UNIVERSITY OF TURKU

ABSTRACT

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Title	Knowledge workers matter and differ - KIBS employee heterogeneity in organizational innovativeness and corporate entrepreneurship		
Supervisors	Ph.D. Jarna Heinonen and Ph.D. Jouni Similä		

The aim of the study is to examine the individuals' role in KIBS innovation creation through organizational innovativeness and corporate entrepreneurship constructs. Firstly, the importance of an employee's perceived corporate entrepreneurship and organizational innovativeness, especially in knowledge-intensive business service organizations, is explained. Secondly, the heterogeneity of knowledge employees in terms of corporate entrepreneurship and perceived organizational innovativeness is empirically tested. The first question is answered through a literature review, and the second is studied with a case study in one Finnish KIBS company.

Individuals have an undeniably crucial role in KIBS organizations. They are the core of the KIBS value creation. Therefore, their role in organizational innovativeness and corporate entrepreneurship is also vital. Furthermore, these features are crucial for companies to be able to renew and survive in disruptive markets. The importance of innovativeness culture is higher in KIBS organizations as their employees' knowledge creation, and sharing are the key assets of the company value and innovation creation. Although the discovery of opportunities is necessary for innovations, it is not sufficient enough to exploit them. Therefore, the knowledge workers' corporate entrepreneurship action tendencies and thinking styles are also crucial. It can be considered that innovations created through the organizational innovativeness and corporate entrepreneurship theories are similar to the organizational learning process, where individuals' and organizations' feedforward and feedback processes create knowledge.

Substantial differences of KIBS employees at the organizational level are evident as KIBS must be able to adapt their actions to support customer's value creation flexibly. The case study strengthened the perception of heterogeneous knowledge workers. Employees' entrepreneurial orientation or their perceived organizational innovativeness cannot be indicated from their gender, level of the job, business function, or how long they have worked in total or in one specific company. Therefore, these concepts should be studied and developed in a way that takes the heterogeneity of the staff in account. The findings of this thesis help organizations and individuals to better understand the value of these two concepts in KIBS and why the individual level should be on broader focus in research and practice of these topics.

Keywords	KIBS, knowledge worker, innovation, innovativeness, corporate entrepreneurship, intrapreneurship, entrepreneurial orientation, organizational innovativeness, heterogeneity
Further information	

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Otsikko	Merkittävät ja moninaiset tietotyöntekijät - Työntekijöiden heterogeenisyys organisatarisen innovatiivisuuden ja sisäisen yrittäjyyden näkökulmasta		
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Tämä pro gradu tutkielma tarkastelee yksilöiden roolia tietointensiivisten palveluyritysten innovaatioiden luonnissa organisatorisen innovatiivisuuden ja sisäisen yrittäjyyden näkökulmista. Ensin tarkastellaan miksi tietotyöntekijöiden oma sisäinen yrittäjyys sekä heidän kokemansa yrityksen organisatorinen innovatiivisuus ovat tärkeitä erityisesti tietointensiivisissä palveluyrityksissä. Toiseksi tarkastellaan empiirisin tutkimusmenetelmin työntekijöiden heterogeenisyyttä näiden kahden tekijän osalta. Ensimmäiseen kysymykseen vastataan kirjallisuuskatsauksen avulla ja toista tarkastellaan suomalaisessa tietointensiivisessä palveluorganisaatiossa toteutetun tapaustutkimuksen avulla.

Yksilöillä on kiistattoman tärkeä rooli tietointensiivisissä palveluyrityksissä. He ovat näiden organisaatioiden arvontuotannon ydintekijöitä. Siksi heillä on myös tärkeä rooli niin organisatorisessa innovatiivisuudessa kuin sisäisessä yrittäjyydessäkin, jotka vuorostaan ovat elintärkeitä yrityksille uudistumisen ja selviytymisen kannalta disruptiivisilla markkinoilla. Innovatiivisen kulttuurin luominen ja ylläpitäminen tietointensiivisissä palveluorganisaatioissa on tärkeää, sillä työntekijöiden tiedonjako ja -luonti ovat avainasemassa yrityksen arvon ja innovaatioiden luonnissa. Vaikka mahdollisuuksien tunnistaminen onkin pakollista innovaatioiden luonnille, se ei ole riittävää niiden toteuttamisen kannalta. Siksi työntekijöiden sisäisen yrittäjyyden taidot ovat myös tärkeitä. Organisatorisen innovatiivisuuden ja sisäisen yrittäjyyden prosessien voidaan nähdä toimivan samalla tavalla kuin organisatorisen oppimisen prosessi, jossa yksilöt ja yritykset luovat palaute- ja jakamisprosesseilla tietoa.

Suuretkin erot työntekijöiden tasolla ovat ilmeisiä KIBS-yrityksissä, sillä yritysten tulee voida mukauttaa joustavasti heidän toimintaansa asiakkaan arvonluontia tukevaksi. Tapaustutkimuksen tulokset tukevat sitä, että tietotyöntekijät ovat heterogeenisiä. Työntekijöiden sisäisestä yrittäjyydestä tai heidän näkemyksistään organisatorisesta innovatiivisuudesta ei voida tehdä oletuksia heidän sukupuolensa, asemansa, toimintayksikön tai sen perusteella kuinka pitkään he ovat työskennelleet yhteensä tai nykyisessä yrityksessä. Tämän takia näitä asioita tulisi tutkia ja kehittää ottaen huomioon henkilöiden heterogeenisyys näiden konseptien osalta. Tämän tutkielman löydökset helpottavat niin yrityksiä kuin yksilöitäkin ymmärtämään paremmin näiden kahden konseptin arvon ja sen, miksi työntekijätasoinen tarkastelu tulisi huomioida laajemmin niin tutkimuksessa kuin käytännössäkin.

Asiasanat	Tietointensiivinen palveluyritys, KIBS, innovatiivisuus, organisatorinen innovatiivisuus, sisäinen yrittäjyys, yrittäjyys, tietotyöntekijä
Muita tietoja	

UNIVERSITY
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KNOWLEDGE WORKERS MATTER AND DIFFER

KIBS employee heterogeneity in organizational innovativeness and corporate entrepreneurship

Master´s Thesis
in Information Systems Science

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1 INTRODUCTION

Knowledge workers have a significant role in the knowledge economy. Innovation practices have changed, and service innovations require different approaches than in the traditional manufacturing industries. Innovations are created more and more by ordinary employees in their everyday work. Therefore, it is essential to understand their roles in innovation creation.

For decades innovations have been connected to sustainable competitive advantage (Drazin & Schoonhoven 1996; Jiménez-Jimenez, Sanz, & Hernandez-Espallardo 2008; Johannessen, Olsen, & Lumpkin 2001; Kanter 1985). Company executives think innovativeness is key asset for long term success of the organizations (Accenture 2013; Forrester Research Inc. 2014; PWC 2013). Innovations do not happen solely in the manufacturing industries any longer as services have become the drivers of productivity and growth in developed economies and they have created more new jobs than other industries. (Crevani, Palm, & Schilling 2011.) Innovations are complex processes that depend on various factors. Development of the economy also changes innovation processes. New knowledge economy needs innovation processes that support the current environment. One new element of the knowledge economy is the development of Knowledge-Intensive Business Services (KIBS). "The KIBS sector consists of firms which have emerged precisely to help other organizations deal with problems for which external sources of knowledge are required." (Miles 2005, p. 39).

This thesis focuses on the importance of individuals in innovations. Knowledge workers are more than just labour in the knowledge economy. They are an asset for companies as in knowledge economy the knowledge is used in various ways in value creation. Employees have more responsibility and a vital role in value creation, which increases their significance for companies. Authoritarian and R&D focused models of innovations may have been productive in the industrialized economy. However, knowledge economy requires a new set of skills, communication, action tendencies and thinking styles for innovation, and diverse knowledge. (Edmondson 2012.) It means that KIBS organizations require new approaches to support organizational innovativeness. As individuals are the primary source of knowledge and value creation in KIBS organizations, it is essential to understand how they affect organizational innovativeness of the company. Linking innovation and corporate entrepreneurship theories in KIBS operational environment can give KIBS organizations a tool to boost and maintain organizational innovativeness.

Organizational innovativeness means the firms tend to create new ideas, participate in experiments and support creative processes that might lead to the development of new products, services or processes (Lumpkin & Dess 1996). Innovativeness of KIBS companies can be seen more critical in the long run than the actual innovation outcomes as the value-creation and idea exploitation happens based on organizational learning (Sebora &

Cornwall 1993). Unlike in many manufacturing firms, in KIBS organizations innovation work is part of the core value creation and everyday work (Crevani et al. 2011). Discovery of opportunities does not create value, if the opportunities are not exploited (Shane & Venkataraman 2000). Therefore, it is crucial to examine corporate entrepreneurship alongside organizational innovativeness. Corporate entrepreneurs recognize the opportunities for innovations, evaluate them and exploit them (Ribeiro Soriano et al. 2012). To put this short, organizational innovativeness is more about the culture of creating new ideas, and corporate entrepreneurship is about individual's opportunity recognition and exploitation.

The nature of KIBS companies requires individuals with varied backgrounds, competences, and views. KIBS need to able to transform and adapt their service offering to create value for their customers, which causes substantial differences between companies (Brozovic, Nordin, & Kindström 2016). Employees in KIBS are diverse with a wide range of dimensions. Measurable characteristics and concrete studies are needed, to figure out the extent of diversity among employees (Østergaard, Timmermans, & Kristinsson 2011). The diversity aspects have essential impact on firm's innovative capabilities, as individuals have different knowledge, views and action tendencies, which influence their ability to recognize potential opportunities

Studying heterogeneity helps companies to understand better how heterogeneous knowledge workers genuinely are and if they should be considered as individuals with different views and skillsets. This thesis does not argue whether heterogeneity is beneficial or harming for the company. It acknowledges that organizations and employees tend to be heterogenic, but the impact of the heterogeneity will not be further discussed. The goal is to see if organizations and different groups are heterogenic regarding perceived organizational innovativeness and corporate entrepreneurship concepts. It helps researchers and practitioners to study and develop organizational innovativeness and corporate entrepreneurship without misleading presumptions. This case study focuses on studying heterogeneity in the corporate entrepreneurship and the perceived organizational innovativeness constructs between different groups in gender, level of the job, and business function. In addition, the correlation between the length of employees' career in total or in a specific company and in their perception of organizational innovativeness or entrepreneurial orientation is studied. It is important as corporate entrepreneurship, and organizational innovativeness consists of ways of doing and seeing things, which can be learned and developed through the support and willingness of the individuals, colleagues and managers.

To summarize, this study examines the individuals' role in KIBS innovation creation through organizational innovativeness and corporate entrepreneurship constructs. It also contributes to the empirical research of the topic by examining how heterogeneous the knowledge workers are regarding these constructs. The tested aspects are gender, level of

the job, business function, and how long career they have in total or in some company. These two aspects provide valuable information for innovation and corporate entrepreneurship research in the knowledge economy, along with having important practical implications for companies and individuals in KIBS industries.

1.1 Research gap

Innovation creation in services is not thoroughly studied, despite the significance of the service industries. (Calisto & Sarkar 2017). The reason behind this may be the fact that services were long sidelined in the innovation research (Toivonen & Tuominen 2009). Especially knowledge-intensive business services have been expanding rapidly in the last decades (Miles, Belousova, & Chichkanov 2019). Nowadays, service firms are seen and proven to be as innovative as manufacturing ones in terms of innovation, even though their innovative processes are different inside industries (Pires, Sarkar, & Carvalho 2008). Constant change is the only sure thing in today's business and entrepreneurial employees are increasingly becoming a competitive advantage for companies (Lackéus, Lundqvist, Middleton, & Inden 2019).

Calisto & Sarkar (2017) address the need for corporate entrepreneurship and innovativeness research in service businesses as services are predominant in most developed economies. Knowledge-intensive service businesses rely heavily on value creation processes of the tacit knowledge embodied in their employees (Consoli & Elche 2013). The focus has started to shift to individuals as companies have started to understand that the knowledge is the key value for companies (Wright 2005). Companies knowledgebase is not homogeneous, which also enables companies to have various perspectives on different opportunities, which in turn contributes to organizational innovativeness (Shane & Venkataraman 2000). Diversity and innovation have not been studied together widely. Typically these studies have focused technical aspects and have sidelined the intangible assets (Østergaard et al. 2011; Teece, Pisano, & Shuen 1997).

The innovation process connects all levels of organization. Therefore, it is necessary to analyze the employees' diversity on the different constructs more widely. (Østergaard et al. 2011). As it has been recognized that knowledge creation, innovation, and corporate entrepreneurship activities happen in an individual, team and at the organizational level, the bottom-up perspective has become more widely researched. (Antoncic & Hisrich 2003; Bosma et al. 2012.) Corporate entrepreneurship and innovativeness are challenging to measure, which is one reason why studies on these subjects are often deprioritized in established firms (Lackéus et al. 2019). Organization-wide entrepreneurial orientation and innovative environment is considered to advances and promotes entrepreneurial actions, especially at an individual level (Antoncic & Hisrich 2004; Bolton & Lane 2012;

Calisto & Sarkar 2017; Covin & Slevin 1991; Fellnhofer 2019; Fellnhofer, Puumalainen, & Sjögrén 2017; Kuratko, Ireland, Covin, & Hornsby 2005; Lumpkin & Dess 1996). Calisto & Sarkar (2017) point out that in order to study the corporate entrepreneurship process, organizations' strategic commitment and willingness on innovativeness and the behaviour of employees has to be taken into account.

While corporate entrepreneurship has proven to correlate to a large extent with company performance, it does not guarantee superior performance. Therefore, academics have started to stress the need for focusing on entrepreneurial orientation in individual, team and organizational levels and on identifying the influence corporate entrepreneurship on the firm innovativeness (Fellnhofer 2019.) Thus far, only a small amount of studies have addressed the individual-level when examining corporate entrepreneurship or innovativeness (Bolton & Lane 2012; Fellnhofer 2019; Fellnhofer, Puumalainen, & Sjögrén 2016; Fellnhofer et al. 2017; Heinonen & Korvela 2003; Heinonen & Toivonen 2008; Østergaard et al. 2011). None of these previous studies researched the employee heterogeneity in these constructs directly.

This thesis focuses on filling these gaps found in the prior studies. It contributes to KIBS, innovation and corporate entrepreneurship studies as linking these together and examining these especially at the individual level. It also covers the research gap in individuals' heterogeneity in these constructs. Furtherly, this thesis creates a wider understanding of these constructs on the individual level and shifts the focus in KIBS companies' employees, who are considered as a critical asset for renewal, organizational innovativeness and innovations.

1.2 Research questions

Corporate entrepreneurship and innovations in KIBS organizations are a phenomenon that could be researched with countless different methods and perspectives. In contrast to the typical top-down approach on corporate entrepreneurship and organizational innovativeness, this study focuses on the bottom-up perspective of these issues. In order to keep this thesis explicit, the focus is on the individuals and their role in these matters. This thesis consists of two research questions that examine the concepts from two essential perspectives. These questions address employees as individuals and relevant entities for companies. The focus of this study is to understand why KIBS[1] should see their individuals as an asset, who help them to generate long-term success. Another important objective for this study is to clarify how especially KIBS organizations' staff is heterogenic regarding their corporate entrepreneurship and organizational innovativeness.

[1] KIBS may be read henceforth in this thesis either as Knowledge Intensive Business Services or as organizations practising KIBS depending on the context.

In-depth analyses on companies are vital to conduct when trying to gain a better understanding on how heterogeneous employees are regarding these subjects. The actual research is conducted as a case study for a government-owned technological KIBS company. The company provides various highly technical and complex business services for both public and private sector. The case study is conducted as quantitative research as a part of a more comprehensive staff development research. In addition to the scientific contribution, this thesis was conducted for the case study company's HR and business needs.

The first research question is about individuals and their significance on the knowledge companies' success. There has been a vibrant conversation in the literature about the importance of these two concepts for companies at the general level. The individuals have typically not been given the needed weight, or they have been completely ignored in these matters. The first question examines how knowledge employees may have an essential role in these matters compared to the traditional industries. Focus is on the potential positive influence of the knowledge workers rather than in inspection of the differences between knowledge workers and traditional labour workers. The foundation for this question comes from literature, and it gives the motive to study the topic further.

1. *Research question (RQ1): Why employee's own corporate entrepreneurship and perceived organizational innovativeness matter especially in a knowledge-intensive business service organization?*

If knowledge workers are valuable for KIBS companies, what assumptions can we make about the employees? Are the perceived organizational innovativeness and corporate entrepreneurship views, action tendencies, and thinking styles similar all around the organization? Can companies consider employees as a homogenous group on these concepts based on their function, position or time at the company? There are numerous different dimensions to study. This study focuses on five dimensions that are present in all companies. These dimensions are gender, business function, job type, length of the career and years worked. Chapter 5 and 6 will explore the topic with a case study, which observes how heterogenous the KIBS company studied in this thesis is. The heterogeneity can be addressed in various ways. This study focuses on five key diversity dimensions.

2. *Research question (RQ2): How heterogeneous are the knowledge employees in terms of corporate entrepreneurship and perceived organizational innovativeness regarding gender, business function, job type, length of the career and years worked in current company?*

The reason to find answers to these questions is that these issues are crucial for companies in the knowledge economy as the employees are one of the most crucial assets of knowledge companies. The study underlines that the potential renewal of the company comes most likely from the organization's employees, and it is essential to understand the construct to support it and utilize it.

1.3 Structure of the study

The study consists of six chapters. It follows the typical structure of a master's thesis. The first chapter introduces the topic and brings out the significance of this study. The previous research gaps were introduced, and the two research questions were formed. In this subchapter, all the chapters are briefly described in order to explain how this thesis is structured.

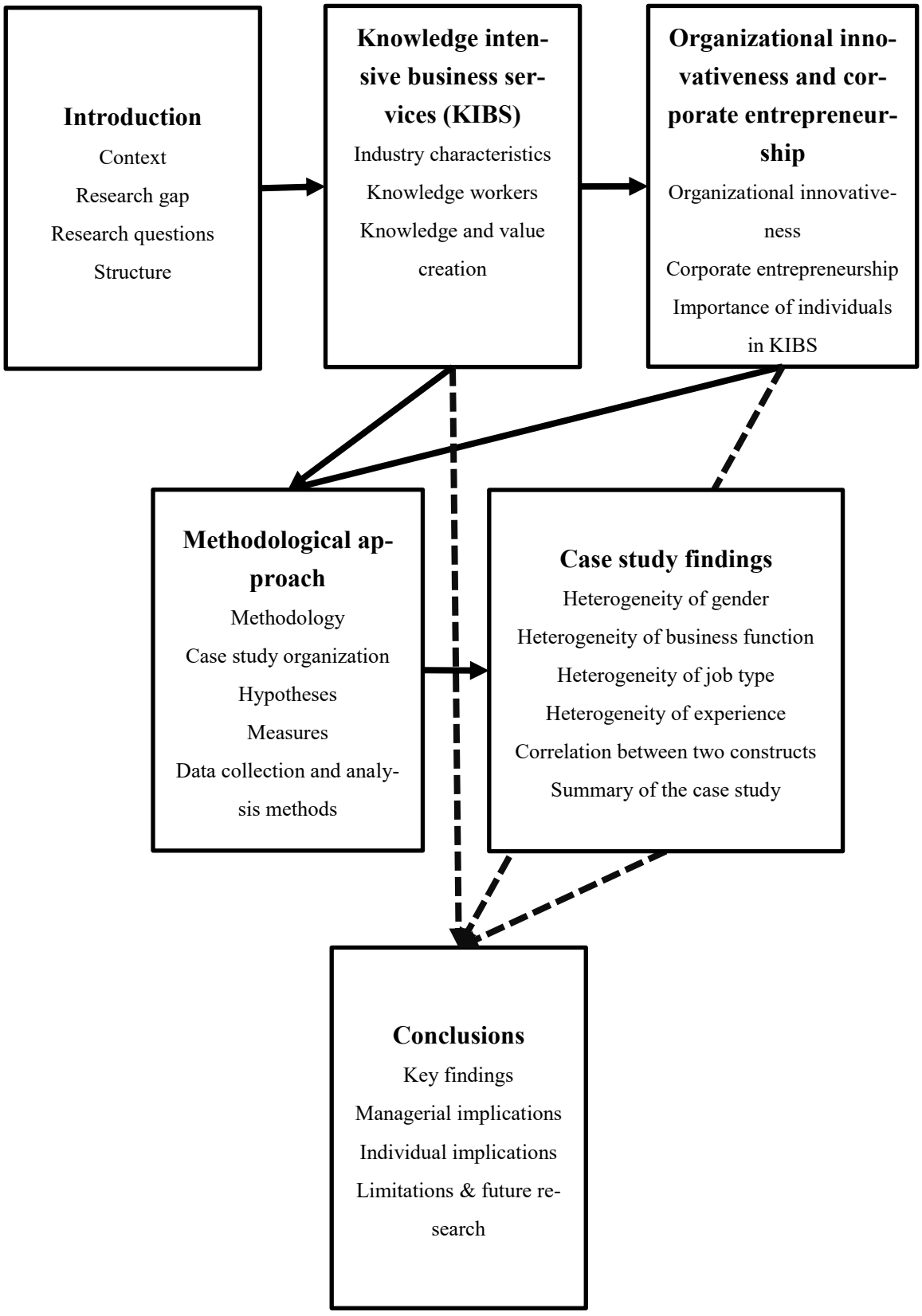
The second chapter introduces the knowledge-intensive business services thoroughly. It introduces the KIBS industry characteristics and the classification standards for it. It also examines the knowledge workers and how they differ compared to the traditional workers. At the end of the chapter, KIBS value and knowledge creation processes are introduced. The organizational learning construct is also introduced, and, it is further used to link the corporate entrepreneurship constructs to KIBS and the individuals.

The third chapter discusses the concepts of both organizational innovativeness and corporate entrepreneurship separately. This chapter enlightens individuals linking to these concepts. The subchapters discuss the organizational innovativeness and corporate entrepreneurship in KIBS, and introduces the constructs used in the case study. Lastly, these two constructs are discussed together, and their cruciality, especially in KIBS organizations, is clarified. At the end of the chapter, all these constructs are tied together with the adapted organizational learning framework introduced in the second chapter. This chapter aims to answer to the first research question and creates both foundation and motivation for the case study.

Methodological approach to the case study is introduced in the fourth chapter. This chapter introduces case study research, explains methodologies and measures, creates hypotheses, and introduces the case study organization. This chapter is based on the previous chapters as the constructs studied in the case study are introduced in the previous chapters. This chapter is also connected to the fifth chapter, which studies the actual case. The case study findings chapter presents the results. The results are introduced in fifth chapter by statistical tests and visualizations. Each independent variable is discussed in its own subchapters. At the end of chapter 5, the results are summarized. This chapter answers to the second research question.

The last chapter summarizes the whole thesis. The results of the case study are discussed, and the contributions for research and practice are explained. Theory and the findings of the case study are discussed together. In the implication chapters, both managerial and individual implications are discussed. In the end, the limitations of this thesis are discussed, and research questions that remains unanswered are introduced. Three appendix chapters introduce the questionnaire, independent samples T-test results and other visualizations to the case study, which help to examine the differences more thoroughly. In figure 1. the structure of the study is visualized.

Figure 1. Structure of study.



