Experts (sourced from the written assessment interviews) versus managers (sourced from the company survey as introduced in chapter 3.3)
- Academics (6 participants, employed with a university) versus non-academics (7 participants, employed with other kinds of organizations with innovation reference), both sourced from the written assessment interviews.

To compare the international rating on the general importance of organizational values for product innovations in question 2 with the managers' rating for Austria and Germany, a Mann-Whitney U-Test was used. The results in Table 3.14 show no significant differences in these ratings ($p = .063$ and therefore, $p > .05$, see Appendix A15 for full output).

Table 3.14: Mann- Whitney U-Test comparing the evaluation of general importance of organizational values – Experts vs. managers[566]

	Importance of values overall
Asymp. Sig. (2-tailed)	,063

a. Grouping Variable: Type of organization

According to this, international experts and managers from German and Austrian manufacturing companies rate organizational values to be highly important to product innovations alike. To compare the group of academics to the group of non-academics for this question, the same procedure was run and Table 3.15 displays the results. Again, with $p > 0.5$ (see Appendix A15 for full SPSS output), no significant findings can be stated here: experts from different levels perceive the topic similarly.

Table 3.15: Mann- Whitney U-Test comparing the evaluation of general importance of organizational values – Academics vs. non-academics[567]

	Importance of values overall
Asymp. Sig. (2-tailed)	,934

a. Grouping Variable: Type of expert

[566] Table sourced from the written assessment interview results and the survey results.

[567] Table sourced from the written assessment interview results.

To understand the differences between the ratings by managers from Austria and Germany on the importance of each value theme and the experts with a different professional background, a Mann-Whitney U-Test was performed afresh. As illuminated in Table 3.16, there is only one value theme that shows significantly different ratings: social recognition (figures typed in **bold** letters). All other value themes do not show extreme differences regarding the ratings as assessed by p-values above .05 (for the detailed SPSS output see Appendix A15). Apparently, social recognition is a topic that international experts estimate contrarily to managers regarding its importance for product innovation.

Table 3.16: Mann- Whitney U-Test comparing the evaluated importance of value themes – Experts vs. managers[568]

	Achievement	Altruism	Authority	Debate & Discussion	Freedom	Involvement
Asymp. Sig. (2-tailed)	,103	,315	,833	,204	,172	,194
	Market orientation	**Risk taking**	**Self-direction**	**Social recognition**	**Support**	**Trust**
Asymp. Sig. (2-tailed)	,158	,626	,520	**,015**	,218	,601

a. Grouping Variable: Type of organization

As Table 3.17 shows, an absolute majority of experts rate it to be important, managers' evaluation clearly drifts in the direction of "rather important" or less. Also, the mean shows quite some difference, but also some variation in both cases. Thus, it can be argued that this topic is not consistent between the two groups under comparison.

Table 3.17: Importance of the value theme "Social recognition" – Experts vs. managers[569]

			Percentage share of ratings	
	Mean	Standard deviation	Important	Rather important
Experts (n = 13)	**1,62**	0,768	**54%**	31%
Managers (n = 80)	**2,20**	0,818	**17%**	52%

Again, the group of academics was compared to the group of non-academics in the experts' sample for this question with a Mann-Whitney U-Test. As the shortended results in Table 3.18 show (full output can be checked in Appendix A15), there are no significant findings to be reported here, since all p-values lie above 0.5. Therefore, experts from different levels still see the importance of the 12 introduced value themes equally.

[568] Table sourced from the written assessment interview results and survey results.

[569] Table sourced from the written assessment interview results and survey results.

Table 3.18: Mann- Whitney U-Test comparing the evaluated importance of value themes – Academics vs. non-academics[570]

	Achievement	Altruism	Authority	Debate & Discussion	Freedom	Involvement
Asymp. Sig. (2-tailed)	,501	,705	,560	,805	,335	,752
	Market orientation	**Risk taking**	**Self-direction**	**Social recognition**	**Support**	**Trust**
Asymp. Sig. (2-tailed)	,091	,409	,937	,812	,187	1,000

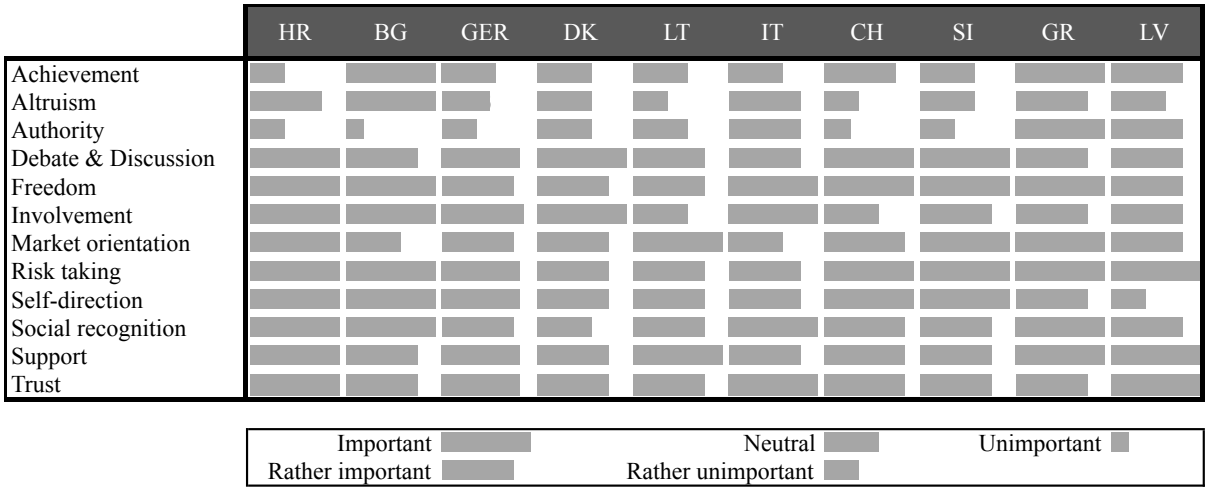
a. Grouping Variable: Type of expert

To sum up, this section does not show differences as explicit and large as expected (compare chapter 3.2). Managers and experts only show small dissimilarities, but in general agree a lot on the overall importance, but also on the importance for each value theme. Further, experts from different levels (academics and non-academics) do not show any disconformity at all, which might have been a possible outcome, since one group is highly independent in their opinion (academics) while the other group (non-academics) might feel loyal or responsible to some organizational background and, therefore, could have been influenced.

3.4.4 Descriptive country comparisons recognizing favourable environments for product innovations

Unsurprisingly and presumably due to different geographical and cultural backgrounds, the international experts perceive the importance of the proposed value themes differently. Table 3.19 demonstrates their country-individual evaluations in detail.

Table 3.19: Country comparison: Evaluated importance of all value themes[571]



However, as can be seen in this table, there is some consensus about some values as well. Trust, for example, is rated to be important or rather important in all countries involved as

[570] Table sourced from the written assessment interview results.

[571] Table sourced from the written assessment interview results.

well as support. On the other hand, ratings differ a lot for the authority value theme, but also for altruism. While in Switzerland and Lithuania it is perceived as little important for product innovations, it is rated rather essential in Bulgaria and Croatia.

To recognize how different environments can be dissimilarly favourable for product innovations according to experts, four countries were picked for a detailed comparison in the following: Latvia, Italy, Denmark, and Germany. To argue the selection of these particular countries, a look into their cultural background was taken, since organizational values interfere with national values as outlined in chapter 1.5 and displayed in Figure 1.4. According to Hofstede's cultural tool, these countries show quite some cultural diversity. Figure 3.15 illustrates the different indices with 0 meaning low and 100 meaning high per country for each of Hofstede's dimensions.

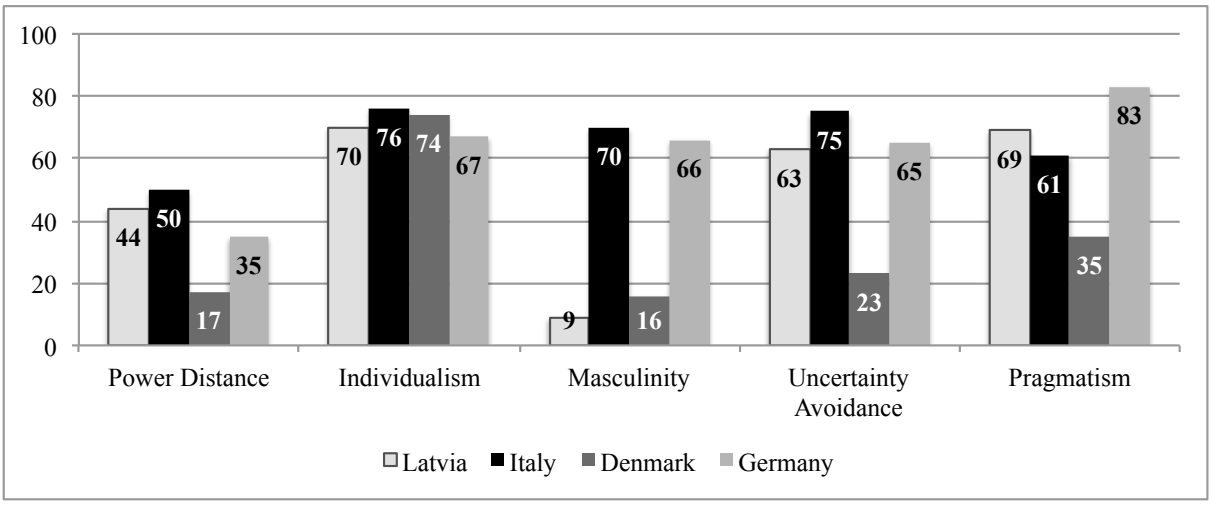


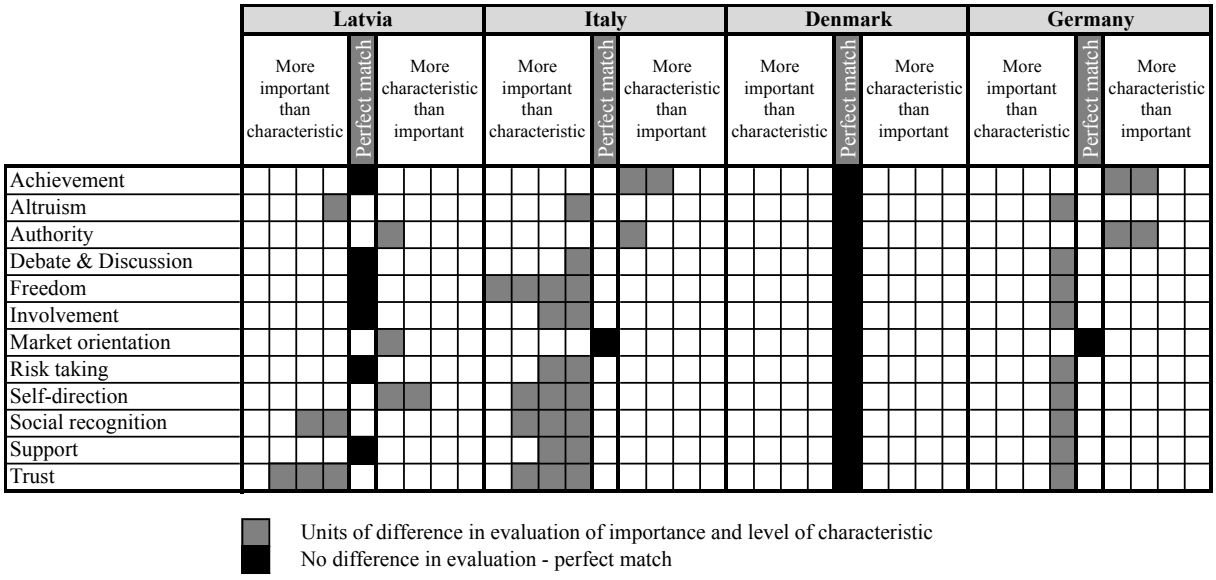
Figure 3.15: Culture indices for Latvia, Italy, Denmark and Germany[572]

The dimension of power distance handles how people in a society expect power to be distributed – whether less powerful people assume and accept that power is dispersed unequally. With a very low score of 17 here, people in Denmark will be said to ask for a justification of why power is spread unevenly. Latvia and Italy share more or less the same level here with acceptance of different power levels to some extent. Germany is in the middle of these two groups of countries. Individualism describes how much people in a group are expected to take care mostly of themselves instead of all relatives and group members in addition. The four countries share almost the same indices here and can all be described as rather individualistic. Italy and Germany score very high on the masculinity dimension, which means that Italian and German society is rather competitive. Latvia and Denmark, on the

[572] Figure was created by the author with the indices sourced from Hofstede, G. Country comparison cultural tool. In: *The Hofstede Centre Online*, retrieved 17.09.2014 from: http://geert-hofstede.com/countries.html.

contrary, would be seen as preferring cooperation, modesty and seeking for consensus. In contrast to Denmark, the other three countries share a similar perspective when it comes to uncertainty avoidance. Accordingly, the Danish are identified as having a very relaxed attitude towards the future, while Latvians and Italians, but also Germans, prefer to stick to guidelines of behaviour and and belief in hope of controlling the future. Lastly, cultures that score rather high on the pragmatism dimension, as Latvia, Italy, and particularly Germany, rather embrace change and take a pragmatic viewpoint. Denmark seems more skeptical here. Overall, it seems that Latvia has quite some cultural similarities with Italy except for the aspect of masculinity. Italy shares that with Germany. Denmark, on the other hand, shows larger differences, but shares the individualistic point of view[573]. Clearly, this cultural tool only offers a very generalized and superficial view of different national cultures and values. It can help to get a first overview, though, in order to understand the following results. Having outlined the general cultural similarities and differences, Table 3.20 shows how much the evaluations for what is important and how much it is characteristic in the respective country differ in evaluation units. Thus, the grey boxes give an indication of how many evaluation units a value theme is more important than characteristic in manufacturing companies or how much it is more characteristic than important. The black boxes show where experts judge the companies in their country to have a perfect match and no difference in evaluation.

Table 3.20: Gaps in match between level of importance and level of characteristics for LV, IT, DK, and GER[574]



[573] Hofstede, G. National culture dimensions. In: *The Hofstede Centre Online*, retrieved 17.09.2014 from: http://geert-hofstede.com/dimensions.html.

[574] Table sourced from the written assessment interview results.

Actually, for the Latvian expert, there is a good fit to the estimated importance already for half of the value themes. However, a large mismatch must be stated for trust: much more important for product innovations than characteristic of Latvian manufacturing companies according to the Latvian expert. Also, for self-direction and social recognition a mismatch is revealed. Surprisingly, authority is seen rather important and characteristic at the same time, which contradicts the results from the managers' survey in Germany and Austria. This might go in line with the power distance and uncertainty avoidance dimension shown above, though.

According to the Italian university expert in this research, there is only one value theme where the importance matches with the level of characteristic (market orientation)! For all other value themes there are rather large dissimilarities, particularly for freedom, self-direction, social recognition and trust. Thus, although showing a similar cultural mindset as Latvia (apart from masculinity), Italian manufacturing companies seem to provide an organizational value environment that is way less favourable for product innovations.

In contrast, the Danish expert is very optimistic about the manufacturing companies in the country. A perfect match for each and every value theme is stated here. So, Danish firms must have a very appropriate setting for product innovations to arise when it comes to organizational values.

Overall, the evaluations of the German experts can be seen as slightly pessimistic for German manufacturing companies. Only market orientation shows a perfect fit, while achievement and authority are certainly seen to be more characteristic than important for product innovations. Further, the other value themes need to be strengthend according to the experts to make them as characteristic in manufacturing companies as important.

To conclude, country-individual perspectives on the topic seem to vary a lot, which was expected by the researcher from the start (compare chapter 3.2). Although, experts throughout European nations show similar evaluations regarding the importance of the proposed value themes, their trust into manufacturing companies in their home countries is very ambiguous. Some estimate that their companies show a very good setting and fit between what is important and what is characteristic already (Denmark), others rather think that there is still a lot of room for improvement (Italy). Overall, this shows the need for more detailed research. Further, a clear relationship between Hofstede's cultural dimensions and the results of these written assessment interviews cannot be stated here. This was never the intention of the study, though, but opens up various future fields of research. The next chapter discusses all empirical findings shown in the previous sections and derives managerial implications for manufacturing companies from them.

3.5 Discussion of results and derivation of managerial implications

Obviously, the results of the review of fundamental innovation literature (chapter 1), the analytical exploration of previous studies (chapter 2) and the two empirical studies presented in this dissertation (chapter 3) hold various implications and need to be discussed in detail.

Firstly, a qualitative comparison of the results from the three investigations (similar previous studies, managers, and expert assessment interviews) has to be made. With this, some similarities can be stated that illuminate how scientists, business managers, and innovation experts think about the topic of the impact of organizational values on product innovation. Correspondingly, trust is the only value theme that ranks high in all three analyses: it is expressed very frequently in previous studies on innovation excellence, business managers rate it to be important, and innovation experts do so, too. Further, some scientists argue altruistic mindsets to be supportive to innovation, which is why it was included as a value theme in this research, but this rating cannot be confirmed by managers nor by experts. In both empirical studies it is a value theme that is rated rather unimportant or neutral. However, it did show a positive correlation with one of the innovation performance indicators, which makes it a contradictory issue. Table 3.21 summarizes these comparisons and illuminates that there are more similarities between experts and practitioners. E.g., both groups rate risk taking to be important while authority is rather unimportant in all respondents' point of view.

Table 3.21: Comparison of top and low ranked value themes in literature vs. managers' evaluation vs. experts' evaluation and compared to correlation analysis[575]

Value themes	According to frequencies in content analysis	According to managers in company survey	According to experts in written interviews	According to correlation analysis in survey
Top rankers / Significant correlation	Involvement Self-direction Support **Trust**	Debate & Discussion Market orientation Risk taking **Trust**	Risk taking Support **Trust** Freedom	Achievement **Altrusim** Debate & discussion Involvement Risk taking Support **Trust**
Low rankers / No correlation	Market orientation Social recognition **Altruism**	Social recognition **Altruism** Authority	Achievement **Altruism** Authority	Authority Freedom Market orientation Self-direction Social recognition

The colour and type of the letters in which a value theme is written illustrates whether the value theme can be found at the same level in a different study (for example, trust as written

[575] Table sourced from the elaborated results in Figure 2.1, Figure 3.8, Figure 3.12 and chapter 3.3.5.

in **black and bold** and seen consistently in all four analyses). As a contradictory issue, market orientation, but also freedom and achievement are written in black letters with grey background. Market orientation was not given too directly or to explicitly in past studies on the topic, but showed major importance in the company survey, especially for the top innovating firms (compare Table 3.7). On the other hand, particularly market orientation and freedom did not show any correlations with innovation performance indicators, which leads to the assumption that perspectives might be diversified here. Most of all, altruism (written in **white bold letters with grey background**) shows a contradictory picture: rather unimportant in previous research, for managers and experts, but showing a positive correlation and therefore positive impact on innovation outcomes. Thus, as a first conclusion, the topic still provides the possibility for very individual opinions and diverse viewpoints. Particularly the empirical outcomes of this work must be seen as highly contributing to clarity and structure regarding necessary value themes for innovation. They do not go in line with previous studies everywhere, though. Instead, they reveal some aspects for future research fields, which are addressed in the chapter on conclusions and recommendations later in this thesis.

Secondly, the empirical results of the practical investigations hold further implications. In general, the positive impact of organizational values on product innovation and their importance for it can no longer be denied. Managers and experts alike rate the topic to be of utmost importance for product innovations. They even share a similar perspective when it comes to the evaluation of different value themes and agree on the fact that authority and altruism are little important. Correlations and coefficients of determination undoubtedly prove the positive impact that innovation-supportive organizational values have on product innovation outcomes. Thus, the issue needs top management attention and awareness.

Due to this, it comes as a surprise that the fit between what is important for innovations and what is characteristic of manufacturing companies leaves a lot of possibilities for improvement. Managers, like experts, know what is important – they just do not practice it perfectly, yet, not even in the top innovating companies in the sample. However, it is their responsibility to provide appropriate preconditions for product innovations to arise. Thus, the question arises where these results might come from. Clearly, since the sample companies themselves showed rather over-average innovation performance in the period of observation, they might be set up quite well already. The topic brought to light ideas that are mostly subconscious and might be hard to rate on a Likert-scale. But, appropriate participants were ensured and all results were validated from different directions. Thus, it must be assumed that the outcomes show business reality. Therefore, one assumption of the researcher is that

managers do not yet integrate the concept of organizational values into their management style. Mostly, they are overwhelmed by day-to-day business and just lack the time to reflect how they shape the value landscape of their organizations with their actions and behaviour. Using organizational value patterns for enhancing strategically important performance outcomes requires a very focused, sensitive way of acting and leading – anytime and anyplace, which certainly comes as a challenge to business managers who are expected to be available 24/7 nowadays for all kinds of problems. Therefore, looking into the levels of management in companies, the normative management who is charge of determining appropriate organizational values needs to ensure enough free time frames for strategic managers to reflect and question their own behaviours and practices. As suggested in the theoretical part of the thesis, values become apparent through daily practices. Thus, to ensure that daily operations run in line with innovation-supportive organizational values, strategic managers need to have the time and, additionally, self-reflection capabilities to actually take care of that. Further, it certainly is also a question of implementation. Knowing what values are important to product innovation still holds the challenge of spreading these across the entire organization. There is evidence that, for implementing any organizational values desired for a certain outcome, the fit between individuals' and the organization's values is vital. Creating congruency between an individual's values and those of an organization may be at the heart of a person-culture or person-organization fit[576]. Other analyses show that companies create a clear competitive advantage if they manage to link individuals to the goals of an organization[577]. Schneider et al. and Ahmed both argue that companies need to pay attention to the recruitment process in order to ensure a certain social fit and recruit people according to the characteristics important to the organization, in this case innovation[578]. An additional finding of Khazanchi et al.'s research illustrates that the more managers and employees share the same values about flexibility, the better the performance is[579]. Cram puts forth the proposition that project team performance is positively related to the degree of alignment between the project team's organizational values and the values of the development

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[576] O'Reilly, C. et al. People and organizational culture - A profile comparison approach to assessing P-O-Fit. *The Academy of Management Journal*. 1991, vol. 34, no. 3, p. 492.

