



Chapter 5

Developing Innovation Culture in the Baltics: Organizational Challenges in a Time of Transition

Monika Petraite

Abstract

The development of innovative culture within an organization is listed among the core factors for innovation sustainability and continued success within organizations. However, neither the phenomena of innovative culture was studied in depth at the micro level, nor the organizational factors, influencing the formation of certain innovation culture profiles within an organisation were analysed, nor especially, their underpinnings tested at the empirical level. The paper focuses on the understanding of innovation culture formation within business organizations, in depth analysis of the core organizational factors, influencing this formation and finally, also defining the diversity of innovation culture profiles in business organizations. The analysis of those factors contributes to the understanding of the phenomenon of innovation culture in business organisations from the empirical perspective, but also provides the ground and implications for action in designing innovative organisations and developing innovation cultures in catching up countries, as the paper is based on empirical findings from Lithuania.

Keywords: Innovation culture profiles, business organizations; organizational design

1 Introduction

Since the final decades of the 20th century, a great deal of interest has been shown in the concept of innovation and the effects of innovation culture on organizational performance (Anderson, 1998; Dobni, 2008). OECD (2012) pointed out that it is increasingly recognized that innovation is influenced by certain social and cultural values, norms, attitudes and behaviors, which may be described as innovation culture. Research demonstrates that organizational innovation culture exerts a strong influence on innovation performance. For example, Hurley (1995) shows that the characteristics of organizational innovation culture (such as power-sharing, support and cooperation, career development and participation in decision making) demonstrate a significant impact on an organization's innovation rate. Claver et al. (1998) conclude that organizational innovation culture is the premise of technological innovation and innovation performance. Similarly, Deshpandé et al. (1993) and Kleinschmidt et al. (2007) indicate that an innovation-oriented firm's culture provides a competitive advantage by increasing the emphasis on innovation and fostering receptiveness to new ideas. Stock et al. (2013) show that a company's innovation-oriented culture positively affects business performance by increasing product program innovation.

However, the analysis of organizational innovation culture faces methodological challenges, associated with the conceptual perspectives it takes. Following *emic* approach, the organizational innovation culture can be seen as a set of unique and not replicable values and norms that enable innovative activity (Pike, 1967, Jucevicius 2007). Alternately, following *etic* approach (Pike, 1967), organizational innovation culture can be defined by means of theoretical analysis and common factors, characterising successful innovation culture, that are shared by all successful organizations and can be revealed by application of empirical and statistical analysis methods. Therefore, in the analysis of organizational innovation culture, it is important to acknowledge the uniqueness of local cultural and business values (that potentially might affect innovation activity) with the universal features of innovation culture. This supports the idea of potential coexistence of common (or universal) innovation culture characteristics and contextual innovation culture characteristics, namely which are of interest in our study. However, empirical value based sociological investigation constructs have limitations, as they might reveal a wishful thinking rather than the actual state of the art. However, organizational norms, and values can be studied via the organizational behaviours and practices which are easier to monitor and through which innovation culture manifests. This approach allows to study organizational innovation culture constituents that are developed and shaped by organizational design characteristics. In sum, organizational designs, processes, routines and metrics define the framework for innovation culture development and manifestation.

Studies of organizational innovation culture and behaviours has been studied in various national and industrial contexts, including Herstatt et al. study on Innovation cultures in Germany, Japan and also industrial studies by Jucevicius and Stanevicius in Lithuania. With this study we aim to look at the specific context of innovation culture development in businesses of a transition economy. The typical challenges the firms face during the transition is the need to combine benefits of cost efficiency and productivity increase with the more sophisticated innovation oriented activities in order to ensure the smooth transition towards an innovation driven economy and knowledge based sources of competitiveness. This causes a specific combination of organizational routines and practices, that might deviate from the “golden standard” set by firms in the well-developed robust innovative economies. The countries in rapid transition face socio – cultural change as well, and a specific challenge of shifting productivity and “zero mistake” tolerance cultures in business towards learning, creativity and innovation oriented cultures with high tolerance for uncertainty. The selected cases of our study are Baltic economies and their firms that exactly are in the moment of transition from productivity driven growth to the innovation driven growth (WEF, 2017) and are facing both, managerial and organizational shifts with an aim to develop more innovation supportive cultures. This requires the Baltic countries, including Lithuania (our in depth case study), to search for context specific innovation culture development approaches along with unique innovation activity coordination mechanisms. The manifestation of contextual and universal innovation culture characteristics varies depending on the sectorial and organizational demographics, whereas the organizations on top of universal innovation culture characteristics also manifest sector specific features and organizational innovation culture profiles.

The research design aims at revealing specific characteristics that would allow to define innovation culture profiles across sectors and organizational demographics, while studying systemic underpinnings of so called “soft” and “hard” organizational characteristics within the certain innovation culture profiles. The entire approach is based on the idea of Ba by Nonaka (1998), where particular attention is given to knowledge creation contexts and environments.

The approach is complemented with organizational design approach, which provides a systemic view on the organizational innovation culture constituents manifesting through organizational practices, orientations, processes and supporting structures (Stanford, 2007). Entire practices vary significantly across sectors and organization demographics, which implies the studies of universal innovation culture characteristics to be insufficient in order to explain and support the development of innovation culture within business sectors. In order to understand the formation of organizational innovation culture, we need to focus on the understanding of sectorial and organizational contexts and their effects on the phenomena studied.