2 KNOWLEDGE-INTENSIVE BUSINESS SERVICES (KIBS)

The shift to the knowledge-based economy created a need for new kinds of players to satisfy the needs of the new economy. The knowledge-intensive business service organizations emerged to fill this gap in the economy. KIBS facilitates innovations and technological development in the knowledge economy. (Hipp 1999.) The KIBS organizations link the knowledge of the customer with the knowledge that the KIBS have created and gathered. This improves the exchange, availability and usability of the knowledge in the whole economy. (Doroshenko, Miles, & Vinogradov 2013). KIBS industries are highly diversified as their customers have various needs and challenges. KIBS value creation is based on the knowledge of the organizations and individuals' knowledge as the customer needs vary (Miles et al. 2019.)

KIBS have extensive differences as they must be able to flexibly adapt their services meet the customer needs (Brozovic et al. 2016). These alterations include differences, e.g. innovation co-creation, pricing models, HR practices, customer-client relationship, and business models (Malhotra & Morris 2009). The KIBS industries are highly diversified, which indicates that the knowledge workers are highly heterogeneous as well. The heterogeneity provides them an opportunity to create highly complex value propositions.

KIBS organizations are heterogeneous; however, their value, knowledge, and innovation creation processes have comparatively similar industry-specific features. KIBS value creation is primarily based on knowledge. Especially individuals are crucial for their innovation and value creation and exploitation. (Miles et al. 2019.) It is crucial to examine KIBS the value creation and knowledge creation processes as these link to the innovation creation and exploitation introduced in the next chapter.

2.1 Industry characteristics

There is no single universal way of defining KIBS organizations. Den Hertog (2000, p. 505) explained that KIBS are: "private companies or organisations … relying heavily on professional knowledge, i.e. knowledge or expertise related to a specific (technical) discipline or (technical) functional domain … and, supplying intermediate products and services that are knowledge based." Miles (2005, p. 39) instead used the definition: "Services that provide knowledge-intensive inputs to the business processes of other organizations – knowledge-intensive business services (KIBS) such as computer services, R&D services, legal, accountancy and management services, architecture, engineering, and technical services, advertising, and market research – are prominent features of the knowledge-based economy." Den Hertog (2000) also pointed out that knowledge-intensive services can be either technology-based or not. Bettencourt, Ostrom, Roundtree, &

Brown (2002) highlighted KIBS primary value-adding activities. These are the accumulation, creation, or dissemination of knowledge.

The term knowledge-intensive business service is constructed with four words and two constructs. 'Knowledge-intensive' indicates the labour qualification or the type of the transaction with the service provider and the service procurer or user. 'Business service' emphasizes that they are mainly interested in providing services for other companies to support their value creation. (Miles et al. 1995.) Miles has used typically three principal characteristics for defining KIBS organizations. First, they depend on highly educated employees. Second, they create value for their clients by the knowledge they have created or gathered. Third, they supply primarily to business. (Miles 2005; Miles et al. 1995; Muller & Doloreux 2009.) Hipp (1999, p. 93) highlighted as distinctive characteristics of the KIBS: "(1) heterogeneity of different service industries; (2) close interaction between the service provider and customer (integration of the external factor); and (3) highly intangible content of service products and processes (information, knowledge) and therefore the need for knowledge/information-creating and -transforming processes."

Services include a massive range of industries and forms. Most of the services are intangible and interactive. Intangibility in KIBS services means that instead of concrete products, they include transformations in data, people, processes. Services can sometimes be delivered in form of physical artefacts (e.g. consultancy reports, online questionnaires), or they can be associated with them (e.g. credit cards and electronic keys). The cost of the physical element is a small fraction of the overall cost of the service. Interactivity refers to the fact KIBS service processes often need the involvement of the clients. Some services can need active participation from the client (e.g. consultancy and education), and some can be passive (e.g. antivirus software and IT-administration). They can be mass-produced or highly customized together with the customer. (Miles 2008.)

The NACE (a European Classification of economic activities) has been widely used for identifying KIBS in Europe (Muller & Doloreux 2009). Schnabl & Zenker (2013) defined numerous NACE Rev. 2 sectors as core KIBS activities (Table 1.). They stressed that this listing is not definite as there are various companies, which can be KIBS even though their industry is not included in this listing. KIBS organizations are part of the broader classification of the knowledge-intensive services (KIS), which include both business service and customer service organizations (Eurostat 2017; Schircke, Zenker, & Stahlecker 2012).

Table 1 Classification of KIBS activities in NACE 2 (Schnabl & Zenker 2013).

KIBS classification NACE Rev. 2	Description of section	Description of division
Section J, division 62	Information and Communication	Computer programming, consultancy, and related activities
Section J, division 63	Information and Communication	Information service activities
Section M, division 69	Professional, scientific and technical activities	Legal and accounting activities
Section M, division 70	Information and Communication	Activities of head offices; management consultancy activities
Section M, division 71	Professional, scientific and technical activities	Architectural and engineering activities; technical testing and analysis
Section M, division 72	Professional, scientific and technical activities	Scientific research and development
Section M, division 73	Professional, scientific and technical activities	Advertising and market research

Miles et al. (1995) tried to distinguish KIBS even further. They introduced the "traditional professional services" (P-KIBS) and "new-technology-based services" (T-KIBS) (Table 2.). P-KIBS are more traditional professional services (e.g. accounting, marketing and consulting). These companies are intensive users of technology. T-KIBS are specialized R&D, software, information systems actives as well as information and communication technologies. These companies tend to create new technology-based innovations that also the P-KIBS companies can use in their value creation.

Table 2 Types of KIBS (Miles et al. 1995).

Traditional professional services (P-KIBS)	New-technology-based services (T-KIBS)
Marketing	Software development
Design	Technical Services
Advertising	Telematics
Financial Services	New Technologies
Accounting	Computer Networks
Architecture	Research & Development
Medical Services	Consulting in Information Technology
Engineering	Consulting in Research & Development
Training	-
Consulting	-

KIBS organizations are many times a hybrid of the P-KIBS and T-KIBS. KIBS are very dispersed, and every company has its balance between human, social and informational activities. Both instances have the same basic features, but they diverse widely based on organizational and industrial factors. (Miles 2008.) Service offerings in the KIBS have become more diversified and hybrid, and for that reason, it is impossible to classify companies to P-KIBS or T-KIBS. It is essential to understand that different phases of service creation need different kinds of skills and interaction with the customer. KIBS companies are one of the most active innovators in the service sector. They have a significant role in their clients' innovation creation. (Miles et al. 1995.) The focus is in this study on the innovations and corporate entrepreneurship in KIBS organizations. It is reasonable to examine KIBS as one instance with high diversity as it is hard to classify organizations comprehensively.

KIBS innovation process is examined in the literature as one instance as it is hard to distinguish clear classifications for different KIBS organizations. The traditional industrial classification for defining KIBS can be questioned as there are numerous new services and activities, which do not fit into the traditional classifications. The typical value creation process is relatively similar in all KIBS companies regardless of their specific industry. (Hipp 1999.) Hipp (1999, p. 94) suggested industry-independent classification for KIBS: “We can summarize that KIBS are characterized by the ability to receive information from outside the company and to transform this information together with firm-specific knowledge into useful services for their customers.” The knowledge utilization is most important for the KIBS value creation.

2.2 Knowledge workers

There is a large variety of industries where KIBS companies can work. This creates the need for their employees to have different skills, action tendencies, thinking styles and knowledge when aiming to create value in their environment. KIBS provide various knowledge-intensive services for their customers, and therefore their employees need to have various skillsets. Employees performing knowledge-intensive tasks in their daily work creates the foundation for the whole knowledge economy. (Reinhardt 2011.) These employees are typically called knowledge workers as they create value by applying their knowledge to different situations. In this chapter, knowledge workers' characteristics are explained, and their heterogeneous nature is discussed.

KIBS industries differ significantly from the traditional labour-intensive manufacturing business by the nature of the business outcomes and the work type. Knowledge employees transform knowledge cognitively, whereas in manual work, materials are transformed physically (Reinhardt 2011). The KIBS companies, employees and ways of work differ. The companies have different paths as their customers' needs can significantly differ. (Miles et al. 2019.) Knowledge employees' primary tasks include knowledge creation, distribution, or application (Hammer, Leonard, Davenport, & Knowledge 2004). Typically autonomy, innovation, and creativity have been prominent for knowledge workers in literature. Acsente (2010) pointed out also that collaboration, social networking, flexibility, intrinsic motivation, adaptability, desire for interesting and challenging work are prominent parts of knowledge work. Drucker (1999) pinpointed that knowledge workers owning the means of their production is a unique feature in comparison to other jobs. It also directs their preference for autonomy (Acsente 2010). Knowledge workers are hired primarily for their knowledge, creativity, and problem-solving abilities. They need the ability to apply their knowledge in action and generate simultaneously new knowledge to be utilized in value creation. (Reinhardt 2011.) Drucker (2002) also emphasized the heterogeneity of knowledge workers with describing knowledge being effective only if it is specialized. 'A specialist' job includes, therefore, various technical and professional occupations.

Scarbrough (1999) examined Drucker's view and highlighted the amorphousness one of the key features of the knowledge workers. He stressed that knowledge employees cannot be grouped easily as their job is so heterogeneous. He emphasized also that the work knowledge workers do, defines them. Knowledge worker productivity is primarily a matter of the quality and quantity of the output, as the work is unstructured and intellectual (Drucker 1999; Kianto et al. 2019). The knowledge workers are responsible for their value creation and therefore, their agency plays a major role in the value-creation process. They try to combine their own, customers' and firms' resources to maximize the

value creation. Flexibility and agency are strongly present in KIBS (Tuominen & Martinsuo 2019.) Classifications of KIBS knowledge workers typically cover various roles and occupations. The heterogeneity in KIBS is not decreasing as the economy requires more and more intelligent, innovative, educated, skilled individuals. (Miles et al. 2019)

There are substantial differences in KIBS organizations. (Brozovic et al. 2016). These alterations include differences e.g. innovation co-creation, pricing models, HR practices, customer-client relationship, and business models (Malhotra & Morris 2009). Many KIBS are and have expanded their service offerings to enable them to better to support their clients' value creation. It has created a need for knowledge employees with different skills, which has caused more diverse KIBS companies. (Miles et al. 2019.)

The wider variety of backgrounds more often also includes different professionals with different opinions. The individuals are crucial for KIBS as they can affect the whole value creation, which is also a reason why they can have a significant impact on the whole company culture. Individuals also own the means of production, which is also the reason they can more easily change the company when they want. They are uniquely mobile as they possess their knowledge, which they transfer from one organization to another (Drucker 1999). It increases the heterogeneity of tenure in the KIBS companies. Years worked in one company reflects the time organizationally relevant skills, knowledge, and working culture can be acquired. (Gilson et al. 2013.)

Employment heterogeneity within a KIBS provides an important avenue through which exploration activities can be surfaced. Crawford et al. (2013) saw that facilitators of deep-level diversity seem to be especially important within T-KIBS (a software development environment) where work compartmentalization is the norm and development tasks are complex. Diversity is positive for companies knowledge, value and innovation creation because it increases the knowledge, experience and network pool that employees can access (Gilson et al. 2013). The intermingling of knowledge workers enables their creativity and ability to solve complex problems. The interaction between knowledge employees creates possibilities for knowledge exploitation as different competencies and knowledge come across. Gilson et al. (2013, p. 204) found that “individual explicit knowledge mediates the relationship between tenure diversity and individual creativity; it carries a positive indirect effect when knowledge sharing is high and a negative indirect effect when knowledge sharing is low”. Without good communication within the firm, the potential of the knowledge diversity cannot be utilized. Different opinions can also cause distrust and conflict among employees. (Østergaard et al. 2011; Schumpeter 1934.)

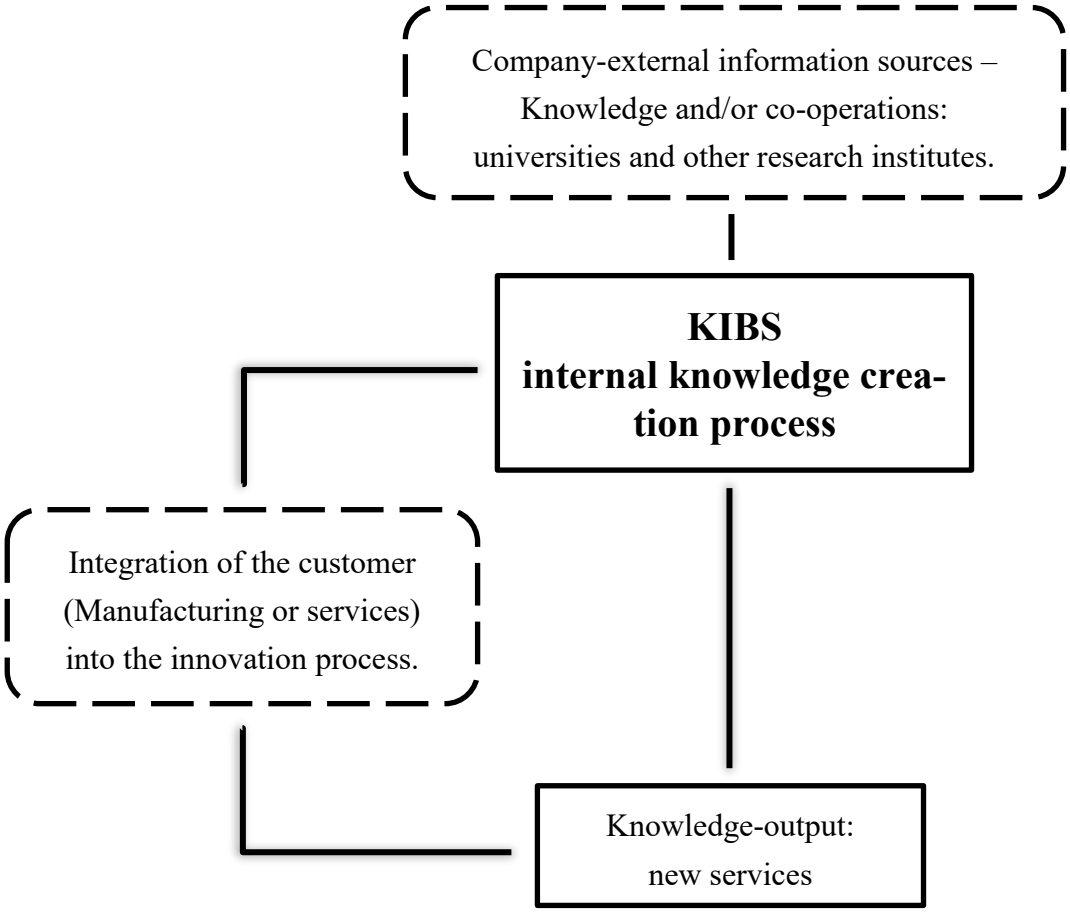
Employee values, knowledge, attitudes, and action tendencies depend on various factors. These can differ significantly between different individuals. Measurable characteristics are needed, to figure out the extent of diversity among employees (Østergaard et al. 2011.) The characteristics can be divided into ascribed and achieved characteristics. The ascribed characteristics are demographic attributes (e.g. gender and age). The achieved

characteristics are, for example, educational background, functional background, years worked in the company and years worked in total. (Østergaard et al. 2011; Ruef et al. 2004.) Technological and demographic diversities especially have been on the focus in the innovative capability literature. These overlook the intangible assets like entrepreneurial orientation, which are highly important for KIBS companies. (Østergaard et al. 2011; Teece et al. 1997). Kollmann et al. (2017) found that individual employees in similar jobs are heterogenous regarding on their propensity to act entrepreneurially. Their findings also showed that team performance is affected by individuals' corporate entrepreneurship. They also pointed out that it is necessary to study more broadly entrepreneurial action tendencies, thinking styles and knowledge in the firm.

2.3 Knowledge and value creation

Hipp (1999, p. 94) emphasized that the KIBS organization must have a close link between their innovation process and its' customers value creation either customer was manufacturing or services company. She also defined 'knowledge-intensity' as "the capability to integrate different sources of information and knowledge into the firm's innovation process." Knowledge can be scientific knowledge, but also the knowledge gathered in practice. These help to distinct KIBS from other companies better the standard industry classification (NACE). Hipp's (1999, p. 94) view also overcomes the weakness on the basic KIBS indicators (share of academic staff). She introduced a figure to summarize her definition of knowledge-intensive business services and their value creation (Figure 2). KIBS use the knowledge to create value together with their clients as well as directly for them.

Figure 2 Value creation in knowledge-intensive business services (Hipp 1999).

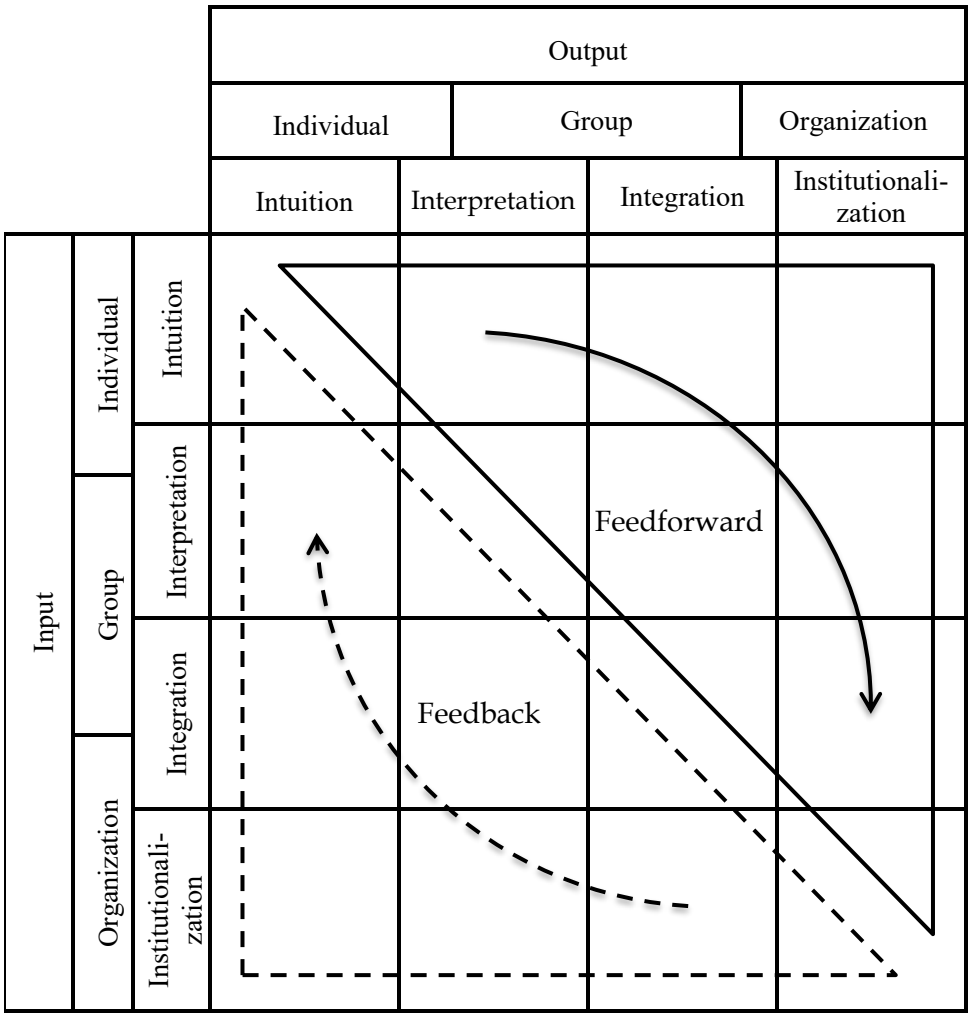


KIBS utilizes both tacit (e.g. industry-specific knowledge) and explicit (e.g. software-specific knowledge) knowledge to create new services. In the internal knowledge creation process, KIBS integrates knowledge from employees, partners, networks, competitors, suppliers, and other external knowledge sources to co-create value with and for their clients. (Hipp 1999.) KIBS value creation emerges from organizational and individual knowledge (Santos-Vijande, González-Mieres, & López-Sánchez 2013). Competitive advantages, especially in KIBS, stem from the firm's (organizational and individual) capabilities, action tendencies and thinking styles. Knowledge is the accumulated knowledge of the company's employees. Organizational learning is the dynamic process of knowledge creation by the organizations' individuals, teams and organization. (Real et al. 2014.)

Santos-Vijande et al. (2012, p. 873) specify organizational learning as: "Organizational learning occurs when individuals' knowledge is transferred, through social interactions, to different groups of individuals and from these, it is incorporated in a collective level through shared understanding. The accumulated knowledge allows individuals to learn from the organization, thereby generating an on-going feedback process of

knowledge transfer between individuals, groups, and organizations." Individuals construct understanding and knowledge through active communication and participation in knowledge creation. Knowledge creation starts from the individual's knowledge, which is transferred to the group and organizational level (Crossan, Lane, & White 1999). Knowledge is created through two different simultaneous processes. First process involves exploration or the assimilation of new learning (feedforward) Second process is about the using the learned knowledge (feedback). The organizational learning framework, seen in Figure 3, visualizes these two processes from the individual level to the organizational level (Crossan et al. 1999; Real et al. 2014.)

Figure 3 The adapted 4I model of organizational learning (Crossan et al. 1999; Real et al. 2014).



Organizational learning framework created by Crossan et al. (1999) and further developed by Real et al. (2014) represents four (sub)processes that are related to one another and represented in individual, group and organization levels. These three levels define

where organizational learning takes place. The (sub)processes (intuiting, interpreting, integrating and institutionalization) connect these levels and explain the connection between them. Intuiting is about the individuals' recognition of opportunities based on their own knowledge. It can affect an individual's action, but to have an affection for others requires interaction with other individuals. Interpreting is about the explanation of an idea or insight through words and actions. Integrating happens when a group is creating shared understanding and takes coordinated actions through mutual adjustment. This learning process is often informal and unplanned, but when coordinated actions are taken and become continual and meaningful for the organization, the learning will become institutionalized. Institutionalization is about creating processes that routinize actions. It ensures that the learning will be embedded in an organization. The continuous process enables natural flow from one subprocess to another blurring where one ends, and next begins. Feedback loops for organizational learning do not always follow through all subprocesses, given the recursive nature of learning, although the framework is represented sequential. (Crossan et al. 1999; Real et al. 2014.)

3 ORGANIZATIONAL INNOVATIVENESS AND CORPORATE ENTREPRENEURSHIP IN KIBS

The change is the new normal, and all industries have to be able to renew themselves to be able to survive in disruptive markets (Rivera 2017). The rate of the change has increased due to the exponential advancements in technology and knowledge. There is increasing pressure on top management to stimulate their organizations towards becoming more innovative and creating innovative products and services (Calisto & Sarkar 2017). Innovations recognized to create and sustain competitive advantages. Innovations keep the markets in constant motion and force companies to be innovative in order to survive. (Johannessen et al. 2001.) Services have been sidelined in innovation research. Their role has been merely manufacturing companies' innovation consumer, imitators or facilitators. It has changed with the 'servitization' of society. (Miles 1993; Shearmur & Doloreux 2013; Toivonen & Tuominen 2009.) Service firms are now seen and proven to be as innovative as manufacturing firms in terms of innovation, even though their innovative processes have significant differences. KIBS industries are as innovative as the most innovative manufacturing sectors (high-technology manufacturing). (Pires et al. 2008.)