[577] Denison, D. R. Bringing corporate culture to the bottom line. *Organizational dynamics*. 1984, vol. 13, no. 2, p. 13.

[578] Schneider, B. et al. Creating the Climate and Culture of Success. *Organizational Dynamics*. 1994, vol. 23, no. 1, p. 26; Ahmed, P. K. Culture and climate for innovation. *European Journal of Innovation Management*. 1998, vol. 1, no. 1, p. 42.

[579] Khazanchi, S. et al. Innovation-supportive culture: The impact of organizational values on process innovation. *Journal of Operations Management*. 2007, vol. 25, no. 4, p. 881.

approach[580]. Even though a causal relation between values alignment and project performance could not be entirely proved by this study, the results have similar implications on business. For increasing product innovation outcomes and ensuring a better fit between what is important to innovation and what is characteristic of companies, managers throughout Europe are recommended to ensure value alignment between the organization, teams, and individuals. According to the assessment interviews with experts, there are nations in Europe where the fit between what is important and what is characteristic is really good already (Denmark). Consequently, managers are encouraged to look for international benchmarks in order to learn more about the topic. In turn, this requires an open-minded, courageous and curious attitude, though, because it includes that business practitioners recognize their own weaknesses when it comes to management and implementation of organizational values.

Finally, despite the fact that scientists discuss a large and diversified number of organizational values in academic literature, from this study a very clear and reduced value profile supportive to product innovation can be recommended to managers. This includes value themes dealing with trust and encouragement, intrinsically motivated performance, pioneering spirit, and market-driven debates and discussions. Basically, all other value issues can be embedded in these four major topics. Therefore, these are the aspects managers need to focus on if they want to make their company more innovative with products. In fact, this perfectly accords with Khazanchi et al.'s findings on the impact of organizational values on process innovation revealing both, flexibility and control values (performance values), to be decisive, because control values enable flexibility values[581], respectively performance and market orientation enable trust and pioneering spirit. However, it also needs to be declared that trust shows an inconsistent picture: when it comes to debates and discussions, trust shows a negative relationship. One could even argue that sometimes in innovations, "distrust" is needed to push people to better performances and question the solutions that they have already found. In order to ensure diverse viewpoints, critically question the status quo and challenge easy explanations, too much trust and coziness can be counterproductive. Instead, managers should never sacrifice the target of striving for peak performance and innovative solutions to a friendly, supportive atmosphere. Still, even this can and should be done in an altruistic way, since in the long run this does affect innovation outcomes positively, too, as this study showed. In summary, the general recommendation for managers to "deal with the

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[580] Cram, W. A. Aligning organizational values in systems development projects. *Management Research Review*. 2012, vol. 35, no. 8, p. 723.

[581] Khazanchi, S. et al. Innovation-supportive culture: The impact of organizational values on process innovation. *Journal of Operations Management*. 2007, vol. 25, no. 4, p. 881.

people as human beings, but with the problem on its merits (tough with the issue, but soft with employees)"[582] must be underlined here.

3.6 Limitations of the study

Before expressing conclusions and making final suggestions, it is important to clarify the limitations of this study. To judge the quality of business research, three main criteria are suggested: reliability, replication, and validity[583].

To address reliability, a look into the measurement procedure of the empirical study is needed. In fact, it accords with measurement techniques sourced from official sources such as the OECD and a lot of other scientific empirical research. Without claiming that these techniques are the perfect measurement measures already, they are the best available for such research and therefore, must be seen as reliable.

Replication of these results is ensured and even welcome by making the results transparent in conferences and publications. A full list of the approbation of the study can be read in the introduction of this work.

Some points have to be discussed regarding validity, though. Firstly, it has to be declared that causation cannot be inferred from correlations only[584]. For claiming causality, four main requirements must be met: firstly, the variables need to be related to each other; secondly, the cause needs to come before the effect; thirdly, other factors need to be under the control of the researcher; finally, a good explanatory theory of the causal relationship of the variables is needed[585]. In this study, it is claimed that organizational values are the source of product innovation outcomes and results are internally valid for this. But, doesn't a positive innovation outcome also influence the value landscape of an organization? This view could be turned around as well. Additionally, this study only investigated and measured managers' perceptions on the topic. Organizational values must be seen as topic relevant to all hierarchies in a company, though. How much the value perceptions are shared in the organizations under research here was not addressed by this study. To ensure measurement validity, the researcher elaborated very distinctive explanations about the value themes under investigation. Still, the selectivity between commitment and engagement or between trust and

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[582] Fisher, R. et al. *Getting to Yes*. New York: Penguin Group, 2011, p. 41.

[583] Bryman, A. and Bell, E. *Business Research Methods*. Oxford: Oxford University Press, 2011, p. 41.

[584] Dancey, C. P. and Reidy, J. *Statistics without maths for psychology*. Essex: Pearson Education Limited, 2011, pp. 10-11.

[585] Mooi, E. and Sarstedt, M. *A concise guide to market research*. Berlin & Heidelberg: Springer Gabler, 2011, pp. 16-17.

openness comes as a challenge in such a research design, which is why it is suggested for further research in the final part of this dissertation. Moreover, as with other studies on organizational culture and performance, one limitation to the research presented here is that it measures innovation performance over a longer period of time whereas organizational values are measured at one point in time only. Through this, the study suffers similar shortcomings as Gordon and DiTomaso's or Denison's[586]. Finally, it has to be admitted that, with the company survey, a single cross-sectional research design was followed, which included only Austrian and German manufacturing companies. Moreover, the sample of this empirical part consisted of rather large and international companies mainly, which does not perfectly accord with the general average of companies in Germany and Austria. Undoubtedly, this limits external validity to some extent. Overall, the hypothesis, propositions and research questions of this dissertation were approached from different directions including theoretical analysis and two empirical studies, which were validated by other scientists' work in the end. Therefore, the research presented can claim to be credible, honest, and transferable as long as the limitations argued here are respected.

[586] Gordon, G. G. and DiTomaso, N. Predicting corporate performance from organizational culture. *Journal of Management Studies*. 1992, vol. 29, no. 6, November, p. 795.

CONCLUSIONS

On the basis of the conducted research the author comes to the following **main conclusions**:

1. Perceptions among scientists regarding success factors for innovation still vary, although the topic has been investigated for quite some time. Generally, an integrated approach combining different aspects such as strategy, structure and organizational culture is needed. One dimension alone only shows a limited perspective. Depending on the purpose of a research, this has to be taken into account for future studies.
2. The core of organizational culture is formed by values, although these are mostly subconscious and show their manifestation in behaviour and practices. However, scientists see the management of appropriate values desired for certain organizational outcomes as a promising topic, particularly when it comes to innovation. Consequently, more research is encouraged here.
3. For innovation performance, science and previous studies discuss a very wide range of different organizational values and even include some controversial opinions. Still, there is a common sense about innovation-supportive values as well, which leads to the conclusion that similar concepts are discussed all around the world and can provide starting points for future studies.
4. The topic of organizational values and their impact on product innovation performance is undeniably important according to scientists, managers and international experts, and therefore, might grow in general relevance for research, but also for business management practice.
5. As a management instrument that does not need large budgets the controlling of organizational values can grow in importance particularly for small and medium-sized companies or for start-up companies, which results in an opportunity for future scientific and empirical research.
6. Innovation-supportive organizational values contribute to innovation outcomes to an interestingly serious extent and thus, currently provide an underestimated potential for manufacturing companies. This results in an opportunity for current and future managers.
7. Managers do not yet integrate organizational values in their management style accordingly. As a result, the topic provides a rich field for scientists to work on in order to raise awareness and to provide practical recommendations for it.

8. An international perspective on the impact of organizational values on product innovation shows that manufacturing companies in some countries manage better than elsewhere. Thus, it can be assumed that the cultural setting on the national level plays a role as well, which provides an additional field of future research.
9. Further, the insight outlined under 8. can enable managers of mulit-national enterprises to learn from their peers in international subsidiaries in order to integrate the concept of organizational values into their management style and use it for organizationally desired outcomes.

The main hypothesis of the dissertation was confirmed. The more a manufacturing company is characterized by innovation-supportive organizational values, the higher the product innovation performance of that organization is.

10. Different value themes show positive correlations with product innovation outcomes. Thus, the main assumption of the thesis is considered valid.
11. However, some value themes were estimated to be very important by managers and experts, but did not show significant results in correlation analysis. This leads to the conclusion that managers perceive the topic partially and that the backgrounds to this need further empirical investigation.
12. Additionally, the value theme of altruism was not seen as important by managers or by experts, but did show significant correlations. Again, this opens up various future research fields for scientists. The idea of acting ethically responsible and making the world a better place is still seen as something that does not necessarily contribute to organizational outcomes by managers. However, the results shown in this research indicate a different view that could be of high interest for business practitioners and scientists alike.

The first research question was successfully answered as follows. "What does a general organizational value profile in organizations look like that is supportive to successful product innovations?" Further, proposition 1 was substantiated with this research.

13. From the analytical exploration of previous studies on the topic, 12 value themes supportive to product innovations were derived. Namely, these are achievement, altruism, authority, debate and discussion, freedom, involvement, market orientation, risk taking, self-direction, support, social recognition, and trust. Again, this results in similar concepts regarding the topic all around the world, although different authors might use different explicit terms for comparable ideas.

14. With statistical methods used on the empirical data gained from the study these value themes were limited to a smaller, manageable number of organizational values supportive to product innovation. Namely, these are trust and encouragement, intrinsically motivated performance, pioneering spirit, market-driven debates and discussions. Thus, despite the fact, that scientists discuss a very wide range of organizational values as supporters for product innovation, these concepts can be condensed and therefore, made accessible for the normative and strategic management of manufacturing companies.

The second research question was successfully answered as follows. "Are there certain organizational values that contribute more to product innovation than others, respectively: is there a different impact intensity in-between the identified values?"

15. According to the frequencies the defined value themes appear within previous studies, it can be argued that involvement, self-direction, support, and trust most highly contribute to innovation outcomes. Altruism and social recognition, on the other hand, have a lower influence on product innovation performance. Therefore, it is rather the soft aspects of organizational values that are of high relevance, but not necessarily those that focus on the benefits of others.
16. A similar perspective is shared by managers in manufacturing companies and by international experts. However, the concepts of authority and achievement also show controversial viewpoints.
17. Additionally, as assessed by principal component analysis, the value theme of trust can become counterproductive when it hinders critical awareness and discussion of different viewpoints and diversity. This substantiates the conclusion that managers have to find a good balance here for supporting product innovation. Moreover, it opens up the research field of "distrust" and its positive impacts on organizational outcomes to scientitsts.
18. Further, as outlined in 12., the value theme of altruism is not seen as important, but shows significant correlations with innovation performance indicators. Thus, additional research about the positive influence of an altruistic mindset in organizations for performance outcomes is encouraged.

The third research question was successfully answered as follows. "How much are the identified innovation-supportive organizational values characteristic of manufacturing companies?" These findings also support proposition 3.

19. Manufacturing companies throughout Europe, but particularly in Germany and Austria, face the challenge to actively practice what they find important for product innovations. Currently, a fit between what is important for product innovations and what is characteristic of manufacturing companies does not go in line, yet. The background to this result is assumed to have to do with time constraints and limited self-reflection capabilities of managers, but also with implementation issues. In conclusion, this means that managers need more training and education regarding the topic while scientists need to create more awareness about the topic by conducting and publishing comparable research studies.
20. Further, the idea of actively managing and implementing organizational values for strategically important outcomes provides a consulting area for scientists to support managers. Since the topic is interrelated with so many ideas, both disciplines could contribute to a common understanding about how to deal with it in practice.

The fourth and final research question was successfully answered as follows. "To what extent do innovation-supportive organizational values explain and determine product innovation outcomes?" With that, proposition 2 is also verified.

21. Coefficients of determination for the dependent variables of innovation performance indicators lie between .016 and .139, which shows a definite, in some cases surprisingly high contribution of the proposed organizational values to innovation outcomes.
22. As a result, the importance of other internal factors for innovation success can be questioned. In consequence, this leads to the idea that the managerial focus in manufacturing companies has to be adjusted in terms of bringing values to the center of attention.
23. Further, it questions the overall significance of the hard factors that contribute to innovation success from within a firm such as resources, or project management skills. Consequently, empirical research is needed to investigate to what extent different factors influence innovation outcomes in order to enable managerial focus.

RECOMMENDATIONS AND SUGGESTIONS

Based on the research conducted, the author makes the following suggestions:

To managers and practitioners and other affected decision makers of manufacturing companies

- To integrate innovation-supportive organizational values into their management style and to fight for enough free time slots to reflect their own behaviour in order to bring it in accordance with the desired values.
- To communicate directly with other managers and subordinates about the fact that, currently, companies lack a fit between what is important for innovation and what is characteristic of them in order to make a start to change this situation.
- To work on implementation plans for putting innovation-supportive values into practice and make them widely shared morals in their companies.
- To provide managers with the opportunity to visit benchmark companies and foster learning on the topic across company boundaries and to provide them with an environment where they can try out these insights.
- To better investigate a value-fit between the organization and applicants in the recruitment process.

Additionally, the author developed some other aspects, which can point at future fields of research for scientists and possible improvements for universities and the chamber of economics. These comprise the following suggestions:

To scientists on organizational values with regard to innovations

- To investigate the impact of organizational values on different types of innovations by investigating process, marketing, or organizational innovations.
- To examine the impact of organizational values on innovations in other industry sectors, such as the service sector, the tourism branch, or even in non-for-profit organizations, for example.
- To research the importance of organizational values in comparison to other influencing factors from the internal, the competitive, and the global environment of companies in order to enable managerial focus and to provide additional recommendations what to concentrate on for succeeding in product innovation.
- To transfer the results of the findings presented here to other countries throughout Europe and confirm or falsify the assumption that a fit between what is important for

innovation and what is characteristic of manufacturing companies remains a European challenge up to now.

- To further investigate the influence of national values on innovation outcomes, which was only partially accounted for in a very limited way in the study at hand, but clearly must be seen as a direction for further research.
- To work on more recommendations for managers regarding the implementation of innovation-supportive values in companies by further investigating the person-organization-fit thought and its outcomes.
- To research the impact of organizational values on new product development project outcomes by accounting for different values needed in different project phases.
- To open up the topic of organizational values to general strategic management decisions and change management situations in order to find appropriate value profiles for different managerial situations in a constantly changing business world.
- To further question the idea of "distrust" and its presumably positive impact on performance outcomes in different situations and kinds of organizations.

To universities throughout European nations

- To create more awareness of the topic of organizational values and its power regarding different performance aspects by finding appropriate lectures, curricula, and research projects.
- To provide students with practical teamwork situations where innovative or less innovative outcomes are required in order to make them learn how different value backgrounds help them to succeed or hinder them.
- To provide students with training and personality development that enables them in their later business life to stand for and put into practice what they actually find important to the strategic goals of their organizations.

To the Chambers of Economics of Austria and Germany and of the European Union

- To provide practitioners with a platform for open exchange on innovation performance and to foster exchange and best practice examples that show how appropriate organizational values contribute to innovation outcomes.
- To provide more sponsorship for joint research projects of European scientists to elaborate comparisons and benchmarks on a national level and to work on further recommendations regarding the implementation of innovation-supportive values in manufacturing companies.

GLOSSARY

Content analysis	A method to analyse documents and texts that seeks to quantify content in terms of predefined categories or themes in a systematic and replicable manner.
Expert	Generally, a person who has significantly more knowledge and expertise in a particular field - in the case of this dissertation, with relation to innovations and their management.
Frequency analysis	An analysis that counts the number of units in a category. It takes content analysis one-step further and quantifies the results.
Industry competitor	A company that is active in the same product category or industry branch. All industry competitors in a certain branch are supposed to compile 100% market share of that specific market.
Internal competition	Rivalry inbetween the same company involving contesting collegues or departments.
Intrinsic motivation	Enthusiam that comes from deep down inside and is not driven by money or incentives, but rather by a personal desire.
Latent content	Content in a text where there researcher must read between the lines and interpret to understand what the author means. It is not very explicit, but can give terms and words that are associated with a much more apparent term.
Level of characteristic	A specification to measure how much something is typical or a distinctive trait of an organization using a precise evaluation scale. The higher this level, the more this variable is characteristic of a company.
Level of importance	A specification to measure how much something is important for a certain outcome (in this case, product innovation) using an exact evaluation scale. The higher this level, the more this variable is important to the outcome.
Manager	A person in an organization with precise responsibilities that make him / her decide and shape structures, strategies and the culture and values of that firm, usually someone who rules over a group of people and / or is responsible for a certain financial budget.

Manifest content	Content in a text that is very explicit and to the point. It does not need interpretation to understand what the author means. Instead, the content is very unambiguous and clear.
Manufacturing company	A company that actually manufactures and produces something. Therefore, the organizational output of this firm is physical good and the section covers food products, textiles, wood, paper products, chemicals, plastic products, basic materials, computer and electrical equipment, machinery, motor vehicles, furniture and the like, for example.
Organizational culture	The broader context of organizational values, similarily important to structures and strategies in management. A set of values, symbols and rituals developed and based on experience in every organization, which secretly describes the way things are done (or not done) in the organization.
Organizational impediment	General conditions and frameworks in an organization that hinder something or build an obstacle to some activity. In this dissertation, organizational impediments describe hindrances to become creative or develop new product.
Organizational values	The core of organizational culture. A set of underlying shared norms and standards which the employees of a company agree to and which they find valuable and worth pursuing, and which lead their activities and determine their daily organizational behaviour and decision-making.
Product innovation	A particular subarea of innovation specifically dealing with products and goods. The successful market-introduction of new or significantly improved goods with respect to characteristics or intended use.
Rationale	Logical argumentation of why something is done the way it is done. An explanation based on reasoning.
Resources	Financial and non-financial possibilities (availability of workers, knowledge of a special technical process etc.) that a company possesses to drive its business.

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APPENDICES

A1 Articles used for Content Analysis

No.	Authors	Title of article	Journal	Keywords
1	**Ahmed, 1998**	Culture and climate for innovation	European Journal of Innovation Management	-
2	**Amabile et al., 1996**	Assessing the work environment for creativity	Academy of Management Journal	-
3	**Amabile, 1996**	Creativity and innovation in organizations	Harvard Business School	-
4	**Amabile, 1997**	Motivating creativity in organizations: on doing what you love and loving what you do	California Management Review	-
5	**Amabile, 1998**	How to kill creativity	Harvard Business Review	-
6	**Atuahene-Gima & Ko, 2001**	An empirical investigation of the effect of market orientation and entrepreneurship orientation alignment on product innovation	Organization Science	Market orientation, entrepreneurship orientation, product innovation, new product development
7	**Boerner & Gebert, 2002**	Zur Förderung von Innovationen: Freiheit um jeden Preis?	Organisations-Entwicklung	-
8	**Brooke Dobni, 2008**	Measuring innovation culture in organizations. The development of a generalized innovation culture construct using exploratory factor analysis	European Journal of Innovation Management	Innovation, Organizational culture, measurement
9	**Brooke Dobni, 2008**	The DNA of innovation	Journal of Business Strategy	Innovation, emergent strategy, culture, market orientation
10	**Medina et al., 2005**	Characteristics of innovative companies: a case study of companies in different sectors	Creativity and Innovation Management	-
11	**Cangemi & Miller, 2007**	Breaking-out-of-the-box in organizations Structuring a positive climate for the development of creativity in the workplace	Journal of Management Development	Creative thinking, Workplace, Organizations, Organizational culture
12	**Claver et al., 1998**	Organizational culture for innovation and new technological behavior	Journal of High Technology Management Research	Corporate culture, technological innovations
13	**Clegg et al., 2002**	Implicating trust in the innovation process	Journal of Occupational and Organizational Psychology	-
14	**Cooper, 1999**	From experience: The invisible success factors in product innovation	Journal of Product Innovation Management	Product innovation process, critical success factors, blockers, portfolio approaches, capacity analysis
15	**Cummings, 1965**	Organizational climates for creativity	Academy of Management Journal	-
16	**Delbecq & Mills, 1985**	Managerial practices that enhance innovation	Organizational Dynamics	-
17	**Drucker, 1985**	The discipline of innovation	Harvard Business Review	-
18	**Eigenstetter & Löhr, 2008**	Ethikprogramme in Unternehmen: Unterstützung einer innovationsförderlichen	FORUM Wirtschaftsethik	-