Based on this problem formulation, the chapter aims at providing organizational innovation culture profiles in business organizations in Lithuania, as based on the empirically tested characteristics and their manifestations. Although this paper does not provide a prescriptive method for business organisations to follow in order to become innovative, it does identify what organizational factors and their configurations are important in shaping an organisation's innovative culture. We also were able to extract universal and distinct features of organizational culture manifestations within the sample organizations, which have allowed to form a distinct innovation culture profiles. The analysis and discussion is based on the original Innovation Culture Survey in Business (Janiunaite, Petraite and Jucevicius, 2011) results from the selected sample of Lithuanian innovative organizations from various industry sectors, (total sample reached 300 innovative organisations) .

The first chapter, provides the theoretical perspective in innovation culture manifestation and analytical approaches in business. Secondly, we look at the empirical data analysis along the organizational design constituents from the perspective of innovation culture manifestation, and extract universal innovation culture parameters, valid for Lithuanian organizations. Third, we look at the distinct features of innovative behaviours and form innovation culture profiles along sectors and organization sizes. Finally, the look on the overall innovation culture development in Baltic business organizations is provided, with further research implications following.

2 Frameworks for innovation culture analysis and profile identification in business organizations

Innovation culture, which emphasizes a behavioural pattern, in which all members of the organization mobilize positive factors to innovate and collaborate, is a new type of culture which emerged together with the boom of innovation in business. An innovation culture can make it easy for senior management to implement innovation strategies and plans (Ahmed, 1988, Tellis et al., 2009; Xie et al., 2014). The definition of innovation culture (very much as any other culture related definition) is facing the methodological “black box”, i.e. authors demonstrate the tendency to define by the term almost everything that is associated with complex innovation activities in an organization.

As Buckler (1997) suggests, innovation culture is an environment and an almost spiritual force that exists within a company and drives value creation. Heindenreich (2001) defines innovation culture as ‘a relatively stable way of reflection, behaviour and social organization taking place on the basis of corporate values’. Sutton (2001) suggests that organizations’ innovative culture manifests when organizations’ employees are encouraged to experiment and to implement innovations together with organizations’ managers, who support the ideas and

incentives. Thornherry (2003) proposes that organizational innovation culture is a synthesis of values, attitudes, beliefs and ideas within the company which aim to reward innovation, encourage risk-taking and engage flexibly with a complex environment. Wieland (2006) defines 'innovation culture as made up from technological visions, research traditions, value systems, etc., shared by those who take part in the innovation process. Jucevicius (2007) defines 'innovation culture' as the entirety of unique culture values, which are characteristic to every society and organization as well as enable formation of innovative activity specific for that social formation. Dobni (2008) argues that innovation culture in an organization can be broadly defined as ranging from the intention to be innovative, to the capacity to introduce some new products, services, or ideas, through the introduction of processes and systems which can enhance performance. According to Xuemei (2016), the core concept of innovation culture can be summarized as the intention of excitation, encouraging innovation and improving performance of organization. The brief presentation of definitions above implies that the concept of innovation culture is complex and embraces a large variety of approaches. The innovation culture has been studied from both, the innovation management perspective, which mainly focused on its contents (Tidd, Bessant and Pavitt, 2005), and the organizational studies perspective, which put the emphasis on the organizational design as a basis for innovation culture. Thus, the definitions of organizational innovation culture represent the underpinning of both research traditions. The given spectrum of innovation culture definitions allows us to define an organization's innovation culture as the manifestation of the entirety of innovation friendly characteristics of organizational practices, processes, supporting structures, designs and capabilities that enable its innovation, creativity and productive innovative outputs. Given this definition, we need to look at the organizational processes, structures and behaviours and study them from the innovation promotion perspective. Here, again, we have numerous studies to examine the characteristics or dimensions of an organizational innovation culture (Ceylan, 2013; Christensen and Raynor, 2003; Hammer, 2004; Govindarajan and Trimble, 2005). Culture in organizations as the deep-seated values and beliefs are shared by employees at all levels (Schein, 1984). Accordingly, an organizational innovation culture epitomizes the expressive character of employees and is communicated and reinforced through symbolism, feelings, relationships, language, behavior, physical settings and artifacts (Schein, 1984). Lemon and Sahota (2004) developed a set of conceptual models of organizational culture, including the firm's environment, values, technology, knowledge structures, organizational structure, individuals and the collective and organizational memory. In addition, Dobni (2008) argues that an innovation culture can be defined as a multi-dimensional context including the intention to be innovative, the infrastructure to support innovation, the operational-level behaviors necessary to influence a market and value orientation and the environment required to implement innovation.

The developed framework for analysis (Petraite, 2012) integrates the most important dimensions of organizational design, that could be assigned to the „hard“ organizational dimensions, such as organizational structure and infrastructure and regarded as the key defining constituents for organizational processes; strategy (including vision, mission) and related performance measurement and monitoring systems, but also „soft“ organizational factors, such as leadership and management practices, including support for innovation activity, organizational processes, organizational learning, communication and networking for innovation, which together constituted large blocks of empirical research characteristics.

Innovation strategy and related organizational design characteristics, such as its structure and infrastructure alignment with the innovation activity purposes, managerial practices (innovation activity organization and monitoring) form an explicit and relatively simple framework to diagnose organizational preconditions for innovation culture. Consequently, they also form the group of powerful tools for innovation culture development and change in an organization, as they build organizational platform for innovation activities and define preconditions for organizational processes, which are directly reflected in innovation culture dimensions. Qualitative features such as leadership and management communication processes are directly shaping organizational culture, innovation support practices and organizational learning for innovation, which leads to distinct innovation performance. Thus, actual innovation performance is defined by both „hard“ and „soft“ organizational characteristics. Innovation culture profile results as a complex and specific combination of above listed characteristics, that form unique organizational clima („ba“) for innovation within an enterprise and entire business sectors.