The innovation studies have been formerly more about the outcome rather than the process. Zaltman et al. (1973) suggested that the innovation process has two stages: initiation and implementation. Critical for successful initiation is how willing or resistant the organization is for adaptation of innovations. Hurley & Hult (1998, p. 44) extended Zaltman et al. (1973) theories and defined innovativeness and capacity to innovate (corporate entrepreneurship) constructs as following: "Innovativeness is the notion of openness to new ideas as an aspect of a firm's culture." and "The capacity to innovate … is the ability of the organization to adopt or implement new ideas, processes, or products successfully. Two different crucial skillsets are distinguished (innovativeness and capacity to innovate) for companies. (Hurley & Hult 1998; Sebora & Cornwall 1993; Zaltman et al. 1973.) Corporate entrepreneurship and organizational innovativeness have several similar or same processes. It is understandable as they have a historical research background. Organizational innovativeness is kind of a subset of corporate entrepreneurship construct. (Antoncic & Hisrich 2003.) The difference in the terms used in this thesis is that organizational innovativeness is about the culture of a company where the innovations or ideas are created. The corporate entrepreneurship is more about how the employees exploit the ideas and make a change in the company. A corporate entrepreneur is a person recognizing the opportunities for change, evaluating them, exploiting them and believing in the exploration of a new path, different from previous practices to achieve the objectives of the organization (Ribeiro Soriano et al. 2012). Innovativeness creates innovative capacity of the organization with various structural properties of the organization. (Hurley & Hult 1998; Sebora & Cornwall 1993; Zaltman et al. 1973). Organizational

innovativeness is, in this thesis, more about the culture of creating new ideas and corporate entrepreneurship is about the individual's opportunity recognition and exploitation.

The focus in this chapter is on the individual level and how knowledge workers affect and get affected by the surrounding organization. KIBS creates a unique surrounding for employees, as presented in the previous chapter. Knowledge workers have more influence on their work and therefore, also on the organization where they work. Organizational innovativeness affects and is affected by employees in KIBS more than in traditional industries, which puts the knowledge workers to a prominent position. KIBS must have capabilities to create and exploit the opportunities, as their industry depends strongly on the knowledge and learning of individuals. Creation of ideas and knowledge is vital, but without corporate entrepreneurs who exploit the potential business ideas, new business or added value is not created. Therefore, finding out how corporate entrepreneurship at the individual level affects the KIBS organizations and how the individuals perceive the culture for innovation is essential. (Neessen, Caniëls, Vos, & de Jong 2019.)

The findings are summarized at the end of this chapter, the, and the organizational innovativeness and corporate entrepreneurship are connected to the KIBS value and knowledge creation processes. The individuals are here the focus as they are in the end, the key for value creation in KIBS. Their heterogeneity affects how they act and how they renew the company they work, which also provides a foundation for the case study in the next chapter, where we find how heterogeneous individuals are regarding the perceived organizational innovativeness and proactiveness.

3.1 Organizational innovativeness

Innovations and innovativeness have many different interpretations. Therefore. it is essential to determine the terms used in the thesis. This research uses Zaltman et al. (1973, p. 10) innovation definition: "any idea, practice, or material artefact perceived to be new by the relevant unit of adoption". Innovation can be in various forms, but the newness is the critical dimension for innovations. The three aspects of newness by Johannessen et al. (2001) are what is new, how new and new to whom? Therefore, it depends significantly on the surroundings if something is an innovation or not. Another important aspect is the radicalness of innovation. Some innovations can be radical (for example new car models) and others can be incremental (new features on a mobile app). The evaluation of innovation is much dependent on who perceives it. (Johannessen et al. 2001, p. 28) determined that: "The success of an innovation, therefore, is determined more by the extent of its adoption than by who originates it or how technologically advanced it is. What makes it innovative is its newness."

Typical innovation researches have studied merely innovation outcomes (Wang & Ahmed 2004). Sebora & Cornwall (1993) indicate that the innovativeness of the company is more important in the long run than the actual innovation outcomes. A new product introduction does not indicate that the organization has a long-term ability to survive. Vital innovativeness and entrepreneurship processes and cultures can harmfully be ignored if the focus is only on the innovation outcome. Organizational innovativeness and corporate entrepreneurship improve the adaptability that enhances survival for an organization. Lumpkin & Dess (1996) highlighted that innovations and ideas that do not reach the market might have a significant impact on the ability of an organization to adapt and ultimately survive. Ideas not reaching the market can create other ideas, which will succeed in the market. This thesis utilizes the idea by Lumpkin & Dess (1996, p. 142) when the organizational innovativeness is discussed: ***Organizational innovativeness can be seen as firms tend to create new ideas, participate in experiments and support creative processes that may lead to the development of new products, services or processes.*** It makes between distinction organizational innovativeness and the actual innovation outputs and emphasizes more the culture of the company. Organizational innovativeness is operationalized in the case study by construct created by Wang & Ahmed (2004). It is introduced in the subchapter 3.1.2

3.1.1 Organizational innovativeness in KIBS

Now that we have introduced the core concepts of innovations and innovativeness used in this thesis, we focus more on the specific features of the innovativeness in KIBS organizations. There are three main approaches to study innovativeness and innovations in services. The first one is the assimilation approach, which utilizes the recent comprehensive studies on manufacturing industries and applies them to the service economy. The second is the demarcation approach, which emphasizes the unique nature of the services and attempts to develop a specific framework for service innovations. In the assimilation approach, innovations have been merely seen as technological, and the demarcation approach has focused more on the non-technological innovations of services. The third and the approach utilized in this thesis is the synthesis approach, which combines these two approaches. (Carlborg et al. 2014.) This approach allows observing the technological and non-technological aspects of innovations simultaneously. It also acknowledges the distinct features of service innovations. (Amara et al. 2016.) To be able to observe the technological and non-technological aspects simultaneously is essential, especially in T-KIBS organizations, where the services are strongly linked to hardware and software. (Gago & Rubalcaba 2007).

The intensity of the interaction, customers' and employees' co-creation is crucial for KIBS organizations as their value creation depends on the co-creation of value (Santos-Vijande et al. 2013). Innovations in service firms can come from various actors in the external and internal network (Crevani et al. 2011). In order to understand how KIBS create innovations, it is crucial to understand the roles of KIBS in their customers' innovation processes. KIBS act three key roles (facilitator, transmitter and source of innovation) in the service innovation process. (Hauknes 1998):

- Facilitators of innovation: Customer's innovation process is supported by the KIBS, but the innovation itself is not produced or transferred by KIBS.
- Transmitters of innovation: KIBS act as intermediary who transfer and share innovations in the industry.
- Source of innovation: The innovation is innovated and created by KIBS.

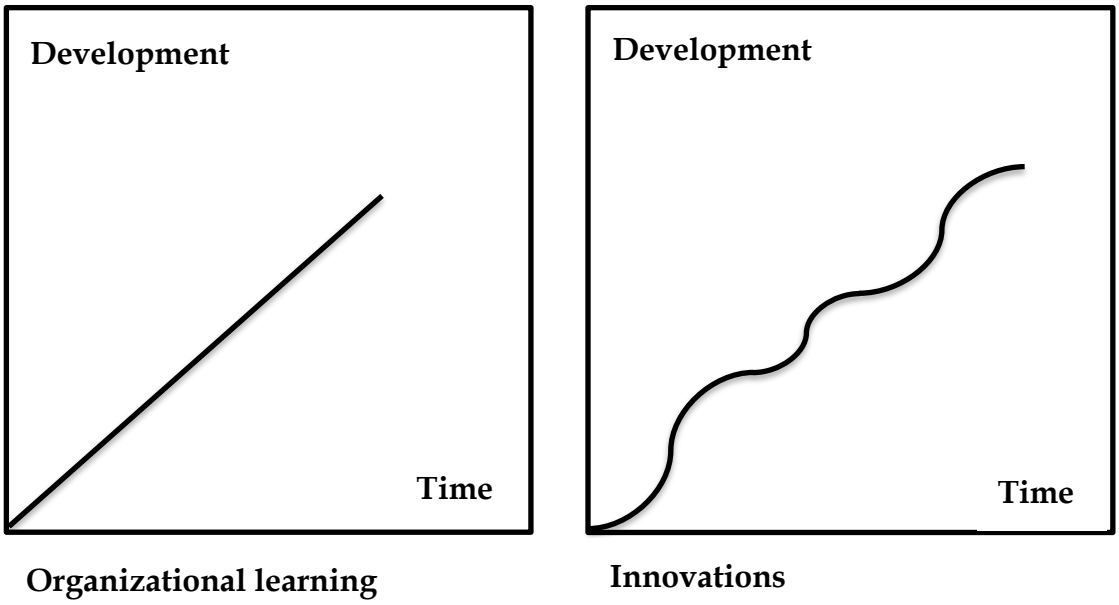
These three roles are important in successful value delivery. KIBS companies must understand their customers' processes and business to create novel solutions to their problems. They need to be able to transform their value delivery based on their clients' needs. They have also to understand each customers' unique needs. The success of the KIBS depends on a firms' ability to utilize the knowledge required by a client (Johnson, Baldwin, & Diverty 1996). KIBS are less likely to drive innovations when the technology used is well established, and the customers are familiar with it. KIBS are more likely the main sources of innovation when the situation is the opposite. The lower level of technological complexity increases the added value that the customer can provide in the innovation process. Companies need to balance the intensity of the co-creation in the different phases of the projects for the reason the service offerings have diversified and become a hybrid of knowledge and technology. Basic processes and technologies typically can be decided by the KIBS specialists, but the coordination and the process can be created together with the customer. (Freel 2006.)

The common assumption is that service innovations rely more on "soft" sources of knowledge and innovation (cooperation with partners and customers) rather than "hard" sources (R&D) (Freel 2006). Pires et al. (2008) support this by pointing out the importance of human capital especially in service innovations. Innovation in KIBS involves just employees applying their knowledge, as the business service in many cases equals the knowledge of a specialist or a team of specialists (e.g. consultancy) (Johnson et al. 1996). The diversity aspects have essential impact on firm's innovative capabilities, as individuals have different knowledge, views and action tendencies, which influence their ability to recognize potential opportunities (Østergaard et al. 2011). To be able to identify and exploit an opportunity, employees must have prior complementary information with the new information to able to trigger the innovation process. (Shane & Venkataraman 2000.) The KIBS firms rarely rely solely on R&D departments as their innovation process

is generally more unsystematic and hands-on process. KIBS innovations come typically from one or several individuals somewhere in an organization. They may have gotten the ideas, for example, from partners, customers, or other projects (Sundbo 1997.)

Sundbo (1997, p. 437) describes the development of a service business as "a process with a series of small changes in individual situations with single customers involved. It could be called organizational change or learning." The learning process is a quite smooth and continuous development process compared to the innovation process having potential energy, which is freed in the act of innovation. The innovation process can, therefore, be visualized as a wavy process. These processes are more similar when innovations are more incremental rather than radical. (Sundbo 1997.)

Figure 4 Organizational learning versus innovations (Sundbo 1997).



Organizational culture is an important antecedent for innovational KIBS organizations. An innovative culture helps on knowledge sharing, which fosters idea generation and creativity (Crevani et al. 2011). Culture directs employee behaviours in powerful ways and constitutes key reasons for employees to engage or not to engage specific behaviours (Lackéus et al. 2019). Important sources of cultural knowledge are the founders, managers and training initiatives (Bouchard & Fayolle 2017). The importance of innovativeness culture is higher on KIBS organizations as their knowledge is the key asset of the company. The experts create new ideas, and they act according to the innovativeness culture. Calisto & Sarkar (2017) emphasize that managers should pay more attention to how their company can support the innovativeness culture. Innovativeness implies organizational culture, which tolerates risks in the innovation process. Individuals are allowed and encouraged to develop new ideas, although the ideas would not become profitable. Employees are motivated to contribute to innovation, when there is a creative climate in

the organization (Crevani et al. 2011.) A culture can be elevated or inhibited by the firm's employees. Individuals' thoughts and actions make the norms that create the organizational culture. Transforming organizational culture requires employees who allow themselves and others to be a bit emotional and stubborn (Bouchard & Fayolle 2017). Organizations that are eager to have a process of trial and error achieve greater employee creativity, which leads to a greater number of innovations (Santos-Vijande et al. 2012).

The basis for value creation and new service development is an acknowledgement of the potential customers. The customer-facing employees' are most often closest to the customer and have insight into their customer needs. (Crevani et al. 2011; Santos-Vijande et al. 2013.) Having relevant knowledge of the market's needs, relevant systems, and competitors' operations do not guarantee that the development and implementation of new services or processes are successful and competitive (Santos-Vijande et al. 2012). Unlike in many manufacturing firms, innovation work in KIBS takes place as part of everyday work. The everyday work innovations underline the need for employees with innovativeness and entrepreneurship action tendencies and capabilities (Crevani et al. 2011). Calisto & Sarkar (2017, p. 587) highlight the role of front-line employees in innovation creation: "Front-line employees are often in a unique position to observe changing customer needs and suggest new approaches for improving the service delivery process as these employees are subject to pressure from customers to improve products and processes."

KIBS and their customers engage in an interactive learning process where they bring together their capabilities and competencies, is one of the key sources of innovation in business services. Their innovativeness relies on their employees' commitment to learn, as the KIBS organizations strongly rely on professional knowledge and skills. (Santos-Vijande et al. 2013.) The innovativeness in KIBS supports the trial and error processes that create innovative offerings and processes. KIBS needs the knowledge to create value-adding services, but they must have innovativeness to utilize the potential of their organizational knowledge. (Santos-Vijande et al. 2012.)

Crevani et al. (2011) pointed out that practitioners see the innovation potential in employees and at the same time, they recognize the challenge to exploit that innovation potential. Johnson et al. (1996) support this by highlighting that in the KIBS, human capital is the dominant form of capital and knowledge itself is the product. Johnson et al. (1996, p. 113-114) state also that "product quality and human-capital embodiment of products in these industries are the same." Organizations were previously centred on the individuals' experience, knowledge, and creativity. In many companies to improve the innovativeness, there have been formal processes implemented. The focus is moved from individuals to processes. The reason is that ideas and initiatives would be created through a more structured process, but it has sometimes hampered the innovativeness of the company. (Crevani et al. 2011.) The idea-generation would not prosper in a structured process as it is a creative process, and the best ideas cannot be generated on command. (Sundbo

1997.) Toivonen & Tuominen (2009) share some mutual views. They point out that the task of the managers to guide the process forward, even though any member or group in the organization can start the innovation process.

Innovations are developed from the firms' knowledge base, and the innovation process is like a learning process where members of the organization share their knowledge. Employees transform knowledge into new services, service improvements or processes. (Zaltman et al. 1973.) Crevani et al. (2011, p. 182) brought forward the importance of knowledge sharing in a company: "In a number of studies, cross-functional involvement, i.e., involving people from different functions or professions from within the firm who can bring different knowledge and competences to the innovation process, is argued to be a critical factor in innovation management as it facilitates creativity, learning, and knowledge development." Information sharing can facilitate creativity due to a constant flow of ideas in firms (Castrogiovanni, Urbano, & Loras 2011).

3.1.2 Organizational innovativeness construct used in the case study

The literature has focused more on the management commitment towards the co-creation innovation, rather than the staff's involvement (Santos-Vijande et al. 2013). Individual employees can still recognize their culture and the possible absence of it, though they cannot make significant changes to culture short-term. Crevani et al. (2011) emphasize the innovative potential of individuals rather than formalized innovation processes. The innovation adoption has typically been the dependent variable, and other factors have been linked to it. Wang & Ahmed (2004) put emphasis more on the innovative culture rather than the innovation outcomes. They emphasize the overall innovative capability, which is the likelihood that an organization creates innovations. They can be seen to have the same point of view to organizational innovativeness as the Lumpkin & Dess (1996, p. 142): "Innovativeness reflects a firm's tendency to engage in and support new ideas, novelty, experimentation, and creative process that may result in products, services or technological process." Wang & Ahmed (2004) developed the organizational innovativeness construct to study organizational innovativeness. This construct composes organizational innovativeness by five different factors. The five dimensions are the following:

- Product/service innovativeness
- Market innovativeness
- Process innovativeness
- Behavioural innovativeness
- Strategic innovativeness

Product/service innovativeness consists of both services and products as the research on product innovativeness originates in the manufacturing industry. The original research

used simply ‘product innovativeness’ term to imply both product and service innovativeness. This thesis highlights that this factor also includes service innovation aspects by using the term ‘product/service innovativeness’ for this factor. The defining factor for product/service innovativeness is the novelty and significance of launched products or services at the time they are introduced on the market. Wang & Ahmed (2004) consider key features of product/service innovativeness as perceived newness, novelty, originality or uniqueness of products or services. Another vital factor is appropriateness, the extent to which target customers find the launched offer valuable for them. (Wang & Ahmed 2004.)

Market innovativeness enlightens companies approaches to enter and exploit the targeted markets. Market innovativeness emphasizes the novelty of market-oriented approaches, while the product/service innovativeness focuses on the newness of a product or service. (Wang & Ahmed 2004.) Wang & Ahmed (2004) also point out that even though these two innovativeness factors are treated as separate factors, product and market innovativeness are inevitably associated. Ali, Krapfel & LaBahn (1995) sees market innovativeness as a market-based construct and they had already in 1995 defined it as the uniqueness or novelty of the product to the market. For some companies, this is an opportunity to enter a new market and exploit identified new niche by launching products or services that would benefit their needs. Another form of market innovation is when a company uses novel marketing programs to promote the existing offering. Both scenarios appoint companies to situations where they find themselves challenging new competitors, either in an existing market or in one that is new for them. (Wang & Ahmed 2004.)

The third factor, process innovativeness tackles the development of both production and management processes. These processes can include for example new production methods, new management approaches or implementation of new technology. This factor is crucial for company’s overall innovation capacity as it affects the capability of utilize disposable resources. Companies capability to recombine and reconfigure given resources is crucial and process developments are often required when companies try to achieve success. (Wang & Ahmed 2004.) Process innovativeness includes technological innovativeness as the technological innovation challenges typically relate to processes in the knowledge economy.

Behavioural innovativeness is the innovative company culture and t heir tend to pursue new ideas and innovation. Culture is enabled by individuals, teams, and management. It is an enabler or blocker of innovations in a company. Behavioural innovativeness has several levels in a company. Traditionally the most important level is the managerial innovativeness, which demonstrates their readiness for change, commitment to encourage innovative actions among others, and their commitment to advance new ideas. Team or business department innovativeness is about the collective ability to change. The team innovativeness is more than sum of innovative individuals. It is about the combined idea

creation and innovativeness culture. The individual level is about personal willingness and orientation to change. (Wang & Ahmed 2004.)

Strategic innovativeness refers to the organization's ability to achieve objectives set for business development. It includes utilizing limited resources when trying to accomplish change. Many organizations may already have recognized the need or possibilities for change. They have not done the change as they are lacking the change management capabilities or executives avoid risk created by the change. (Wang & Ahmed 2004.) Wang & Ahmed (2004, p. 305) explain these innovations as a reconceptualization of the business. They explain: "Strategic innovation takes place when a company identifies gaps in industry positioning, goes after them and the gaps grow to become the new market."

All these five factors are interlinked, and also present in KIBS organizations. The product and market innovativeness are more externally-focused, whereas process and behaviour innovativeness are more internally-focused. Strategic innovativeness links these two aspects by highlighting organization's capability to identify opportunities and exploit them with internal resources in order to develop new business. These five factors together cover the essential aspects of overall organizational innovativeness. The most beneficial aspect of Wang & Ahmed's (2004) model and measures are that they capture the key elements of innovative capabilities and culture from the individuals point of view. The culture illustrates an organization's overall ability to create innovations in the long run rather than just studying the current innovation outcomes. It also incorporates an organizations' strategic orientation, which captures the built-in innovative capability and demonstrates a future orientation. ***To operationalize the idea of organizational innovativeness by Lumpkin & Dess (1996) are the organizational innovativeness measures by Wang & Ahmed (2004) used in the case study to measure the perceived organizational innovativeness of individuals.***

3.2 Corporate entrepreneurship

The role of employees has changed as the knowledge-economy has become the new normal. Employees have more responsibility and discretion than ever before as the decision-making processes have become more decentralized. It has also transformed how companies make innovations and change their customary businesses. (Neessen et al. 2019.) Corporate entrepreneurship refers to initiatives to undertake new business activities (e.g. services, processes) in the organization. These activities happen in an individual, team and organizational level. Corporate entrepreneurship has typically been studied as a top-down process, but the bottom-up perspective has become widely recognized. (Antoncic & Hisrich 2003; Bosma et al. 2012.)

Corporate entrepreneurship is a subfield of the entrepreneurship research. The subfield has grown as the organizational renewal has become more significant with the knowledge economy changing many industries (Antoncic & Hisrich 2003). Several similar or closely related terms are used in the entrepreneurship research depending on the authors and time. Corporate entrepreneurship, intrapreneurship, entrepreneurial orientation, and corporate venturing have been used in the literature when describing the same construct. (Antoncic & Hisrich 2003, 2004; Bolton & Lane 2012; Fellnhofer et al. 2017; Heinonen & Korvela 2003; Heinonen & Toivonen 2008; Hosseini, Dadfar, & Brege 2018; Kuratko & Audretsch 2013). Corporate entrepreneurship research has focused on three principal areas: individual intrapreneur, the formation of new corporate ventures and entrepreneurial organization. The first one highlights the intrapreneur's characteristics and their effect on organizations. The second one is all about the different types of new ventures and enabling structures for these ventures. The last one examines the characteristics of entrepreneurial organizations. (Antoncic & Hisrich 2003.) This thesis focuses on the individual intrapreneurs and partly on the entrepreneurial organization as the organizational innovativeness construct will be used to study the culture of the organization.

In order to discuss the concept of corporate entrepreneurship, it is necessary to define it. Corporate entrepreneurship can be considered both an individual and organizational level behavioural phenomenon, or a process of emergence (Gartner, Bird, & Starr 1992). The broadest definition of corporate entrepreneurship is most likely "entrepreneurship within an existing organization, referring to emergent behavioural intentions and behaviours of an organization that are related to departures from the customary" (Antoncic & Hisrich 2004, p. 520). Another definition, which focuses on the individuals is the "intrapreneurship is about bottom-up, proactive work-related initiatives of individual employees" (Moriano, Molero, Topa, & Lévy Mangin 2014, p. 105). Neessen et al. (2019, p. 560) introduced an exact definition that places the individual employees to the core of the corporate entrepreneurship concept. This thesis utilizes the definition by Neessen et al. (2019, p. 560) of the corporate entrepreneurship: ***"Intrapreneurship is a process whereby employee(s) recognize and exploit opportunities by being innovative, proactive and by taking risks, in order for the organization to create new products, processes, and services, initiate self-renewal or venture new businesses to enhance the competitiveness and performance of the organization."*** It highlights the key aspects of corporate entrepreneurship and why it is important for organizations. Corporate entrepreneurship is operationalized in the case study by entrepreneurial orientation construct and measures created by Bolton & Lane (2012) and Fellnhofer et al. (2017). The entrepreneurial orientation construct is introduced in the subchapter 3.1.2

Antoncic & Hisrich (2003) listed as the main contributions of intrapreneurship subfield: improving understanding of successful intrapreneurs and new corporate ventures in their context, improving an understanding of entrepreneurial organizations, and raising

awareness and understanding of the role of entrepreneurship in existing organizations for the revitalization and performance of those organizations. Corporate entrepreneurship themes are similar, regardless of whether the focus is on individuals or organizations. These themes are opportunity recognition and exploitation, innovativeness and creation of new business activities (e.g. services, products, and processes), self-renewal of the organization, new business venturing, and proactiveness and risk-taking. The corporate entrepreneurship is tightly connected to the innovativeness concept, but focuses more on the exploitation of opportunities. (Neessen et al. 2019.)