No.	Authors	Title of article	Journal	Keywords
		Gestaltung von Unternehmenskultur?		
19	**Ellonen et al., 2008**	The role of trust in organisational innovativeness	European Journal of Innovation Management	Trust, innovation, organizational performance, job satisfaction
20	**Feldman, 1988**	How organizational culture can affect innovation	Organizational Dynamics	-
21	**Jamrog et al., 2006**	Building and sustaining a culture that supports innovation	Human Resource Planning	-
22	**Jassawalla & Sashittal, 2002**	Cultures that support product innovation processes	Academy of Management Executive	-
23	**Jucevičius, 2009**	The innovation culture in modern lithuanian organizations: values, attitudes and practices	Social Sciences Kaunas University of Technology	Innovation culture, cultural values, organizational practices, transformation
24	**Kesting & Ulhøi, 2010**	Employee-driven innovation: extending the license to foster innovation	Management Decision	Innovation, employee participation, decision making, organizational culture, human capital
25	**Khazanchi et al., 2007**	Innovation-supportive culture: The impact of organizational values on process innovation	Journal of Operations Management	Empirical research methods, flexible manufacturing systems, innovation
26	**Lorsch & Laurence, 1965**	Organizing for product innovation	Harvard Business Review	-
27	**Martins & Terblanche, 2003**	Building organisational culture that stimulates creativity and innovation	European Journal of Innovation Management	Organisational culture, innovation, attitudes
28	**Matzler et al., 2010**	Sustaining corporate success: what drives top performers?	Journal of Business Strategy	Innovation, Leadership, Core competences, Market orientation, Organizational culture
29	**McLean, 2005**	Organizational culture's influence on creativity and innovation: a review of the literature and implications for human resource development	Advances in Developing Human Resources	Organizational culture, organizational climate, organizational creativity, innovation
30	**N.N., 2010**	Managing numbers and knowledge - Some ways to boost innovation	Strategic direction	Innovation, creative thinking, knowledge management, organizational culture
31	**Naranjo-Valencia et al., 2010**	Organizational culture as determinant of product innovation	European Journal of Innovation Management	Organizational culture, product innovation, flexible organizations, Spain
32	**Naranjo-Valencia et al., 2011**	Innovation or imitation? The role of organizational culture	Management Decision	Organizational culture, Innovation, Spain
33	**Newmann, 2009**	Building a creative high-performance R&D culture	Research Technology Management	R&D leadership, R&D culture, product innovation
34	**Pelz, 1965**	Conditions for innovation	Trans-action	-

No.	Authors	Title of article	Journal	Keywords
35	**Prajogo & Ahmed, 2006**	Relationships between innovation stimulus, innovation capacity, and innovation performance	R&D Management	-
36	**Schneider et al., 1994**	Creating the climate and culture for success	Organizational Dynamics	-
37	**Tushman & Nadler, 1986**	Organizing for innovation	California Management Review	
38	**Vahs & Schmitt, 2010**	Determinanten des Innovationserfolgs	Organisations-Entwicklung	-
39	**Van der Panne et al., 2003**	Success and failure of innovation: a literature review	International Journal of Innovation Management	Innovation, success factors, viability
40	**Zien & Buckler, 1997**	Dreams to market: crafting a culture of innovation	Journal of Product Innovation Management	-

A2 Content classification of original wording to manifest and latent content

Theme (Abstraction level 2)		Count of Manifest / latent content	Latent / Manifest content		
Subject (Abstraction level 1)	Culture element / values mentioned	Mentioned in	l	m	Grand Total
Achievement					
Challenge	Challenge	Ahmed, 1998		1	1
		Amabile, 1998		1	1
		Canalejo, 1995 in: Claver et al., 1998		1	1
	Challenging work	Amabile et al., 1996		1	1
	Courage	Zien & Buckler, 1997	1		1
	Sense of challenge	McLean, 2005		1	1
Challenge Total			**1**	**5**	**6**
Discipline	Being a stickler to detail	Schneider et al., 1994	1		1
	Determination & Perseverance	Jucevičius, 2009	1		1
	Diligence	Drucker, 1985		1	1
	Discipline	Cooper, 1999		1	1
		Khazanchi et al., 2007		1	1
	Persistence	Drucker, 1985	1		1
	Requirement of hard, focused, purposeful work	Drucker, 1985	1		1
	Self-determination	Cangemi & Miller, 2007		1	1
	Wary of sacrifice	Feldman, 1988	1		1
	Will to follow up & follow through	Delbecq & Mills, 1985	1		1
Discipline Total			**6**	**4**	**10**
Result orientation	Being quick on the uptake in making decisions	Brooke Dobni, 2008	1		1
	Belief in action	Ahmed, 1998	1		1
	Clear objectives & deadlines	Lewis et al., 2002 in: Khazanchi et al., 2007	1		1
	Continual improvement	Newmann, 2009	1		1
	Disciplinary effectiveness	Tushman & Nadler, 1986	1		1
	Efficiency	Eigenstetter & Löhr, 2008		1	1
		Khazanchi et al., 2007		1	1
	Flexibility in decision making	Tushman & Nadler, 1986	1		1
	Goal emphasis	Tesluk et al., 1997 in: McLean, 2005		1	1
	High performance standards for short and long run	Tushman & Nadler, 1986	1		1
	Organizational effectiveness	Tushman & Nadler, 1986	1		1
	Permanent improvement	Canalejo, 1995 in: Claver et al., 1998		1	1
	Promotion of decision making	Anonymous, 2010	1		1
	Purposefulness	Martins & Terblanche, 2003	1		1
	Quick decision making	Martins & Terblanche, 2003	1		1
	Quick employee reaction time	Brooke Dobni, 2008	1		1
	Slow reaction	Claver et al., 1998	1		1
	Solutions oriented	Brooke Dobni, 2008	1		1
	To be focused	Drucker, 1985	1		1
	Tough & clear decision making	Cooper, 1999	1		1

Theme (Abstraction level 2) / Subject (Abstraction level 1)	Culture element / values mentioned	Mentioned in	Count of Manifest / latent content: Latent / Manifest content: l	m	Grand Total
	Value seeking	Brooke Dobni, 2008	1		1
Result orientation Total			**17**	**4**	**21**
Achievement Total			**24**	**13**	**37**
Altruism					
Equality	Equal stakeholders	Jassawalla & Sashittal, 2002		1	1
	Equality	Jassawalla & Sashittal, 2002		1	1
	Other-directedness (to conform to the likes & dislikes of bosses & peergroups in order to be accepted)	Feldman, 1988	1		1
	Quality of an idea matters, not the power of the person who proposed it	Claver et al., 1998	1		1
	Unequal distribution of power	Jassawalla & Sashittal, 2002		1	1
	Viewing others as equals	Brooke Dobni, 2008		1	1
Equality Total			**2**	**4**	**6**
Ethical behaviour	Ethical behavior in research	Claver et al., 1998		1	1
	Exemplary behavior	Canalejo, 1995 in: Claver et al., 1998	1		1
	Good citizenship	Schneider et al., 1994	1		1
	Social responsibility	Eigenstetter & Löhr, 2008	1		1
Ethical behaviour Total			**3**	**1**	**4**
Integrity	Integrity	Brooke Dobni, 2008		1	1
	Social environment of integrity and trust	Jassawalla & Sashittal, 2002		1	1
Integrity Total				**2**	**2**
Loyalty	Loyalty	Brooke Dobni, 2008		1	1
Loyalty Total				**1**	**1**
Altruism Total			**5**	**8**	**13**
Authority					
Bureaucracy	Bureaucracy	Cooper, 1999		1	1
	Hierarchy	Naranjo-Valencia et al., 2011	1		1
	Overemphasis on the status quo	Amabile, 1997	1		1
	Predictability	Jassawalla & Sashittal, 2003 in: Brooke Dobni, 2008	1		1
		Martins & Terblanche, 2003	1		1
	Stability	Jassawalla & Sashittal, 2003 in: Brooke Dobni, 2008	1		1
		Khazanchi et al., 2007	1		1
		Martins & Terblanche, 2003	1		1
Bureaucracy Total			**7**	**1**	**8**
Control	Control	Jassawalla & Sashittal, 2003 in: Brooke Dobni, 2008		1	1
		Martins & Terblanche, 2003		1	1
		McLean, 2005		1	1
		Quinn & Rohrbaugh, 1983 in: Khazanchi et al., 2007		1	1
	Control in decision making	McLean, 2005		1	1
	Control of information flow	McLean, 2005		1	1

Theme (Abstraction level 2) / Subject (Abstraction level 1)	Culture element / values mentioned	Mentioned in	Count of Manifest / latent content: Latent / Manifest content — l	m	Grand Total
	Excessive authority	Child, 1973 in: Naranjo-Valencia et al., 2011	1		1
	High power distance	Jucevičius, 2009	1		1
	Internal control	Naranjo-Valencia et al., 2010		1	1
	Strict control by upper management	Amabile, 1997		1	1
	Too much control	Jamrog et al., 2006		1	1
Control Total			**2**	**9**	**11**
Formalization	Close adherence to rules and regulations	Naranjo-Valencia et al., 2010	1		1
	Formalization	Adler & Borys, 1996 in: Naranjo-Valencia et al., 2011		1	1
	Formalization of activities	Child, 1973 in: Naranjo-Valencia et al., 2011		1	1
	Respect for formal rules and policies	Naranjo-Valencia et al., 2011	1		1
	Rigidity	Jassawalla & Sashittal, 2003 in: Brooke Dobni, 2008	1		1
		Martins & Terblanche, 2003	1		1
	Rules & processes	Eigenstetter & Löhr, 2008	1		1
	Rules & regulations	Child, 1973 in: Naranjo-Valencia et al., 2010	1		1
		Child, 1973 in: Naranjo-Valencia et al., 2011	1		1
	Small degree of formalization	Cummings, 1965		1	1
Formalization Total			**7**	**3**	**10**
Authority Total			**16**	**13**	**29**
Debate & Discussion					
Debate	Ability to confront (…) differences openly	Lorsch & Laurence, 1965		1	1
	Conflict resolution patterns	Tushman & Nadler, 1986		1	1
	Constructive conflict handling	Martins & Terblanche, 2003		1	1
	Debates	Ahmed, 1998		1	1
	Destructive criticism	Amabile, 1996	1		1
	Disharmony	Souder, 1988 in: Van der Panne et al., 2003	1		1
	Expressing disagreement	Jassawalla & Sashittal, 2002	1		1
	Managing conflicts	Jassawalla & Sashittal, 2002		1	1
	Minimizing constraints	Prajogo & Ahmed, 2006	1		1
	Problem solving	Tushman & Nadler, 1986	1		1
Debate Total			**5**	**5**	**10**
Diversity	Cross-functional interaction	Ahmed, 1998	1		1
		Prajogo & Ahmed, 2006	1		1
	Cross-functional teamwork	Jamrog et al., 2006	1		1
		Kanter, 1983 in: Prajogo & Ahmed, 2006	1		1
	Differentness of individuals in a group	Zien & Buckler, 1997	1		1
	Diversity	Martins & Terblanche, 2003		1	1
	Diversity among team members	McLean, 2005		1	1
	Diversity of technical skills	Pelz, 1965		1	1
	Ignorance	Cooper, 1999	1		1
	Insistance on multiple viewpoints	Feldman, 1988	1		1

Theme (Abstraction level 2) / Subject (Abstraction level 1)	Culture element / values mentioned	Count of Manifest / latent content: Mentioned in	Latent / Manifest content: l	m	Grand Total
	Interdisciplinarity in projects	Roure & Keeley, 1990 in: Van der Panne et al., 2003		1	1
	Team diversity	Jamrog et al., 2006		1	1
	Understanding the attributes of individual innovators	Newmann, 2009	1		1
	Work-group features / supportive groups with a diversity of backgrounds	Amabile, 1998	1		1
Diversity Total			**9**	**5**	**14**
Internal communication	Clear communication	Feldman, 1988	1		1
	Communication	Jamrog et al., 2006		1	1
		Prajogo & Ahmed, 2006		1	1
	Communicative	Brooke Dobni, 2008		1	1
	Effective communication	Medina et al., 2005	1		1
	Exchanging and developing ideas	Jassawalla & Sashittal, 2002	1		1
	Frequency of communication	Angle, 1989 in: McLean, 2005	1		1
	Groups which maintain a high rate of interaction	Pelz, 1965	1		1
	Informality in problem-solving	Tushman & Nadler, 1986	1		1
	Information exchange	Kesting & Ulhøi, 2010		1	1
	Information sharing	Amabile, 1998	1		1
		Nonaka & Takeuchi, 1995 in: Prajogo & Ahmed, 2006		1	1
	Intense information sharing	Jassawalla & Sashittal, 2002	1		1
	Open communication	Cummings, 1965		1	1
		Martins & Terblanche, 2003		1	1
	Open information & communication	Vahs & Schmitt, 2010		1	1
	Open, active communication	Amabile, 1997		1	1
	Poor information exchange	Jassawalla & Sashittal, 2002	1		1
	Transfer and sharing of knowledge	Anonymous, 2010	1		1
Internal communication Total			**10**	**9**	**19**
Openness	Contacts within & without the firm to incorporate a flexible core design	Delbecq & Mills, 1985	1		1
	Critical awareness	Anonymous, 2010	1		1
	Idea-sharing	Jamrog et al., 2006	1		1
	Importance of openness	Jassawalla & Sashittal, 2002		1	1
	Internal orientation	Naranjo-Valencia et al., 2010	1		1
	Open consultation between colleagues	Lorsch & Laurence, 1965	1		1
	Open, but critical attitude (regarding consultants' advice)	Feldman, 1988		1	1
	Openness	Ahmed, 1998		1	1
		Cangemi & Miller, 2007		1	1
		Naranjo-Valencia et al., 2010		1	1
		Anonymous, 2010		1	1
	Openness to other participants	Brooke Dobni, 2008		1	1
	Questioning	Martins & Terblanche, 2003	1		1
Openness Total			**6**	**7**	**13**

Theme (Abstraction level 2) / Subject (Abstraction level 1)	Culture element / values mentioned	Count of Manifest / latent content: Mentioned in	Latent / Manifest content: l	m	Grand Total
Debate & Discussion Total			**30**	**26**	**56**
Freedom					
Autonomy	Autonomy	Amabile et al., 1996		1	1
		Arad et al., 1997; Martins & Terblanche, 2003 in: Naranjo-Valencia et al., 2010		1	1
		Cummings, 1965		1	1
		Kesting & Ulhøi, 2010		1	1
		McLean, 2005		1	1
	Autonomy to work towards goals	Jamrog et al., 2006		1	1
	Certain degree of autonomy	Prajogo & Ahmed, 2006		1	1
	Considerable degree of autonomy	Claver et al., 1998		1	1
	Individual autonomy	Tushman & Nadler, 1986		1	1
	Scientist has considerable influence on the direction of his own technical work, but at the same time exposes himself to the ideas of several other decision-makers concerning choice of his technical goals	Pelz, 1965	1		1
	Work autonomy	Anonymous, 2010		1	1
Autonomy Total			**1**	**10**	**11**
Freedom	Behavioral freedom	Anonymous, 2010		1	1
	Broadened spans of control	Cummings, 1965	1		1
	Emphasis on individuality (perceived as a tool for domination & control)	Anonymous, 2010	1		1
	Free choice	Jassawalla & Sashittal, 2002	1		1
	Freedom	Ahmed, 1998		1	1
		Arad et al., 1997; Martins & Terblanche, 2003 in: Naranjo-Valencia et al., 2010		1	1
		Brooke Dobni, 2008		1	1
		Cangemi & Miller, 2007		1	1
		Claver et al., 1998		1	1
		Cummings, 1965		1	1
		Martins & Terblanche, 2003		1	1
		McLean, 2005		1	1
		Rubenstein et al., 1976; Stuart & Abetti, 1987 in: Van der Panne et al., 2003		1	1
		Zien & Buckler, 1997		1	1
	Freedom (in deciding what to do and how to do it, a sense of control over one's work)	Amabile et al., 1996		1	1
	Freedom to consider and attempt different courses of action	Lorsch & Laurence, 1965		1	1
	No overspecifying of tasks	Cummings, 1965	1		1
	Open-ended, non-structured tasks	Ahmed, 1998	1		1
Freedom Total			**5**	**13**	**18**
Independence	Independence	Jucevičius, 2009		1	1
		McLean, 2005		1	1
Independence Total				**2**	**2**
Freedom Total			**6**	**25**	**31**
Involvement					

Theme (Abstraction level 2) / Subject (Abstraction level 1)	Culture element / values mentioned	Mentioned in	Count of Manifest / latent content: Latent / Manifest content — l	m	Grand Total
Commitment	Commitment	Drucker, 1985		1	1
		Kanter, 1983 in: McLean, 2005		1	1
		Zien & Buckler, 1997		1	1
	Commitment to change	Naranjo-Valencia et al., 2011		1	1
	Commitment to innovation	Matzler et al., 2010		1	1
		Naranjo-Valencia et al., 2011		1	1
	Commitment towards objectives	Canalejo, 1995 in: Claver et al., 1998		1	1
	Emotional commitment	Jassawalla & Sashittal, 2002		1	1
	Employee commitment	Cleland et al., 1995 in: Khazanchi et al., 2007		1	1
	Firm commitment from people throughout the organization	Schneider et al., 1994		1	1
	Internally-based commitment or excitement about a problem	Pelz, 1965		1	1
	Long-term commitment	Brenner, 1994 in: Van der Panne et al., 2003		1	1
		Feldman, 1988		1	1
	Means emphasis	Tesluk et al., 1997 in: McLean, 2005	1		1
	Organizational commitment	Delbecq & Mills, 1985		1	1
	Passion	Amabile, 1998	1		1
		Zien & Buckler, 1997	1		1
	Passionate commitment to goals	Feldman, 1988		1	1
	Top management commitment and support	Ahmed, 1998	1		1
	Top management commitment for innovation	Baker et al., 1986; Cooper, 1988; Lee & Na, 1994 in: Prajogo & Ahmed, 2006	1		1
Commitment Total			**5**	**15**	**20**
Enthusiasm	Enthusiasm	Amabile, 1997		1	1
	Enthusiastic groups	Claver et al., 1998		1	1
Enthusiasm Total				**2**	**2**
Identification	Corporate identification	Ahmed, 1998		1	1
	Employees understanding their role	Brooke Dobni, 2008	1		1
	Identification	Kesting & Ulhøi, 2010		1	1
	Organizational identification	Tushman & Nadler, 1986		1	1
Identification Total			**1**	**3**	**4**
Involvement	Deep involvement	Amabile, 1998		1	1
	Employee satisfaction	Kesting & Ulhøi, 2010	1		1
	Involvement	Jassawalla & Sashittal, 2002		1	1
		Prajogo & Ahmed, 2006		1	1
	Involvement (also of ordinary workers)	Kesting & Ulhøi, 2010		1	1
Involvement Total			**1**	**4**	**5**
Motivation	Intrinsic motivation of employees	Amabile, 1997		1	1
		Angle, 1989 in: McLean, 2005		1	1
		McLean, 2005		1	1
	Motivation	Jamrog et al., 2006		1	1
	Motivation to innovate	Delbecq & Mills, 1985	1		1
	Organizational motivation toward innovation	Amabile, 1996		1	1

Theme (Abstraction level 2) / Subject (Abstraction level 1)	Culture element / values mentioned	Mentioned in	Count of Manifest / latent content: Latent / Manifest content — l	m	Grand Total
	Powerful motivation	Feldman, 1988		1	1
Motivation Total			**1**	**6**	**7**
Participation	Employee integration	Boerner & Gebert, 2002	1		1
	Employee participation	Kesting & Ulhøi, 2010		1	1
	Employee participation in decision-making	Child, 1973 in: Naranjo-Valencia et al., 2010		1	1
	Engagement in projects	Wind & Mahajan, 1988 in: Van der Panne et al., 2003	1		1
	Participants involved early in the product-development process	Jassawalla & Sashittal, 2002		1	1
	Participation	Cangemi & Miller, 2007		1	1
		Cummings, 1965		1	1
	Participation of all members of the firm	Claver et al., 1998		1	1
	Poor participation of members	Child, 1973 in: Naranjo-Valencia et al., 2011		1	1
	Team & employee orientation	Eigenstetter & Löhr, 2008	1		1
Participation Total			**3**	**7**	**10**
Responsibility	Accountabilty (behavioural guidance & redefinitions of responsibility)	Ahmed, 1998		1	1
	Building shared responsibilities	Jassawalla & Sashittal, 2002		1	1
	Feeling of responsibility	Jucevičius, 2009		1	1
	Freedom to take responsibility	Ahmed, 1998		1	1
	Responsibility	Martins & Terblanche, 2003		1	1
	Shared responsibility	Claver et al., 1998		1	1
Responsibility Total				**6**	**6**
Involvement Total			**11**	**43**	**54**
Market orientation					
Customer orientation	Client-orientation	Canalejo, 1995 in: Claver et al., 1998		1	1
	Customer centricity	Jamrog et al., 2006		1	1
	Customer focus	Newmann, 2009		1	1
	Customer involvement	Gemunden et al., 1992 in: Van der Panne et al., 2003	1		1
	Customer sensitivity	Schneider et al., 1994		1	1
	Customization	Medina et al., 2005		1	1
	Dedication to the voice of the customer	Cooper, 1999	1		1
	Detailed market intelligence	Foxall, 1984 in: Atuahene-Gima & Ko, 2001	1		1
	Lack of adequate market research	Hopkins, 1981 in: Van der Panne et al., 2003	1		1
	Looking at potential users to study their expectations, their values, their needs	Drucker, 1985	1		1
	Market sensing	Brooke Dobni, 2008	1		1
Customer orientation Total			**6**	**5**	**11**
External competitiveness	Alertness to market factors	Foxall, 1984 in: Atuahene-Gima & Ko, 2001	1		1
	Awareness of a certain technology	Claver et al., 1998	1		1
	Being attentive to market changes	Deshpandé et al., 1993 in: Naranjo-Valencia et al., 2010	1		1
	Competitive awareness	Brooke Dobni, 2008	1		1
	Competitiveness	Martins & Terblanche, 2003		1	1