3 Empirical data collection and analysis methodology

The organizational innovation culture determinants were linked to the innovation culture characteristics and transferred into the diagnostic tool (Janiunaite, Petraite and Jucevicius, 2011) that was applied for empirical investigation.

In order to achieve the research goal the large scale survey was applied. The research questionnaire was designed by referring to the above distinguished characteristics of organizational innovation culture. Nine large building blocks were constructed, reflecting the organizational design characteristics impacting innovation culture, namely, organizational innovation strategy, organizational structure, organizational infrastructure, organization and monitoring of innovation activities, organizational culture in relation to innovation, organizational communication, knowledge and learning processes for innovation, support for innovation and management profile for innovation.

The case study country was Lithuania and the survey was executed in Lithuanian language. The method of mixed sample formation was chosen, where the sectoral characteristics were combined with demographic characteristics. First, business organizations were identified according to their activity sector and size. In the next step the auxiliary criteria were added, namely the organizations had to demonstrate innovative activity in terms of products, processes or both. In these organizations the respondents were selected by expert selection method. The criteria that determined the expert selection were: 1) a respondent works for this organization, 2) the respondent's work profile is that he/she has the expertise on innovative activity in the organization. In total 290 respondents, representing individual organizations, participated in the survey. The geography of the survey was limited to Lithuania (a Baltic country) and embraced different industries. The collected data was coded into SPSS. The logic of empirical data analysis and application of analytical tool sequences was determined by the goal of our research – identification of the diversity of innovation culture profiles in business organizations along industry and organization size. The second determinant was the research instrument that constituted of large sets of organizational dimensions and characteristics, as retrieved from the literature analysis. And last but not least, another determinant was the logic of empirical data collection that was based on the sample of innovative organizations from the NACE rev. 2 business related sectors (i.e. C to N). Based on these determinants, the

data analysis followed three steps: first, data condensation via factor analysis, second, search for statistically important differences between various groups of respondents (grouped along NACE rev. 2 classes and business organization size) via single-factor dispersion analyses (ANOVA and DUNCAN tests), and third, comparison of the dispersed data groups via descriptive statistics, which allowed to distinguish innovation culture profiles across business sector related organizations.

Research instrument constituted of 9 large organizational dimensions research blocs, the number of characteristics measured within each block varied from 13 to 44. Likert scale was chosen for the evaluation of each factor (1 –strongly disagree, 3 – no opinion, 5 – strongly agree), which was transferred into SPSS data sets.

In the first step of data condensation via factor analysis, the factor wage limitation $p > 0.5$ was introduced. KMO of each factor block varied from 0.902 to 0.770. 33 significant factors were condensed from the factor analysis, which allowed linking of tested and internally correlating organizational characteristics to the meaningful factors. As a result, factor analysis provided theoretical framework of organizational culture dimensions with qualitative meanings that are presented in the Table 1.

Table 1: Universal organizational innovation culture factors in business organizations.

	<i>Factor title</i>	<i>Number of statements</i>	<i>KMO</i>	<i>Factor loadings (max-min)</i>
Organisational innovation strategy	Explicit innovation strategy	6	0,770	0,758-0,58
	Adequate resources for innovation	3		0,818-0,718
Organizational structure	Flexible and initiative supporting organizational procedures	6	0,771	0,793-0,637
	Distributed decision making rights	3		0,771-0,586
	Clear allocation of innovation tasks	5		0,807-0,58
	Strictly regulated organisational structure	2		0,796-0,718
	Competence and project based dynamic organizational structure	2		0,688-0,519
Profile or organizational infrastructure	Participation (of users and employees) facilitating IT platform	3	0,774	0,802-0,587
	Effective and flexible information and innovation experience management system (Explicit knowledge for innovation management system)	4		0,819-0,617
	Creativity and cooperation facilitating physical organizational infrastructure (Facilitating tacit knowledge management for innovation)	4		0,815-0,633
	Innovation partnership supporting IT and physical infrastructure (Networked knowledge management infrastructure)	3		0,854-0,62
Organization and monitoring of innovation activities	Effective management of innovation processes	9	0,838	0,743-0,51
	Effective system of innovation activity monitoring and results measurement	6		0,762-0,568
	Effective and precise innovation management decision making	2		0,764-0,611
Organizational culture in relation to innovation	Organisational climate supporting diversity of ideas and opinions	7	0,896	0,822-0,55
	Value based orientation towards innovation	8		0,743-0,55
	High tolerance of innovation risks	2		0,801-0,657
Organizational communication	Effective system of innovation activity communication	15	0,902	0,845-0,526

Knowledge and learning processes for innovation	R&D knowledge development for innovation	6	0,782	0,888-0,788
	Individual and group based innovation competence development	5		0,763-0,56
	Learning for innovation supporting organizational systems	4		0,766-0,566
	Absorption of internal and external innovation experiences	5		0,75-0,51
	Enabling learning results for innovation	2		0,756-0,718
	Development of strategic innovation competencies internally	3		0,774-0,511
	External sourcing for innovation ideas	3		0,85-0,565
	Support for creativity for innovation	3		0,687-0,487
	Internal experience based learning for innovation	2		0,819-0,758
	Routine based and customer oriented organizational learning	2		0,717-0,606
Support for innovation	Concentration and direction of human resources towards innovation activity	7	0,793	0,763-0,544
	Innovation supporting motivation and career system	5		0,818-0,583
Management profile for innovation	Distinction of innovation as a management field	6	0,826	0,802-0,547
	Competence based dynamic management	2		0,861-0,763
	Formal fixed management	2		0,814-0,812
	Professional management of innovation	2		0,761-0,564

The universal organizational characteristics constituting innovation culture in Lithuanian organizations were empirically retrieved. These will be tested across sectors and organization sizes with the next step in search for diversities within each factor.