Neessen et al. (2019) pointed out that corporate entrepreneurship can be considered outcome-based behaviour or its intentions. The corporate entrepreneurship consists of a series of smaller events, radical innovations, and new venture formation. These all can happen in individual and organizational level. Corporate entrepreneurship is more a continuous phenomenon, even though the entrepreneurship construct can be viewed in absolute terms (new firm vs no new firm). Therefore, it is better to describe it in relative terms as no company or person is completely or not a bit entrepreneurial. Companies or individuals are more or less entrepreneurial, and this is important when studying entrepreneurship. (Neessen et al. 2019.) The research on corporate entrepreneurship is often limited to the antecedents or requirements of the organization. Typically, the focus is on the climate of corporate entrepreneurship rather than the individual level. Majority of the studies are conducted for the executives of different companies and not for the whole staff., which is problematic as corporate entrepreneurship is a dynamic and complex construct that affects all levels (individual, team, organization) in organization. Several authors have pointed out a need for more research on the individual level as there is variation in characteristics and determinants of an individual employee. (Antoncic & Hisrich 2003; Fellnhofer et al. 2017; Heinonen & Toivonen 2008; Belousova & Gailly 2013) Individuals are especially important in the KIBS organizations as the value creation, and opportunity recognition and exploitation happen through the knowledge employees.

3.2.1 Corporate entrepreneurship in KIBS

Discovery of opportunities is crucial for innovations, but it is not enough to exploit them. Opportunities or ideas do not probably create any value for the companies, if they are not exploited (Shane & Venkataraman 2000). An idea is just a starting point towards discovering or creating a value-adding innovation (Lackéus et al. 2019). The value created by the corporate entrepreneurs can be economical, enjoyment, social harmony and influence value. The value concept must have a broad view of corporate entrepreneurship as it can exclude and neglect many vital ways to be entrepreneurial. (Lackéus et al. 2019.) An individual having the necessary prior knowledge to discover opportunities does not

guarantee that the person can see means-ends relationships (Shane & Venkataraman 2000). A corporate entrepreneur tries to envision and experiment with creating new kinds of value for other people. These other people do not need to be customers. They can be colleagues internally in their organization, partners in the external organization, or other stakeholders in society capable of appreciating and feedbacking on a value creation attempt. (Lackéus et al. 2019.)

The openness in communication is necessary to share the innovative ideas across the companies, which stimulates the organizational learning, innovativeness and corporate entrepreneurship (Castrogiovanni et al. 2011). Companies need "Dreamers" and "Doers" who create and exploit ideas (Lackéus et al. 2019). Corporate entrepreneurs recognize the opportunities for innovations, evaluate them and exploit them. They believe that differentiating from previous practices will help the organization to achieve the objectives of the organization. (Ribeiro Soriano et al. 2012.) Lackéus et al. (2019, p. 5) describe corporate entrepreneurs as: "An entrepreneurial employee is a person who cares so much about an issue that she takes action despite inherent uncertainty and risk, trying to create something new envisioned to be of significant value for others, and who does this in a process characterized by trial-and-error based learning."

Individual differences influence the action tendencies of individuals to exploit opportunities. Some attributes can increase the probability of entrepreneurial opportunity exploitation, but it may not increase the probability for successful innovations. For instance, over optimism can lead to higher innovation exploitation and failure rates. (Shane & Venkataraman 2000.) There have been different views on which attributes are relevant when studying individual-level corporate entrepreneurship. Entrepreneurial people have been usually seen as rare and special individuals, born with special traits and skills that make them think and act entrepreneurially. These have been impossible to prove empirically, despite decades of research on the topic. (Lackéus et al. 2019.)

One of the most obvious findings on the individual level is that there is strong evidence that employees having corporate entrepreneurship experience are more likely to act entrepreneurially in their work (Urbano & Turró 2013). Lackéus et al. (2019) address the problem of seeing some people more entrepreneurial in the status quo and treating them as special talents. The typical assumption joined to this kind of action is that the company's employees are not and cannot become entrepreneurial. They recognized two key failures that follow this viewpoint of negative impact on the employees. A company starts to emphasize the open innovations (collabouration with people outside the own firm) or the entrepreneurial units (entrepreneurial employees are gathered to an own unit). Being entrepreneurial is not a fixed characteristic of a person. It is an everyday behaviour, a habit and identity anyone can acquire. Employees, therefore, need support and the possibility to develop their entrepreneurial behaviour to be able to act more entrepreneurially. The peer support is also important in becoming more entrepreneurial. Employees will try

to be more entrepreneurial if it is acceptable and appreciated among colleagues. Therefore, it is important that employees, in general, know what it means to be a corporate entrepreneur. It helps them to take their initiatives, but also recognize, appreciate and support others' entrepreneurial initiatives. (Lackéus et al. 2019.)

Managers have a key role in establishing and maintaining corporate entrepreneurship in their organization. The myths of the special intrapreneurs can stick strongly in the employees, if the managers fail to clarify what it means to entrepreneurial. Lackéus et al. (2019, p. 28) point out the manager's key position in enabling corporate entrepreneurship: "If routine value creation is all that matters for a manager, the subordinates will be forced to hide and protect their entrepreneurial initiatives also from their closest manager. It will inevitably stifle the entrepreneurial culture." Learning oriented managers should appreciate and value not only the hard figures but also the new learnings and insights created by their employees. One person's single initiative might seem insignificant in the short term, but in the long term, the cumulative entrepreneurial initiatives can have a dramatic impact. Corporate entrepreneurship and innovativeness are difficult to measure, which is one reason why it is often deprioritized in established firms. (Lackéus et al. 2019.)

Lackéus et al. (2019, p. 2) address that there is a harmful over-reliance on structural solutions on corporate entrepreneurship: "A better balance is thus needed between the employee perspective and the manager perspective." Formalized innovation processes can make them more predictable, manageable and increase the effectiveness of innovation development efforts in KIBS (Crevani et al. 2011). Lackéus et al. (2019) see this affecting negatively the individual level of corporate entrepreneurship. Structures can become an excuse for individual employees to refrain from taking entrepreneurial actions. "Why should I do it as we have a department for that?" captures the problem where structures constrain the entrepreneurial actions. They also find it troubling that if the ideas are judged in the an early stage comprehensive structures of firm, most of the ideas that could have developed the viable business opportunities can get killed. (Lackéus et al. 2019.) Many service firms have not formalized their innovation processes. (Crevani et al. 2011.) It does not mean that these companies cannot create innovations. The informal innovation exploitation processes are typical for service companies as the individuals are prominent for their value and innovation creation. Knowledge employees work independently and have strong communication with customers, which means that they can adapt their work to meet the goals of the company. Even highly innovative service firms may not have an actual R&D department or processes. (Crevani et al. 2011; Leiponen 2005; Sundbo 1997; Toivonen & Tuominen 2009) On service companies innovations are recognized as innovations typically afterwards, because they are created just to better fulfill as a part of everyday work (Toivonen & Tuominen 2009).

Innovative service firm can be characterized to have a dual structure in their innovation process: a management system that inspires the employees to exploit opportunities, and

make the ideas to meet the strategic goals of the company (corporate entrepreneurship). Another is an informal social system creating the ideas (organizational innovativeness). An organization that wants to utilize corporate entrepreneurship efficiently and effectively has to have these top-down and bottom-up processes working simultaneously and supporting each other. (Calisto & Sarkar 2017; Toivonen & Tuominen 2009.) The strategic vision for corporate entrepreneurship and processes to help the company to efficiently transform innovations to fit the company's framework of operations. Strategic vision also helps and encourages employees to recognize and exploit opportunities. (Ireland et al. 2009.) Top and middle managers should focus to eliminate obstacles for corporate entrepreneurship (Calisto & Sarkar 2017). Creation of an innovative culture requires it to be long-term oriented. Firm's entrepreneurial culture will stifled and innovative communication reduced, if new insights and hard-earned learnings by individuals are not appreciated by colleagues or managers. (Lackéus et al. 2019.)

Functioning corporate entrepreneurship top-down steering needs the sustained, strong and continuous bottom-up process to corporate entrepreneurship to be successful (Ireland et al. 2009). Employees contributing to the everyday operations of the organization should create new ideas, innovations, and change within the organization (Crevani et al. 2011). Entrepreneurially acting employees create new ideas and implement new approaches using opportunistic tactics (Neessen et al. 2019). Individuals' actions have implications typically also on a collective level if they communicate with others. Idea can be tremendous valuable for a firm, even if the learning of an individual or group cannot be invoiced to a paying customer. (Lackéus et al. 2019.) These ideas or trials can spark larger changes to the broader organizational level (Neessen et al. 2019). Corporate entrepreneurship should not be extra action performed by the employees. Employees combining corporate entrepreneurship in their job "job as usual" develop entrepreneurial initiatives as embedded in normal action (Belousova & Gailly 2013; Birkinshaw 1997.) Top-down and bottom-up work symbiotically and therefore, the organizational level and individual employees have to fulfill their roles to create organizational renewal.

There are not only benefits of corporate entrepreneurship for organizations. It can be argued that, the individual factors are more important reasons to adopt corporate entrepreneurship by individuals than just the benefit of the company. Employees should be entrepreneurial, from the individualist perspective, because it benefits themselves in various ways. It triggers a positive and self-reinforcing cycle of both personal and professional learning and development. These benefits tend to more long-term, just like they are for the companies. Corporate entrepreneurs must be able to be long-term oriented in various exploratory value creation activities as companies rarely have incentive systems that give immediate rewards for entrepreneurial acts. Being entrepreneurial typically creates the ability and reputation to be a development-oriented and collaboration-oriented

employee. Meaningfulness, personal development, and higher motivation while doing interesting things are benefits that most entrepreneurial employees benefit even in the short-term. (Lackéus et al. 2019.) In Table 3 there is a summary by Lackéus et al. (2019) of the benefits they discovered of corporate entrepreneurship for individuals. The first section shows short-term benefits; the second section shows more long-term oriented benefits. Corporate entrepreneurship has several beneficial factors for companies. Employees should be entrepreneurial, from the collectivist's perspective, for the simple reason that it benefits the firm in several ways. They, amongst other things, contribute better efficiency, higher firm profitability, development of new vital capabilities and offerings, collaborative and action-oriented corporate culture. They also generate crucial learning for the individuals and the company as a whole and therefore trigger new opportunities. (Lackéus et al. 2019.) In Table 4 there is a summary by Lackéus et al. (2019) of the benefits they discovered of corporate entrepreneurship for organizations.

Table 3 Reasons for the individual employee to engage in corporate entrepreneurship. (Lackéus et al. 2019)

Reasons for individuals to engage	What entrepreneurial employees gain personally?
A more meaningful, motivating and satisfactory everyday inner work life	The entrepreneurial job contains many events that give one's work-life meaning and satisfaction, leading to a virtuous cycle of motivation
Higher autonomy than generally allowed in one's everyday work life	Idea development necessitates a certain level of autonomy, which will be granted to the employee if firm structures allow or encourage It
A more secure way to be entrepreneurial than running one's own firm	The firm assumes the risk, absorbs failures, gives access to resources when necessary and if argued for, and facilitates scale-up
Recognition from colleagues for being a development-oriented contributor	Entrepreneurial people often enjoy superior peer and management recognition, as they often acquire a deep business understanding
Growth of one's internal and external network	Since idea development involves many people both internally and externally, large networks are often built in a natural way
Acceleration of one's capacity for in-depth and true business understanding	New idea development inevitably exposes people to fundamental issues around the firm's business, triggering deep understanding
Acceleration of one's capacity for structured idea development processes	Idea development tools and methods is a new field not known to most employees, but increasingly crucial in a changing business climate
Acceleration of collaboration, leadership, and cross-functional skills and mindsets	Idea development requires constant cross-functional collaboration and informal leadership, and therefore builds crucial experience and skills
Increased exposure and visibility in the firm and among executive managers	Entrepreneurial activities are often strategic and thus pushed upwards in the hierarchy as they deviate from established routines and policies
More frequent inclusion in important discussions and decision processes	Entrepreneurial people are often informally included in meaningful strategic discussions, based on reputation and idea development skills
More frequent eligibility for management positions	Strong previous exposure, visibility, and network increase the chances of being considered for interesting positions in internal recruitments
Rewards from the firm's incentive structures; money, hierarchy, et cetera	To the extent that the firm rewards deep business insight, informal leadership and/or entrepreneurial acts, the individual will be rewarded

Table 4 Reasons for firms to engage in corporate entrepreneurship (Lackéus et al. 2019)

Reasons for firms to engage	Why corporate entrepreneurship can benefit the firm?
Revitalize the organization	Re-engages unmotivated people, triggers action, instills purpose
Capitalize better on R&D	Increases value from costly R&D, e.g. inventions, patents, know-how
Increase speed and responsiveness	Makes responses to market changes and competition faster
Grow local markets	Grants autonomy for local adaptations when entering foreign markets
Leverage industry lock-in effects	Knowledge-intensive industries have first-mover/ network advantages
Build future revenues	Generates new revenue streams from slack resources in a low-cost way
Increase employee motivation	Induces strong positive feelings, teamwork, and lateral communication
Improve efficiency and profitability	Triggers profit-increasing internal inefficiency fixes from bottom-up
Develop the firm's employees	Challenge, excitement, and autonomy stimulates personal growth
Develop the firm's strategy	Over time, new initiatives can also impact large firms' strategies
Innovate through individual agency	Puts employees and their social interactions at the center of innovation
Challenge the firm's worldview	Previous successes breed inertia that needs to be challenged
Develop new key capabilities	Speeds up new insights in technologies, products, services, markets, et cetera
Instill an entrepreneurial culture	Initiatives also failed ones, can change corporate culture from within
Improve organizational learning	Triggers learning processes both on the individual and organizational level
Prepare for disruptive market events	Facilitates survival in times of massive upheaval and industry change
Many industries simply require it	The faster an industry changes, the more crucial it is to be flat and agile
Build capacity to be entrepreneurial	Learning-by-doing over time builds capacity in the organization
Learning-by-doing over time builds capacity in the organization	Start a chain reaction of opportunity
Each initiative builds on previous work and triggers new opportunities	Leverage on a successful practiced
It is a myth that most initiatives fail	Success rates are above 50%

3.2.2 Corporate entrepreneurship construct used in the case study

Corporate entrepreneurship or entrepreneurial employee is commonly conceptualized with entrepreneurial orientation. It was initially introduced as a firm-level concept, but it has also applied the individual level. It compromises typically the three key dimensions: proactiveness, risk-taking, and innovation. Sometimes the autonomy and competitive advantages have also been considered as part of the key dimensions. (Bolton & Lane 2012; Fellnhofer et al. 2016, 2017; Kollmann et al. 2017; Krauss et al. 2005; Lumpkin & Dess 1996.) Ribeiro Soriano et al. (2012) addressed that proactiveness, risk-taking and innovativeness have the most definite link to the concept of corporate entrepreneurship. It conceptualizes and measures individual entrepreneurial orientation as an individual disposition, including entrepreneurship-specific action tendencies and thinking styles. (Bolton & Lane 2012; Fellnhofer et al. 2016, 2017; Kollmann et al. 2017; Krauss et al. 2005; Lumpkin & Dess 1996.) This can be seen to align with the Neessen et al. (2019) idea of persons' abilities to recognize and exploit opportunities.

Proactiveness relates to acting boldly to make forward-looking actions that may lead to new opportunities. It is about the abilities and efforts to seize new opportunities. Proactiveness involves the recognition of opportunities and willingness to act exploit them. Proactiveness is vital for companies as they can benefit from the first-mover advantage by entering new markets, establishing brand identities, implementing better administrative techniques, or adopting new operating technologies (Lieberman & Montgomery 1988). Risk-taking refers to taking bold actions without knowing the outcome. Risk-taking is not gambling, even though it involves taking chances. Unavoidably even the calculated actions involve errors and a certain degree of risk, even though taking calculated risks reduces the risk of failure when acting entrepreneurially. Risk-taking refers to a person or a firm's willingness to seize opportunities without knowing the consequences. Companies and employees face business risk, financial risk, and personal risk. For intrapreneurs, the actual risk is in the end, personal as employees rarely are financially liable to the company. Innovativeness refers to a person's or company's efforts and willingness to recognize and create novel innovations and new solutions. Innovativeness is about experimentation, creativity, and knowledge that generate new services, products, processes, processes, et cetera. It involves having a positive mind-set toward new ideas. Ideas do not need to disruptive in the whole industry, but they need to new and create value for the target group. (Covin & Slevin 1991; Fellnhofer et al. 2017; Krauss et al. 2005; Lumpkin & Dess 1996; Moriano et al. 2014.)

Entrepreneurial orientation construct has been used to measure some key aspects of corporate entrepreneurship (Lumpkin & Dess 1996). It can be used to test individual-level heterogeneity in corporate entrepreneurship as it has been used in previous researches to measure individuals' entrepreneurial orientation (Bolton & Lane 2012; Fellnhofer et al.

2017). ***To operationalize the idea of corporate entrepreneurship by (Neessen et al. 2019) are the individual level entrepreneurial orientation measures by Bolton & Lane (2012) and Fellnhofer et al. (2017) used in the case study to measure the corporate entrepreneurship level of the individuals.***

3.3 Importance of individuals in KIBS

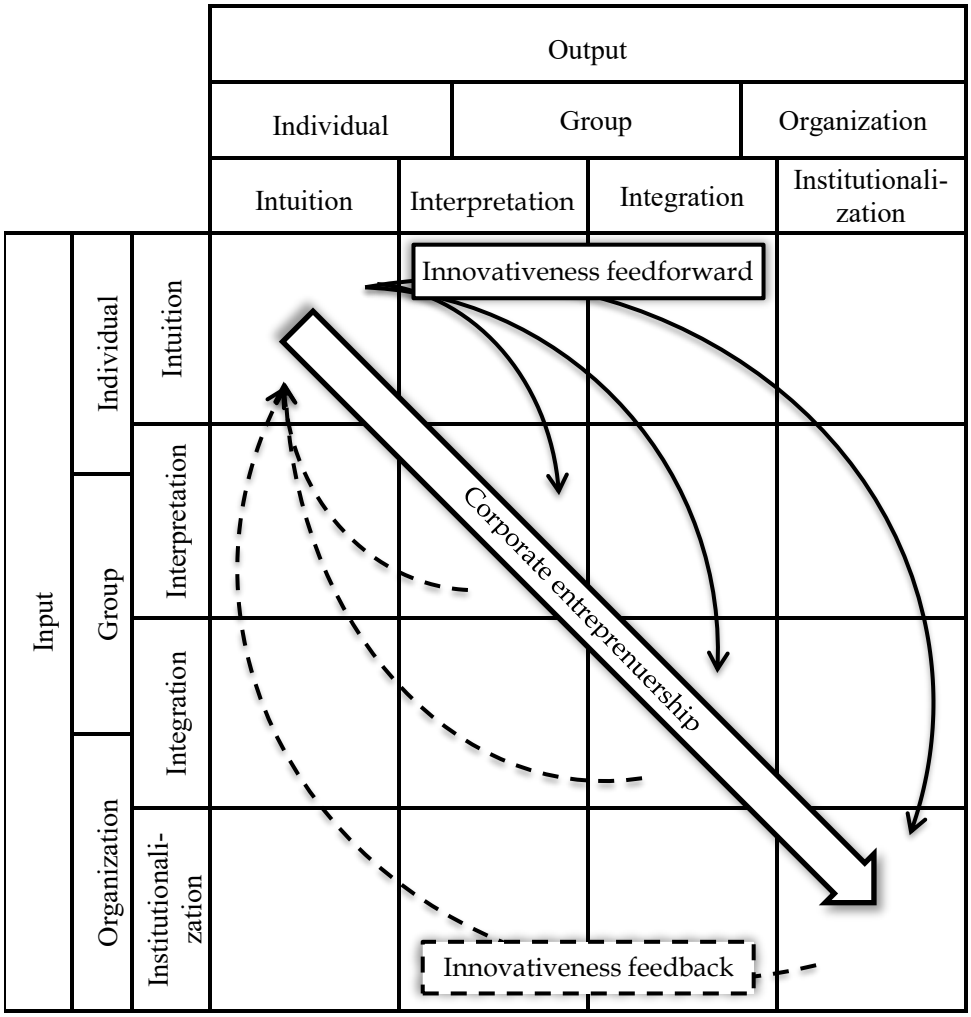
Individuals have an undeniably crucial role in KIBS organizations, as discussed in the previous chapters. They are the core of the KIBS value creation. Their role is also vital in organizational innovativeness and corporate entrepreneurship. These processes would not be able to give the full potential for KIBS, without individuals creating an entrepreneurial and innovative culture. Knowledge workers and KIBS are not homogenous. Organizational settings, including the customers, industries they work in, and their employees create each KIBS a unique entity. The organizational uniqueness also reflects on the individual level as knowledge workers tend to be heterogeneous. The findings in the previous chapters are summarized in this chapter and clarified why the knowledge workers matter regarding the organizational innovativeness and corporate entrepreneurship. This chapter also creates a foundation for the case study in the next chapter, where the employee perceived organizational innovativeness and individual entrepreneurial orientation heterogeneity are tested.

The employees are the key asset of the KIBS as they create and exploit opportunities with the individual and organizational knowledge. They are the vocal part of the core value and knowledge creation in KIBS, but also on the organizational innovativeness and corporate entrepreneurship. Knowledge is the primary component KIBS uses to create value by facilitating, transmitting and being the source of innovations, and for that reason, it is logical that organizational innovativeness and corporate entrepreneurship act in symbiosis with it. Organizational innovativeness acts similarly to the organizational learning process. Organizational innovativeness and corporate entrepreneurship are implemented to the 4I organizational learning model in order to understand and visualize the connection of these two constructs in KIBS.

The prior knowledge creates ground to create innovative ideas (intuition), which are shared (feedforward) by communicating with coworkers (interpretation). Other employees acquire these ideas (feedback process) or the ideas and findings are coordinately shared across the company (integration and institutionalized). Although this process can be as sequential, there are several different feedback loops among levels given the recursive nature of learning and creating new ideas. Corporate entrepreneurs are needed in order to exploit the potential ideas. They recognize the opportunities for innovations,

evaluate them and exploit them. The idea exploitation share similarities to the idea-generating process but can be seen more direct as it typically happens in action. This adapted process is visualized in Figure 5.

Figure 5 The adapted 4I model of organizational learning, organizational innovativeness, and corporate entrepreneurship.



The created model highlights the importance of the individuals in the KIBS. The individuals are the source and instrument of value creation in KIBS. They also are the main contributors to organizational learning that is the core asset in the value-creation. Individuals play an essential role in the organization's innovativeness and innovation capabilities. The organizational innovativeness emerges from the individuals' actions that are supported or restrained by the innovativeness culture. The opportunity exploitation in the KIBS is, in the end, the responsibility of the individuals', even though the organizational innovation creation processes can support this process in later phases. Individuals matter

significantly in the KIBS, and therefore it is vital to study their views and capabilities. Heterogeneity in perceived organizational innovativeness and entrepreneurial orientation is tested in the case study in gender, business function, job type, length of the career and years worked in the current company.

Chapters 3 and 4 addressed the first research question, which was why knowledge worker's individual level corporate entrepreneurship and perceived organizational innovativeness matter, especially in a knowledge-intensive business service organization? KIBS employees have a significant role in the KIBS. Their perceived organizational innovativeness and individual level corporate entrepreneurship are essential for the KIBS companies and the individuals themselves. The heterogeneity of knowledge workers is known, and it affects in various ways in the organizations. The next chapter studies the heterogeneity in perceived organizational innovativeness and individuals' corporate entrepreneurship in different groups in the form of a case study.