Theme (Abstraction level 2) / Subject (Abstraction level 1)	Culture element / values mentioned	Count of Manifest / latent content: Mentioned in	Latent / Manifest content: l	m	Grand Total
	Emphasis on market analyses	Schneider et al., 1994	1		1
	Emphasis on networking	Jucevičius, 2009	1		1
	Exposure to external inputs	Pelz, 1965	1		1
	Extensive & intensive interaction with clients & organizational boundary spanners	Delbecq & Mills, 1985	1		1
	External orientation	Ahmed, 1998	1		1
		Naranjo-Valencia et al., 2010	1		1
	Future orientation	Ahmed, 1998	1		1
	Market orientation	Lukas & Ferrell, 2000 in: Naranjo-Valencia et al., 2011	1		1
	Network orientation	Cummings, 1965	1		1
External competitiveness Total			**13**	**1**	**14**
Market orientation Total			**19**	**6**	**25**
Risk taking					
Risk taking	Freedom to take risks	Ahmed, 1998	1		1
	Orientation toward risk	Amabile, 1996	1		1
	Risk propensity	Brooke Dobni, 2008		1	1
	Risk taking	Ahmed, 1998		1	1
		Brooke Dobni, 2008		1	1
		Ellonen et al., 2008		1	1
		Jamrog et al., 2006		1	1
		Jassawalla & Sashittal, 2002		1	1
		Khazanchi et al., 2007		1	1
		Martins & Terblanche, 2003		1	1
		Matzler et al., 2010		1	1
		McLean, 2005		1	1
		Naranjo-Valencia et al., 2010		1	1
		Naranjo-Valencia et al., 2011		1	1
		Tushman & Nadler, 1986		1	1
Risk taking Total			**2**	**13**	**15**
Risk tolerance	Acceptance of uncertainty	Kesting & Ulhøi, 2010	1		1
	Accepting ambiguity	Ahmed, 1998	1		1
	Acknowledging that the future is uncertain	Claver et al., 1998	1		1
	Allowance of recovery & learning from dead ends & failures	Brooke Dobni, 2008	1		1
	Avoidance of risk	Amabile, 1997	1		1
	Exploratory, risk-seeking behaviors	Lumpkin & Dess, 1996; Miller, 1983 in: Atuahene-Gima & Ko, 2001	1		1
	High uncertainty avoidance	Jucevičius, 2009	1		1
	Learning-by-failing	Rothwell, 1992 in: Van der Panne et al., 2003	1		1
	Readiness of management to acknowledge that only a small portion of creative ideas will be successful in the market place	Barney & Griffin, 1992 in: Prajogo & Ahmed, 2006	1		1
	Risk tolerance	Newmann, 2009		1	1

Theme (Abstraction level 2) / Subject (Abstraction level 1)	Culture element / values mentioned	Count of Manifest / latent content: Mentioned in	Latent / Manifest content: l	m	Grand Total
	Risk tolerant top management	Rothwell, 1992 in: Van der Panne et al., 2003		1	1
	Small fear of taking risks	Claver et al., 1998		1	1
	Tolerance of risk, uncertainty and change	Jucevičius, 2009	1		1
	Trial-and-error learning	Delbecq & Mills, 1985	1		1
Risk tolerance Total			**11**	**3**	**14**
Tolerance for failures	Freedom to fail without heavy penalty	Jamrog et al., 2006	1		1
	Mistakes perceived as learning opportunity	Martins & Terblanche, 2003	1		1
	Tolerance against failures	Kesting & Ulhøi, 2010		1	1
		Vahs & Schmitt, 2010		1	1
	Tolerance of failure	Tushman & Nadler, 1986		1	1
	Tolerance of mistakes	Brooke Dobni, 2008		1	1
Tolerance for failures Total			**2**	**4**	**6**
Risk taking Total			**15**	**20**	**35**
Self-direction					
Curiosity	Continuous learning	Martins & Terblanche, 2003	1		1
	Curiosity	Zien & Buckler, 1997		1	1
Curiosity Total			**1**	**1**	**2**
Entrepreneurship	Ability to act swiftly & flexibly	Claver et al., 1998	1		1
	Acceptance of entrepreneurial managers	Feldman, 1988		1	1
	Dynamism	Ahmed, 1998	1		1
		Matzler et al., 2010	1		1
	Employee initative	Brooke Dobni, 2008	1		1
	Employees becoming adventurous	Brooke Dobni, 2008	1		1
	Entrepreneurial energy	Jassawalla & Sashittal, 2002		1	1
	Entrepreneurship	Matzler et al., 2010		1	1
		Naranjo-Valencia et al., 2010		1	1
		Naranjo-Valencia et al., 2011		1	1
		Newmann, 2009		1	1
	Going for adventures	Stuart & Abetti, 1987; Bessant, 1993 in: Van der Panne et al., 2003	1		1
	Initiative	Canalejo, 1995 in: Claver et al., 1998	1		1
		Claver et al., 1998	1		1
	Innovation-dedicated internal entrepreneur	Link, 1987; Kleinschmidt & Cooper, 1995 in: Van der Panne et al., 2003		1	1
	Support of initiative	Eigenstetter & Löhr, 2008		1	1
	Taking initiative	Jassawalla & Sashittal, 2002	1		1
Entrepreneurship Total			**9**	**8**	**17**
Experimentation	Being truly experimental	Zien & Buckler, 1997		1	1
	Commitment to experimentation	Claver et al., 1998		1	1
	Emphasis on learning	Jucevičius, 2009	1		1
	Experimentation	Cangemi & Miller, 2007		1	1
		Delbecq & Mills, 1985		1	1

Theme (Abstraction level 2) / Subject (Abstraction level 1)	Culture element / values mentioned	Mentioned in	Latent / Manifest content: l	m	Grand Total
		Khazanchi et al., 2007		1	1
		Martins & Terblanche, 2003		1	1
Experimentation Total			**1**	**6**	**7**
Flexibility	Adaptability	Martins & Terblanche, 2003	1		1
	Emphasis on mobility and flexibility	Jucevičius, 2009		1	1
	Flexibility	Arad et al., 1997; Martins & Terblanche, 2003 in: Naranjo-Valencia et al., 2010		1	1
		Brooke Dobni, 2008		1	1
		Martins & Terblanche, 2003		1	1
		Matsuno et al., 2002 in: Naranjo-Valencia et al., 2011		1	1
		Matzler et al., 2010		1	1
		Quinn & Rohrbaugh, 1983 in: Khazanchi et al., 2007		1	1
	Inflexibility	Cooper, 1999		1	1
	Lack of formality	Matsuno et al., 2002 in: Naranjo-Valencia et al., 2011	1		1
	Promoting flexibility	Prajogo & Ahmed, 2006		1	1
Flexibility Total			**2**	**9**	**11**
Imagination	Creativity	Brooke Dobni, 2008		1	1
		Cangemi & Miller, 2007		1	1
		Claver et al., 1998		1	1
		Ellonen et al., 2008		1	1
		Khazanchi et al., 2007		1	1
		Naranjo-Valencia et al., 2010		1	1
		Naranjo-Valencia et al., 2011		1	1
	Encouragement of creativity	Amabile, 1997	1		1
		Prajogo & Ahmed, 2006	1		1
	Exhibiting creativity	Jassawalla & Sashittal, 2002		1	1
	Requirement of ingenuity (Einfallsreichtum)	Drucker, 1985	1		1
	Training in creativity	Jamrog et al., 2006		1	1
	Value placed on creativity and innovation	Amabile, 1996	1		1
	Work environment that stimulates creativity	Jamrog et al., 2006		1	1
Imagination Total			**4**	**10**	**14**
Self-direction Total			**17**	**34**	**51**
Social recognition					
Appreciation	Appreciation	Cangemi & Miller, 2007		1	1
	Appreciation of innovation	Kesting & Ulhøi, 2010		1	1
Appreciation Total				**2**	**2**
Internal competitiveness	Destructive internal competition	Amabile, 1997		1	1
	Emphasis on competition (perceived as a tool for domination & control)	Anonymous, 2010	1		1
	Groups which maintain a high degree of individual or group competition	Pelz, 1965		1	1

Theme (Abstraction level 2) / Subject (Abstraction level 1)	Culture element / values mentioned	Mentioned in	Count of Manifest / latent content: Latent / Manifest content — l	m	Grand Total
	Intellectual competition	Pelz, 1965		1	1
Internal competitiveness Total			**1**	**3**	**4**
Recognition	Fair evaluation of work	Amabile, 1997	1		1
	General acknowledgement of ordinary employees	Kesting & Ulhøi, 2010	1		1
	Interpersonal sensitivity toward entrepreneurs	Feldman, 1988	1		1
	Personalised recognition	Ahmed, 1998		1	1
	Promotion of innovative championship	Kesting & Ulhøi, 2010	1		1
	Recognition	Amabile, 1998		1	1
		Cangemi & Miller, 2007		1	1
	Recognition of achievement	Angle, 1988 in: Prajogo & Ahmed, 2006		1	1
Recognition Total			**4**	**4**	**8**
Respect	Discretion	Cummings, 1965	1		1
	Respect	Brooke Dobni, 2008		1	1
		Cangemi & Miller, 2007		1	1
		Martins & Terblanche, 2003		1	1
	Tolerance & respect for other people	Jucevičius, 2009		1	1
	Treat with value & dignity	Cangemi & Miller, 2007	1		1
Respect Total			**2**	**4**	**6**
Social recognition Total			**7**	**13**	**20**
Support					
Empowerment	Employee empowerment	Brooke Dobni, 2008		1	1
		Martins & Terblanche, 2003		1	1
	Empowering people to innovate	Ahmed, 1998		1	1
	Empowerment	Khazanchi et al., 2007		1	1
		Prajogo & Ahmed, 2006		1	1
Empowerment Total				**5**	**5**
Encouragement	Employee constituency	Brooke Dobni, 2008	1		1
	Encouragement from supervisors	Amabile, 1998		1	1
	Encouragement of change	Ellonen et al., 2008		1	1
	Encouragement of compromise	Feldman, 1988		1	1
	Encouragement of idea generation	Prajogo & Ahmed, 2006		1	1
	Encouragement of innovation	Kesting & Ulhøi, 2010		1	1
	Encouraging & energizing people to innovate	Prajogo & Ahmed, 2006	1		1
	Organizational encouragement	McLean, 2005		1	1
	Organizational encouragement (fair, constructive judgement of ideas, reward & recognition for creative work, active flow of ideas, shared vision)	Amabile et al., 1996		1	1
	Supervisory encouragement	McLean, 2005		1	1
	Supervisory encouragement (supervisor works as a good role model, sets goals appropriately, supports the work group, values individual contribution, shows confidence in the work group)	Amabile et al., 1996		1	1
	Work group encouragement	McLean, 2005		1	1
Encouragement Total			**2**	**10**	**12**

Theme (Abstraction level 2) / Subject (Abstraction level 1)	Culture element / values mentioned	Count of Manifest / latent content: Mentioned in	Latent / Manifest content: l	m	Grand Total
Support	Constructive judgement of ideas	Amabile, 1997	1		1
	Engaged in accusations and finger-pointing	Jassawalla & Sashittal, 2002	1		1
	Harsh criticism of ideas	Amabile, 1997	1		1
	Lack of leadership / management support	Jamrog et al., 2006		1	1
	Lack of top management support	Page, 1993 in: Van der Panne et al., 2003		1	1
	Leadership commitment and involvement	Ahmed, 1998	1		1
	Management support	Kesting & Ulhøi, 2010		1	1
	Organization-wide support for innovation	Amabile, 1996		1	1
	Organizational support	Amabile, 1998		1	1
	Shared organizational sponsorship	Delbecq & Mills, 1985	1		1
	Social support and safety	Eigenstetter & Löhr, 2008		1	1
	Socioemotional support	Tesluk et al., 1997 in: McLean, 2005		1	1
	Support	Anonymous, 2010		1	1
	Support for change	Martins & Terblanche, 2003		1	1
	Support for innovation	Amabile, 1997		1	1
	Support from all levels of the organization	Schneider et al., 1994		1	1
	Support in mistake-handling	Ellonen et al., 2008		1	1
	Support of idea-generating	Ellonen et al., 2008		1	1
	Support of ideas & change	Claver et al., 1998		1	1
	Supportive climate	Khazanchi et al., 2007		1	1
	Supportive leadership	Cangemi & Miller, 2007		1	1
		Vahs & Schmitt, 2010		1	1
	Task support	McLean, 2005		1	1
		Tesluk et al., 1997 in: McLean, 2005		1	1
	Top management support	Baker et al., 1986; Cooper, 1988; Lee & Na, 1994 in: Prajogo & Ahmed, 2006		1	1
		Van der Panne et al., 2003		1	1
Support Total			**5**	**21**	**26**
Support Total			**7**	**36**	**43**
Trust					
Intimacy	Belongingness	Jassawalla & Sashittal, 2002	1		1
	Common attitudes about what is important	Lorsch & Laurence, 1965	1		1
	Consensus	Boerner & Gebert, 2002	1		1
	Friendship	Eigenstetter & Löhr, 2008	1		1
	Sense of sharing and togetherness	Ahmed, 1998	1		1
	Togetherness	Anonymous, 2010	1		1
Intimacy Total			**6**		**6**
Relationships with others / Collaboration	Close collaboration between sales and research	Lorsch & Laurence, 1965		1	1
	Close human contact to people from other departments	Jassawalla & Sashittal, 2002	1		1
	Co-creative endeavor	Jassawalla & Sashittal, 2002	1		1
	Collaboration	Amabile, 1998		1	1

Theme (Abstraction level 2) / Subject (Abstraction level 1)	Culture element / values mentioned	Count of Manifest / latent content: Mentioned in	Latent / Manifest content: l	m	Grand Total
		Kesting & Ulhøi, 2010		1	1
		Newmann, 2009		1	1
		Anonymous, 2010		1	1
	Collaborative behavior	Jassawalla & Sashittal, 2002		1	1
	Collaborative teamwork	Jassawalla & Sashittal, 2002		1	1
	Cooperation	Anonymous, 2010	1		1
	Cooperative teamwork	Martins & Terblanche, 2003	1		1
	Cross-functional collaboration	Kahn, 1996 in: Prajogo & Ahmed, 2006		1	1
	Interdepartmental cooperation	Rochford & Rudelius, 1997 in: Van der Panne et al., 2003		1	1
	Internal and external collaboration	Jamrog et al., 2006		1	1
	Lack of interest in collaboration	Jassawalla & Sashittal, 2002		1	1
	Spanning functional boundaries	Jassawalla & Sashittal, 2002	1		1
	Strong informal linkages within and outside the organization	Tushman & Nadler, 1986	1		1
	True relationships between marketing and technical inventors	Zien & Buckler, 1997	1		1
	Work group supports (trust and help each other, being open to new ideas, feel committed to the work)	Amabile et al., 1996	1		1
Relationships with others / Collaboration Total			**8**	**11**	**19**
Self-confidence	Acceptance of defeat	Matzler et al., 2010	1		1
	Collective pride and faith in people's talents	Kanter, 1983 in: McLean, 2005		1	1
	Overestimation of one's own capabilities	Cooper, 1999	1		1
	Reassignment with full dignity after failure	Delbecq & Mills, 1985	1		1
	Self-confidence	Cangemi & Miller, 2007		1	1
	Self-determination	Brooke Dobni, 2008		1	1
	Sense of pride	Amabile, 1997	1		1
Self-confidence Total			**4**	**3**	**7**
Teamwork	Emphasis on collaboration & teamwork	Kanter, 1983 in: McLean, 2005	1		1
	Emphasis on collective effort for innovation	Kesting & Ulhøi, 2010	1		1
	Interest in team working	Eigenstetter & Löhr, 2008		1	1
	Self-interest / selfishness	Eigenstetter & Löhr, 2008	1		1
	Skilled leadership for teams and teamwork	Jamrog et al., 2006	1		1
	Teamwork	Canalejo, 1995 in: Claver et al., 1998		1	1
	Team working	Naranjo-Valencia et al., 2011		1	1
	Teamwork	Brooke Dobni, 2008		1	1
Teamwork Total			**4**	**4**	**8**
Trust	Distrust	Jassawalla & Sashittal, 2002		1	1
	Emotional safety when experimenting	Eigenstetter & Löhr, 2008	1		1
	Employees believing that the organization listens to their ideas (Trust that heard)	Clegg et al., 2002	1		1
	Employees believing that they will share the benefits (Trust that benefit)	Clegg et al., 2002	1		1
	Faith	Zien & Buckler, 1997	1		1
	Feel emotionally safe	Martins & Terblanche, 2003	1		1
	Freedom from fear	Cangemi & Miller, 2007	1		1

Theme (Abstraction level 2) / Subject (Abstraction level 1)	Culture element / values mentioned	Mentioned in	Count of Manifest / latent content: Latent / Manifest content: l	m	Grand Total
	Lack of confidence in others	Jassawalla & Sashittal, 2002	1		1
	Lack of mutual trust	Rochford & Rudelius, 1997 in: Van der Panne et al., 2003		1	1
	Managerial philosophy which projects the assumption that employees are capable, well trained and able to exert creative efforts	Cummings, 1965	1		1
	Mutual confidence between research and production	Lorsch & Laurence, 1965		1	1
	Mutual trust and confidence	Lorsch & Laurence, 1965		1	1
	Paranoia	Jassawalla & Sashittal, 2002	1		1
	Participants are capable of being trusted	Jassawalla & Sashittal, 2002		1	1
	Participants feel comfortable seeking clarification	Jassawalla & Sashittal, 2002	1		1
	Patience	Delbecq & Mills, 1985	1		1
	Reliability	Brooke Dobni, 2008	1		1
	Trust	Ahmed, 1998		1	1
		Boerner & Gebert, 2002		1	1
		Brooke Dobni, 2008		1	1
		Cangemi & Miller, 2007		1	1
		Jassawalla & Sashittal, 2002		1	1
		Lewis & Boyer, 2002 in: Khazanchi et al., 2007		1	1
		Martins & Terblanche, 2003		1	1
		McLean, 2005		1	1
		Zien & Buckler, 1997		1	1
		Anonymous, 2010		1	1
	Trust in leaders' reliability	Ellonen et al., 2008		1	1
	Willingness to make vulnerable to feedback from others	Jassawalla & Sashittal, 2002	1		1
Trust Total			**13**	**16**	**29**
Trust Total			**35**	**34**	**69**
Grand Total			**192**	**271**	**463**

A3 Exemplary cover email for survey with industrial companies (Original)

Egger Carolin

Von:	Egger Carolin
Gesendet:	Dienstag, 8. April 2014 16:37
An:	'gerhard.braun@takeda.com'
Betreff:	Unterstützung für Forschungsprojekt FH Kufstein: Wertvolle Werte für Innovationen?

Sehr geehrter Herr Braun,

heute wende ich mich mit einem Anliegen an Sie.
Ein Forschungsprojekt an der FH Kufstein untersucht gerade, welches die passenden kulturellen Unternehmenswerte für **erfolgreiche Produktinnovationen** sind.
Vertrauen oder Disziplin? Leistungsorientierung oder Gemeinschaft?
Abschließend sollen daraus Handlungsempfehlungen für Manager zur Steigerung der Innovationsfähigkeit entstehen.
Vor diesem Hintergrund befragen wir daher momentan Führungskräfte aus Industrieunternehmen.

Dürfte ich um die wichtigen Erfahrungen Ihres Unternehmens und um die Teilnahme an unserer Befragung bitten?

Unter
www.umfrage-fh.at/innovation
gelangt man sofort auf die Startseite unserer Umfrage.
Man braucht für den Fragebogen max. 20 Minuten und natürlich werden die Ergebnisse anonym ausgewertet.
Diese Email könnte auch **weitergeleitet** werden an folgende Funktionen oder Bereiche:
Innovationsmanager, Abteilungsleiter Forschung & Entwicklung / Marketing / Vertrieb oder Design, Technologiescout, Projektmanager etc. oder natürlich direkt an die Geschäftsführung.

Als kleines Dankeschön für die wertvolle Zeit und Mühe der Teilnehmer sende ich gerne nach Abschluss der Studie die Ergebnisse exklusiv vorab zu.
Bei Rückfragen stehe ich natürlich gerne zur Verfügung.
Für Ihren Beitrag wäre ich Ihnen wirklich sehr verbunden – jeder Datensatz hilft uns, die Ergebnisse noch zu verbessern.

Mit aufrichtigem Dank für Ihre Unterstützung vorab
und herzlichen Grüßen aus Kufstein,
Carolin Egger

Dipl.-Wirt.-Ing. (FH) Carolin Egger, MIB
Lecturer in Business Management & Marketing Management

Fachhochschule Kufstein Tirol Bildungs GmbH
UNIVERSITY OF APPLIED SCIENCES
Andreas Hofer-Straße 7, A-6330 Kufstein
Tel. + 43 5372 71819 125, Fax -104
Carolin.Egger@fh-kufstein.ac.at **www.fh-kufstein.ac.at**
FN 183013 m Landesgericht Innsbruck

A4 Cover email for survey with manufacturing companies (Translation)

Dear Madam or Sir,

Today, I would like to kindly ask you a favour.

Currently, a research project seeks to examine the appropriate organizational values for **successful product innovation**. **Trust or discipline? Achievement or collaboration?** Eventually, this will lead to recommendations for managers how to increase innovation capabilities. For this, we conduct a survey amongst managers in leadership positions in manufacturing companies.

May I kindly ask you to accord valuable insights in your company and participate in our survey?

You can start the online questionnaire immediately from www.umfrage-fh.at/innvation.

The survey takes around 20 minutes and of course runs anonymously. This email could also be forwarded to following functions or departments: Innovation Manager, Head of R&D / Marketing / Sales or Design, Technology Scout, Project Manager, or the company's CEO or board of management.

As a small sign of gratitude for participants' valuable time and efforts we will be more than happy to provide you with the results of the study exclusively in advance.

For any questions please do not hesitate to contact me.

I would deeply appreciate your contribution to our study – every data set helps us to further improve our findings.

With sincere thanks for your support in advance and best regards from Kufstein,

Carolin Egger

Dipl.-Wirt.-Ing. (FH) Carolin Egger, MIB
Lecturer in Business Management & Marketing Management
Fachhochschule Kufstein Tirol Bildungs GmbH
UNIVERSITY OF APPLIED SCIENCES
Andreas Hofer-Straße 7, A-6330 Kufstein
Tel. + 43 5372 71819 125, Fax -104
Carolin.Egger@fh-kufstein.ac.at www.fh-kufstein.ac.at
FN 183013 m Landesgericht Innsbruck

A5 Questionnaire for survey with manufacturing companies (Original)

Produktinnovationen & Unternehmenswerte

fh KufsteinTirol
UNIVERSITY OF APPLIED SCIENCES

Sehr geehrte Teilnehmerin,
Sehr geehrter Teilnehmer,

Herzlichen Dank, dass Sie sich die Zeit für diese Umfrage nehmen.