Important common innovation culture characteristics in Lithuanian business organizations are as follows:

- *Innovation strategy*: explicit, with adequate resource acquisition and allocation at the strategic planning level;
- *Organizational structure related determinants*: flexible and initiative supporting organizational procedures; distributed decision making rights; clear allocation of innovation tasks; competence and project based dynamic organizational structure as an opposite to strictly regulated and inflexible organizational structure;
- *Organizational infrastructure related determinants*: participation (of users and employees); innovation facilitating IT platform; effective and flexible information and innovation experience management systems; creativity and cooperation facilitating physical organizational infrastructure; Innovation partnership supporting IT and physical infrastructures;
- *Organization and monitoring of innovation activities*: Effective management of innovation processes, effective system of innovation activity monitoring and results measurement, effective and precise innovation decision making;
- *Organizational culture in relation to innovation*: organizational climate supporting diversity of ideas and opinions, value based orientation towards innovation, high tolerance of innovation risks;
- *Organizational communication*: effective system of innovation activity communication;
- *Knowledge and learning processes for innovation*: R&D knowledge development for innovation, individual and group based innovation competence development, learning for innovation supporting organizational systems, absorption of internal and external

innovation experiences, enabling learning results for innovation, development of strategic innovation competencies internally, external sourcing for innovation ideas, support to creativity for innovation, internal experience based learning for innovation, routine based and customer oriented organizational learning;

- *Organizational support for innovation*: concentration and direction of human resources towards innovation activity, innovation supporting motivation and career system;
- *Management profile for innovation*: distinction of innovation as a management field, competence based dynamic management as an opposite to formal fixed management, professional management of innovation.

The second step of empirical data analysis aimed at search of statistically important differences between various factors across respondent groups, based on business sector (NACE rev. 2, C to N) variable in order to distinguish sector specific innovation culture characteristics. Single factor dispersion analysis (ANOVA) and DUNCAN test allowed revealing sector specific organizational innovation culture dimensions, complementing universal innovation culture characteristics (see Table 1). This method allowed distinguishing the only factors, which were statistically different across sectors. In this step the statistically important difference was assigned when $p < 0,05$. From 33 factors, retrieved in the first step of data analysis, seven factors were further condensed, which were especially important in search for varieties of innovation culture profiles across business sectors. The third step of data analysis was focused on the 7 retrieved factors with an aim to reveal specific organizational innovation culture features as related to business sector, that differentiate from the overall innovation culture profile as retrieved in the first step.

The step four repeated the logic of step 2 and 3 and focused on search of statistically important differences between various factors across respondent groups, based on enterprise size (small, (1-49 employees), medium (50-249 employees), large (250+ employees)) variable. Single factor dispersion analysis (ANOVA) and DUNCAN test allowed revealing enterprise size specific organizational innovation culture characteristics, complementing universal innovation culture characteristics. This method allowed distinguishing the only factors, which were statistically different across enterprise size. In this step the statistically important difference was assigned when $p < 0,05$. From 33 factors, retrieved in the first step of data analysis, nine factors were further condensed, which were especially important in search for varieties of innovation culture profiles across different sizes of organizations. The next step of data analysis was focused on the nine retrieved factors with an aim to reveal specific organizational innovation culture features as related to business organization size, that differentiate from the overall innovation culture profile as retrieved in the first step (see Table 3).

Research limitations derive from the single country based sample (Lithuania) and the single data collection method applied, that does not allow triangulation, which might be important in revealing specific innovation culture development determinants.

4 Diversity of innovation culture profiles in business organizations: industry and size related determinants

4.1 Factors, determining innovation culture profiles along industry sectors

Factors, implying differences in innovation culture profiles across business sectors were extracted based on ANOVA and DUNCAN tests. Organizations in different sectors demonstrated significantly different behaviours as related to the ways of *resource allocation for innovation, organizational structure flexibility, partnership facilitating infrastructures, innovation activity monitoring systems and measurement of innovation results, innovation communication systems, learning for innovation* and *recognition of innovation as an important management function* (see Table 2).

Features of industry related innovation culture profiles were distinguished, indicating sector and industry specific differentiation from the general innovation culture manifestation (see section 3) in business sector, while analysing the single industry along significantly differentiating factors as provided above.

Below or at average performing innovation culture profiles were demonstrated by *manufacturing* (C), *transportation and storage* (H), *information and communication* (J) and *wholesale and retail trade* (G) sectors.

Manufacturing (C) organizations did not differ from the general sample in all innovation culture defining factors but featured strongly inflexible organizational structure as compared to other industries, which partially led to average innovation culture levels. Very much alike, *transportation and storage* (H) sectors were demonstrating strongly inflexible organizational structure as compared to other industries and also moderate ability to attract and allocate resources for innovation, moderate effectiveness of innovation communication system and consequently, also moderate ability of learning for innovation from internal experiences, while performance in other factors remained at the average level. *Information and communication* (J) sector, compared to others demonstrated moderate performance in establishing innovation partnership facilitating infrastructure and effective system of innovation communication, but kept at the average level in terms of other factors. *Wholesale and retail trade* (G) did not demonstrate any deviance from the general factor analysis.