4 METHODOLOGICAL APPROACH

Knowledge workers play an essential role in the KIBS value creation and organizational innovativeness and corporate entrepreneurship processes. There has been scarce research on the individual level innovativeness and corporate entrepreneurship overall and especially in the KIBS related literature, even though individuals are crucial for KIBS organizations (Østergaard et al. 2011). There have not been case studies of the heterogeneity in the perceived organizational innovativeness or corporate entrepreneurship on the individual level, even though the heterogeneity of knowledge workers is evident (Kollmann et al. 2017). This case study focuses on how heterogeneous the knowledge employees in terms of corporate entrepreneurship and perceived organizational innovativeness are regarding gender, business function, job type, length of the career and years worked in the current company. The heterogeneity is tested by five different dimensions: gender, business function, job type, length of career and years worked in the current company.

The nature of the KIBS companies demands individuals with heterogeneous backgrounds, competences, and views. KIBS need to flexibly adapt their services to create value for their customers, which causes substantial differences between companies (Brozovic et al. 2016). It is vital to look at the action tendencies, thinking styles and knowledge in the firm when analyzing employee diversity. Diversity has a significant impact on a firm's innovative capabilities. This case study focuses solely on the heterogeneity of the knowledge workers in the corporate entrepreneurship and organizational innovativeness, even though diversity affecting the innovation capabilities are important and worth studying. It is important to test if the different groups are heterogenous or not regarding on these things to understand better how complicated these two aspects are to study in organizations, as views on within different employee groups may be significantly heterogeneous.

The case study subject was chosen to clarify partly the highly complex processes of innovation creation in KIBS. The desirable research subject would have been to study the whole proposed model (figure 5) in this case study. The elements of the construct, however, are not yet individually and comprehensively studied. Therefore, it is crucial to make sure the different parts of the constructs are tested from various aspects in order to be able to test the larger models in practice. This study focuses on the heterogeneity of the knowledge workers. It helps to clarify the individual level constructs and whether the generalizations can be used when studying the perceived organizational innovativeness and corporate entrepreneurship.

4.1 Methodology

The study is a case study. It means that it studies the current state of one organization and the findings on the organizational level are bound to the company. Results should be replicable also in other companies as the subject of study is the individuals' heterogeneity of the two constructs and not the level of these constructs in a company. The survey is going to be analytical as it will be a static analysis of the company's current state. The case study was selected as a method because the focus is on heterogeneity within organizations. Further studies can replicate the study in other organizations, which helps to generalize the heterogeneity results in KIBS companies. No new instruments were created for this study. The measures utilized are well-tested and adapted for this study settings. (Hevner et al. 2004.)

The case study follows the basic case study research as it involves formulating test hypotheses, defining measures, gathering data, analyzing the case and being reflective about the findings compared to the theory. The case study was survey research. The target group was the whole staff of the case study company. The survey was constructed by adapting the prior constructed studies and classification systems. The entrepreneurial orientation and attitudes measures were adapted from different, but similar individual level corporate entrepreneurship studies, which utilized the same entrepreneurial orientation construct to measure the individual level corporate entrepreneurship behaviour. (Bolton & Lane 2012; Fellnhofer et al. 2017; Kollmann et al. 2017). The perceived organizational innovativeness was examined with the organizational innovativeness scale constructed by Wang and Ahmed (2004). These two constructs were the dependent variables as the variation of these were studied. The independent variables can be divided into ascribed and achieved characteristics of the respondents. The ascribed characteristics were gender and the length of the career and years worked in the case study company. The achieved characteristics were the level of the job and business function.

The research includes analysis of the heterogeneity in the answers to the entrepreneurial orientation and perceived organizational innovativeness in the gender, business function, job type, length of career and years worked in the current company. Each characteristic was tested in isolation for simplicity. There probably are some combined effects on these variables, but it is not covered in this research. The covariances with the two constructs were also tested to see if the two close constructs have some correlations. The results are covered based on the hypotheses, which are created in the next chapter.

4.2 Case study organization

This case study focuses on one company. Only one company was selected for simplicity. This approach makes it possible to test the hypothesis and the methodology before broader studies. The case study organization was selected as it provides various characteristics apparent in the KIBS organizations. These are high a service complexity, a KIBS classification, a wide service portfolio, a wide diversity of knowledge workers and roles.

The research is conducted as a case study in a large government-owned T-KIBS company. The company provides a large number of highly technical and complex business services for the public and private sectors. The company has several characteristics, which imply it as a KIBS organization. It has classified itself as a '6202 Computer consultancy activities', which is one of the core KIBS industries. It can also be defined as a T-KIBS organization as it provides most of the services defined by Miles et al. (1995). The company offers, amongst other things software development, technical services, computer networks, and consulting in information technology. The staff is mostly academic, and the nature of the work is knowledge-intensive. Almost all of the services are connected to information systems and providing them as a service. The company has expanded quickly in the past ten years as it has started to provide a broader range of consultancy and software-based KIBS services. The current number of staff is approximately 400 persons. All of the staff can be seen as knowledge workers, as the basic clerical and physical work is outsourced. The different projects and services are diverse, and so the needed technical and ecosystemic knowledge varies greatly. The tasks and jobs of the organization are highly heterogeneous as it provides, amongst other support, consultation, coordination, architecture, software development, system administration services for their customers.

The organization is optimal for a case study in this subject as the staff tasks, and jobs are highly diverse, which characteristic for KIBS organizations. The study was conducted as quantitative research as part of a more comprehensive staff development survey. In addition to the scientific contribution, this thesis was conducted for the case study company's HR and business development needs.

4.3 Hypotheses

The theoretical background and need for this study were covered in chapters 3 and 4. The importance of individuals for KIBS organizations was pointed out. Individuals actions, knowledge, and attitudes have an effect directly and indirectly to the competitive advantages and innovativeness of these companies. The KIBS employees and knowledge

worker heterogeneity are evident. It is crucial to understand how heterogenous the employees are in terms of individuals' corporate entrepreneurship and their perceived organizational innovativeness, in order to develop and study the organizational innovativeness and knowledge worker's corporate entrepreneurship action tendencies and thinking styles. This study focuses primarily on five key characteristics in employees, which are apparent in all companies. These are gender, business function, job position, length of the career and years worked in the company. In order to study the heterogeneity of individuals in these efficiently, hypotheses are created based on the theory. Hypothesis were formulated as there would be no significant differences between different independent variables.

The dependent variables were the perceived organizational innovativeness and individual's entrepreneurial orientation, which indicate the key characteristics of corporate entrepreneurship. The organizational innovativeness construct consists of five main areas that determine the organization's overall innovativeness: product/service innovativeness, market innovativeness, process innovativeness, behavioural innovativeness, and strategic innovativeness (Wang & Ahmed 2004). The individual entrepreneurial orientation used in the study comprises three key dimensions: proactiveness, risk-taking, and innovation (Bolton & Lane 2012; Fellnhofer et al. 2017). The independent variables were gender, length of the career, years worked in the company, business function, and job type. The hypotheses are based on the upper level of the two constructs, but the results are analyzed by taking account of the different dimensions of these constructs. the basic hypothesis set-up is that there are no significant differences in the answers between different groups on these constructs. The hypotheses are discussed one independent variable at a time.

The first independent variable is gender. As there is no clear proof that gender should affect either of the constructs, the hypothesis is that there is no significant difference between males and females on either of the two constructs.

- *H1 There is no significant difference between male and female in entrepreneurial orientation.*

- *H2 There is no significant difference between male and female in perceived organizational innovativeness.*

The second independent variable is the business function. The classic class division of the business functions is the core business function and the support business function. Employees working in core business functions could perceive the company more innovative as they market and create these services for customers. The core business function employees might act more entrepreneurially than the support business function employees, as the core business function employees have to take responsibility for creating value

for their customers. The hypotheses are that there is no significant difference between core business function and support business function on these constructs, as there are no prior studies found on these topics.

- *H3 There is no significant difference between core business function and support business function in entrepreneurial orientation.*

- *H4 There is no significant difference between core business function and support business function in organizational innovativeness.*

The third independent variable is the type and level of the job. The respondents working as directors, managers, and team leaders were recoded as a leader in job type variables to and other job types as others. It could be assumed that typically the managers see firm innovativeness capabilities better than other employees as they form the strategy and see the potential new opportunities more apparent than other employees. Leaders probably have a higher level of entrepreneurial orientation characteristics, as the persons in managerial positions have to take more responsibility and tolerate risks. The hypotheses are that there is no significant difference between managers and others function on these constructs.

- *H5 There is no significant difference between leaders and others in entrepreneurial orientation.*

- *H6 There is no significant difference between leaders and others in organizational innovativeness.*

The fourth independent variable is the length of the career. The hypothesis is that there is no significant correlation between the length of the career and the perceived organizational innovativeness, as the length of the career should not affect the perceived organizational innovativeness. The entrepreneurial orientation construct also deals with the same characteristics that typically are acquired by the experience of a specific job. The acquired knowledge also helps persons to be creative as it gives them a more extensive knowledge base. Therefore, it could be that there a positive correlation between the length of the career and the entrepreneurial orientation. The hypotheses are that there is no significant correlation between either of the constructs and length of the career.

- *H7 There is no significant positive correlation between the length of the career and the entrepreneurial orientation*.

- *H8 There is no significant correlation between the length of the career and the perceived organizational innovativeness.*

The fifth and last independent variable is the years worked in the company. It is probable that these variable acts similar to the length of the career. Some differences there probably are on the subdimension level, but the central hypothesis is the same as in the length of the career variable.

- *H9 There is no significant positive correlation between the years worked in the company and the entrepreneurial orientation.*

- *H10 There is no significant correlation between the years worked in the company and the perceived organizational innovativeness.*

It was tested for last if there is any significant correlation between different dimensions of organizational innovativeness and entrepreneurial orientation. One measures an individual's characteristics and the other how he or she perceives the organizational innovativeness. It is improbable that they have any significant correlation, as these two different constructs are linked to each other but are not are directly connected.

- *H11 There is no significant correlation between entrepreneurial orientation and the perceived organizational innovativeness.*

These hypotheses were created based on the theory and partly the writer's own interpretation. All of the hypotheses were formulated negatively to keep the hypotheses simple to go through in the results. The researcher's premonitions are irrelevant, as the goal is to figure out how heterogeneous knowledge workers are on these constructs based on their gender, business function, type of the job, length of the career and years worked in the company. The significance tests test these hypotheses in the results subchapter in the conclusions the found results are discussed. The used measures and used analysis methods are defined in the next subchapter.

4.4 Measures

The used measures and analysis methods are described in this chapter. The measures used are well-tested and recognized in the prior literature. There were some slight adaptations of the original measure constructs to serve the purposes of this study better. The

analysis methods were chosen according to the excellent research practices and the need to fulfil the research goals. The survey questionnaire can be found in Appendix 1.

The perceived organizational innovativeness was examined with the organizational innovativeness scale constructed by Wang and Ahmed (2004). Organizational innovativeness represents organizational innovativeness through five dimensions: product innovativeness, market innovativeness, process innovativeness, behavioural innovativeness, and strategic innovativeness. The key benefits of using this measurement construct are that it quantifies to what extent the organizations are innovative, and it also covers various key aspects of innovativeness with multidimensional measures. The scale used in this construct was a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). A higher number in the answers signifies a more definite answer as the questions were asked in positive form. Three scales of organizational innovativeness questions were reversed as they were asked in negative form.

The organizational innovativeness construct consists of five dimensions. These were adapted from the construct developed by Wang & Ahmed, in their "The development and validation of the organizational innovativeness construct using confirmatory factor analysis" research. Only minor adaptations to the questions were made to simplify the language as most of the survey respondents were not native English speakers. Here are a couple of examples of these alterations: 'not adequate' was changed to 'not good enough' and 'key executives' to 'upper management'. These alterations were made to avoid misapprehensions. The construct has some problems in this specific company as it does not operate in totally open markets as the jurisdiction limits its operations. The construct was still used as it covers the primary innovativeness dimensions also in the limited markets. The scale used in this construct was a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). A higher number in the answers signifies a more definite answer as the questions were asked in positive form. Three scales of organizational innovativeness questions were reversed as they were asked in negative form.

The entrepreneurial orientation measures are adapted from a couple different, but similar individual level corporate entrepreneurship studies, which utilized the same entrepreneurial orientation construct to measure the individual level corporate entrepreneurship behaviour. (Bolton & Lane 2012; Fellnhofer et al. 2017; Kollmann et al. 2017). Entrepreneurial orientation construct is widely used to measure corporate entrepreneurship with three key dimensions: proactiveness, risk-taking, and innovativeness. These dimensions are argued to have the most definite link to the concept of corporate entrepreneurship as it conceptualizes and measures individual entrepreneurial orientation as an individual disposition, including entrepreneurship-specific action tendencies and thinking styles. (Bolton & Lane 2012; Fellnhofer et al. 2016, 2017; Kollmann et al. 2017; Krauss et al. 2005; Lumpkin & Dess 1996; Ribeiro Soriano et al. 2012.) The three dimensions of the entrepreneurial orientation construct are introduced thoroughly in chapters 3.2 and 3.3.

The questions and the used dimensions on entrepreneurial orientation were adapted primarily from the Fellnhofer et al. (2017) "Entrepreneurial orientation in workgroups – effects of individuals and group characteristics" study. The autonomy was excluded in this study as it not typically included in the critical three dimensions of entrepreneurial orientation (Kollmann, Christofor, & Kuckertz 2007). Also, two questions of the six question innovativeness construct were excluded to simplify the survey and as they were repetitive and did not bring additional aspects for the construct. Only one question was altered in the innovation dimension to capture the incremental nature of innovations. This question was "In the last three years, I actively introduced improvements and innovations that have been usually quite dramatic" and it was altered to "I have actively introduced improvements and innovations that have usually enhanced our work". There were no significant limitations noticed in prior literature on the usability of this construct. The scale used was also in this a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). A higher number in the answers signifies more positive answer as the questions were asked in positive form.

The independent variables were deduced for the purposes of this study. They were constructed without any direct link to other studies. The gender question included male, female and 'other or does not want to tell'. The respondents who answered other or does not want to tell answers were excluded from this study to simplify analysis. The length of the career and years worked in the company were asked in half-year accuracy to simplify the answering. These two variables are treated as continuous variables. The business function was asked as an either-or question. The respondents chose the corresponding level of their job from nine different options. These options were: director, manager, team leader, coordinator, senior specialist, specialist, junior specialist, trainee, other. Respondents could choose if they were senior, normal or junior specialists even though they may have another title, as the question was asked in the form of the corresponding level of the job. Other and trainee classes were excluded from the data as there were no trainee answers and others level on the organization was impossible to specify. The director, manager and team leader were grouped as leaders and other classes as others in order to simplify the two different types of jobs. The level of the job variable consists of most of the uncertainty as some employees may have worked in a leadership position earlier or their job involves managerial aspects, but they see themselves as senior specialists. To simplify the study, these are used to define different employee groups in the organization, even though they may contain role contradictories.

4.5 Data collection and analysis methods

This chapter introduces data collection and analysis methods. The data collection was made as part of a larger survey for the staff. The other parts of this survey are excluded from this thesis. The analysis was conducted soon after the survey closed. In the analysis, methods are the data preparation introduced, and the analysis methods are described. After this chapter, the results are introduced.

Data collection was made in November 2019. The survey was sent out for the target organization's whole staff. It was only in English as the second working language of the company is English. It was only in answerable through an electronic survey form. The employees had two weeks to answer the survey. The survey was sent by email to the staff and posted as a new on the intranet one time, and two reminders were sent in the instant messaging platform. A copy of the survey questions can be found in Appendix 1. There were 103 survey respondents in total. Only complete answers with all independent and dependent variables were included in the analysis. The total data used in the study consisted of 96 complete answers. The company had around 400 employees at the time. The response rate was approximately 25%. The margin of error is then 8,5% with the confidence level of 95%

The analysis methods were wide-ranging as the goal of this study was to study the heterogeneity in multilevel constructs with several different type independent variables. The software used to conduct the analyses was SPSS Modeler and SPSS Statistics. The reliability analysis was made to check the reliability of the constructs. The factor consistency was tested with Cronbach's alpha test on the subfactor and primary factor levels. Based on the results, three organizational innovativeness questions were coded in a reverse manner, as the questions were asked differently than others. All primary factors and subfactors were on a satisfactory level. The Cronbach's Alpha was on most factors near 0,8. The market and strategic innovativeness Cronbach's alpha were only 0,585 (market innovativeness) and 0,561 (strategic innovativeness). Based on the reliability analysis, the first strategic innovativeness question variable was deleted from the strategic innovativeness subfactor and the organizational innovativeness primary factor. Cronbach's alpha of the strategic innovativeness was 0,646 after the change, which is on a satisfactory level. No variables were deleted from the market innovativeness factor, as the removal did not have any significant impact on the factor consistency. The market innovativeness factor was still used, in order to cover the theoretical aspect of the market innovativeness, even though it is not as consistent as other factors. No alterations were made on the individual entrepreneurial orientation factors.

The sum variables were created based on the factors used in theory by using the mean of the factor questions. The factor variables act similar to the continuous measures so the

methods that need continuous variables can be used, as all factors are created as aggregated mean variables. This method was chosen as all the original studies used similar aggregated factors, and the Likert scales act as continuous when they are aggregated to factor variables (Carifio & Perla 2008). The primary factor means, standard deviations, squared multiple correlations and Cronbach's alphas, of both constructs, are summarized in tables 5 and 6. Heterogeneity tests and visualizations were made, after the creation of the primary and subfactors. The independent samples T-test was used to test the group heterogeneity in independent variables with two groups. The results of the independent samples T-test shows if the two groups have significant differences in answers. The T-test results are represented in Appendix 2. Independent samples do not show how much inner variance there is in the groups and factors. Therefore, also the standard deviations are listed, and the boxplots are made to visualize the inner heterogeneity in groups.

Standard deviation measures the amount of variation or dispersion of a set of values. About 95% of observations of any distribution usually fall within the two standard deviation limits, though those outsides may all be at one end (Altman & Bland 2005). The standard deviation always depends on the scale and the mean. Therefore, there are no universal poor or good standard deviations. The standard deviation of 1 implies that approximately 95% of respondents are +/- of 2 points from the mean. This can be considered in this study as a high number as the whole scale is only seven-point long. Boxplots show many important key statistics in the form of a figure. The dark line in the middle of the boxes is the median of the measure. The bottom of the box indicates the 25th percentile and the top of the box 75th percentile. The T-bars that extend from the boxes are called inner fences or whiskers. These extend to 1.5 times the height of the box or, if no case/row has a value in that range, to the minimum or maximum values. The points are outliers. These are defined as values that do not fall in the inner fences. The asterisks or stars are extreme outliers. These represent cases/rows that have values more than three times the height of the boxes.

The bivariate analysis with Pearson's correlation coefficient test was used to test the significance of correlation in two continuous variables. The scatterplots made to visualize the heterogeneity in Pearson's correlation variables, as the standard Pearson's correlation test does not show the variance are. Scatterplots also visualize the heterogeneity of the main factor in the whole company.

Table 5 Items of Organizational Innovativeness (adapted from the Organizational Innovativeness construct by Wang & Ahmed 2004).

Organizational innovativeness	*Items of Organizational Innovativeness (adopted from the Organizational Innovativeness construct by Wang & Ahmed 2004)*			**Cronbach's Alpha total**	**0,89**
	Item *Likert scale from 1= Strongly disagree to 7 = Strongly agree*	**Mean**	**Std. Deviation**	**Squared Multiple Correlation**	**Cronbach's Alpha if Item Deleted**
Product / Service Innovation 1	In new product and service introductions, our company is often first-to-market. (First-to-market = First to introduce these solutions for our customers).	4,01	1,40	0,71	0,88
Product / Service Innovation 2	Our new products and services are often perceived as very novel by customers.	4,42	1,15	0,64	0,89
Market Innovation 1	Our recent new products and services are often only minor changes from our previous products and services. (Reverse coded)	4,04	1,34	0,47	0,89
Market Innovation 2	New products and services in our company often take us up against new competitors.	3,72	1,20	0,40	0,89
Product / Service Innovation 3	In comparison with our competitors, our company has introduced more innovative products and services during the past five years.	3,98	1,15	0,54	0,89
Product / Service Innovation 4	In comparison with our competitors, our company has a lower success rate in new products and services launch.	4,42	1,18	0,43	0,89
Market Innovation 3	In comparison with our competitors, our products' most recent marketing programme is novel in the market.	3,59	1,11	0,41	0,89
Market Innovation 4	In new product and service introductions, our company is often at the cutting edge of technology.	4,49	1,39	0,49	0,89
Strategic Innovation 1	Our company's R&D or product development resources are not good enough to handle the development need of new products and services.	3,80	1,61	0,28	0,90
Process Innovation 1	We are constantly improving our business processes.	4,76	1,12	0,44	0,89
Process Innovation 2	Our company changes producting/working methods at a great speed in comparison with our competitors.	3,35	1,14	0,56	0,89
Process Innovation 3	During the past five years, our company has developed many new management approaches.	4,13	1,45	0,59	0,89
Behavioural Innovation 1	We get a lot of support from managers, if we want to try new ways of doing things.	4,18	1,39	0,62	0,88
Strategic Innovation 2	Upper management of the company are willing to take risks to seize and explore "chancy" growth opportunities.	4,07	1,30	0,60	0,89
Strategic Innovation 3	Upper management constantly seeks unusual, novel solutions to problems via the use of "idea men".	3,52	1,15	0,69	0,89
Behavioural Innovation 2	In our company, we tolerate individuals who do things in a different way.	4,85	1,47	0,56	0,89
Behavioural Innovation 3	We are willing to try new ways of doing things and seek unusual, novel solutions.	4,45	1,41	0,60	0,88
Behavioural Innovation 4	We encourage people to think and behave in original and novel ways.	4,46	1,47	0,68	0,88
Strategic Innovation 4	When we see new ways of doing things, we are last at adopting them.	4,38	1,36	0,56	0,88
Process Innovation 4	When we cannot solve a problem using conventional methods, we improvise on new methods.	4,79	1,11	0,52	0,89

Table 6 Items of Individual Entrepreneurial Orientation (adapted from the Individual Entrepreneurial Orientation scale by Bolton & Lane 2012 and Fellnhofer et al. 2017).

Entrepreneurial orientation	*Items of Individual Entrepreneurial Orientation (adapted from the Individual Entrepreneurial Orientation scale by Bolton & Lane 2012 and Fellnhofer et al. 2017)*			**Cronbach's Alpha total**	**0,90**
Factor	**Item** *Likert scale from 1= Strongly disagree to 7 = Strongly agree*	**Mean**	**Std. Deviation**	**Squared Multiple Correlation**	**Cronbach's Alpha if Item Deleted**
Proactiveness 1	I usually act in anticipation of future problems, needs or changes and start actions to which others respond.	5,51	1,17	0,48	0,91
Proactiveness 2	I am good at identifying opportunities and tend to plan ahead on projects.	5,40	1,20	0,67	0,89
Proactiveness 3	I prefer to "step-up" and get things going and on projects always trying to take the initiative in every situation rather than sit and wait for someone else to do it.	5,28	1,53	0,57	0,89
Risk-taking 1	I like to take bold action by venturing into the unknown encouraged to take calculated risks with new ideas.	4,72	1,46	0,70	0,89
Risk-taking 2	I am willing to invest a lot of time and/or money on something that might yield a high return taking bold, wide-ranging actions to achieve my objectives.	4,54	1,54	0,59	0,89
Risk-taking 3	When confronted with decisions involving uncertainty, I tend to act boldly in these situations.	4,58	1,33	0,53	0,90
Innovativeness 1	I often like to try new and unusual activities that are not typical and place a strong emphasis on innovative and creative ideas.	4,82	1,40	0,66	0,89
Innovativeness 2	I am often the first to come up with new ideas related to services, in-company processes, methods or other innovative improvements related to our business.	4,64	1,35	0,64	0,89
Innovativeness 3	In general, I prefer a strong emphasis in projects on unique, one of a kind approaches rather than revisiting the tried and true approaches used before.	3,99	1,40	0,34	0,90
Innovativeness 4	I have actively introduced improvements and innovations that have been usually enhanced our work.	4,89	1,48	0,66	0,89

5 CASE STUDY FINDINGS

The case study results and key findings are introduced in this chapter. Key descriptive statistics are introduced, and then each independent variable is examined separately. The hypotheses are either accepted or rejected, and the key visuals of each independent variable are introduced to show the heterogeneity of these variables. The key findings are summarized, in the end of this chapter. Study hypotheses were tested by using different statistical methods. The results are represented with both statistical test results and visuals representing the results, in order to have academic and practical value.