Dass Innovationen für den langfristigen Erfolg von Unternehmen unerlässlich sind, ist längst kein Geheimnis mehr. Doch wie schafft man es in Industrieunternehmen, dass am Ende der Wertschöpfungskette ein innovatives Produkt nach dem anderen herauspurzelt? Sollten Werte wie Vertrauen und Offenheit in der Unternehmenskultur noch stärker verankert werden?
Oder sind erfolgreiche Produktinnovationen ganz einfach eine Frage der Leistungsorientierung und Disziplin?

Um Empfehlungen und Vorschläge für Manager und Führungskräfte ableiten zu können, wie die Innovationsfähigkeit von Industrieunternehmen noch gesteigert werden kann, untersucht dieses Forschungsprojekt an der FH Kufstein eben diesen Zusammenhang zwischen kulturellen Unternehmenswerten und Produktinnovationen.

Für die Beantwortung des folgenden Fragebogens werden Sie ca. 20 Minuten brauchen und wir sind für Ihre Zeit und Ihre wichtigen Erfahrungen und Ansichten wirklich sehr dankbar. Als kleine Gegenleistung senden wir Ihnen bei Interesse nach Abschluss der Studie gerne die zusammengefassten Ergebnisse zu.
Die Daten aus dieser Umfrage werden anonym ausgewertet und Ihre Teilnahme ist freiwillig.
Aus Gründen der validen Datenerhebung bitten wir Sie darum, folgende Teilnahmevoraussetzungen für uns sicherzustellen:

- Ihr Unternehmen / Ihre Niederlassung stellt Waren her und hat seinen / ihren Sitz in Österreich, Baden-Württemberg oder Bayern.
- Sie selbst sind seit mindestens ca. 2 Jahren in der Führungsebene Ihres Unternehmens tätig oder haben Projektverantwortung (z.B. Geschäftsführung, Abteilungsleitung, erweiterter Führungskreis, Projektmanagement etc.).
- Sie haben durch Ihr Tätigkeitsfeld einen gewissen Bezug zu den Produktinnovationen Ihres Unternehmens (z.B. Innovationsmanager, Abteilungsleiter Forschung & Entwicklung / Marketing / Vertrieb oder Design, Technologiescout, Projektmanager etc.).

Die Erhebungseinheit ist das Unternehmen.
Bitte machen Sie Ihre Angaben für Ihr Unternehmen inklusive aller Niederlassungen ohne eigenen Rechnungsabschluss.
Sie können an dieser Umfrage nur ein Mal teilnehmen.
Gerne können Sie jedoch den Link zum Fragebogen an Kollegen oder Bekannte anderer geeigneter Unternehmen oder Funktionsbereiche weitergeben - darüber freuen wir uns sogar sehr!
Bei weiteren Fragen können Sie sich gerne jederzeit an mich wenden.

Mit aufrichtigem Dank für Ihre Unterstützung und freundlichen Grüßen,

Carolin Egger

Dipl.-Wirt.-Ing. (FH) Carolin Egger, MIB
Hochschullehrerin in Unternehmensführung & Marketing Management
Fachhochschule Kufstein Tirol Bildungs GmbH
Andreas-Hofer-Straße 7 / A - 6330 Kufstein
Tel.: +43 5372 71819 125 / Fax: -104
Carolin.Egger@fh-kufstein.ac.at / www.fh-kufstein.ac.at
FN 183013 m Landesgericht Innsbruck

Diese Umfrage enthält 19 Fragen.

Eine Bemerkung zum Datenschutz
Dies ist eine anonyme Umfrage.
Die Daten mit Ihren Antworten enthalten keinerlei auf Sie zurückzuführende/identifizierende Informationen, es sei denn bestimmte Fragen haben Sie explizit danach gefragt. Wenn Sie für diese Umfrage einen Zugangsschlüssel benutzt haben, so können Sie sicher sein, dass der Zugangsschlüssel nicht zusammen mit den Daten abgespeichert wurde. Er wird in einer getrennten Datenbank aufbewahrt und nur aktualisiert, um zu speichern, ob Sie diese Umfrage abgeschlossen haben oder nicht. Es gibt keinen Weg die Zugangsschlüssel mit den Umfrageergebnissen zusammenzuführen.

Zwischengespeicherte Umfrage laden | Weiter >> | Umfrage verlassen und löschen

Begriffliche Definitionen

A: Damit alle Befragungsteilnehmer dasselbe Verständnis der verwendeten Begrifflichkeiten haben, hier noch einige Erläuterungen:

***Produktinnovationen**:*

Im Rahmen dieser Studie umfasst der Begriff Produktinnovationen die erfolgreiche Markteinführung eines neuen oder hinsichtlich seiner Merkmale (z.B. Benutzerfreundlichkeit, Verwendungsmöglichkeiten, Komponenten oder Teilsysteme etc.) deutlich verbesserten Produkts.
Es geht also in dieser Untersuchung nicht um Prozess-, Marketing- oder organisatorische Innovationen.
Auch sind Dienstleistungsinnovationen (z.B. Versicherung, Beratung usw.) nicht von Interesse.
Ein Produkt ist normalerweise ein greifbarer Gegenstand, wie z.B. ein Mobiltelefon, Möbel, aber auch aus dem Internet herunterladbare Software oder Musik.

Untenstehend finden Sie weitere Beispiele für Produktinnovationen:
- Verwendung verbesserter Materialien, z.B. atmungsaktive Textilien oder umweltfreundliches Plastik
- Kombination bereits bestehender Komponenten, z.B. Kameras in Mobiltelefonen
- Verbesserung von Benutzerfreundlichkeit und Bedienkomfort, z.B. Toaster, die automatisch abschalten, wenn das Brot getoastet ist oder GPS-Systeme, die nahegelegene Sehenswürdigkeiten und Geschäfte anzeigen
- Integration neuer Funktionen für ein Produkt, z.B. beidseitiges Drucken, Mistkübel, die ein Signal geben, sobald sie voll sind oder zur Aufbewahrung zusammenlegbare Produkte.

***Unternehmenswerte**:*

Der Begriff der Unternehmenswerte wird in dieser Studie als eine Reihe unbewusster Normen und Standards definiert, die alle Mitarbeiter des Unternehmens teilen und wichtig zu verfolgen finden, anhand derer sie ihre Aktivitäten ausrichten und die ihr tägliches Verhalten im Unternehmen und Ihre Entscheidungen bestimmen.
Es geht also ausdrücklich nicht um Werte im finanziellen Sinn.
Beispiele für Unternehmenswerte können sein: Toleranz, Sicherheit, Verbindlichkeit oder Gemeinschaft.

Später Fortfahren | << Zurück | Weiter >> | Umfrage verlassen und löschen

Unternehmenswerte für Produktinnovationen

01: *Frage 1:

Inwiefern Sind Sie mit dem Thema Unternehmenswerte schon mal in Berührung gekommen?

Bitte wählen Sie einen oder mehrere Punkte aus der Liste aus.

- ☐ Ich habe davon schon in der Wirtschafts- oder Tagespresse gelesen.
- ☐ Ich habe davon schon in der Literatur gelesen (Bücher, Journals etc.).
- ☐ Wir haben für unser Unternehmen Werte und Grundsätze definiert, an denen sich alle Mitarbeiter orientieren können und sollen.
- ☐ Ich weiß, dass manche anderen Wirtschaftsunternehmen offiziell Werte und Grundsätze definieren, an denen sich alle Mitarbeiter orientieren können und sollen.
- ☐ Ich habe bisher noch keine Erfahrungen zu dem Thema sammeln können.
- ☐ Sonstiges: [ ]

Später Fortfahren | << Zurück | Weiter >> | Umfrage verlassen und löschen

Unternehmenswerte für Produktinnovationen

02: *Frage 2:

Wie hoch schätzen Sie generell den Einfluss von kulturellen Unternehmenswerten auf erfolgreiche Produktinnovationen ein?
Bitte wählen Sie eine der folgenden Antworten:

- ○ Hoch
- ○ Eher hoch
- ○ Neutral
- ○ Eher niedrig
- ○ Niedrig
- ○ Kann ich nicht sagen

Später Fortfahren | << Zurück | Weiter >> | Umfrage verlassen und löschen

Unternehmenswerte für Produktinnovationen

B: Wir stellen Ihnen nun 12 Unternehmenswerte in beliebiger Reihenfolge vor mit einer kurzen Erklärung, was verschiedene Autoren unter den Schlagworten verstehen.
Diese muss sich nicht vollständig mit Ihrer ganz persönlichen Auffassung decken.
Es soll aber ein einheitliches Verständnis unter allen Teilnehmern ermöglichen und Ihnen die Beantwortung der folgenden beiden Fragen erleichtern.
Bitte lesen Sie daher die Liste in Ruhe durch.

Leistung:
Bedeutung von erfolgreichen Ergebnissen und Leistung; Förderung ehrgeiziger und fähiger Mitarbeiter; Betonung von herausfordernden Aufgaben, Disziplin und Effizienz.

Altruismus:
Schwerpunkt, die Welt verbessern zu wollen, der Gesellschaft zu dienen und soziale Verantwortung zu übernehmen; Betonung von Integrität, Loyalität und Chancengleichheit.

Autorität:
Klares Berichtswesen mit eindeutigen Hierarchien, Befugnissen und genau festgelegten Verantwortlichkeiten; Kontrollmechanismen bezüglich Entscheidungsfindung und Informationsfluss.

Offene Kommunikation & Diskussion:
Offene Meinungsäußerung, Berücksichtigung und Wertschätzung vieler unterschiedlicher Betrachtungsweisen, Ideen und Erfahrungen; konstruktives Konfliktmanagement, kritisches Hinterfragen und freie Nutzung aller formalen und informellen Kommunikationskanäle.

Freiheit:
Freiheit und gewünschte Eigenständigkeit bei der Lösung und Bearbeitung von Aufgaben und in der Entscheidungsfindung; Eigeninitiative bei der Informationsbeschaffung und der unabhängigen Weiterarbeit.

Verbundenheit / Identifikation:
Emotionale Verbundenheit zum Unternehmen; Motivation und Enthusiasmus für Tätigkeiten und Ziele; Identifikation und Beteiligung der Mitarbeiter sowie deren freiwillige Verantwortungsübernahme.

Marktorientierung:
Sensibilität für Kundenbedürfnisse und Marktveränderungen; extern-, zukunfts- und netzwerk-orientierte Denkweise im Unternehmen.

Risikobereitschaft:
Toleranz gegenüber Entscheidungen unter Ungewissheit und Unsicherheit; ausdrückliche Ermutigung zum Eingehen von Risiken und Lernen aus Fehlern.

Selbstbestimmung:
Unternehmerisches Denken bei der Wahl eigener Ziele und neuer Wege der Problemlösung; Ermutigung zu Neugier und Kreativität, Experimentierfreude und Phantasie.

Soziale Anerkennung:
Anerkennung und Bestätigung vom Unternehmen und von Kollegen für die Erreichung ehrgeiziger Ziele; wertschätzende, respekt- und würdevolle Behandlung aller Menschen.

Unterstützung:
Ermutigung und Befähigung von Mitarbeitern, an neuen Ideen und in Arbeitsgruppen zu arbeiten; Art und Weise, wie neue Ideen und Lösungen wohlwollend behandelt und konstruktiv beurteilt werden.

Vertrauen:
Gefühlte Sicherheit und Offenheit in Beziehungen untereinander; enge Verbindungen mit Vorgesetzten, Kollegen und externen Partnern; einheitliche Auffassung darüber, was wirklich wichtig ist und eine gesunde Portion Stolz auf das eigene Unternehmen.

Später Fortfahren | << Zurück | Weiter >> | Umfrage verlassen und löschen

Unternehmenswerte für Produktinnovationen

03: *Frage 3:

Untenstehend finden Sie nun die bereits bekannten 12 kulturellen Unternehmenswerte in beliebiger Reihenfolge.
Falls Sie deren Erklärung noch mal nachsehen möchten, klicken Sie bitte hier.

Wie wichtig sind Ihrer Meinung nach diese Werte für Produktinnovationen im Allgemeinen?
Bitte markieren Sie Ihre Antwort mit einem Klick pro Wert in der entsprechenden Spalte.

	Wichtig	Eher wichtig	Neutral	Eher unwichtig	Unwichtig	Kann ich nicht sagen
Marktorientierung	○	○	○	○	○	○
Altruismus	○	○	○	○	○	○
Verbundenheit / Identifikation	○	○	○	○	○	○
Autorität	○	○	○	○	○	○
Vertrauen	○	○	○	○	○	○
Leistung	○	○	○	○	○	○
Freiheit	○	○	○	○	○	○
Selbstbestimmung	○	○	○	○	○	○
Offene Kommunikation & Diskussion	○	○	○	○	○	○
Unterstützung	○	○	○	○	○	○
Risikobereitschaft	○	○	○	○	○	○
Soziale Anerkennung	○	○	○	○	○	○

Später Fortfahren | << Zurück | Weiter >> | Umfrage verlassen und löschen

Unternehmenswerte für Produktinnovationen

04: *Frage 4:

**Nun geht es uns darum, wie charakteristisch die entsprechenden Unternehmenswerte Ihrer Meinung nach für Ihr Unternehmen sind.
Was meinen Sie?**

**Wenn Sie gerne die Erklärung eines Wertes noch mal nachsehen möchten, klicken Sie bitte hier.
Bitte markieren Sie Ihre Antwort mit einem Klick pro Wert in der entsprechenden Spalte.**

	Charakteristisch	Eher charakteristisch	Neutral	Eher uncharakteristisch	Uncharakteristisch	Kann ich nicht sagen
Verbundenheit / Identifikation	○	○	○	○	○	○
Selbstbestimmung	○	○	○	○	○	○
Unterstützung	○	○	○	○	○	○
Leistung	○	○	○	○	○	○
Marktorientierung	○	○	○	○	○	○
Autorität	○	○	○	○	○	○
Freiheit	○	○	○	○	○	○
Offene Kommunikation & Diskussion	○	○	○	○	○	○
Altruismus	○	○	○	○	○	○
Soziale Anerkennung	○	○	○	○	○	○
Risikobereitschaft	○	○	○	○	○	○
Vertrauen	○	○	○	○	○	○

Später Fortfahren | << Zurück | Weiter >> | Umfrage verlassen und löschen

Innovationen in Ihrem Unternehmen

05: *Frage 5:

**Kommen wir nun zur Innovationsleistung Ihres Unternehmens.
Bitte geben Sie näherungsweise an, wie sich Ihr durchschnittlicher Gesamtumsatz der Jahre 2011 bis 2013 prozentual auf die folgenden 3 Produktarten aufteilt.**

Summe aller Einträge muss gleich 100 sein

2011 bis 2013 eingeführte neue oder merklich verbesserte Produkte, die **neu für Ihren Markt** waren — 0 (0 – 100)

2011 bis 2013 eingeführte neue oder merklich verbesserte Produkte, die nur **neu für Ihr Unternehmen**, aber nicht neu für Ihren Markt waren — 0 (0 – 100)

2011 bis 2013 überhaupt **nicht oder nur unerheblich** veränderte Produkte (einschließlich der Umsätze aus dem bloßen Wiederverkauf von bei anderen Unternehmen eingekauften Produkten) — 0 (0 – 100)

Verbleibend: 100

Gesamt: 0

Später Fortfahren | << Zurück | Weiter >> | Umfrage verlassen und löschen

Innovationen in Ihrem Unternehmen

06: *Frage 6:

**Bitte schätzen Sie die durchschnittliche Länge Ihrer Produktlebenszyklen ein.
Dadurch können wir Brancheneffekte in unserer Analyse ausgleichen.**
Bitte wählen Sie eine der folgenden Antworten:

- ○ < 1 Jahr
- ○ 1 - 2 Jahre
- ○ 3 - 5 Jahre
- ○ 5 - 10 Jahre
- ○ > 10 Jahre

Später Fortfahren | << Zurück | Weiter >> | Umfrage verlassen und löschen

Innovationen in Ihrem Unternehmen

07: *Frage 7:

Bitte bewerten Sie die Innovationsleistung Ihres Unternehmens im Vergleich zu Ihren Branchenwettbewerbern für die letzten 3 Jahre (2011 - 2013) anhand der folgenden Kriterien.
Bitte markieren Sie dabei Ihre Antworten mit einem Klick pro Kriterium in der entsprechenden Spalte.

	Höher als Wettbewerb	Etwas höher als Wettbewerb	Neutral	Etwas niedriger als Wettbewerb	Niedriger als Wettbewerb	Kann ich nicht sagen
Anzahl der am Markt neu eingeführten Produkte	○	○	○	○	○	○
Pioniercharakter neu eingeführter Produkte	○	○	○	○	○	○
Schnelligkeit in der Neuproduktentwicklung	○	○	○	○	○	○
Geschickte und schnelle unternehmerische Reaktion auf neu eingeführte Wettbewerbsprodukte	○	○	○	○	○	○
Finanzieller Aufwand in Forschung und Entwicklung für die Neuproduktentwicklung	○	○	○	○	○	○
Sonstiger Aufwand für die Neuproduktentwicklung (z.B. Stunden / Person, Grundlagenforschung, Weiterbildungsmaßnahmen etc.)	○	○	○	○	○	○

Später Fortfahren | << Zurück | Weiter >> | Umfrage verlassen und löschen

Innovationen in Ihrem Unternehmen

C: Sie haben es schon fast geschafft.
Im Folgenden bitten wir Sie noch um ein paar allgemeine Angaben zu Ihrem Unternehmen.
Dies wird uns bei der Auswertung und Analyse der Ergebnisse dieser Umfrage helfen, unterschiedliche Unternehmensgruppen zu vergleichen und noch bessere Empfehlungen, z.B. getrennt für kleinere und größere Unternehmen, abzuleiten.

Später Fortfahren | << Zurück | Weiter >> | Umfrage verlassen und löschen

Unternehmensdaten

08: *Frage 8:

In welchem der folgenden international klassifizierten Wirtschaftszweige ist Ihr Unternehmen tätig?
Bitte wählen Sie eine der folgenden Antworten:

- ○ C10 - C12: Herstellung von Nahrungs- und Futtermitteln; Getränkeherstellung; Tabakverarbeitung
- ○ C13 - C15: Herstellung von Textilien; Bekleidung; Leder, Lederwaren und Schuhen
- ○ C16 - C18: Herstellung von Holz-, Flecht-, Korb- und Korkwaren (ausschließlich Möbel); Papier, Pappe und Waren daraus; Druckerzeugnissen, Vervielfältigung von bespielten Ton-, Bild- und Datenträgern
- ○ C19 - C21: Kokerei und Mineralölverarbeitung; Herstellung von chemischen Erzeugnissen; Herstellung von pharmazeutischen Erzeugnissen
- ○ C22 - C23: Herstellung von Gummi- und Kunststofferzeugwaren; Herstellung von Glas und Glaswaren, Keramik, Verarbeitung von Steinen und Erden
- ○ C24 - C25: Metallerzeugung und -bearbeitung; Herstellung von Metallerzeugnissen
- ○ C26 - C27: Herstellung von Datenverarbeitungsgeräten, elektronischen und optischen Erzeugnissen; Herstellung von elektrischen Ausrüstungen
- ○ C28: Maschinenbau
- ○ C29 - C30: Herstellung von Kraftwagen und Kraftwagenteilen; Sonstiger Fahrzeugbau
- ○ C31 - C33: Herstellung von Möbeln; Herstellung von sonstigen Waren; Reparatur und Installation von Maschinen und Ausrüstungen

Später Fortfahren | << Zurück | Weiter >> | Umfrage verlassen und löschen

Unternehmensdaten

09: *Frage 9:

Wie viele vollzeitäquivalente Mitarbeiter hatte Ihr Unternehmen 2013?

Bitte wählen Sie eine der folgenden Antworten:

- ○ 1 - 9 Mitarbeiter
- ○ 10 - 49 Mitarbeiter
- ○ 50 - 249 Mitarbeiter
- ○ 250 und mehr Mitarbeiter

Später Fortfahren | << Zurück | Weiter >> | Umfrage verlassen und löschen

Unternehmensdaten

10: *Frage 10:

Bitte schätzen Sie Ihren Gesamtumsatz für das Jahr 2013.
Bitte wählen Sie eine der folgenden Antworten:

- ◯ < 2 Mio. €
- ◯ 2 - 9,9 Mio. €
- ◯ 10 - 49,9 Mio. €
- ◯ > 50 Mio. €

Später Fortfahren | << Zurück | Weiter >> | Umfrage verlassen und löschen

Unternehmensdaten

11: *Frage 11:

Auf welchen geographischen Märkten hat Ihr Unternehmen zwischen 2011 und 2013 kontinuierlich Produkte verkauft?
Wählen Sie mindestens 1 Antworten aus.