Above average innovation culture profiles were demonstrated by *financial and insurance activities* (K), *construction* (F), *professional, scientific and technical activities* (M) and *administrative and support service activities* (N). From the group, *construction industry* could be distinguished as featuring above average factor means in terms of inflexible organizational structure and below average factor means in recognising innovation as a management field, but still achieving above average performance in resource acquisition and allocation for innovation, establishing innovation partnership facilitating infrastructures, effective innovation communication and learning processes. This points to the organizational focus on processes excellence leading to the higher than average innovation culture profiles in business.

On the contrary, *financial and insurance activities* (K) were demonstrating low level of organizational structure determination, but also failed to establish an effective system of innovation activity monitoring and results management as compared to average. Despite this fact, they were demonstrating high performance in adequacy of resource allocation for innovation

and high level of effectiveness of innovation communication and learning for innovation from internal experiences.

Professional, scientific and technical activities (M) demonstrated above average performance in establishing innovation partnership facilitating infrastructure, effective system of innovation communication, learning for innovation from internal experiences, while maintaining average values in other factors and indicators. This points to the focus on knowledge management support in organizational processes and culture with regard to innovation.

Administrative and support service activities (N) were demonstrating above average means in all factors, despite the fact that organizational structures were also fixed and clearly determined, as an opposite to other above average performing business sectors in terms of innovation culture. This deviation might be explained by the fact, that selected sample consisted of modern business blocks and specialised providers of facilities for innovative enterprises.

Table 2: Factors, determining innovation culture variety across business sectors (NACE Rev.2, factor loading means).

	<i>Adequate resources dedicated for innovation</i> ($p=0,04$; $F=2,25$)	<i>Fixed or- ganizational structure</i> ($p=0,03$; $F=2,75$)	<i>Innovation partnership facilitating infrastructure</i> ($p=0,02$; $F=3,15$)	<i>Effective system of innovation activity monitoring and innovation results measurement</i> ($p=0,04$; $F=2,48$)	<i>Effective system of innovation communication</i> ($p=0,02$; $F=3,58$)	<i>Learning for innovation from internal experiences</i> ($p=0,03$; $F=2,72$)	<i>Distinction of innovation as a management field</i> ($p=0,04$; $F=2,42$)
Manufacturing (C)	Medium (3,58)	High (3,85)	Medium (4,2)	Medium (3,35)	Medium (3,2)	Medium (3,8)	Medium (3,58)
Transportation and storage (H)	Moderate (2,91)	High (3,75)	Medium (4,11)	Medium (3,25)	Moderate (2,55)	Moderate (3,08)	Medium (3,16)
Information and communication (J)	Medium (3,47)	Medium (3,25)	Moderate (3,4)	Medium (3,46)	Moderate (2,58)	Medium (3,85)	Medium (3,21)
Wholesale and retail trade (G)	Medium (3,85)	Medium (3,5)	Medium (4,09)	Medium (3,19)	Medium (3,36)	Medium (3,93)	Medium (3,64)
Financial and insurance activities (K)	High (4,71)	Moderate (2,35)	Medium (3,9)	Moderate (2,82)	High (3,57)	High (4,5)	Medium (3,47)
Construction (F)	High (4,22)	High (4)	High (4,77)	Medium (3,25)	High (3,5)	High (4,66)	Moderate (2,5)
Professional, scientific and technical activities (M)	Medium (3,66)	Medium (3,5)	High (4,41)	Medium (3,75)	High (3,85)	High (4,2)	Medium (3,4)
Administrative and support service activities (N)	High (4,29)	High (3,65)	High (4,44)	High (4,3)	High (3,64)	High (4,4)	High (4,14)

4.2 Factors, determining diversity of innovation culture profiles along business organization size

In terms of organizational innovation culture profiles by organization size, 9 factors differed significantly, namely *explicitness of innovation strategy*, *flexibility and initiative supporting*

organizational procedures, existence of IT platforms facilitating participation (of users and employees), effectiveness of innovation activity monitoring and results measurement system, organizational climate supporting diversity of ideas and opinions, effectiveness of innovation activity communication system, R&D activity for innovation, concentration and direction of human resources towards innovation activity and competence based dynamic management (see Table 3).

While analysing factors along enterprise groups, certain features of innovation cultures as related to enterprise size emerged, as a unique innovation culture profiles complementary to the universal factors, across which no statistically significant differences were found (see Table 1 and Table 3).

Table 3: Factors, determining innovation culture variety across business organization size (factor loading means).

	<i>Explicit innovation strategy</i> p=0,018 F=4,225	<i>Effective system of innovation activity communication</i> p=0,01 F=6,619	<i>Competence based dynamic management</i> p=0,01 F=9,645	<i>Flexible and initiative supporting organizational procedures</i> p=0,006 F=5,595	<i>Organisational climate supporting diversity of ideas and opinions</i> p=0,003 F=7,289	<i>Concentration and direction of human resources towards innovation activity</i> p=0,02 F=4,187	<i>Participation (of users and employees) facilitating IT platform</i> p=0,07 F=4,171	<i>Effective system of innovation activity monitoring and results measurement</i> p=0,021 F=4,412	<i>R&D activity development for innovation</i> p=0,004 F=7,089
Small enterprise (1-49 empl.)	High (4,26)	High (3,69)	High (3,97)	High (3,91)	High (4,10)	High (3,17)	Medium (3,53)	Low (3,14)	Low (2,11)
Medium enterprise (50-249 empl.)	Medium (3,82)	Medium (3,25)	Medium (3,42)	Low (3,01)	Low (3,36)	Low (2,78)	Low (3)	Low (3,09)	Medium (2,67)
Large enterprise (250+ empl.)	Low (3,68)	Low (2,85)	Low (3,11)	Low (3,31)	Low (3,28)	Medium (2,92)	High (3,85)	High (3,83)	High (3,11)

The *Small size enterprises* were able to achieve most favourable innovation culture performing significantly above average in such factors as explicit innovation strategy, flexible and initiative supporting organizational procedures, organisational climate supporting diversity of ideas and opinions, effective system of innovation activity communication, concentration and direction of human resources towards innovation activity and competence based dynamic management, being at the average in the development of IT platform, facilitating participation in innovation (of users and employees), but significantly below in designing and implementing effective system of innovation activity monitoring and results measurement and R&D activities.