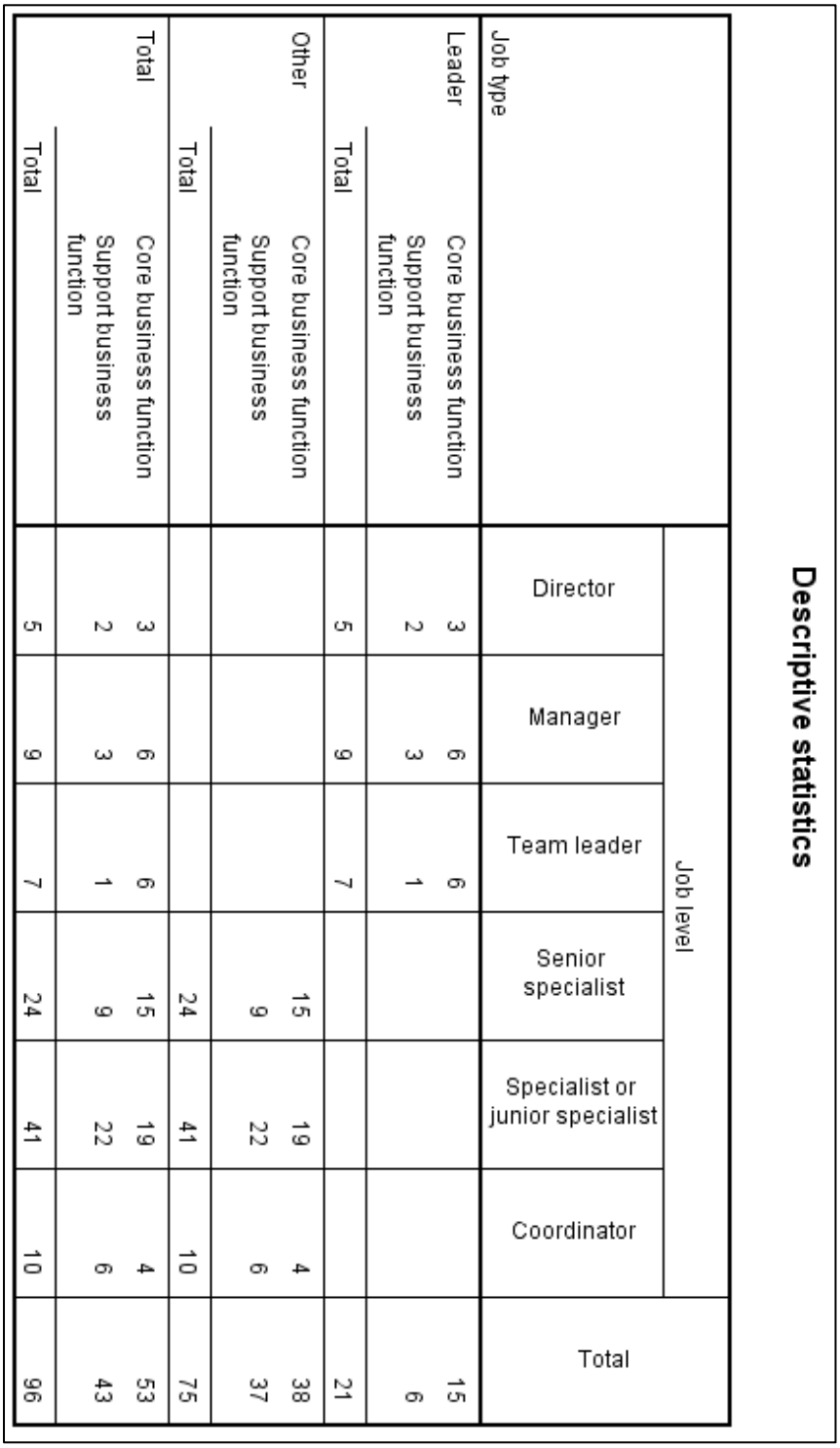
The respondents are heterogeneously distributed along with different dependent variables. Most respondents are working as specialists or junior specialists. There are slightly more respondents from the core business functions than the support business functions. There is also double the number of answers from males than females. It describes well the distribution of gender. There were seven respondents in total who answered "Other, or I don't want to respond to the gender question". The mean of the years' respondents had worked in total was 19,5 years, and the median was 20 years. The mean of the years' respondents had worked in the case study company was 7,2 years, and the median was five years. The key descriptive statistics are summarized in tables 7 and 8.

Table 7 Summary of descriptive statistics by gender, job type, and business function.

Descriptitive statistics

Job type			Gender			Total
			Female	Male	Other or I do not want to tell	
Leader		Core business function	6	7	2	**15**
		Support business function	1	5	0	**6**
	Total		7	12	2	**21**
Other		Core business function	8	26	4	**38**
		Support business function	15	21	1	**37**
	Total		23	47	5	**75**
Total		Core business function	14	33	6	**53**
		Support business function	16	26	1	**43**
	Total		**30**	**59**	**7**	**96**

Table 8 Summary of descriptive statistics by job type, job level, and business function.



Descriptive statistics

Job type		Job level						
		Director	Manager	Team leader	Senior specialist	Specialist or junior specialist	Coordinator	Total
Leader	Core business function	3	6	6				15
	Support business function	2	3	1				6
	Total	5	9	7				21
Other	Core business function				15	19	4	38
	Support business function				9	22	6	37
	Total				24	41	10	75
Total	Core business function	3	6	6	15	19	4	53
	Support business function	2	3	1	9	22	6	43
	Total	5	9	7	24	41	10	96

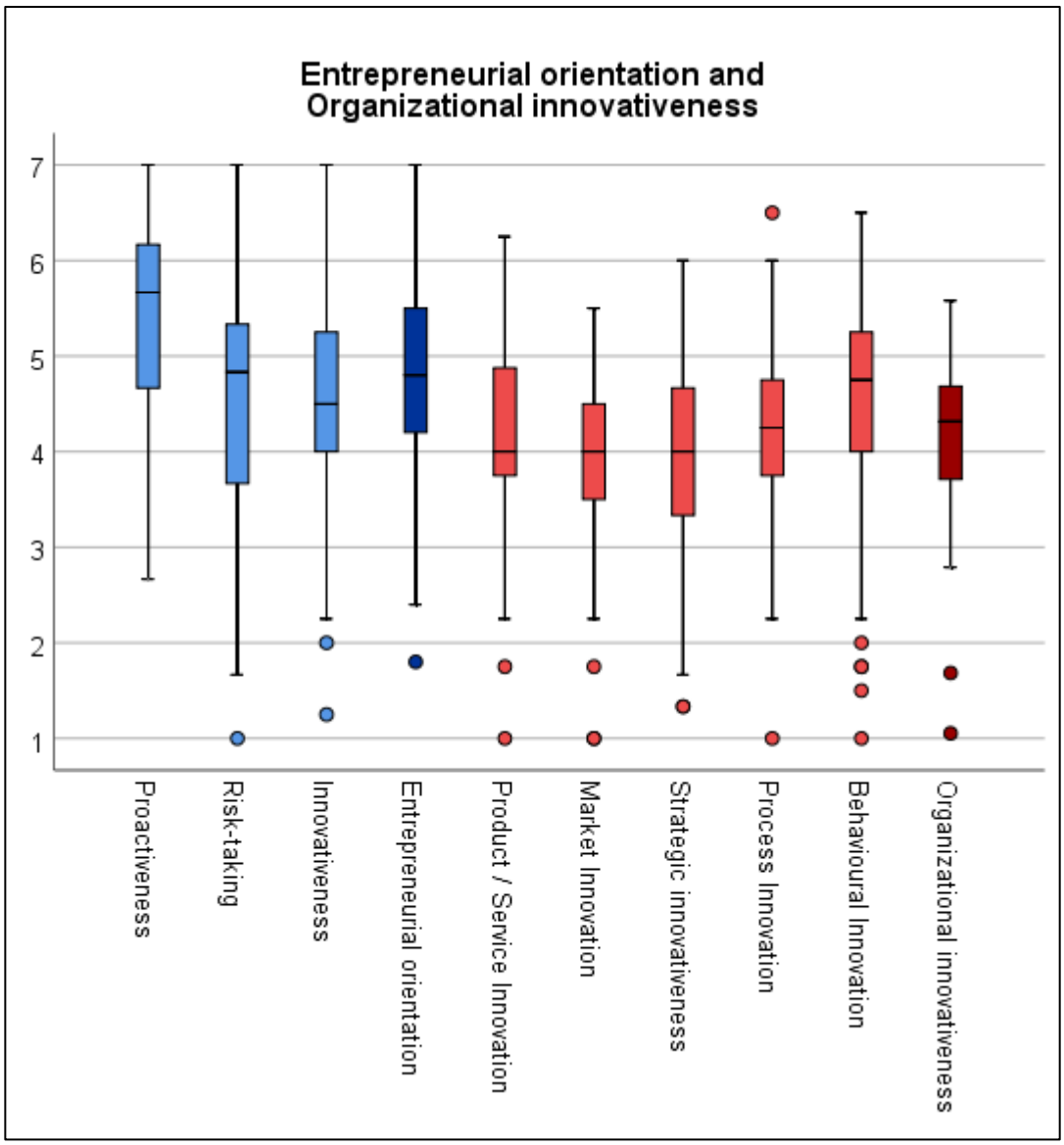
The entrepreneurial orientation and organizational innovativeness constructs cannot be compared with absolute numbers, and therefore the analyses made with relative measures. Proactiveness got the highest score and innovativeness lowest score in the entrepreneurial orientation construct. On the organizational innovativeness construct the behavioural innovativeness got the highest score and market innovativeness the lowest. The summary of the means and medians of the continuous variables can be seen in table 9. The boxplot visualization of the entrepreneurial orientation and organizational innovativeness is in figure 6.

Table 9 Summary of descriptive statistics of the continuous variables.

Descriptive statistics

	Mean	Median	Std. Deviation
Years worked	19,49	20,00	9,72
Years worked in this company	7,16	5,00	7,02
Proactiveness	5,40	5,67	1,10
Risk-taking	4,61	4,83	1,25
Innovativeness	4,58	4,50	1,13
Entrepreneurial orientation	4,84	4,80	1,02
Product / Service	4,21	4,00	,96
Market	3,96	4,00	,84
Strategic	3,99	4,00	,98
Process	4,26	4,25	,86
Behavioural	4,48	4,75	1,17
Organizational innovativeness	4,19	4,32	,77

Figure 6 Boxplot chart of the entrepreneurial orientation and organizational innovativeness.



5.1 Heterogeneity of gender

The first two hypotheses[2] were tested with individual samples T-test. Both hypotheses were approved as there was no significant difference between males and females in perceived organizational innovativeness or entrepreneurial orientation at the significance level of 0,05. The female respondents had higher proactiveness scores than males, but lower risk-taking, innovativeness and the total entrepreneurial orientation score. Female respondents had perceived the organizational innovativeness lower on every factor, except the process innovativeness. The boxplots visualize that both females and males are very heterogenous in individual entrepreneurial orientation and their perceived organizational innovativeness – this is also shown by the high standard deviations. The results are in table 10, figure 7 and figure 8. The independent samples T-test results are represented Appendix 2.

Table 10 Group statistics of entrepreneurial orientation and organizational innovativeness by gender.

Group Statistics by Gender

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Proactiveness	Female	30	5,47	1,193	,218
	Male	59	5,37	1,109	,144
Risk-taking	Female	30	4,36	1,451	,265
	Male	59	4,80	1,155	,150
Innovativeness	Female	30	4,60	1,301	,238
	Male	59	4,62	1,077	,140
Entrepreneurial orientation	Female	30	4,79	1,193	,218
	Male	59	4,90	,962	,125
Product / Service	Female	30	4,05	,972	,178
	Male	59	4,31	,930	,121
Market	Female	30	3,83	,648	,118
	Male	59	4,05	,875	,114
Strategic	Female	30	3,73	,775	,142
	Male	59	4,12	1,024	,133
Process	Female	30	4,28	,747	,136
	Male	59	4,28	,922	,120
Behavioural	Female	30	4,26	1,213	,222
	Male	59	4,61	1,133	,147
Organizational innovativeness	Female	30	4,05	,627	,115
	Male	59	4,28	,788	,103

[2] H1 - There is no significant difference between male and female in entrepreneurial orientation.
H2 - There is no significant difference between male and female in perceived organizational innovativeness.

Figure 7 Boxplot chart of the entrepreneurial orientation by gender.

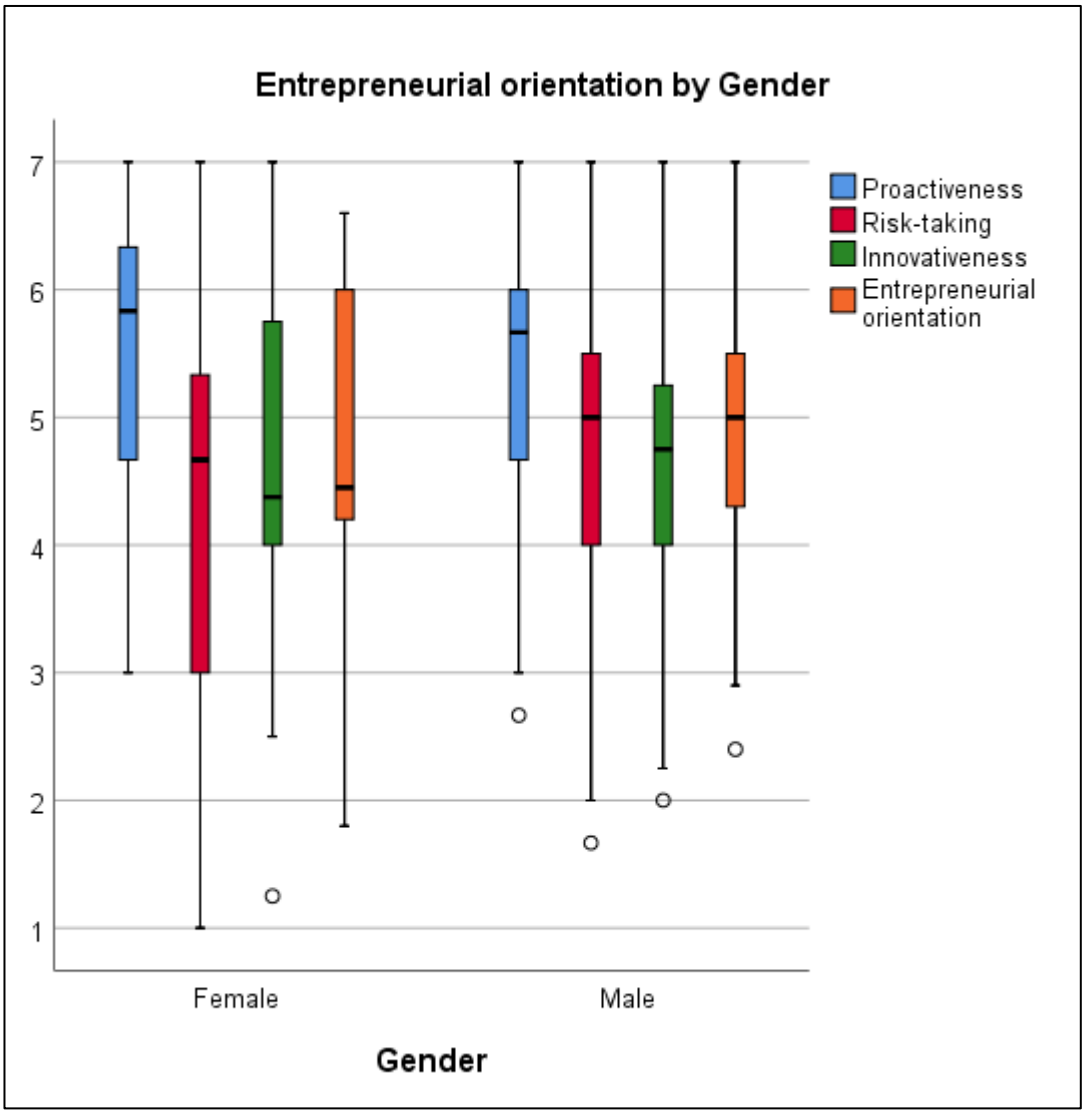
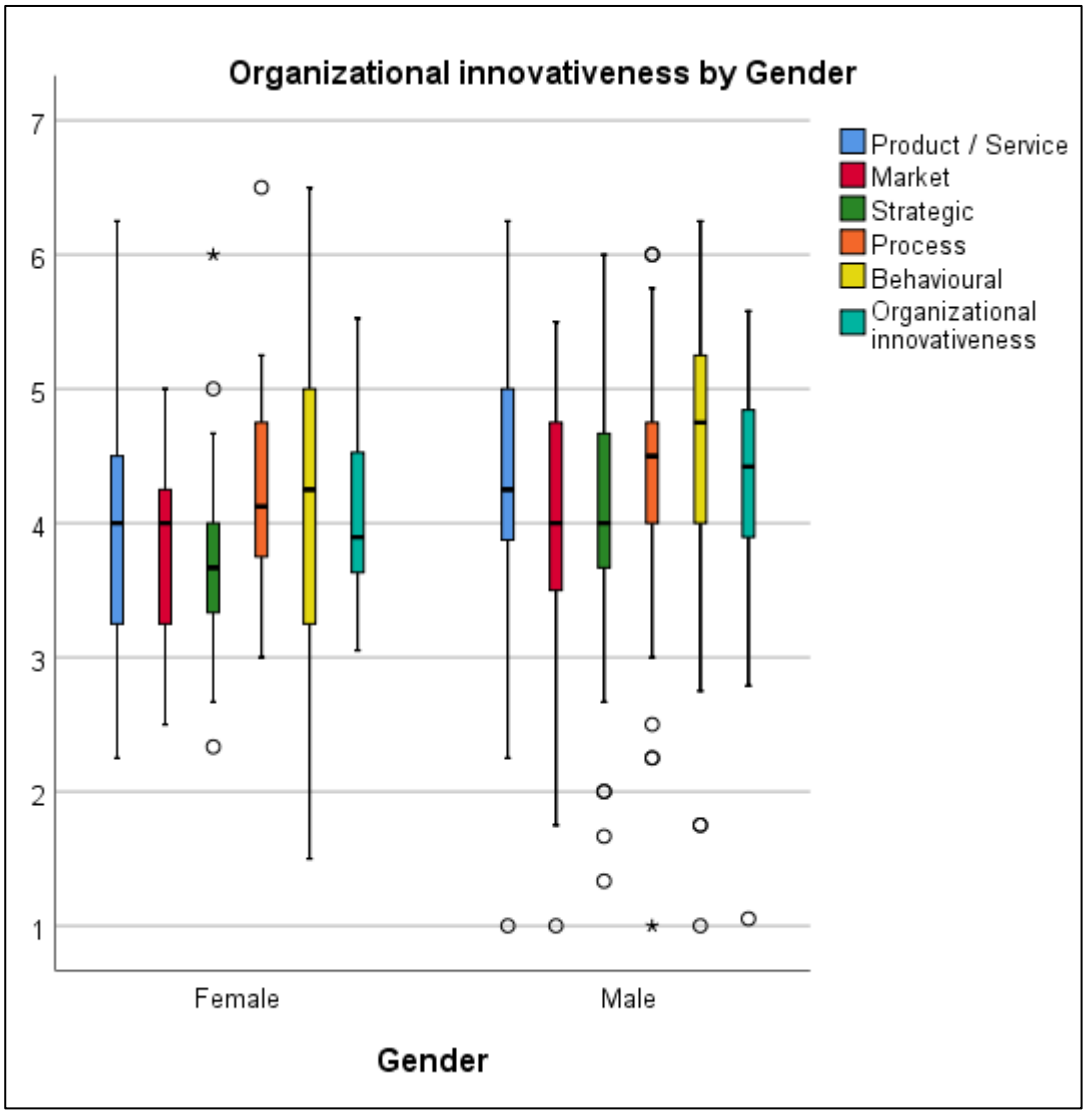


Figure 8 Boxplot chart of the organizational innovativeness by gender.



5.2 Heterogeneity of business function

The third and fourth hypotheses[3] were tested with individual samples T-test. Both hypotheses were accepted as there were no significant differences between core business function and support business function in perceived organizational innovativeness or entrepreneurial orientation in the significance level of 0,05. The respondents who worked in core business function respondents had higher entrepreneurial orientation scores on all subfactors than those who worked in the support business function. They also perceived the market, strategic, process and behavioural innovativeness higher than the support business function respondents. Only on the product/service innovativeness subfactor, the core business function members had a lower score. The core business respondents had higher scores, but it was not a statistically significant difference, and therefore, hypotheses 3 and 4 were accepted. On both functions the standard deviation is high, and the heterogeneity is visualized in the boxplots. The results are in table 11, figure 9 and figure 10. The independent samples T-test results are represented in Appendix 2.

[3] H3 - There is no significant difference between core business function and support business function in entrepreneurial orientation.
H4 - There is no significant difference between core business function and support business function in organizational innovativeness.

Table 11 Group statistics of entrepreneurial orientation and organizational innovativeness by gender.

Group Statistics by Business function

	Business function	N	Mean	Std. Deviation	Std. Error Mean
Proactiveness	Core business function	53	5,46	1,155	,159
	Support business function	43	5,32	1,046	,160
Risk-taking	Core business function	53	4,70	1,262	,173
	Support business function	43	4,50	1,242	,189
Innovativeness	Core business function	53	4,71	1,045	,144
	Support business function	43	4,42	1,217	,186
Entrepreneurial orientation	Core business function	53	4,93	,990	,136
	Support business function	43	4,72	1,050	,160
Product / Service	Core business function	53	4,13	,881	,121
	Support business function	43	4,30	1,044	,159
Market	Core business function	53	4,02	,882	,121
	Support business function	43	3,89	,800	,122
Strategic	Core business function	53	4,05	1,030	,142
	Support business function	43	3,91	,909	,139
Process	Core business function	53	4,29	,815	,112
	Support business function	43	4,22	,923	,141
Behavioural	Core business function	53	4,58	1,157	,159
	Support business function	43	4,36	1,188	,181
Organizational innovativeness	Core business function	53	4,22	,771	,106
	Support business function	43	4,15	,765	,117

Figure 9 Boxplot chart of the entrepreneurial orientation by business function.