- ☐ Lokal / regional innerhalb Österreichs bzw. Deutschlands
- ☐ In Österreich bzw. Deutschland (überregional)
- ☐ In anderen EU-Ländern, EFTA-Ländern oder EU-Anwärter Ländern
- ☐ In sonstigen Ländern

Später Fortfahren | << Zurück | Weiter >> | Umfrage verlassen und löschen

Unternehmensdaten

12: *Frage 12:

Welcher von diesen Märkten war zwischen 2011 und 2013 der umsatzmäßig wichtigste Markt für Ihr Unternehmen?
Bitte wählen Sie eine der folgenden Antworten:

- ◯ Lokal / regional innerhalb Österreichs bzw. Deutschlands
- ◯ Österreich bzw. Deutschland (überregional)
- ◯ Andere EU-Länder, EFTA-Länder oder EU-Anwärter Ländern
- ◯ Sonstige Länder

Später Fortfahren | << Zurück | Weiter >> | Umfrage verlassen und löschen

Unternehmensdaten

13: *Frage 13:

In welchem Bundesland ist Ihr Unternehmen ansässig?
Bitte wählen Sie eine der folgenden Antworten:

- ◯ Baden-Württemberg
- ◯ Bayern
- ◯ Burgenland
- ◯ Kärnten
- ◯ Niederösterreich
- ◯ Oberösterreich
- ◯ Salzburg
- ◯ Steiermark
- ◯ Tirol
- ◯ Vorarlberg
- ◯ Wien

Später Fortfahren | << Zurück | Weiter >> | Umfrage verlassen und löschen

Unternehmensdaten

14: * Frage 14:

In welchem Funktionsbereich sind Sie für Ihr Unternehmen tätig?
Bitte wählen Sie eine der folgenden Antworten:

- ○ Geschäftsführung
- ○ Innovationsmanagement
- ○ Forschung & Entwicklung
- ○ Marketing / Produktmanagement
- ○ Vertrieb
- ○ Qualitätsmanagement
- ○ Produktion / Fertigung
- ○ Einkauf
- ○ Projektleitung
- ○ Sonstiges: [ ]

[Später Fortfahren] [<< Zurück] [Weiter >>] [Umfrage verlassen und löschen]

Freie Kommentare

D: Dies war die letzte Frage unserer schriftlichen Befragung.

Herzlichen Dank für Ihre Mühe, Ihre Zeit und Ihren Beitrag. 

Falls es noch etwas gibt, das Sie uns sagen möchten oder das wir Ihrer Meinung nach zum Thema Unternehmenswerte und deren Einfluss auf erfolgreiche Produktinnovationen berücksichtigen sollen, teilen Sie uns dies bitte gerne im folgenden Textfeld mit:

[ ]

[Später Fortfahren] [<< Zurück] [Weiter >>] [Umfrage verlassen und löschen]

Kontaktinformationen

E: Wie versprochen, senden wir Ihnen gerne nach Abschluss der Untersuchung eine Zusammenfassung der Ergebnisse zu.
Bitte teilen Sie uns dazu Ihre Kontaktdaten mit.
Falls Sie dies nicht möchten, klicken Sie bitte nun einfach auf Absenden.
Vielen Dank!

Firmenname: [ ]
Name: [ ]
Postanschrift: [ ]
PLZ & Stadt: [ ]
Land: [ ]
Email-Adresse: [ ]

[Später Fortfahren] [<< Zurück] [Absenden] [Umfrage verlassen und löschen]

A6 Questionnaire for survey with manufacturing companies (Translation)

Product Innovations & Organizational Values

Dear participants,

Many thanks for taking your time and your willingness to take part in this survey.

Innovation is a fundamental element of long-term success for organizations and matters increasingly as the origin for national economic growth, especially in countries relatively poor in natural resources, such as most in Europe.

In order to provide suggestions and recommendations for managers regarding the further improvement of industrial companies' innovation capabilities the research project at hand seeks to examine empirically the impact of organizational values on product innovation.

The completion of the following questionnaire will take you approximately 20 minutes and we really very much appreciate your valuable experiences and insights. As a small return for your efforts we will be more than happy to send you a summary of the results as soon as they are available. This survey runs anonymously and results are solely used for the intent of this research project. Your participation is voluntary.

For the sake of a valid data collection we kindly ask you to ensure the following preconditions of participation for us:

- Your company / subsidiary is a manufacturing company and has its residence in Austria, Bavaria or Baden-Württemberg.
- You are part of the management team of the company or you have had project responsibility for at least 2 years (e.g. Management board, department management, project management, etc.).
- Through your daily tasks and responsibilities you can relate to your company’s product innovations developments to a certain extent (e.g. innovation manager, manager of the R&D / Marketing / Sales / Design department, technology scout, project manager etc.).

The sampling unit accords to the organization. Please give your answers for your company including all subsidiaries that do not publish a separate balance sheet. As explained, the data

sourced from this questionnaire are analysed anonymously and your participation is voluntary.

For any further questions please do not hesitate to contact Mrs Carolin Egger who is responsible for this research.

With best regards,

Carolin Egger

Dipl.-Wirt.-Ing. (FH) Carolin Egger, MIB
Lecturer in Business Management & Marketing Management
Fachhochschule Kufstein Tirol Bildungs GmbH
UNIVERSITY OF APPLIED SCIENCES
Andreas Hofer-Straße 7, A-6330 Kufstein
Tel. + 43 5372 71819 125, Fax -104
Carolin.Egger@fh-kufstein.ac.at www.fh-kufstein.ac.at
FN 183013 m Landesgericht Innsbruck

Terms and Definitions

A: In order to ensure a common understanding between all respondents we would firstly like to explain some terms in the context of this study:

Product Innovation:

In the context of this study, a product innovation is understood as the successful market-introduction of new or significantly improved goods with respect to characteristics such as its capabilities, user friendliness, components or sub-systems or with respect to its intended use. Therefore, the research at hand does not investigate into process innovations or marketing and organizational innovations. It also excludes services from the field of interest. A product is usually a tangible object such as a smart phone, furniture, or packaged software, but downloadable software or music are also goods.

Some examples could be the following:

- Usage of new materials with better capabilities such as breathable fabrics or environmentally friendly plastics.
- Combination of existing components such as the integration of cameras into mobile phones
- Improvements of usability, for example, toasters that switch off automatically when the toast is ready or GPS-systems that show shops and attractions nearby
- Including new functions to a new product, for example, printing both sides of paper, rubbish bins that send a signal when they are full or collapsible products for better storage.

Organizational value:

In the context of this study, organizational values are considered as a set of underlying shared norms and standards which the employees of a company agree to and which they find valuable and worth pursuing, and which lead their activities and determine their daily organizational behaviour and decision-making. Thus, this research does explicitly not relate to financial values.

Some examples could be the following: Tolerance, Security, or Companionship.

01: Question 1:

In what way can you relate to the topic of organizational values already? Please choose at least 1 answer.

- I have already read about it in the business or daily press.
- I have already read about it in the academic literature (books, journals etc.).
- We do have values and guidelines defined for our organization that employees can and are supposed to use for their orientation.
- I know that other companies explicitly define values and guidelines for their employees' orientation.
- I do not have any experiences with the topic yet.
- Others, namely:

02: Question 2:

How do you evaluate the impact of organizational values on successful product innovation in general? Choose one of the following answers.

- High
- Rather high
- Neutral
- Rather low
- Low
- I cannot judge

Organizational values for product innovation

B: We now introduce 12 organizational values to you in random order and include a short explanation of the terms according to different authors. Even though your personal perception might differ from that we would like to create a common understanding among all survey participants. Additionally, it is supposed to help you in answering the two following questions. Therefore, please read the list carefully.

Achievement:

The level of expressed importance of success, results and performance by promoting ambitious and capable people and focusing on challenging tasks, discipline and efficiency.

Altruism:

The focus of making the world a better place, being of service to society, contributing to humanity while emphasizing equal opportunities for all, integrity and loyalty.

Authority:

The degree to which reporting relationships are distinctive, chains of command are clear and lines of authority are definite as well as control mechanisms influence decision-making and information flows.

Debate & Discussion:

The open expression and consideration of many different viewpoints, ideas and experiences including constructive conflict handling, questioning, critical awareness and diversity while people freely use both formal and informal channels of communication.

Freedom:

The level of autonomy in determining the way one's work is done and in making own decisions as well as the level of initiative in individual behaviour to acquire information and work independently.

Involvement:

The degree of emotional involvement, commitment, and motivation for operations and goals including enthusiasm, organizational identification, employee participation and shared responsibilities.

Market orientation:

The level of awareness to customer needs and market changes as a priority as well as the will to include a certain degree of external, future, and network orientation in the organization's mindset.

Risk taking:

The level of tolerance for making decisions under ambiguity and uncertainty accompanied by the attitude to be able to improve from past failures including the encouragement to take risks.

Self-direction:

The level of expressed importance of curiosity, creativity, experimentation, imagination, and entrepreneurship in terms of choosing own goals and daring new ways of solving problems.

Social recognition:

Employees receive appreciation and recognition from the organization and from colleagues for achieving ambitious goals and people are treated with esteem, respect and dignity in general.

Support:

The degree to which employees are empowered and encouraged to work on new ideas or in work groups and the level to which new solutions are attended to and judged constructively in a kind manner.

Trust:

The degree of perceived emotional safety and openness found in relationships but also the importance of close ties with colleagues and external partners as well as a common understanding about what is important and a healthy level of pride in the organization.

03: Question 3:

Below you will now find the already known 12 organizational values in random order. If you want to recheck their explanations, please click here.

How important do you consider these values to be for product innovations **in general**? Please mark your answer with a click per value in the accordant column.

	Important	Rather important	Neutral	Rather unimpor-tant	Un-important	I cannot judge
Achievement	☐	☐	☐	☐	☐	☐
Altruism	☐	☐	☐	☐	☐	☐
Authority	☐	☐	☐	☐	☐	☐
Debate & Discussion	☐	☐	☐	☐	☐	☐
Freedom	☐	☐	☐	☐	☐	☐
Involvement	☐	☐	☐	☐	☐	☐
Market orientation	☐	☐	☐	☐	☐	☐
Risk taking	☐	☐	☐	☐	☐	☐
Self-direction	☐	☐	☐	☐	☐	☐
Social recognition	☐	☐	☐	☐	☐	☐
Support	☐	☐	☐	☐	☐	☐
Trust	☐	☐	☐	☐	☐	☐

04: Question 4:

Now, we would like to know how **characteristic** the values under research are **for your particular company**. What do you think?

If you want to recheck the explanations of the values, please click here. Please mark your answers with a click per value in the accordant column.

	Charac-teristic	Rather charac-teristic	Neutral	Rather uncharac-teristic	Uncharac-teristic	I cannot judge
Achievement	☐	☐	☐	☐	☐	☐
Altruism	☐	☐	☐	☐	☐	☐
Authority	☐	☐	☐	☐	☐	☐
Debate & Discussion	☐	☐	☐	☐	☐	☐
Freedom	☐	☐	☐	☐	☐	☐
Involvement	☐	☐	☐	☐	☐	☐
Market orientation	☐	☐	☐	☐	☐	☐
Risk taking	☐	☐	☐	☐	☐	☐
Self-direction	☐	☐	☐	☐	☐	☐
Social recognition	☐	☐	☐	☐	☐	☐
Support	☐	☐	☐	☐	☐	☐
Trust	☐	☐	☐	☐	☐	☐

05: Question 5:

Let us look at the innovation performance of your company now.

Please estimate the percentage share of your average total turnover between 2011 and 2013 that was due to the following three product categories. The sum of all statements has to equal 100%.

New or significantly improved goods introduced between 2011 and 2013 that were **new to the market**		**%**
New and significantly improved goods introduced between 2011 and 2013 that were **new to the firm**, though not new to the market		**%**
Products that were unchanged or only marginally modified between 2011 and 2013 (including the resale of new products purchased from other enterprises)		**%**

OVERALL	**100**	**%**

06: Question 6:

Please also estimate the length of your products' life cycles. That helps us to eliminate industry effects. Please choose one of the following answers.

- < 1 year
- 1 – 2 years
- 3 – 5 years
- 5 – 10 years
- > 10 years

07: Question 7:

Please evaluate your company's innovation performance against your industry competitors in the past 3 years (2011 – 2013) for the following criteria.

Please mark your answers with one cross per criteria in the accordant column.

	Above competitors	Slightly above competitors	Average	Slightly below competitors	Below competitors	I cannot judge
Number of new products introduced	☐	☐	☐	☐	☐	☐
Pioneer disposition to introduce new products	☐	☐	☐	☐	☐	☐
Speed of new product development	☐	☐	☐	☐	☐	☐
Clever response to new products introduced by competitors	☐	☐	☐	☐	☐	☐
Financial efforts to develop new products	☐	☐	☐	☐	☐	☐
Additional efforts to develop new products in terms of hours / person, teams, technology, and training involved	☐	☐	☐	☐	☐	☐

C: You almost made it already.

In the following part we kindly ask you for some general data regarding your organization. This will help us to analyse our results according to different kinds of organizations in order to derive more sophisticated recommendations, for example, depending on the size of the company.

08: Question 8:

What industry sector is your company active in? Please choose only one of the following answers.

- C10 – C12: Food products; beverages; tobacco products
- C13 – C15: Textiles; wearing apparel; leather and related products
- C16 – C18: Wood, products of wood, cork (excluding Furniture); straw and plating materials; paper, paper products; printing and reproduction of recorded media
- C19 – C21: Coke and refined petroleum products; chemicals and chemical products; pharmaceutical products
- C22 – C23: Rubber and plastic products; other non-metallic mineral products
- C24 – C25: Basic metals; fabricated metal products
- C26 – C27: Computer, electronic and optical products; electrical equipment
- C28: Machinery and equipment
- C29 – C30: Motor vehicles, trailers and semi-trailers; other transport equipment
- C31 – C33: Furniture; other manufacturing; repair and installation of other equipment
-

09: Question 09:

How many full-time equivalent employees did your company have in 2013? Please choose one of the following answers.

- 1 – 9 employees
- 10 – 49 employees
- 50 – 249 employees
- 250 or more employees

10: Question 10:

Please indicate your estimated total turnover in 2013. Please choose only one of the following categories.

- < 2 Mio. €
- 2 – 10 Mio. €
- 10 – 49,9 Mio. €
- > 50 Mio. €

11: Question 11:

In which geographic markets did your enterprise sell goods during the past three years of 2011 to 2013? Please choose at least one answer.

- Local / regional within Austria, respectively Germany
- National (other regions of Austria or Germany)
- Other European Union (EU), EFTA, or EU candidate countries
- All other countries

12: Question 12:

Which of these geographic regions was your largest market in terms of turnover during the past three years of 2011 to 2013? Please choose one answer only.

- Local / regional within Austria, respectively Germany
- National (other regions of Austria or Germany)
- Other European Union (EU), EFTA, or EU candidate countries
- All other countries

13: Question 13:

In which federal state does your company have its headquarters? Please choose one of the following answers.

- Baden-Wurttemberg
- Bavaria
- Burgenland

- Carinthia
- Lower Austria
- Upper Austria
- Salzburg
- Styria
- Tyrol
- Vorarlberg
- Vienna

14: Question 14:

Which functional department do you work in for your company? Please choose one of the following answers.

- Management Board
- Innovation Management
- Research & Development
- Marketing / Product Management
- Sales
- Quality Management
- Production / Manufacturing
- Purchasing
- Project Management
- Others:

Additional comments

D: This was the last question of our survey. Many thanks for all your efforts, time and your contribution. If there is anything else you would like to tell us regarding the topic of organizational values and their impact on product innovation, please use the text field below.

Contact details

E: As promised, we will be more than happy to send you our results after this research project has been completed. For this, please let us know your contact details below. If you do not wish to do so, please just click the Send-button below now. Many thanks!

Company:
Name:
Postal address:
Zip code and city:
Country:
Email-address:

A7 Contact details list of innovation experts from EU28 & CH countries

No.	Country	Type of organization	Name of Organization / Degree Program	Function	First name	Family name	Title	Email Address
1	**Austria**	University of Applied Sciences	University of Applied Sciences Technikum Vienna, Degree Program Technology & Innovation Management	Contact person for Prof. Dr. Kurt Woletz (Director of Studies)	Tatjana	Stadt	Mrs	tatjana.stadt@technikum-wien.at
2		Private Community of Interests with Innovation reference	Plattform für Innovationsmanagement	Contact person for Gerald Steinwender (CEO)	Sabine	Sieberer	Mrs	s.sieberer@pfi.or.at
3	**Belgium**	University	Autonomous Management School of the University of Antwerp	Program Manager Master Innovation & Entrepreneurship (MIE)	Cathy	Boesmans	Mrs	cathy.boesmans@ams.ac.be
4		University	European University Association	Head of Unit Research Partnerships & Innovation	Lidia	Borrell-Damian	Prof. Dr.	Lidia.Borrell-Damian@eua.be
5	**Bulgaria**	Private Research Institution	Worldbank - Innovation Research Sofia	Contact Person for Innovation in Bulgaria	Ivelina	Taushanvoa	Mrs	itaushanova@worldbank.org
6		University	University of Sofia, Department of Business Administration with research areas Entrepreneurship & Innovation	Head of Department of Business Administration	Anastassia	Bankova	Prof. Dr.	bankova@feb.uni-sofia.bg
7	**Croatia**	Public / Private Research Institution	Business Innovation Centre of Croatia	Contact Person for Director Hrvoje Meštrić	Ivana	Žorž	Mrs	ivana.zorz@bicro.hr
8		Public Scientific Institute	Institute of Economics, Zagreb	Research Associate with Research field Innovation Management & NPD	Ljiljana	Božić	Dr.	ljbozic@eizg.hr
9	**Cyprus**	University	University of Nicosia, Research & Innovation Office	Senior Research Officer for support in Research projects	Elisa	Bosio	Ms	bosio.e@unic.ac.cy

No.	Country	Type of organization	Name of Organization / Degree Program	Function	First name	Family name	Title	Email Address
10	**Czech Republic**	University	Czech Technical University, Prague, Faculty of Mechanical Engineering, Department of Management and Economics	Head of Department	František	Freiberg	Prof. Dr.	frantisek.freiberg@fs.cvut.cz
11	**Denmark**	University	Technical University of Denmark, Department of Management Engineering, Technology and Innovation Management	Professor	Saeema	Ahmed-Kristensen	Prof. Dr.	sakr@dtu.dk
12		University	University of Southern Denmark, Institute of Technology and Innovation	Associate Professor, Head of Study	Leif	Henriksen	Prof.	lh@iti.sdu.dk
13	**Estonia**	University	Tallinn University of Technology and Research, Innovation and Business center MEKTORY	Vice Rector for Innovation and Technology, Business Center Mektory Director	Tea	Varrak	Mrs	tea.varrak@ttu.ee
14	**Finland**	Governmental Institution	Ministry of Education and Culture, Research and Innovation Council,Technology and Innovation Section	Chief Planning Officer	Kai	Husso	Mr.	kai.husso@tem.fi
15	**France**	University	École de commerce Européenne Lyon	Acadmic department, Contact person for professors	Christine	Raynard	Mrs	craynard@inseec.com
16		University Research Lab	INSEEC Research, Department Management, Strategy & RH	Assistant Professor	Anne-Laure	Boncori	Prof. Dr.	alboncori@groupeinseec.com
17		University	École de Commerce et Management in Paris	Responsable des Ressources Numériques et Académiques ESG MS	Amélie	Malinverno	Mrs	amalinverno@esgms.fr
18		University	Paris School of Business	Dean, BBA& Executive Programs	Desmond	McGetrick	Prof.	mcgetrickdesmond@gmail.com
19		University	Sup de Co Montpellier Business School, Executive MBA	Chargée de l'Administration du Programme, Contact person for professors	Delphine	Ferrara	Mrs	mba@supco-montpellier.fr

No.	Country	Type of organization	Name of Organization / Degree Program	Function	First name	Family name	Title	Email Address
20	**Germany**	University of Applied Sciences	University of Applied Sciences Esslingen, Institute for Change Management and Innovation (CMI)	Head of Institute, Professor	Dietmar	Vahs	Prof. Dr.	dietmar.vahs@hs-esslingen.de
21		Business Consultancy	atunis Institut für werteorientiertes Management GmbH	CEO	Alfred	Doll	Mr.	a.doll@atunis.de
22		Business Consultancy	Bukepha / Martina Zimmermann Business Coaching	CEO	Martina	Zimmermann	Mrs	mail@martinazimmermann.de
23		Private Research Institution	Fraunhofer Institut für System- & Technologieforschung ISI	Head of Institute, University Professor	Marion A.	Weissenberger-Eibl	Prof. Dr.	weissenberger-eibl@isi.fraunhofer.de
24	**Greece**	University	Aristotle University of Thessaloniki, Urban and regional innovation innovation research unit	Professor	Nicos	Komninos	Prof. Dr.	komninos@urenio.org
25		University	University of Patras	Assistant Professor	Dimitris	Koutoulas	Prof.	d.koutoulas@gmail.com
26		University	Technical University of Crete, School of Production Engineering and Management, Sector Management and Administration	Professor	Tom	Kontogiannis	Prof.	konto@dpem.tuc.gr
27	**Hungary**	University of Applied Sciences	Budapest Business School	Vice-Rector for Scientic Affairs	Solt	Katalin	Dr. habil.	solt.katalin@bgf.hu
28		University	Central European University Budapest, Institute for Entrepreneurship and Innovation	Assistant Professor of Entrepreneurship and Innovation Management, Faculty Director of CEU InnovationsLab	Bala	Mulloth	Prof. Dr.	mullothb@ceubusiness.org
29	**Ireland**	University	The University of Dublin, Trinity Research & Innovation School	Research projects officer	Camilla	Kelly	Dr.	camilla.kelly@tcd.ie