Medium size enterprises seem to meet innovation culture development organizational challenges with difficulties, as they significantly failed below average in 5 factors out of 9 and performed at the average in 4 factors. They failed significantly below average in such factors

as flexible and initiative supporting organizational procedures, participation (of users and employees) facilitating IT platform, effective system of innovation activity monitoring and results measurement, organisational climate supporting diversity of ideas and opinions, and concentration and direction of human resources towards innovation activity, while explicit innovation strategy, effective system of innovation activity communication R&D activity development for innovation and competence based dynamic management met the average.

Large size enterprises demonstrated below average performance in such factors as explicit innovation strategy, flexible and initiative supporting organizational procedures, organisational climate supporting diversity of ideas and opinions, effective system of innovation activity communication and competence based dynamic management, but above average performance in participation (of users and employees) facilitating IT platform, effective system of innovation activity monitoring and results measurement and R&D activity development for innovation, while maintaining average in concentration and direction of human resources towards innovation activity.

5 Discussion

As a result of our analysis, we can distinguish two large groups of innovation culture profiles as related to business sector determined factors, i.e. organizational innovation cultures, supporting well-structured innovation activities and innovation cultures, supporting “liberal” innovation activities. The two can be further distinguished between moderate and high level of innovation awareness in business organizations, resulting in different innovation culture profiles, as presented in Table 1.

The industry specific innovation focus here is important, as traditional industries, such as construction and finance management have addressed innovations only recently in search for new sources of competitiveness, as their traditional behaviour was addressing process management excellence, reliability and high quality outcomes. These sectors were also heavily shaken by economic downturn in 2008 – 2010 and were forced to rethink their competitiveness. The typical industries featuring *innovation cultures that support well-structured innovation activities*, are manufacturing and construction. These industries feature *process focused innovation cultures*, with a weak focus on innovation management, but dedicating high attention to organizational processes and their facilitation via resource allocation and established communication and organizational learning systems implemented via well-established fixed organizational structures. The increasing level of innovation management awareness across industries leads to the modification of innovation cultures. They still remain process excellence focused, but also start demonstrating the focus on innovation process excellence explicitly, with the main emphasis on managing and facilitating innovation in an organization (in our case, these are administrative and business support service industries, including knowledge intensive business support services, which partially merge with the professional service activities).

Innovation cultures supporting “liberal” innovation activities within organizations and featuring moderate innovation management awareness (typically, financial and insurance industries), but high customer driven innovation dynamics, can be characterised as creative search focused cultures, with highly established innovation communication, learning from experi-

ences, creativity facilitation by loose organizational structures and weak innovation performance monitoring and results control, i.e. climates open for experimentation and ideation across organizations. With the increased level of innovation management focus, “liberal” innovation culture profiles become more condensed and can be characterized as knowledge focused innovation cultures, with strong emphasis on knowledge management facilitation within and across organizations (these are typically featured by professional, scientific and technical activities).

Table 4: Organisational innovation culture profiles, based on industry specific factors.

	Innovation cultures, supporting well-structured innovation activities	Innovation cultures, supporting “liberal” innovation activities
Moderate level of innovation management awareness	Process focused innovation cultures, with the weak focus on innovation management, but high attention dedicated to organizational processes and their facilitation via resource allocation and established communication and organizational learning systems implemented via well-established fixed organizational structures	Creative search focused cultures, with highly established innovation communication, learning from sharing of experiences, creativity facilitated by loose organizational structures and weak innovation performance monitoring and results control
High level of innovation management awareness	Innovation process focused innovation cultures, with the main emphasis on managing and facilitating innovation in an organization	Knowledge focused innovation cultures, with strong emphasis on knowledge management facilitation within and across organizations

In terms of diversity in innovation culture profile as related to organization size, small organizations demonstrate highest performance levels across significantly different factors, with the focus on establishing favourable organizational climate and effective communications, dynamic management practices based on competence, organizational flexibility, which all are achieved due to small size of the organization and ability to interact freely for innovation purposes across innovation agents. The below average innovation support infrastructures at the same time points to the importance of direct interactions and knowledge flows across agents, which significantly decreases with the increase of organization size. The research results demonstrate that medium size organizations are tending to lose the advanced innovation culture features due the increased complexity of interactions for innovations and still not existing innovation and knowledge support infrastructures. High reductions as compared to small size enterprises are approached in flexibility and initiative support, organisational climate favourability for the diversity of ideas and opinions, concentration and direction of human resources towards innovation activity. Average performance is maintained in explicitness of innovation strategy, efficiency of innovation communication and competence based management dynamism. New processes, as compared to small enterprises related to R&D, are emerging, however at moderate level. The growth related challenges and transition from entrepreneurial small business structures towards medium size organizations require implementation of new management practices, as the practices that worked well for SSE, are failing when an organization grows and thus, reorganization of processes is demanded in order to maintain favourable organizational innovation culture.