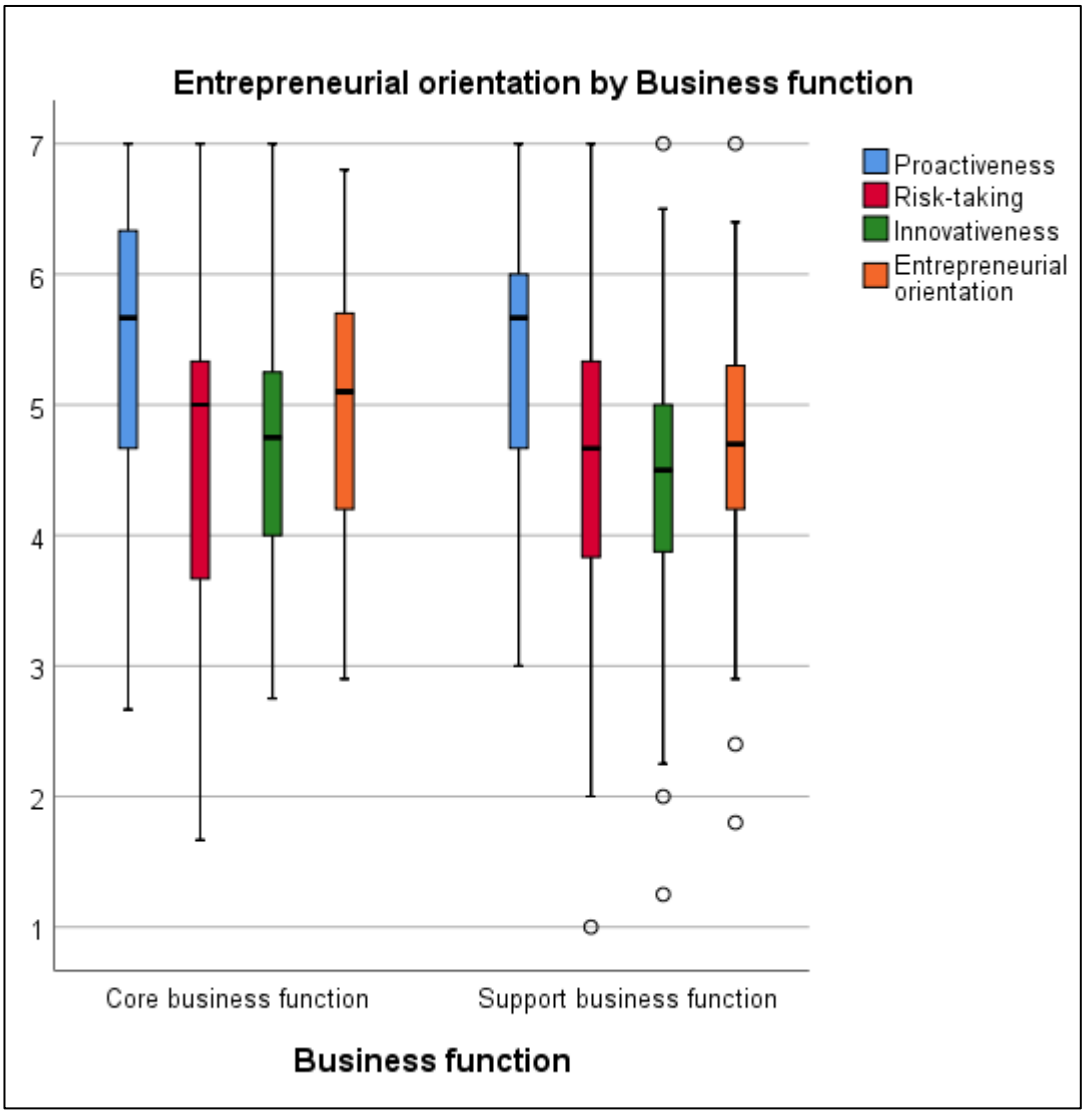
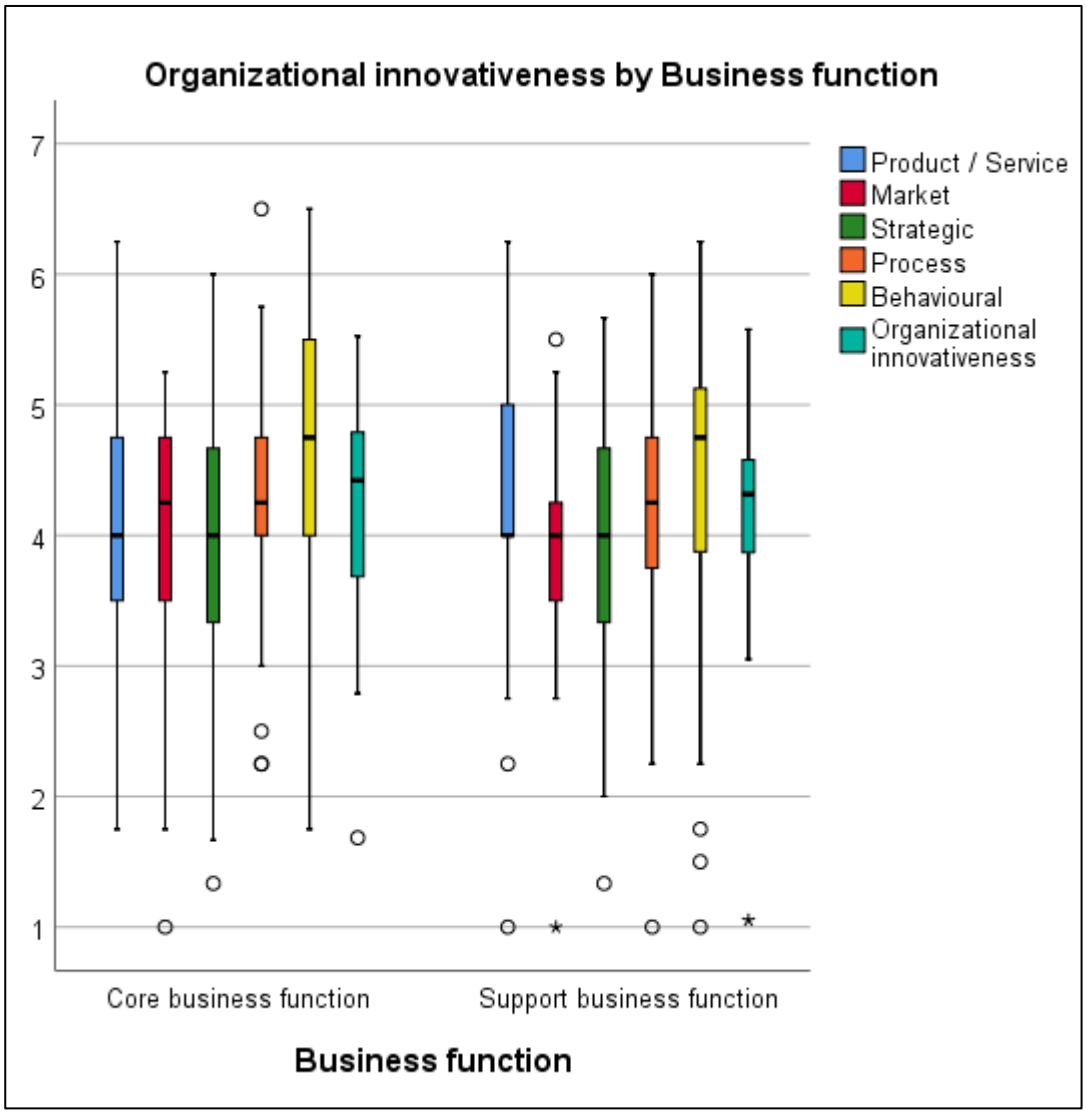


Figure 10 Boxplot chart of the organizational innovativeness by business function.



5.3 Heterogeneity of job type

The fifth and sixth hypotheses[4] were tested with individual samples T-test. The fifth hypothesis was rejected as there were significant differences between leaders and other employees in entrepreneurial orientation at the significance level of 0,05. There were differences in entrepreneurial orientation primary factor and on all subfactors. The sixth hypothesis was accepted as there was no significant difference in perceived organizational innovativeness in the primary factor or in the subfactors.

The respondents who worked as leaders had higher entrepreneurial orientation and organizational innovativeness scores on all primary factors and subfactors than those who worked in other types of jobs. On both types of jobs, the standard deviation is high, and the heterogeneity is visualized in the boxplots. The results are in table 12, figure 11 and figure 12. The independent samples T-test results are represented in Appendix 2. The more precise job level statistics can be found in Appendix 3.

[4] H5 - There is no significant difference between leaders and others in entrepreneurial orientation.
H6 - There is no significant difference between leaders and others in organizational innovativeness.

Table 12 Group statistics of entrepreneurial orientation and organizational innovativeness by job type.

Group Statistics by Job type

	Job type	N	Mean	Std. Deviation	Std. Error Mean
Proactiveness	Leader	21	5,84	,904	,197
	Other	75	5,27	1,128	,130
Risk-taking	Leader	21	4,89	1,151	,251
	Other	75	4,54	1,273	,147
Innovativeness	Leader	21	4,98	,965	,211
	Other	75	4,47	1,152	,133
Entrepreneurial orientation	Leader	21	5,21	,870	,190
	Other	75	4,73	1,037	,120
Product / Service	Leader	21	4,31	,938	,205
	Other	75	4,18	,965	,111
Market	Leader	21	4,10	,812	,177
	Other	75	3,92	,855	,099
Strategic	Leader	21	4,19	,992	,216
	Other	75	3,93	,970	,112
Process	Leader	21	4,71	,800	,174
	Other	75	4,13	,839	,097
Behavioural	Leader	21	4,85	1,244	,271
	Other	75	4,38	1,137	,131
Organizational innovativeness	Leader	21	4,44	,682	,149
	Other	75	4,12	,776	,090

Figure 11 Boxplot chart of the entrepreneurial orientation by job type.

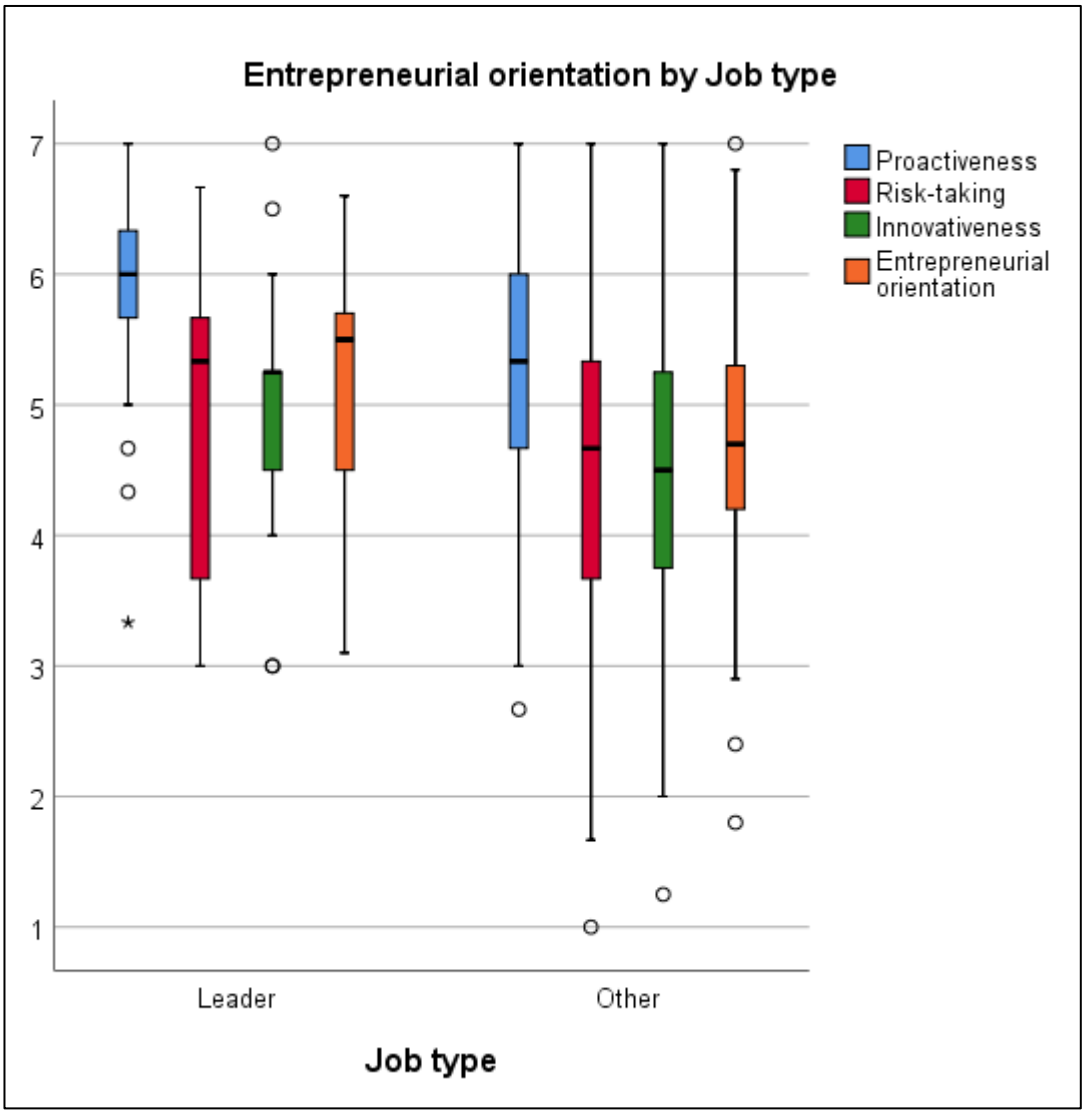
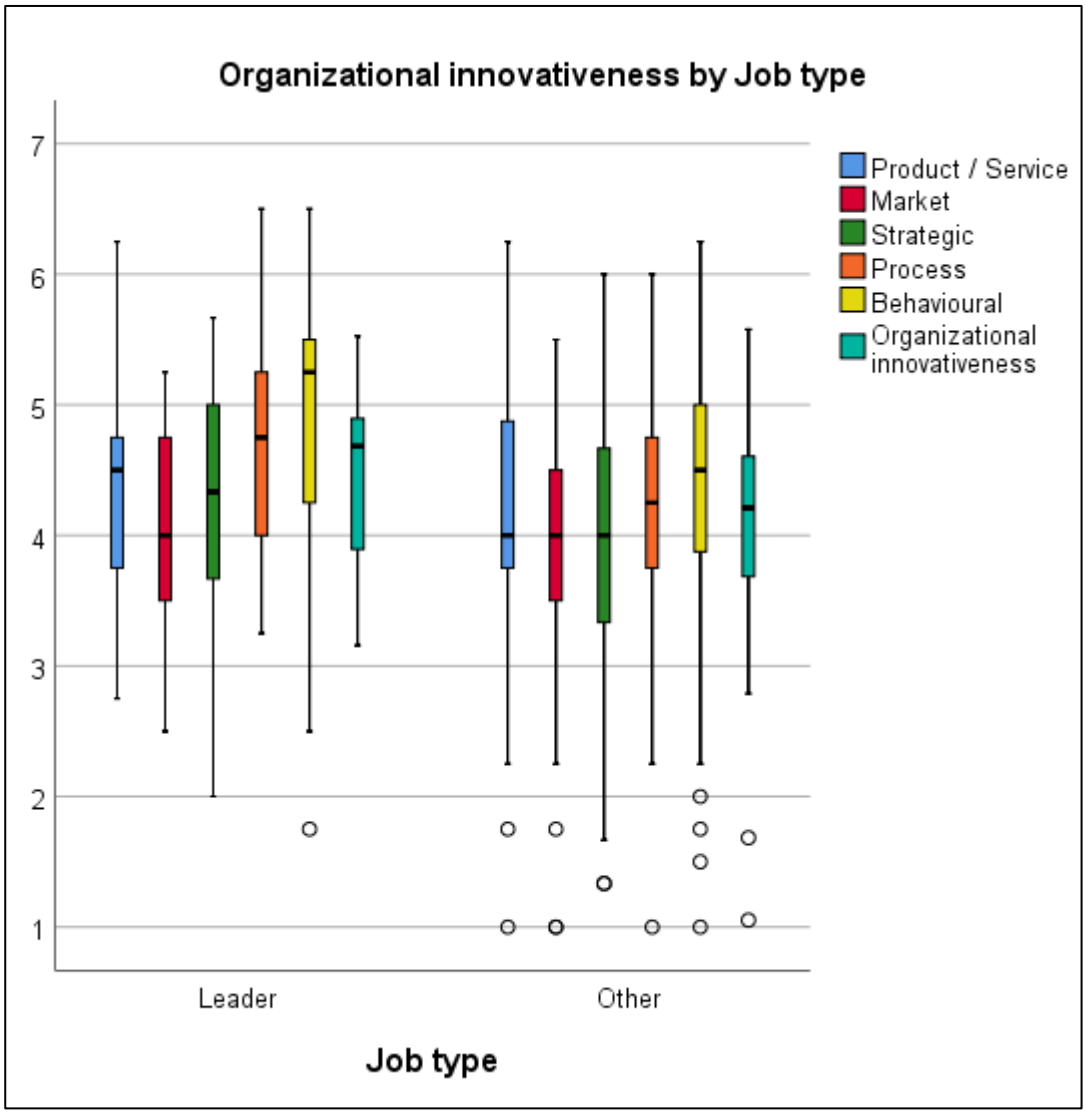


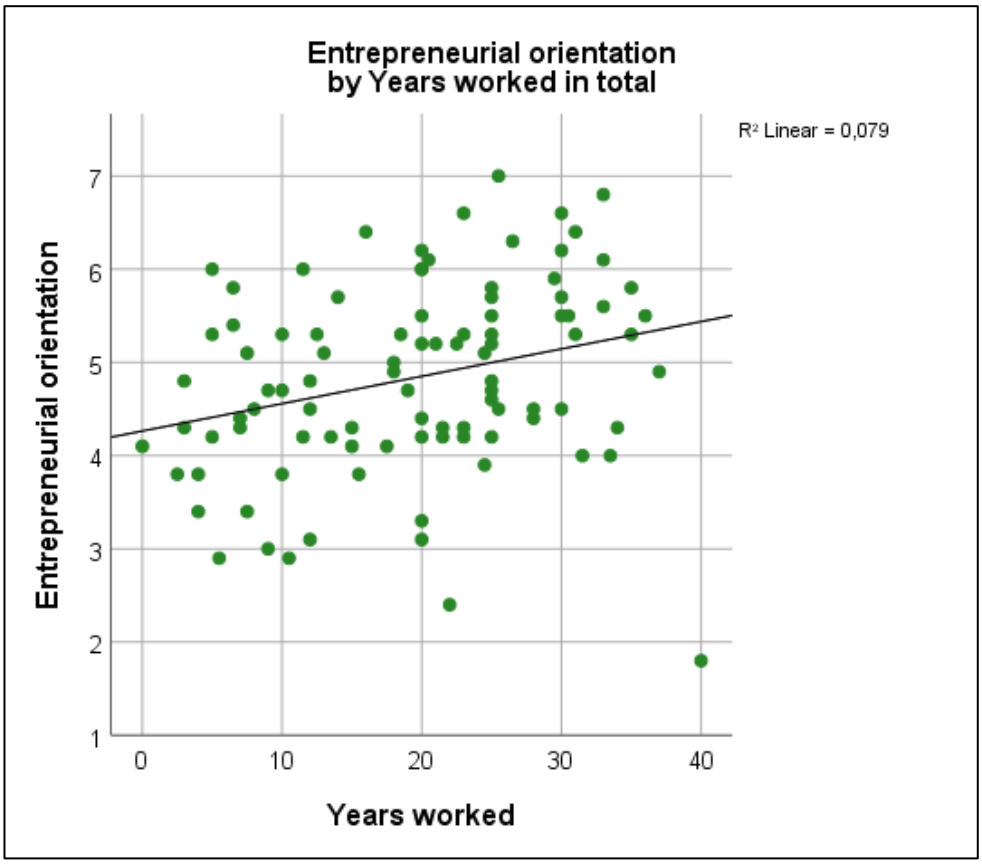
Figure 12 Boxplot chart of the organizational innovativeness by job type.



5.4 Heterogeneity of experience

The hypotheses from 7 to 10[5] were tested with Pearson's correlation tests. The length of the career and years worked in the study company had both significant positive correlations on the entrepreneurial orientation. Therefore hypotheses 7 and 9 were rejected. The length of the career or the years worked in the study company had no significant correlations to any organizational innovativeness subfactors or on the primary factor, on the contrary to the entrepreneurial orientation. Therefore hypotheses 8 and 10 were accepted. Scatterplots were made to visualize the heterogeneity in the results. There is heterogeneity in both constructs as there is no tight formation around the regression line. The scatterplots of these variables are represented in figures 13, 14, 15 and 16. There is a full correlation table in table 13.

Figure 13 Scatterplot chart of the entrepreneurial orientation by the length of the career.



[5] H7 - There is no significant positive correlation between the length of the career and the entrepreneurial orientation.
H8 - There is no significant correlation between the length of the career and the perceived organizational innovativeness.
H9 - There is no significant positive correlation between the years worked in the company and the entrepreneurial orientation.
H10 - There is no significant correlation between the years worked in the company and the perceived organizational innovativeness.

Figure 14 Scatterplot chart of the organizational innovativeness by the length of the career.