No.	Country	Type of organization	Name of Organization / Degree Program	Function	First name	Family name	Title	Email Address
30		University	University College Cork, School of Management and Marketing, Department stream of Innovation, Enterprise and Family Business	Professor	Lawrence	Dooley	Dr.	l.dooley@ucc.ie
31	**Italy**	University	Free University of Bozen, Master degree in Entrepreneurship and Innovation	Professor for Innovation Management	Alessandro	Narduzzo	Prof. Dr.	anarduzzo@unibz.it
32		University	Politecnico di Milano, School of Management, Department of Management, Economics and Industrial Engineering	Professor, Senior advisor to the Italian Government for Research and Innovation Policies	Mario	Calderini	Mr.	mario.calderini@polimi.it
33	**Latvia**	University	University of Latvia, Innovation Centre	Director	Matīss	Neimanis	Prof. Dr.	matiss.neimanis@lu.lv
34		Private Research Institution	CONNECT Latvia - an organization that links entrepreneurs with the financial, technical and business development resources they need to create and develop high tech companies in Latvia	Manager	Elmārs	Baltiņš	Mr.	elmars_b@connectlatvia.lv
35		NPO	Latvian Technological Centre	Innovation Management Expert	Gundega	Lapina	Dr.	gundegal@edi.lv
36		Public benefit organization	Association of Latvian Young Scientists, Work group of national economy	Facilitator	Gints	Turlajs	Mr.	Gints.Turlajs@gmail.com
37		Private Institution	Imprimatur Capital Fund Management - Venture capital firm focusing on high-technology at an early stage in its commercial development	Partner	Jānis	Janevics	Mr.	jj@impcap.com
38	**Lithuania**	Governmental Institution	Agency for Science, Innovation and Technology (MITA) (National Innovation Agency)	Director	Arūnas	Karlonas	Mr.	arunas.karlonas@mita.lt

No.	Country	Type of organization	Name of Organization / Degree Program	Function	First name	Family name	Title	Email Address
39		Governmental Institution	Ministry of Economy of the Republic of Lithuania, Innovation and knowledge society department	Director	Dimitrijus	Kucevičius	Mr.	Dimitrijus.Kuceviciu s@ukmin.lt
40	**Luxembourg**	Governmental Institution	National Agency for Innovation and Research, Luxinnovation GIE	Managing Director	Jean-Paul	Schuler	Dr.	info@luxinnovation. lu
41	**Malta**	Governmental Institution	The Malta Council for Science & Technology	Executive Technical Science & Technology Officer	Mark	Meilak	Mr.	mark.meilak@gov.m t
42	**Netherlands**	University	Rotterdam School of Management, Department of Technology and Operations Management	Professor of Management of Technology and Innovation, Boardmember of The Journal of Product Innovation Management	Jan	van den Ende	Prof. Dr.	jende@rsm.nl
43		Private Research Institution	The European Network of Innovation Agencies	Current chair	Joanne	Goede	Mrs	joanne@prisma-and-associates.nl
44	**Poland**	University	University of Warswa, Faculty of Management	Dean	Jan	Turyna	Prof. Dr.	wz@mail.wz.uw.edu .pl
45	**Portugal**	University	Universidad do Porto, Foundation for Science and Technology, R&D Institution Contacts	Contact Email				projectosestrategicos @fct.pt
46		Private Research Institution	MIT Portugal, Faculty of Engineering of the University of Porto	Full Professor, Dept. Mech. & Man Eng.	António Augusto	Fernandes	Prof. Dr.	aaf@fe.up.pt
47		Private Research Institution	MIT International Science and Technology Initiatives	Managing Director, Contact person for professors	Alicia	Goldstein	Mrs	aliciag@mit.edu
48	**Romania**	University	University of Bukarest, Faculty of Business and Administration	Dean	Răzvan	Papuc	Prof. Dr.	secretariataa@faa.ro

No.	Country	Type of organization	Name of Organization / Degree Program	Function	First name	Family name	Title	Email Address
49	**Slovakia**	University	Slovak University of Technology in Bratislava, Department of Science and Research	Head of Department	Mária	Búciová	Mrs Mag. Ing.	Maria_Buciova@stuba.sk
50	**Slovenia**	University	University of Maribor, Department for Research, Development, and Innovations	Assistant of Head of Department	Andreja	Nekrep	Mrs	andreja.nekrep@um.si
51	**Spain**	University / Business School	ESADE Business School, Executive Education Program on Open Innovation and Corporate Entrepreneurship	Program's Director	Kenneth	Morse	Prof. Dr.	ken.morse@esade.edu
52		University	University of Deusto, Deusto Research, Area: Faculty of Economics and Business Administration, Research Area: Knowledge and Innovation Management	Head Researcher	Nekane	Aramburu Goya	Dr.	nekane.aramburu@deusto.es
53	**Sweden**	University	Mälardalen University, School of Innovation, Design and Engineering	Professor	Lars	Asplund	Prof. Dr.	lars.asplund@mdh.se
54		University	Södertörns University	Senior Lecturer, Research project on Entrepreneurship, Innovation, and the Demography of Firms and Industries in Sweden over Two Centuries	Marcus	Box	Dr.	marcus.box@sh.se
55	**Switzerland**	University	University of St. Gallen, Profile Area of Business Innovation	Head of Profile Area	Wolfgang	Stölzle	Prof. Dr.	wolfgang.stoelzle@unisg.ch
56		University	University of Zurich, Economic Geography Unit	Head of Unit, Professor	Christian	Berndt	Prof.	christian.berndt@geo.uzh.ch
57		University	University of Zurich, Departement of Business Administration	Professor (em.)	Margit	Osterloh	Prof. Dr.	margit.osterloh@business.uzh.ch
58		Bank	Zürcher Kantonalbank	Consultant	Regina	Kleeb	Fr.	regina.kleeb@zkb.ch

No.	Country	Type of organization	Name of Organization / Degree Program	Function	First name	Family name	Title	Email Address
59		Business Consultancy	Malik Management Zentrum					info@malik-management.com
60	**United Kingdom**	University	University of Sussex, Economic and Social Research Institute on Innovation and Technology	Department Chair, Business Consultant	Mariana	Mazzucato	Prof. Dr.	m.mazzucato@sussex.ac.uk
61		University	University of South Hampton, Research & Innovation Services	Director	Don	Spalinger	Prof. Dr.	d.spalinger@southampton.ac.uk
62		University	University of Edinburgh, Edinburgh Research and Innovation	ERI Chief Executive	Derek	Waddell	Prof. Dr.	Derek.Waddell@ed.ac.uk
63		Business Consultancy	UK Innovation - focused on helping entrepreneurs to develop innovative ideas in support of the UK economy, including development of innovative products & services, green technologies, IT & software development innovations	Expert	Feisal	Adams	Mr	adams@ukinnovation.co.uk

A8 Exemplary email cover letter for written assessment expert interviews

Egger Carolin

Von:	Egger Carolin
Gesendet:	Mittwoch, 19. Februar 2014 11:44
An:	'm.mazzucato@sussex.ac.uk'
Betreff:	Valuable Values for Innovation? - Written expert interview

Dear Prof. Dr. Mazzucato,

Innovation is a fundamental element of long-term success for organizations and matters increasingly as the origin for national economic growth, especially in countries relatively poor in natural resources, such as most in Europe. In order to provide suggestions and recommendations for managers regarding the further improvement of companies' innovation capabilities my research project seeks to examine empirically the impact of organizational values on product innovation.
For this, we strive to compare insights and opinions from international experts on the topic.
Since you are doing so much research on innovation as well, I would be very much interested in your opinion on my topic.

May I kindly ask you to contribute to my 15-minutes written assessment expert interview until **March 7th, 2014**?
As a small return for your efforts we will be more than happy to send you a summary of the results as soon as they are available.

Using the link below you can easily access our online interview questionnaire:
http://ecampus.fh-kufstein.ac.at:8080/survey/index.php?sid=55619&lang=en

With my sincere thanks and best regards from Tyrol,
Carolin Egger

_____
Dipl.-Wirt.-Ing. (FH) Carolin Egger, MIB
Lecturer in Business Management & Marketing Management

Fachhochschule Kufstein Tirol Bildungs GmbH
UNIVERSITY OF APPLIED SCIENCES
Andreas Hofer-Straße 7, A-6330 Kufstein
Tel. + 43 5372 71819 125, Fax -104
Carolin.Egger@fh-kufstein.ac.at **www.fh-kufstein.ac.at**
FN 183013 m Landesgericht Innsbruck

A9 Written assessment interview questionnaire for innovation experts

Organizational Values & Product Innovation

fh KufsteinTirol
UNIVERSITY OF APPLIED SCIENCES

Dear Madam,
Dear Sir,

Many thanks for your valuable expert contribution to our research project.
We really appreciate your time and support to this written assessment interview very much.

Innovation is a fundamental element of long-term success for organizations and matters increasingly as the origin for national economic growth, especially in countries relatively poor in natural resources, such as most in Europe.
In order to provide suggestions and recommendations for managers regarding the further improvement of companies' innovation capabilities the research project at hand seeks to examine empirically the impact of organizational values on product innovation.
For this, we strive to compare insights and opinions from international experts on the topic which is why we very much appreciate your contribution.
As a small return for your efforts we will be more than happy to send you a summary of the results as soon as they are available.

The completion of this assessment interview questionnaire will take you approximately 15 minutes.
All written assessments run anonymously and results are solely used for the intent of this research project. Your participation is voluntary.

For any further questions please do not hesitate to contact me.
With my sincere thanks and best regards,

Dipl.-Wirt.-Ing. (FH) Carolin Egger, MIB
Lecturer in Business Management and Marketing Management
Fachhochschule Kufstein Tirol Bildungs GmbH
University of Applied Sciences
Andreas-Hofer-Straße 7, A - 6330 Kufstein
Tel.: +43 5372 71819 125, Fax: 105
Carolin.Egger@fh-kufstein.ac.at, www.fh-kufstein.ac.at
FN 183013 m Landesgericht Innsbruck

There are 11 questions in this survey.

Organizational Values for Product Innovation

A: In order to ensure a common understanding between all respondents we would firstly like to explain some terms in the context of this study:

Product Innovation:
In the context of this study, a product innovation is understood as the successful market-introduction of new or significantly improved goods with respect to characteristics such as its capabilities, user friendliness, components or sub-systems or with respect to its intended use.
Therefore, the research at hand does not investigate into process innovations or marketing and organizational innovations.
It also excludes services from the field of interest.
A product is usually a tangible object such as a smart phone, furniture, or packaged software, but downloadable software or music are also goods.

Some examples could be the following:
- Usage of new materials with better capabilities such as breathable fabrics or environmentally friendly plastics.
- Combination of existing components such as the integration of cameras into mobile phones
- Improvements of usability, for example, toasters that switch off automatically when the toast is ready or GPS-systems that show shops and attractions nearby
- Including new functions to a new product, for example, printing both sides of paper, rubbish bins that send a signal when they are full or collapsible products for better storage.

Organizational value:
In the context of this study, organizational values are considered as a set of underlying shared norms and standards which the employees of a company agree to and which they find valuable and worth pursuing, and which lead their activities and determine their daily organizational behaviour and decision-making.
Thus, this research does explicitly not relate to financial values.
Some examples could be the following: Tolerance, Security, or Companionship.

Resume later | << Previous | Next >> | Exit and clear survey

Organizational Values for Product Innovation

01: *
Question 1:

In what way can you relate to the topic of organizational values already?

Check at least 1 answers

- ☐ I have already read about it in the business or daily press.
- ☐ I have already read about it in the academic literature (books, journals etc.).
- ☐ We have already conducted research projects on the topic ourselves.
- ☐ We do have values and guidelines defined for our organization that employees can and are supposed to use for their orientation.
- ☐ I know that some business companies explicitely define values and guidelines for their employees' orientation.
- ☐ I do not have any experiences with the topic yet.
- ☐ Other:

Resume later | << Previous | Next >> | Exit and clear survey

Organizational Values for Product Innovation

02: *Question 2:

How do you evaluate the impact of organizational values on successful product innovation in general?
Choose one of the following answers

- ○ High
- ○ Rather high
- ○ Neutral
- ○ Rather low
- ○ Low

Resume later | << Previous | Next >> | Exit and clear survey

Organizational Values for Product Innovation

**B: We now introduce 12 organizational values to you in random order and include a short explanation of the terms according to different authors.
Even though your personal perception might differ from that we would like to create a common understanding between all interview participants.
Additionally, it is supposed to help you in answering the two following questions.
Therefore, please take your time to read the list carefully.**

Achievement:
The level of expressed importance of success, results and performance by promoting ambitious and capable people and focusing on challenging tasks, discipline and efficiency.

Altruism:
The focus of making the world a better place, being of service to society, contributing to humanity while emphasizing equal opportunities for all, integrity and loyalty.

Authority:
The degree to which reporting relationships are distinctive, chains of command are clear and lines of authority are definite as well as control mechanisms influence decision-making and information flows.

Debate & Discussion:
The open expression and consideration of many different viewpoints, ideas and experiences including constructive conflict handling, questioning, critical awareness and diversity while people freely use both formal and informal channels of communication.

Freedom:
The level of autonomy in determining the way one's work is done and in making own decisions as well as the level of initiative in individual behaviour to acquire information and work independently.

Involvement:
The degree of emotional involvement, commitment, and motivation for operations and goals including enthusiasm, organizational identification, employee participation and shared responsibilities.

Market orientation:
The level of awareness to customer needs and market changes as a priority as well as the will to include a certain degree of external, future, and network orientation in the organization's mindset.

Risk taking:
The level of tolerance for making decisions under ambiguity and uncertainty accompanied by the attitude to be able to improve from past failures including the encouragement to take risks.

Self-direction:
The level of expressed importance of curiosity, creativity, experimentation, imagination, and entrepreneurship in terms of choosing own goals and daring new ways of solving problems.

Social recognition:
Employees receive appreciation and recognition from the organization and from colleagues for achieving ambitious goals and people are treated with esteem, respect and dignity in general.

Support:
The degree to which employees are empowered and encouraged to work on new ideas or in work groups and the level to which new solutions are attended to and judged constructively in a kind manner.

Trust:
The degree of perceived emotional safety and openness found in relationships but also the importance of close ties with colleagues and external partners as well as a common understanding about what is important and a healthy level of pride in the organization.

Resume later | << Previous | Next >> | Exit and clear survey

Organizational Values for Product Innovation

03: *Question 3:

**Below you will now find the already known 12 organizational values in random order.
If you would like to recheck their explanations, please click here.**

**How important do you consider these values to be for product innovations in general?
Please mark your answer with a click per value in the accordant column.**

	Important	Rather important	Neutral	Rather unimportant	Unimportant	I cannot judge
Debate & Discussion	○	○	○	○	○	○
Social recognition	○	○	○	○	○	○
Self-direction	○	○	○	○	○	○
Support	○	○	○	○	○	○
Risk taking	○	○	○	○	○	○
Authority	○	○	○	○	○	○
Achievement	○	○	○	○	○	○
Involvement	○	○	○	○	○	○
Market orientation	○	○	○	○	○	○
Trust	○	○	○	○	○	○
Freedom	○	○	○	○	○	○
Altruism	○	○	○	○	○	○

Resume later | << Previous | Next >> | Exit and clear survey

Organizational Values for Product Innovation

04: *Question 4:

Now please evaluate how characteristic you think the values under research are for industrial / manufacturing companies in your country.
If you would like to recheck the explanations of the values, please click here.
Please mark your answers with a click per value in the accordant column.

	Characteristic	Rather characteristic	Neutral	Rather uncharacteristic	Uncharacteristic	I cannot judge
Market orientation	○	○	○	○	○	○
Social recognition	○	○	○	○	○	○
Trust	○	○	○	○	○	○
Involvement	○	○	○	○	○	○
Achievement	○	○	○	○	○	○
Support	○	○	○	○	○	○
Altruism	○	○	○	○	○	○
Debate & Discussion	○	○	○	○	○	○
Authority	○	○	○	○	○	○
Self-direction	○	○	○	○	○	○
Risk taking	○	○	○	○	○	○
Freedom	○	○	○	○	○	○

Resume later | << Previous | Next >> | Exit and clear survey

Organizational Values for Product Innovation

C:
You almost made it already.
In the following part we kindly ask you for some general data regarding your organization.
This will help us to analyze our international results according to different countries or different kinds of organizations, for example. With this, it allows for a more sophisticated interpreation of the results.

Resume later | << Previous | Next >> | Exit and clear survey

Organizational Data

05: *Question 5:

In what country do you work for your organization?
Choose one of the following answers

- ○ Austria
- ○ Belgium
- ○ Bulgaria
- ○ Croatia
- ○ Czech Republic
- ○ Denmark
- ○ Estonia
- ○ Finland
- ○ France
- ○ Germany
- ○ Greece
- ○ Hungary
- ○ Ireland
- ○ Italy
- ○ Latvia
- ○ Lithuania
- ○ Luxembourg
- ○ Malta
- ○ Netherlands
- ○ Poland
- ○ Portugal
- ○ Romania
- ○ Slovakia
- ○ Slovenia
- ○ Spain
- ○ Sweden
- ○ Switzerland
- ○ United Kingdom
- ○ Zyprus

Resume later | << Previous | Next >> | Exit and clear survey

Organizational Data

06: *Question 6:

In what sort of organization do you work?
Choose one of the following answers

- ○ University
- ○ University of Applied Sciences
- ○ Governmental Institution
- ○ Public Research Institution
- ○ Private Research Institution
- ○ Private Association with innovation reference
- ○ Private Community of Interests with innovation reference
- ○ Business & Management Consultancy
- ○ Other:

Resume later | << Previous | Next >> | Exit and clear survey

Additional Comments

07: This was the last question of our written Assessment Interview.

Many thanks for all your efforts, time, and valuable insights.

If there is anything else you would like to tell us or you would like us to consider regarding the topic of organizational values and their impact on product innovation please feel welcome to let us know below:

Resume later | << Previous | Next >> | Exit and clear survey

Contact Details

08: As promised, we will be more than happy to share the summarized results with you.
For this, please let us have your contact details.

Organization name	
Name	
Postal Address	
Zip Code & City	
Country	
Email - Address	

Resume later | << Previous | Submit | Exit and clear survey

A10 Detailed SPSS output for tests of normality of survey data

Question 3: Evaluation of the general importance of the pre-defined values for product innovation on a 5 point Likert-scale. → Result: no normally distributed data.

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Importance general Achievement	,237	80	,000	,815	80	,000
Importance general Altruism	,226	80	,000	,901	80	,000
Importance general Authority	,206	80	,000	,901	80	,000
Importance general Debate & Discussion	,422	80	,000	,632	80	,000
Importance general Freedom	,234	80	,000	,822	80	,000
Importance general Involvement	,280	80	,000	,816	80	,000
Importance general Market orientation	,393	80	,000	,674	80	,000
Importance general Risk taking	,318	80	,000	,760	80	,000
Importance general Self-direction	,249	80	,000	,810	80	,000
Importance general Social recognition	,297	80	,000	,846	80	,000
Importance general Support	,248	80	,000	,795	80	,000
Importance general Trust	,299	80	,000	,768	80	,000

a. Lilliefors Significance Correction

Question 4: Estimation of the level of characteristic one's own company has of the pre-defined value themes on a 5 point Likert-scale. → Result: no normally distributed data.

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Level of characteristic Achievement	,238	81	,000	,851	81	,000
Level of characteristic Altruism	,180	81	,000	,900	81	,000
Level of characteristic Authority	,219	81	,000	,899	81	,000
Level of characteristic Debate & Discussion	,222	81	,000	,868	81	,000
Level of characteristic Freedom	,251	81	,000	,886	81	,000
Level of characteristic Involvement	,240	81	,000	,822	81	,000
Level of characteristic Market orientation	,227	81	,000	,847	81	,000
Level of characteristic Risk taking	,162	81	,000	,917	81	,000
Level of characteristic Self-direction	,264	81	,000	,876	81	,000
Level of characteristic Social recognition	,213	81	,000	,889	81	,000
Level of characteristic Support	,259	81	,000	,867	81	,000
Level of characteristic Trust	,259	81	,000	,862	81	,000

a. Lilliefors Significance Correction

A11 Detailed SPSS output for non-parametric tests of survey data

Question 2: Evaluation of general importance of organizational values for product innovations – Mann-Whitney U-Test for comparing top innovator companies with non-innovator companies. → No significant findings.

Test Statistics[a]

	Evaluation of general impact of values on innovation
Mann-Whitney U	220,500
Wilcoxon W	451,500
Z	-,277
Asymp. Sig. (2-tailed)	,781

a. Grouping Variable: Innovation Classification

Question 2: Evaluation of general importance of organizational values for product innovations – Kruskal Wallis Test for comparing different functional departments. → No significant findings.

Test Statistics[a,b]

	Evaluation of general impact of values on innovation
Chi-Square	1,684
df	2
Asymp. Sig.	,431

a. Kruskal Wallis Test

b. Grouping Variable: Functional department

Question 3: Evaluation of the general importance of the pre-defined values for product innovation on a 5 point Likert-scale – Mann-Whitney U-Test for comparing top innovator companies with non-innovator companies. → No significant findings.

Test Statistics[a]

	Importance general Achievement	Importance general Altruism	Importance general Authority	Importance general Debate & Discussion	Importance general Freedom	Importance general Involvement	Importance general Market orientation	Importance general Risk taking	Importance general Self-direction	Importance general Social recognition	Importance general Support	Importance general Trust
Mann-Whitney U	241,000	228,500	239,000	203,500	233,000	222,500	147,000	185,000	178,500	206,000	183,000	215,500
Wilcoxon W	472,000	459,500	470,000	479,500	464,000	498,500	423,000	416,000	454,500	482,000	459,000	446,500
Z	-,013	-,319	-,061	-1,121	-,213	-,508	-2,652	-1,434	-1,600	-,930	-1,521	-,668
Asymp. Sig. (2-tailed)	,990	,750	,951	,262	,832	,612	,008	,152	,110	,352	,128	,504

a. Grouping Variable: Innovation Classification

Question 3: Evaluation of the general importance of the pre-defined values for product innovation on a 5 point Likert-scale – Kruskal Wallis Test for comparing different functional departments. → No significant findings.

Test Statistics[a,b]

	Importance general Achievement	Importance general Altruism	Importance general Authority	Importance general Debate & Discussion	Importance general Freedom	Importance general Involvement	Importance general Market orientation	Importance general Risk taking	Importance general Self-direction	Importance general Social recognition	Importance general Support	Importance general Trust
Chi-Square	5,258	,242	2,158	4,992	4,969	2,996	,481	4,774	3,179	,059	1,047	,969
df	2	2	2	2	2	2	2	2	2	2	2	2
Asymp. Sig.	,072	,886	,340	,082	,083	,224	,786	,092	,204	,971	,592	,616

a. Kruskal Wallis Test

b. Grouping Variable: Functional department

Question 4: Estimation of the level of characteristic one's own company has of the pre-defined value themes on a 5 point Likert-scale – Mann-Whitney U-Test for comparing top innovator companies with non-innovator companies. → No significant findings.