Lithuanian large size enterprises are moving towards infrastructure and formal R&D activity driven innovation culture profiles and thus are able to compensate the lost flexibility and in-

formal innovation communication practices, as well as competence based rotation for innovation tasks via well-established partnership and collaboration platforms, productive management of innovation via monitoring and control systems and established R&D processes.

Based on the entire discussion, innovation culture profiles depending on enterprise size were condensed, as presented in Table 5.

Table 5: Innovation culture profiles in business organizations based on the organization size variety.

	<i>Organizational climate and communication driven innovation cultures</i>	<i>Management dynamic and new competence development driven innovation cultures</i>	<i>Infrastructure driven innovation cultures</i>
<i>Concentration and direction of human resources towards innovation activity</i>	Explicit innovation strategy, effective system of innovation activity communication, competence based dynamic management, flexible and initiative supporting organizational procedures, organisational climate supporting diversity of ideas and opinions,	Explicitness of innovation strategy, efficiency of innovation communication, competence based management, emerging R&D activities	Participation (of users and employees) facilitating IT platform, Effective system of innovation activity monitoring and results measurement, R&D activity for innovation
	<i>Small size organization</i>	<i>Medium size organization</i>	<i>Large size organization</i>

6 Conclusions

As a result of our analysis, we provide an extensive overview of emerging innovation culture profiles within the transition of a small Baltic economy. It is important to note that the findings describe a distinct moment of transition towards innovation driven economy and this can be well noted in organizations, aiming at maintaining production and management process controls, but also the need to liberate organizational structures, communication and leadership towards more innovation related uncertainty favourable domains. However, we note immature systems and innovation culture development drawbacks, especially as organizations grow and higher requirements for management professionalism and sophistication of organizational designs are set. As recent innovation developments demonstrate (OECD, 2018), Lithuanian organizations still lack innovation, especially in organizational designs and consequently, in marketing and design innovations, that require high level of creativity and experimentation.

Our study represents the variety of underpinnings between the organizational variables, that support or hinder the development of innovation culture, as a systemic outcome of organizational interactions. The findings also point to the importance of organizational design variables while developing organizational innovation culture, providing a sustainable organizational context for innovativeness in business. The study also demonstrates that organizational innovation cultures are highly influenced by both, the industry specific and organizational determinants, such as size. This is an important practical implication for innovation management designs and implementation across industries. Two large groups of innovation culture profiles as related to industry sector determined factors were distinguished, i.e. organizational innovation cultures, supporting well-structured innovation activities and innovation cultures, supporting 'liberal' innovation activities. The two are further differentiated between moderate

and high level of innovation awareness in organizations. The well-structured innovation culture profiles with low innovation management awareness lead to the core process focused and process embedded innovation cultures, while high innovation management awareness maintains well-structured processes but the innovation becomes a core shaping process that defines the remaining processes and routines of the organization. Innovation cultures, supporting 'liberal' innovation activities with low innovation management awareness demonstrate creative search driven organizational profile, while high level innovation management awareness leads to the knowledge management focused innovation cultures. This kind of matrix allows us to draw paths for innovation culture transitions as based on the industry requirements and move in a unique way towards better performance.

In terms of variations in innovation culture as related to organization size, three diverse innovation culture profiles were condensed, i.e. organizational climate and communication driven innovation cultures, featured by small organizations, management dynamic and new competence development driven innovation cultures, featured by medium size organizations and organizational infrastructure driven innovation cultures, featured by large size enterprises.

Thus, we argue that innovation cultures are differing significantly across industries and they also change with the increased demand for innovation driven competitiveness. Organizational size is an important determinant for innovation culture development, as the size of the organization implies the features of "soft" innovation processes and also defines the need for "hard" organizational structures to support innovation. Therefore, we can not study organizational innovation cultures independently from the organizational demographics, business growth stages and associated innovation behaviours.

The common finding for the economies in transition from productivity driven growth towards innovation driven growth, is the need to increase innovation management awareness and professionalization of innovation processes and transition towards innovation as a core business process.

In terms of practical implications, the paper reveals industry and size specific defining factors for the formation of innovation culture. These define the areas of organizational interventions in order to support innovation culture as it cannot be developed as such but only impacted through the changes in the complex settings of organizational characteristics. The analytical toll applied might be converted into the organizational diagnostic tool, which allows to understand and develop business organization as a sustainable innovation ecosystem, featured by high innovation culture profile. The practical implications of research also assist management task setting and design of implementation tools for developing a sustainable platform for continued innovation embedded in innovation culture.

References

- Bogers, M. (2011). The open innovation paradox: knowledge sharing and protection in R&D collaborations. *European Journal of Innovation Management*, 14(1), 93-117. doi:10.1108/14601061111104715
- Brachos, D., Kostopoulos, K., Soderquist, K. E., & Prastacos, G. (2007). Knowledge effectiveness, social context and innovation. *Journal of Knowledge Management*, 11(5), 31-44. doi:10.1108/13673270710819780

Dobni, C. B. (2008). Measuring innovation culture in organizations: The development of a generalized innovation culture construct using exploratory factor analysis. *European Journal of Innovation Management*, 11(4), 539-559. Emerald Group Publishing Limited.

Dombrowski, C., Kim, J.Y., Desouza, K.C., Braganza, A., Papagagi, S., Bolah, P. and Jha, S. (2007) *Elements of Innovative Cultures, Knowledge and Process Management*, Wiley Inter-Science, Vol. 14, No. 3, pp 190-202.

Filippetti, A. (2011). Innovation modes and design as a source of innovation: a firm-level analysis. *European Journal of Innovation Management*, 14(1), 5-26.

Group, E., & Limited, P. (2008). Reviewing innovation effort: Innovation culture. *Strategic Direction*, 24(10), 32-34. Emerald Group Publishing Limited.

Hyland, P., & Beckett, R. (2005). Engendering an innovative culture and maintaining operational balance. *Journal of Small Business and Enterprise Development*, 12(3), 336-352.

Jaakson, K., Tamm, D., & Hämmal, G. (2011). Organisational innovativeness in Estonian biotechnology organisations. *Baltic Journal of Management*, 6(2), 205-226.

Janiunaite, B., Petraite, M. and Jucevicius, G. (2011) *Organizacijų inovacinė kultūra: mokslo studija* (p.141). Kaunas, Technologija.

Janiūnaitė, B. (2010) Universal and specific elements of organization's innovative culture in the context of knowledge management: the case of financial services provider//*Proceedings of 11th European Conference on Knowledge Management*, 2-3 September, 2010, Famalicião, Portugal [e-version], pp 495-503, Reading, Academic Publishing Limited.

Janiunaite, B., Cibulskas, G. and Petraite, M. (2011) *Organizational Learning in Profit and Non-Profit Organizations: The Perspective of Innovative Culture Development*, *Proceedings of the 8th International Conference on Intellectual Capital, Knowledge Management & Organisational Learning – ICICKM 2011*.

Janiunaite, B., Petraite, M. and Jucevicius, G. (2011) *Organizacijų inovacinė kultūra: mokslo studija*, Kaunas, Technologija.

Jucevicius, G. (2007) Innovation culture: The Contestable Universality of the Concept, *Social Sciences*, Vol. 4, No. 58, pp 7-19.

Jucevicius, G. (2008) Social Dimensions of Technological Innovations: Cultural and Institutional Perspectives, *Social Sciences*, Vol. 1, No. 59, pp. 29-41.

Jucevicius, G. (2009) The Innovation Culture in Modern Lithuanian Organizations: Values, Attitudes and Practices, *Social Sciences*, Vol. 1, No. 63, pp. 38-45.

Jucevicius, G. (2010) Culture vs. Cultures of Innovation: Conceptual Framework and Parameters for Assessment//*Proceedings of the 7th International Conference on Intellectual Capital, Knowledge Management & Organisational Learning*, 11-12 November, 2010, Hong Kong, China, [e-version], pp 236-244, Reading, Academic Publishing Limited.

Sutton, I.R. (2001) The weird rules of creativity, *Harvard Business Review*, Vol. 79, No. 8, pp. 94-103.

- Wieland, T. (2006) Innovation culture, technology policy and the uses of history, International ProACT Conference, Innovation Pressure, 15-17 March, 2006, Tampere, Finland.
- Leavy, B. (2005). A leader's guide to creating an innovation culture. *Strategy & Leadership*, 33(4), 38-45.
- Machuca, M. M., & Costa, C. M. (2012). A study of knowledge culture in the consulting industry. *Industrial Management & Data Systems*, 112(1), 24-41.
- Martins, E. C., & Terblanche, F. (2003). Building organisational culture that stimulates creativity and innovation. *European Journal of Innovation Management*, 6(1), 64-74. MCB UP Ltd.
- Noke, H., & Radnor, Z. J. (2004). Navigating innovation: a diagnostic tool supporting the process. *Journal of Manufacturing Technology Management*, 15(2), 172-183.
- Pike, Kenneth L. (1967). *Language in relation to a unified theory of the structures of human behavior* (2nd ed.). The Hague: Mouton.
- Prabhu, J. (2010). The importance of building a culture of innovation in a recession. *Strategic HR Review*, 9(2), 5-11. Emerald Group Publishing Limited.
- Prajogo, D. I., & McDermott, C. M. (2011). The relationship between multidimensional organizational culture and performance. *International Journal of Operations & Production Management*, 31(7), 712-735.
- Sanz-Valle, R., Naranjo-Valencia, J. C., Jiménez-Jiménez, D., & Perez-Caballero, L. (2011). Linking organizational learning with technical innovation and organizational culture. *Journal of Knowledge Management*, 15(6), 997-1015. Emerald Group Publishing Limited.
- Sarros, J. C., Cooper, B. K., & Santora, J. C. (2011). Leadership vision, organizational culture, and support for innovation in not-for-profit and for-profit organizations. *Leadership & Organization Development Journal*, 32(3), 291-309. Emerald Group Publishing Limited.
- Stanford, N. (2007). *Guide to Organisation Design: Creating High Performance And Adaptable Enterprises* (Economist) (p. 352). Economist Books.
- Tidd, J., Bessant, J. and Pavitt, K. (2005) *Managing Innovation. Integrating technological, market and organizational change*, John Wiley and Sons, Chichester.
- Valencia, J. C. N., Valle, R. S., & Jiménez, D. J. (2010). Organizational culture as determinant of product innovation. *European Journal of Innovation Management*, 13(4), 466-480. Emerald Group Publishing Limited.
- Wallace, J., Hunt, J., & Richards, C. (1999). The relationship between organisational culture, organisational climate and managerial values. *International Journal of Public Sector Management*, 12(7), 548-564.
- Zdunczyk, K., & Blenkinsopp, J. (2007). Do organisational factors support creativity and innovation in Polish firms? *European Journal of Innovation Management*, 10(1), 25-40.