Test Statistics[a]

	Level of characteristic Achievement	Level of characteristic Altruism	Level of characteristic Authority	Level of characteristic Debate & Discussion	Level of characteristic Freedom	Level of characteristic Involvement	Level of characteristic Market orientation	Level of characteristic Risk taking	Level of characteristic Self-direction	Level of characteristic Social recognition	Level of characteristic Support	Level of characteristic Trust
Mann-Whitney U	185,000	191,000	190,000	172,000	213,000	211,500	229,500	172,500	202,000	235,000	200,500	240,500
Wilcoxon W	461,000	467,000	466,000	448,000	444,000	442,500	505,500	448,500	478,000	511,000	476,500	471,500
Z	-1,412	-1,230	-1,263	-1,689	-,698	-,750	-,297	-1,678	-,984	-,162	-1,007	-,025
Asymp. Sig. (2-tailed)	,158	,219	,207	,091	,485	,453	,766	,093	,325	,872	,314	,980

a. Grouping Variable: Innovation Classification

Question 3 & 4: Comparision between the answers of question 3 (How much a value theme is important to product innovation) and question 4 (How much a value theme is characteristic of one's own company) – Mann-Whintey U-Test to search for significantly different answers amongst all survey participants. → Various significant findings!

Test Statistics[a]

	Achievement	Altruism	Authority	Debate & Discussion	Freedom	Involvement	Market orientation	Risk taking	Self-direction	Social recognition	Support	Trust
Mann-Whitney U	2916,000	2900,000	2217,000	1783,000	2328,500	3177,000	2133,000	1194,000	2166,500	2495,000	2145,500	2263,500
Wilcoxon W	6237,000	6221,000	5538,000	5104,000	5649,500	6498,000	5454,000	4515,000	5487,500	5816,000	5385,500	5584,500
Z	-1,297	-1,322	-3,665	-5,433	-3,369	-,373	-4,178	-7,239	-3,936	-2,809	-3,933	-3,617
Asymp. Sig. (2-tailed)	,195	,186	,000	,000	,001	,709	,000	,000	,000	,005	,000	,000

a. Grouping Variable: Original Question Number

Question 3 & 4: Comparision between the answers of question 3 (How much a value theme is important to product innovation) and question 4 (How much a value theme is characteristic of one's own company) – Mann-Whintey U-Test to search for significantly different answers amongst the 22 top innovating companies in the sample. → Various significant findings!

Test Statistics[a]

	Achievement	Altruism	Authority	Debate & Discussion	Freedom	Involvement	Market orientation	Risk taking	Self-direction	Social recognition	Support	Trust
Mann-Whitney U	218,500	249,500	175,500	132,000	176,500	244,000	147,000	120,500	169,000	182,000	155,000	175,000
Wilcoxon W	494,500	525,500	451,500	408,000	452,500	520,000	423,000	396,500	445,000	458,000	431,000	451,000
Z	-1,086	-,345	-2,025	-3,245	-2,017	-,495	-3,005	-3,300	-2,252	-1,964	-2,584	-2,105
Asymp. Sig. (2-tailed)	,278	,730	,043	,001	,044	,621	,003	,001	,024	,049	,010	,035

a. Grouping Variable: Original Question Number

A12 Detailed SPSS output for correlational analysis with survey data

Spearman's rho for the level of characteristics of each value theme and the subjective innovation performance criteria. → Significant, partly highly significant, findings for various value themes!

Correlations

			Level of characteristic Achievement	Level of characteristic Altruism	Level of characteristic Authority	Level of characteristic Debate & Discussion	Level of characteristic Freedom	Level of characteristic Involvement	Level of characteristic Market orientation	Level of characteristic Risk taking	Level of characteristic Self-direction	Level of characteristic Social recognition	Level of characteristic Support	Level of characteristic Trust	Percentage share of turnover of products new to market	Percentage share of turnover of products new to firm	Percentage share of turnover of unchanged or only marginally modified products	Innovation Classification	Estimated lenght of PLC	Inno performance against competitors: No of new products	Inno performance against competitors: Pioneer disposition	Inno performance against competitors: Speed of NPD	Inno performance against competitors: Clever and fast response to new products introduced by competitors	Inno performance against competitors: Financial efforts in R&D	Inno performance against competitors: Additional efforts in NPD
Spearman's rho	Level of characteristic Achievement	Correlation Coefficient	1,000	,090	,147	,223*	,110	,158	,395**	,178	,167	,132	,185	,220*	-,184	,073	,095	,243*	,185	,122	,233*	-,026	-,041	-,063	-,008
		Sig. (2-tailed)		,426	,190	,045	,327	,159	,000	,112	,135	,240	,098	,049	,100	,516	,397	,029	,098	,280	,038	,819	,718	,594	,947
		N	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	80	80	79	80	75	74
	Level of characteristic Altruism	Correlation Coefficient	,090	1,000	,020	,111	,154	,189	,234*	,225*	,338**	,427**	,301**	,165	-,195	,043	,049	,148	-,023	,070	,097	-,080	,028	,088	,245*
		Sig. (2-tailed)	,426		,863	,323	,169	,091	,036	,043	,002	,000	,006	,142	,081	,700	,666	,188	,841	,537	,391	,484	,806	,452	,036
		N	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	80	80	79	80	75	74
	Level of characteristic Authority	Correlation Coefficient	,147	,020	1,000	-,322**	-,337**	-,165	,321**	-,211	-,211	-,147	-,126	-,145	-,095	,037	,061	-,058	,131	-,099	-,076	-,038	-,116	-,106	,113
		Sig. (2-tailed)	,190	,863		,003	,002	,140	,003	,059	,058	,191	,261	,195	,401	,743	,588	,609	,246	,382	,502	,740	,304	,365	,340
		N	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	80	80	79	80	75	74
	Level of characteristic Debate & Discussion	Correlation Coefficient	,223*	,111	-,322**	1,000	,562**	,368**	,104	,380**	,526**	,365**	,508**	,537**	-,123	-,143	,201	-,027	-,122	,106	,241*	,148	,139	-,005	-,058
		Sig. (2-tailed)	,045	,323	,003		,000	,001	,358	,000	,000	,001	,000	,000	,273	,203	,071	,813	,277	,351	,031	,192	,218	,965	,624
		N	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	80	80	79	80	75	74
	Level of characteristic Freedom	Correlation Coefficient	,110	,154	-,337**	,562**	1,000	,399**	,079	,280*	,620**	,250*	,430**	,557**	,105	-,215	,068	-,212	-,068	,167	,070	,099	,122	,117	,017
		Sig. (2-tailed)	,327	,169	,002	,000		,000	,483	,011	,000	,025	,000	,000	,353	,054	,546	,057	,544	,139	,540	,384	,280	,318	,889
		N	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	80	80	79	80	75	74
	Level of characteristic Involvement	Correlation Coefficient	,158	,189	-,165	,368**	,399**	1,000	,264*	,207	,402**	,248*	,313**	,537**	,094	-,041	-,029	-,050	-,157	,293**	,201	,139	-,035	,208	,172
		Sig. (2-tailed)	,159	,091	,140	,001	,000		,017	,063	,000	,026	,004	,000	,401	,714	,796	,659	,162	,008	,074	,222	,759	,073	,143
		N	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	80	80	79	80	75	74
	Level of characteristic Market orientation	Correlation Coefficient	,395**	,234*	,321**	,104	,079	,264*	1,000	,152	,180	,129	,185	,146	-,096	,039	-,010	,073	,124	,150	,049	,005	,055	,196	,194
		Sig. (2-tailed)	,000	,036	,003	,358	,483	,017		,175	,107	,250	,099	,194	,394	,727	,927	,515	,270	,185	,664	,965	,628	,093	,097
		N	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	80	80	79	80	75	74
	Level of characteristic Risk taking	Correlation Coefficient	,178	,225*	-,211	,380**	,280*	,207	,152	1,000	,292**	,271*	,444**	,288**	-,130	-,179	,201	-,144	-,083	,123	,220*	,369**	,232*	,038	-,014
		Sig. (2-tailed)	,112	,043	,059	,000	,011	,063	,175		,008	,015	,000	,009	,246	,110	,071	,199	,462	,275	,050	,001	,038	,747	,907
		N	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	80	80	79	80	75	74
	Level of characteristic Self-direction	Correlation Coefficient	,167	,338**	-,211	,526**	,620**	,402**	,180	,292**	1,000	,257*	,387**	,604**	-,162	-,128	,182	,072	-,094	,119	,187	,069	,014	,057	,007
		Sig. (2-tailed)	,135	,002	,058	,000	,000	,000	,107	,008		,021	,000	,000	,149	,255	,104	,524	,403	,294	,097	,546	,901	,626	,950
		N	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	80	80	79	80	75	74
	Level of characteristic Social recognition	Correlation Coefficient	,132	,427**	-,147	,365**	,250*	,248*	,129	,271*	,257*	1,000	,318**	,354**	-,075	,160	-,036	,061	-,084	,195	,113	,172	,186	-,076	,054
		Sig. (2-tailed)	,240	,000	,191	,001	,025	,026	,250	,015	,021		,004	,001	,506	,154	,747	,590	,454	,083	,318	,128	,099	,517	,648
		N	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	80	80	79	80	75	74
	Level of characteristic Support	Correlation Coefficient	,185	,301**	-,126	,508**	,430**	,313**	,185	,444**	,387**	,318**	1,000	,450**	-,103	-,077	,113	-,049	-,124	,347**	,238*	,285*	,198	,273*	,309**
		Sig. (2-tailed)	,098	,006	,261	,000	,000	,004	,099	,000	,000	,004		,000	,362	,493	,313	,665	,271	,002	,034	,011	,078	,018	,007
		N	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	80	80	79	80	75	74
	Level of characteristic Trust	Correlation Coefficient	,220*	,165	-,145	,537**	,557**	,537**	,146	,288**	,604**	,354**	,450**	1,000	,004	-,085	,114	-,114	-,107	,193	,141	,241*	,077	-,049	,040
		Sig. (2-tailed)	,049	,142	,195	,000	,000	,000	,194	,009	,000	,001	,000		,974	,449	,310	,312	,341	,086	,212	,032	,499	,677	,735
		N	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	80	80	79	80	75	74
	Inno performance against competitors:	Correlation Coefficient	,122	,070	-,099	,106	,167	,293**	,150	,123	,119	,195	,347**	,193	-,176	,091	,120	-,018	,042	1,000	,476**	,580**	,151	,284*	,337**
		Sig. (2-tailed)	,280	,537	,382	,351	,139	,008	,185	,275	,294	,083	,002	,086	,119	,423	,291	,876	,712		,000	,000	,180	,014	,003
		N	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	79	80	75	74
	Inno performance against competitors:	Correlation Coefficient	,233*	,097	-,076	,241*	,070	,201	,049	,220*	,187	,113	,238*	,141	-,315**	-,032	,262*	,128	,039	,476**	1,000	,347**	,123	,195	,188
		Sig. (2-tailed)	,038	,391	,502	,031	,540	,074	,664	,050	,097	,318	,034	,212	,004	,776	,019	,258	,732	,000		,002	,275	,093	,109
		N	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	79	80	75	74
	Inno performance against competitors:	Correlation Coefficient	-,026	-,080	-,038	,148	,099	,139	,005	,369**	,069	,172	,285*	,241*	-,206	,003	,225*	-,022	-,025	,580**	,347**	1,000	,350**	-,013	-,046
		Sig. (2-tailed)	,819	,484	,740	,192	,384	,222	,965	,001	,546	,128	,011	,032	,068	,978	,046	,847	,826	,000	,002		,002	,911	,702
		N	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	74	73
	Inno performance against competitors:	Correlation Coefficient	-,041	,028	-,116	,139	,122	-,035	,055	,232*	,014	,186	,198	,077	-,034	-,013	,105	,112	,025	,151	,123	,350**	1,000	,103	,082
		Sig. (2-tailed)	,718	,806	,304	,218	,280	,759	,628	,038	,901	,099	,078	,499	,762	,912	,352	,325	,824	,180	,275	,002		,378	,490
		N	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	79	80	75	74
	Inno performance against competitors:	Correlation Coefficient	-,063	,088	-,106	-,005	,117	,208	,196	,038	,057	-,076	,273*	-,049	,061	-,034	-,061	,014	-,120	,284*	,195	-,013	,103	1,000	,623**
		Sig. (2-tailed)	,594	,452	,365	,965	,318	,073	,093	,747	,626	,517	,018	,677	,602	,775	,605	,908	,307	,014	,093	,911	,378		,000
		N	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	74	75	75	73
	Inno performance against competitors:	Correlation Coefficient	-,008	,245*	,113	-,058	,017	,172	,194	-,014	,007	,054	,309**	,040	-,085	,063	-,044	,060	-,023	,337**	,188	-,046	,082	,623**	1,000
		Sig. (2-tailed)	,947	,036	,340	,624	,889	,143	,097	,907	,950	,648	,007	,735	,469	,594	,712	,611	,846	,003	,109	,702	,490	,000	
		N	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	73	74	73	74

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

A13 Detailed SPSS output for coefficients of determination with survey data

Model summary for a linear regression including all independent variables with the Number of new products as dependent variable:

a. Dependent Variable: Inno performance against competitors: No of new products

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,436[a]	,190	,045	1,139

a. Predictors: (Constant), Level of characteristic Trust, Level of characteristic Market orientation, Level of characteristic Altruism, Level of characteristic Risk taking, Level of characteristic Achievement, Level of characteristic Authority, Level of characteristic Support, Level of characteristic Social recognition, Level of characteristic Freedom, Level of characteristic Involvement, Level of characteristic Debate & Discussion, Level of characteristic Self-direction

Model summary for a linear regression including all independent variables with the Pioneer disposition of new products as dependent variable:

a. Dependent Variable: Inno performance against competitors: Pioneer disposition

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,407[a]	,165	,016	1,059

a. Predictors: (Constant), Level of characteristic Trust, Level of characteristic Market orientation, Level of characteristic Altruism, Level of characteristic Risk taking, Level of characteristic Achievement, Level of characteristic Authority, Level of characteristic Support, Level of characteristic Social recognition, Level of characteristic Freedom, Level of characteristic Involvement, Level of characteristic Debate & Discussion, Level of characteristic Self-direction

Model summary for a linear regression including all independent variables with the Speed of new product development as dependent variable:

a. Dependent Variable: Inno performance against competitors: Speed of NPD

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,521[a]	,272	,139	1,089

a. Predictors: (Constant), Level of characteristic Trust, Level of characteristic Market orientation, Level of characteristic Altruism, Level of characteristic Risk taking, Level of characteristic Achievement, Level of characteristic Authority, Level of characteristic Support, Level of characteristic Social recognition, Level of characteristic Involvement, Level of characteristic Freedom, Level of characteristic Debate & Discussion, Level of characteristic Self-direction

Model summary for a linear regression including all independent variables with the Clever and fast response to new products introduced by competitors as dependent variable:

a. Dependent Variable: Inno performance against competitors: Clever and fast response to new products introduced by competitors

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,351[a]	,123	-,034	1,009

a. Predictors: (Constant), Level of characteristic Trust, Level of characteristic Market orientation, Level of characteristic Altruism, Level of characteristic Risk taking, Level of characteristic Achievement, Level of characteristic Authority, Level of characteristic Support, Level of characteristic Social recognition, Level of characteristic Freedom, Level of characteristic Involvement, Level of characteristic Debate & Discussion, Level of characteristic Self-direction

Model summary for a linear regression including all independent variables with the Financial efforts for R&D as dependent variable:

a. Dependent Variable: Inno performance against competitors: Financial efforts in R&D

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,506[a]	,256	,112	,894

a. Predictors: (Constant), Level of characteristic Trust, Level of characteristic Market orientation, Level of characteristic Altruism, Level of characteristic Authority, Level of characteristic Achievement, Level of characteristic Risk taking, Level of characteristic Support, Level of characteristic Social recognition, Level of characteristic Freedom, Level of characteristic Involvement, Level of characteristic Self-direction, Level of characteristic Debate & Discussion

Model summary for a linear regression including all independent variables with the Additional efforts in NPD as dependent variable:

a. Dependent Variable: Inno performance against competitors: Additional efforts in NPD

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,464[a]	,215	,061	1,054

a. Predictors: (Constant), Level of characteristic Trust, Level of characteristic Market orientation, Level of characteristic Altruism, Level of characteristic Achievement, Level of characteristic Authority, Level of characteristic Risk taking, Level of characteristic Support, Level of characteristic Social recognition, Level of characteristic Freedom, Level of characteristic Involvement, Level of characteristic Self-direction, Level of characteristic Debate & Discussion

A14 Detailed SPSS output for KMO in principal component analysis of survey

Question 3: Evaluation of the general importance of the pre-defined values for product innovation on a 5 point Likert-scale – Principal component analysis to assess where the variables measure a similar phenomenon. → Result: Appropriate sample as checked with KMO Test and a KMO value > 0,5.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,601
Bartlett's Test of Sphericity	Approx. Chi-Square	154,824
	df	66
	Sig.	,000

A15 Detailed SPSS output for comparing question 3 & 4 in expert interviews

Question 3 & 4: Comparision between the answers of question 3 (How much a value theme is important to product innovation) and question 4 (How much a value theme is characteristic of manufacturing companies in one's own country) – Mann-Whintey U-Test to search for significantly different answers amongst the 13 experts. → Various significant findings!

Test Statistics[a]

	Achievement	Altruism	Authority	Debate & Discussion	Freedom	Involvement	Market orientation	Risk taking	Self-direction	Social recognition	Support	Trust
Mann-Whitney U	61,500	56,500	37,500	27,500	40,500	64,000	76,500	22,000	28,500	9,000	40,500	22,000
Wilcoxon W	152,500	147,500	128,500	118,500	131,500	155,000	167,500	113,000	119,500	100,000	131,500	113,000
Z	-1,249	-1,493	-2,476	-3,132	-2,403	-1,123	-,441	-3,330	-3,051	-3,987	-2,405	-3,383
Asymp. Sig. (2-tailed)	,212	,135	,013	,002	,016	,262	,659	,001	,002	,000	,016	,001
Exact Sig. [2*(1-tailed Sig.)]	,243[b]	,153[b]	,014[b]	,002[b]	,022[b]	,311[b]	,687[b]	,001[b]	,003[b]	,000[b]	,022[b]	,001[b]

a. Grouping Variable: Original Q number

b. Not corrected for ties.

A16 Detailed SPSS output for group comparisons in expert interviews

Question 2: Evaluation of general importance of organizational values for product innovations – Mann-Whitney U-Test for comparing managers' versus experts' evaluation → No significant findings.

Test Statistics[a]

	Importance of values overall
Mann-Whitney U	366,000
Wilcoxon W	457,000
Z	-1,856
Asymp. Sig. (2-tailed)	,063

a. Grouping Variable: Type of organization

Question 2: Evaluation of general importance of organizational values for product innovations – Mann-Whitney U-Test for comparing academics' versus non-academics' evaluation → No significant findings.

Test Statistics[a]

	Importance of values overall
Mann-Whitney U	20,500
Wilcoxon W	41,500
Z	-,083
Asymp. Sig. (2-tailed)	,934
Exact Sig. [2*(1-tailed Sig.)]	,945[b]

a. Grouping Variable: Type of expert

b. Not corrected for ties.

Question 3: Evaluation of the general importance of the pre-defined values for product innovation on a 5 point Likert-scale – Mann-Whitney U-Test for comparing managers' versus experts' evaluation → Significant findings only for the value theme of social recognition.

Test Statistics[a]

	Achievement	Altruism	Authority	Debate & Discussion	Freedom	Involvement	Market orientation	Risk taking	Self-direction	Social recognition	Support	Trust
Mann-Whitney U	386,000	439,000	508,000	429,500	410,500	418,000	416,000	486,500	472,000	320,000	418,500	483,000
Wilcoxon W	3707,000	530,000	599,000	3750,500	501,500	509,000	3737,000	577,500	563,000	411,000	509,500	574,000
Z	-1,631	-1,004	-,211	-1,270	-1,367	-1,299	-1,410	-,487	-,644	-2,438	-1,231	-,523
Asymp. Sig. (2-tailed)	,103	,315	,833	,204	,172	,194	,158	,626	,520	,015	,218	,601

a. Grouping Variable: Type of organization

Question 3: Evaluation of the general importance of the pre-defined values for product innovation on a 5 point Likert-scale – Mann-Whitney U-Test for comparing academics' versus non-academics' evaluation → No significant findings.

Test Statistics[a]

	Achievement	Altruism	Authority	Debate & Discussion	Freedom	Involvement	Market orientation	Risk taking	Self-direction	Social recognition	Support	Trust
Mann-Whitney U	16,500	18,500	17,000	19,500	15,000	19,000	10,000	16,000	20,500	19,500	13,000	21,000
Wilcoxon W	37,500	39,500	45,000	40,500	36,000	47,000	38,000	37,000	48,500	47,500	41,000	49,000
Z	-,673	-,379	-,583	-,247	-,964	-,316	-1,689	-,825	-,079	-,237	-1,320	0,000
Asymp. Sig. (2-tailed)	,501	,705	,560	,805	,335	,752	,091	,409	,937	,812	,187	1,000
Exact Sig. [2*(1-tailed Sig.)]	,534[b]	,731[b]	,628[b]	,836[b]	,445[b]	,836[b]	,138[b]	,534[b]	,945[b]	,836[b]	,295[b]	1,000[b]

a. Grouping Variable: Type of expert

b. Not corrected for ties.