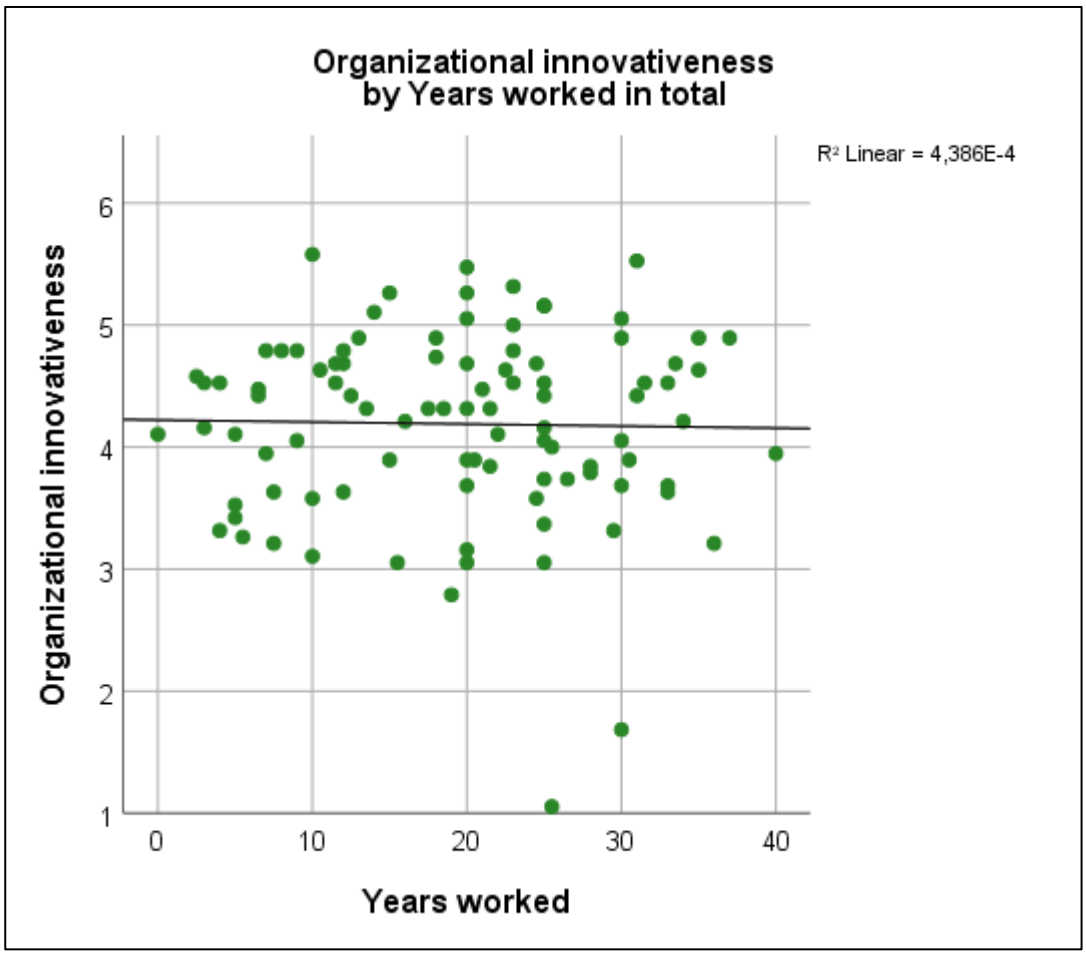


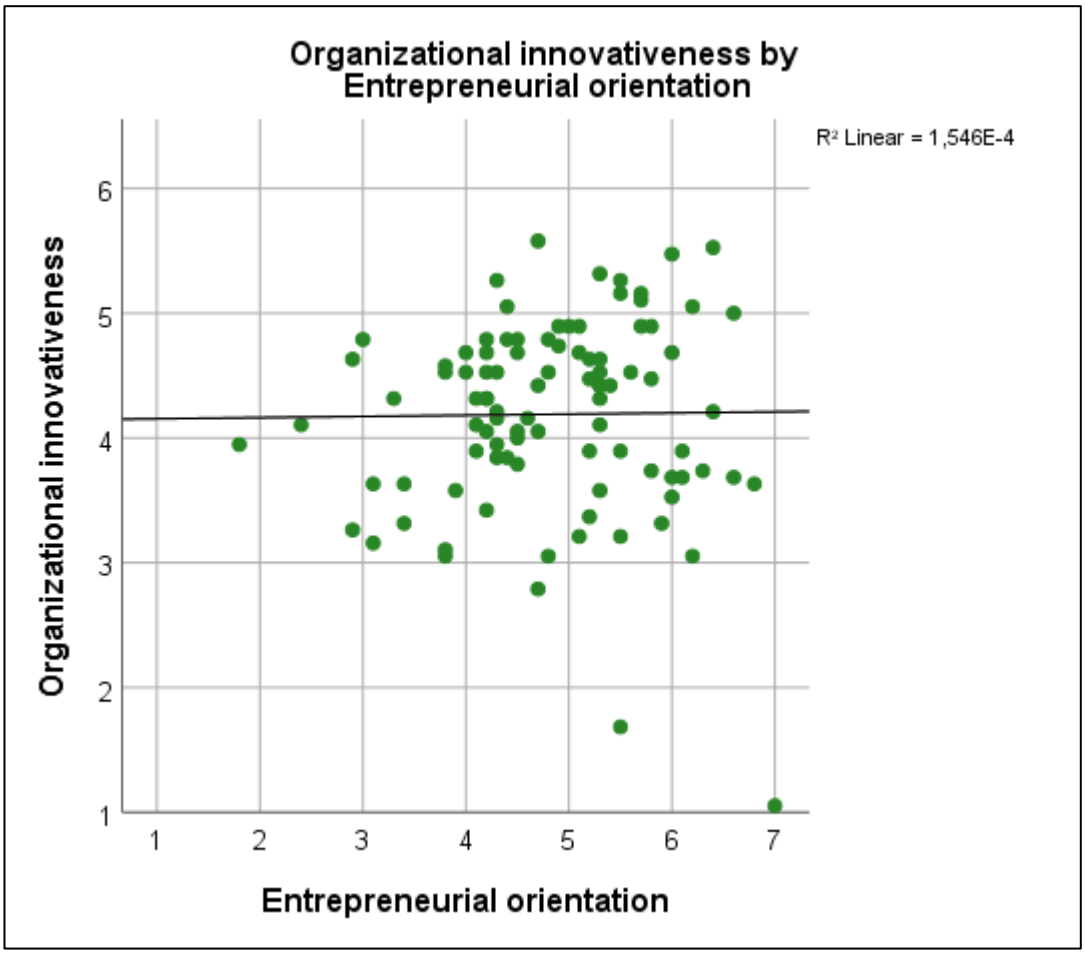
Figure 15 Scatterplot chart of the entrepreneurial orientation by years worked in this company.

Figure 16 Scatterplot chart of the organizational innovativeness by years worked in this company.

5.5 Correlation between two constructs

Hypothesis 11[6] was tested with Pearson's correlation test. There was no significant correlation between the primary factors of organizational innovativeness and entrepreneurial orientation. Only proactiveness and behavioural innovativeness had a significant correlation. Therefore, the hypothesis of the no significant correlation between individual entrepreneurial orientation and perceived organizational innovativeness is accepted. Figure 17 was made to visualize the results and highlight the heterogeneity in answers. The scatterplots show there is no clear pattern even though both dimensions have a tighter pattern between 3 and 5. The summary of Pearson's correlations is in table 13, which also shows the strong internal correlations within both constructs.

Figure 17 Scatterplot chart of the organizational innovativeness by entrepreneurial orientation.



[6] H11 - There is no significant correlation between the entrepreneurial orientation and the perceived organizational innovativeness.

Table 13 Pearson's correlations.

Bivariate correlations

		Years worked in this company	Years worked	Proactiveness	Risk-taking	Innovativeness	Entrepreneurial orientation	Product / Service	Market	Strategic	Process	Behavioural	Organizational innovativeness
Pearson Correlation	Years worked in this company	1	,556**	,211*	,202*	,243*	,251*	,118	,041	-,047	,013	-,183	-,025
	Years worked		1	,330**	,203*	,221*	,280**	,142	-,107	,045	,034	-,157	-,021
	Proactiveness			1	,553**	,672**	,827**	,081	,114	,121	,086	,206*	,159
	Risk-taking				1	,720**	,868**	-,137	,027	-,002	-,088	-,005	-,052
	Innovativeness					1	,927**	-,143	,066	-,051	-,083	,024	-,045
	Entrepreneurial orientation						1	-,088	,076	,016	-,041	,076	,012
	Product / Service							1	,609**	,463**	,604**	,385**	,765**
	Market								1	,476**	,552**	,474**	,772**
	Strategic									1	,608**	,617**	,776**
	Process										1	,646**	,854**
	Behavioural											1	,810**
	Organizational innovativeness												1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

5.6 Summary of the case study

This case study was conducted on the heterogeneity of the knowledge workers in these constructs by different independent variables that can exist in all companies, in order better to understand the heterogeneous nature of the knowledge workers. The results showed that knowledge workers are indeed highly heterogeneous in their entrepreneurial orientation and in how they perceive organizational innovativeness. Employees have been considered typically as a group of similar people regarding their job, gender, age, function or some other characteristics. This study showed that in these two constructs, the answers have large standard deviation and therefore, they can be seen a very heterogenic. The results also showed that the basic categorizations of employees do not explain their entrepreneurial orientation or perceived organizational innovativeness.

The case study showed that there could be highly heterogeneous knowledge workers in any position in one organization. Their entrepreneurial orientation or their perceived organizational innovativeness cannot be indicated well from their gender, level of the job, business function, or how long career they have in total or in some specific company. None of the five independent variables had a statistically significant effect on organizational innovativeness. The job type, length of the career and years worked in the current company did have some statistically significant effect on the entrepreneurial orientation.

Gender or business function did not have any statistically significant effect on entrepreneurial orientation. Both, years worked in total and years worked in the current company, correlated positively on the entrepreneurial orientation. The leaders had higher entrepreneurial orientation than other employees. The case study showed that people who have more experience due to the fact that they have either a longer career or they have worked in the same company for a longer time, seem to have more the kind of action tendencies and thinking styles that are also present in the entrepreneurial orientation construct. Leaders may be required to have, or their position trains similar action tendencies and thinking styles that are part of the entrepreneurial orientation construct. Proactiveness, risk-taking, and innovativeness are prominent factors in knowledge work, and they are based on the cumulated experience of a person. There was a large variance in respondents answers in different ages, even though there was a significant correlation between the experience and entrepreneurial orientation. Some younger employees may have higher entrepreneurial orientation than people who have worked for a longer time. Therefore, young employees cannot be considered less entrepreneurial than more experienced employees.

The connection between the individual's entrepreneurial orientation and organizational innovativeness was also tested in the case study. There was no significant direct correlation between these two main constructs. The proactiveness and behavioural innovativeness subfactors had a significant positive correlation. It may be since people with

stronger intent to act proactively might be able to create a trustful climate for themselves, or because the behavioural innovativeness culture foster individuals to act more proactively.

Table 14 Summary of the results of the tested hypotheses

Independent samples T-test		
No.	**Hypothesis**	**Result**
H1	There is no significant difference between male and female in entrepreneurial orientation.	Accepted
H2	There is no significant difference between male and female in perceived organizational innovativeness.	Accepted
H3	There is no significant difference between core business function and support business function in entrepreneurial orientation.	Accepted
H4	There is no significant difference between core business function and support business function in organizational innovativeness.	Accepted
H5	**There is no significant difference between leaders and others in entrepreneurial orientation.**	**Rejected**
H6	There is no significant difference between leaders and others in organizational innovativeness.	Accepted
Pearson correlation test		
No.	**Hypothesis**	**Result**
H7	**There is no significant positive correlation between the length of the career and the entrepreneurial orientation.**	**Rejected**
H8	There is no significant correlation between the length of the career and the perceived organizational innovativeness.	Accepted
H9	**There is no significant positive correlation between the years worked in the company and the entrepreneurial orientation.**	**Rejected**
H10	There is no significant correlation between the years worked in the company and the perceived organizational innovativeness.	Accepted
H11	There is no significant correlation between entrepreneurial orientation and the perceived organizational innovativeness.	Accepted

The high heterogeneity in these constructs of knowledge workers was shown as only a few of the different independent variables had a significant effect on the scores. Only the experience (years worked in total or years worked in the current company) and job position of the employees had a statistically significant impact on their entrepreneurial orientation. None of the independent variables explained the variance in organizational innovativeness. The experience correlated with the entrepreneurial orientation and leaders did have higher scores on entrepreneurial orientation than others. Three findings represented above were statistically significant findings. These findings still had high heterogeneity, and therefore are not comprehensively explaining the differences of the scores. The two primary factors, entrepreneurial orientation and organizational innovativeness, did not have a statistically significant correlation. Only proactiveness and behavioural innovativeness subfactors had a statistically significant correlation. Individuals are indeed

heterogeneous in various ways in the knowledge economy, and this case study showed that they are heterogeneous also by their entrepreneurial orientation and their perceived organizational innovativeness.

6 CONCLUSION

This chapter summarizes the findings of the thesis. The key aspects from both theory and case study were examined and the importance of individual employees in KIBS companies is highlighted. Furthermore, case study company employees' heterogeneous in corporate entrepreneurship and perceived organizational innovativeness is studied. In addition to these, managerial and individual implications of this thesis are introduced. Lastly, the limitations of this thesis and the future research directions are discussed.

Hurley & Hult (1998) defined two different aspects of creating innovation: innovativeness and capacity to innovate (corporate entrepreneurship). This thesis was based on the idea that these two concepts are both important for the success of companies. Organizational innovativeness is the firms tend to create new ideas, participate in experiments and support creative processes that may lead to the development of new products, services or processes (Lumpkin & Dess 1996). Corporate entrepreneurs recognize the opportunities for innovations, evaluate them and exploit them. They believe that differentiating from previous practices will help the organization to achieve the objectives of the organization. (Ribeiro Soriano et al. 2012.) If simplified, the organizational innovativeness is, in this thesis, more about the culture of creating new ideas whereas corporate entrepreneurship is about individuals' opportunity recognition and exploitation.

6.1 Summary of the key findings

The diversity of the KIBS organizations and industries is high and it is impossible to classify these organizations comprehensively. This is why it is reasonable to examine KIBS as one instance with high heterogeneity. (Hipp 1999). KIBS need to able to transform and adapt their service offering in order to create extensive value for their customers, which causes substantial differences between companies (Brozovic et al. 2016). Therefore, it would be important that similar studies to this would be conducted to better understand how company-specific the findings of this case study are. KIBS are characterized by the ability of individuals to receive information from outside the company and to transform this information together with firm-specific knowledge into useful collective knowledge and services for their customers (Hipp 1999). KIBS companies' primary value-adding activities to satisfy the clients' needs are: accumulation, creation, and dissemination of knowledge. (Bettencourt et al. 2002).

As discussed in this thesis, Miles et. al (2019) have proposed that the KIBS companies should be heterogeneous and their employees' knowledge bases and ways of doing knowledge work also differ from one another. This thesis' case study was in line with Miles et. al (2019) findings as the case study employees were heterogeneous in these

constructs as well. Knowledge workers are hired primarily based on individual's competences such as problem-solving abilities, creativity, talent, and intelligence (Reinhardt 2011). Diversity is positive for companies knowledge, value and innovation creation because it increases the knowledge, experience and network pool that employees can access (Gilson et al. 2013). This thesis did not discuss if the heterogeneity in these two constructs is a positive or a negative thing, but the results indicate that higher corporate entrepreneurship and organizational innovativeness should also correlate with the number of innovations, which is typically a positive thing. Employee values, knowledge, attitudes, and action tendencies depend on various factors. These can differ significantly between different individuals. (Østergaard et al. 2011). Individual employees in similar jobs are heterogenous regarding on their propensity to act entrepreneurially. (Kollmann et al. 2017.) The heterogeneity was also proved in this thesis as the different groupings did not explain the level of entrepreneurial orientation or organizational innovativeness. The only significant differences between different groups were found in the studied factor; job type. This is understandable as the entrepreneurial orientation construct also measures requirements that are needed in a managerial position. Risk-taking and proactiveness are action tendencies and thinking styles more familiar to employees in managerial positions.

Flexibility and agency are strongly present in KIBS, as their value creation emerges from organizational and individual knowledge (Santos-Vijande et al. 2013; Tuominen & Martinsuo 2019). KIBS performs three key roles in the service innovation process, which are facilitators, transmitters and sources of innovation (Hauknes 1998). KIBS integrate knowledge from various internal and external knowledge sources to co-create value with and for their clients (Hipp 1999). The usual assumption tends to be that the employees in core business functions should have higher corporate entrepreneurship action tendencies and thinking styles that enables recognizing and exploiting the opportunities. The case study results did not support this. If only the means are examined the core business functions had higher scores on most of the subfactors. Larger sample size could show this correlation statistically significant, but it cannot be verified in this study.

Competitive advantages, especially in KIBS, stem from the firm's (organizational and individual), knowledge, capabilities, and skills. Knowledge is the accumulated knowledge of the company's employees. Organizational learning is the dynamic process of knowledge creation and sharing inside an organization. It involves exploration or the assimilation of new learning (feedforward) and exploitation and usage of what has been learned (feedback). Organizational learning happens in individual, group and organizational levels through intuiting, interpreting, integrating and institutionalizing processes. (Real et al. 2014.) The case study results show that the people who have more experience have higher scores in entrepreneurial orientation. In other words, learning and entrepreneurial action tendencies and thinking styles are related. The level of entrepreneurial ori-

entation among experienced employees still varies significantly. Therefore, the experience is not comprehensively explaining the corporate entrepreneurship. Of course, a person can choose not to act entrepreneurially, but the entrepreneurial orientation capabilities also link to the learning process of a person. It is consistent with the proposed framework of combining the organizational innovativeness and entrepreneurial orientation at the individual level with organizational learning. There the knowledge and innovation idea cumulation is the foundation where ideas are created, and opportunities exploited.

The change being the new normal in all industries, KIBS also needs to be able to renew themselves to be able to survive in disruptive markets (Rivera 2017). Innovations have been seen as a means to create and sustain competitive advantages (Johannessen et al. 2001). Service firms are seen and proven to be as innovative as manufacturing ones in terms of innovation (Shearmur & Doloreux 2013). The case study showed that organizational innovativeness is perceived heterogeneously. The employee's gender, business function, job position, length of the career, years worked in the company do not explain how employees perceive the organizational innovativeness. The term organizational innovativeness cannot be used for describing common understanding of capabilities of a company, but rather a mixture of different persons' views. It can be affected by all the employees, although it is easiest for employees in managerial positions.

In the long run, innovativeness of the KIBS company can be seen more critical than the actual innovation outcomes as the value-creation and idea exploitation happens based on organizational learning (Sebora & Cornwall 1993). The intensity of the interaction, customers' and employees' co-creation is crucial for KIBS organizations as their value creation depends on the co-creation of value (Santos-Vijande et al. 2013). KIBS innovations come typically from one or several individuals somewhere in an organization (Sundbo 1997). The case study shows that there are employees that are more entrepreneurial than others in all levels of an organization. These employees are important even though the ideas might not reach market. These employees may still have a significant impact on the ability of an organization to adapt and ultimately survive as these ideas can create other ideas on other individuals at other parts of the organization, which will succeed in the market or create value inside an organization (Lumpkin & Dess 1996). Unlike in many manufacturing firms, in KIBS organizations innovation work is part of the core value creation and everyday work (Crevani et al. 2011). This can be considered as a reason for why it is important that all employees in KIBS organizations should have as entrepreneurial mindset as possible as the innovations happen in everyday work rather than in R&D departments.

An innovative culture helps on knowledge sharing, which fosters idea generation and creativity (Crevani et al. 2011). The importance of innovativeness culture is higher in KIBS organizations as their knowledge creation, and sharing is the key asset of the company. Innovativeness culture directs experts to create new ideas as a part of their everyday

work. (Crevani et al. 2011). The culture is not static, and different people perceive the organizational innovativeness differently. A culture is created and transformed by by the firm's employees. Individuals' thoughts and actions make the norms that create the organizational culture. (Bouchard & Fayolle 2017.) The individual employees perceive the culture and adjust to it Crevani et al. 2011). Wang & Ahmed (2004) emphasize the innovative culture rather than innovation outcomes. They developed the organizational innovativeness construct to study organizational innovativeness. This construct composes organizational innovativeness by five different factors. This construct was used in the case study to measure perceived organizational innovativeness. The case study shows that by the construct in question, employees perceive the organizational innovativeness heterogeneously. In all employee groups, there are people that see the innovativeness more positively and others who see it more negatively.

Organizational innovativeness affects and is affected by employees in KIBS more than in traditional industries, which puts the knowledge workers to a prominent position. (Neessen et al. 2019). Opportunities or great ideas do not probably create any value for the companies, if they are not exploited (Shane & Venkataraman 2000). Therefore, it is important to examine corporate entrepreneurship alongside organizational innovativeness. The case study studies these two constructs simultaneously. Of course, it would be important in the long term to study the causality of these two constructs in studies. This study focuses on discovering that these both constructs are heterogeneous and none of the stereotypical groupings of the employees might not be valid. Furthermore, it would not be reasonable to think or study these constructs in a way that would consider different groupings being homogenous.

Even though corporate entrepreneurship construct can be viewed in absolute terms (new commercialized innovation vs no new commercialized innovations), it is more like a continuous phenomenon. Therefore it is better to describe it as in relative terms as no company or person is completely or not a bit entrepreneurial. (Neessen et al. 2019.) Individual differences influence the action tendencies of individuals to exploit opportunities. Some attributes correlate with entrepreneurial opportunity exploitation, but it does cause higher success in innovations. (Shane & Venkataraman 2000.) Corporate entrepreneurship is commonly conceptualized with entrepreneurial orientation. People with entrepreneurial mindset have usually been seen as rare and special individuals, born with special traits, action tendencies and thinking styles that make them think and act entrepreneurially, but with support and own willingness everyone can learn to be more entrepreneurial as long as both successes and failures are allowed. If colleagues or managers do not appreciate new insights and hard-earned learnings by entrepreneurial individuals, it will stifle the firm's entrepreneurial culture and reduce innovative actions. (Lackéus et al. 2019.) The case study showed that as the employees have different capabilities, it is important

not to see them as homogenous groups and provide individuals with the support which is aligned with their current level of entrepreneurial orientation.

To address the connection between the organizational innovativeness and individual corporate entrepreneurship, adapted organizational learning model was introduced. The organizational innovativeness and individual level corporate entrepreneurship were incorporated into the organizational learning model. It highlights the importance of individuals and the interlinking nature of organizational innovativeness, corporate entrepreneurship, knowledge creation and value creation in KIBS. The organizational innovativeness is similar to organizational learning as the innovations are created in KIBS by the knowledge of individuals and organizations. The corporate entrepreneurship is needed to exploit the opportunities. Companies are dependent on individuals who are willing to fight for their ideas. These two constructs depend on each other, and they are needed to create a sustainable competitive advantage. The direct correlation between these two constructs was tested. As assumed, there was no significant direct correlation between these two main constructs. It was interesting that proactiveness and behavioural innovativeness subfactors had a significant positive correlation. It may be that the people with stronger intent to act proactively can create a trustful climate for themselves or the behavioural innovativeness culture foster individuals to act more proactively.

The proposed assumption above could not be comprehensively studied in the thesis case study, and therefore the case study focused on clarifying the heterogeneous nature of the constructs in the KIBS organization. The nature of the KIBS companies demands individuals with heterogeneous backgrounds, competences, and views. Substantial differences of KIBS employees at the organizational level are evident as KIBS must be able to adapt their actions to support customer's value creation flexibly. The case study results support that the heterogeneity is also present in the organizational innovativeness and corporate entrepreneurship on the individual level. The case study strengthened the perception of heterogeneous knowledge workers. In almost all independent variable tests, there was no significant difference between different groups. The experience (years worked in this company and years worked in total) had a statistically significant positive correlation with entrepreneurial orientation constructs. This is understandable as the same action tendencies and thinking styles also are gained with experience. The findings of this thesis helps organizations and individuals to understand better the value of these two concepts and why the individual level should be more on focus in research and practice.

6.2 Managerial implications

This thesis has several managerial implications. It highlights the key reasons why companies should foster their organizational innovativeness and corporate entrepreneurship.

Importance of this especially in KIBS companies is increasing as their value creation emerges from the knowledge base of their employees.

The thesis connects the two critical aspects of innovations in the knowledge economy. Companies must maintain an innovative culture as it lays a foundation for creating ideas. A company without people who are willing and capable to act entrepreneurially will more likely suffer tremendous potential losses when the opportunities are not exploited. As there has been extensive discussion in the literature of the organizational level corporate entrepreneurship, this thesis focuses more on the individual widely emerging in the literature as another aspect of corporate entrepreneurship. Sufficient and simultaneous top-down and bottom-up corporate entrepreneurship processes needs to be in place if companies want to create innovations efficiently.

The empiric part of the study helps companies understand that their employees are not homogenous in terms of organizational innovativeness or corporate entrepreneurship. It is a risk that companies treat their knowledge employees as a homogenous group and demand the same level of entrepreneurial orientation, without understanding that employees can be widely diverse on these matters. The case study supported research in this area and represented a wide range of action tendencies and thinking styles on organizational innovativeness and corporate entrepreneurship, proving employees' heterogeneity. Organizational support is essential when more proactive and entrepreneurial actions are expected from diverse employees. Employees should not be judged based on their ground level competences or adaptiveness. Companies has to understand that they can and should develop these action tendencies and thinking styles of their employees simultaneously as they create supporting structures for innovation creation.

6.3 Employee implications

This thesis gives essential information not only to people in managerial positions but also for knowledge workers in general. Previously the employees have been primarily considered as the targets of corporate entrepreneurship rather than actors in it. This thesis highlights the importance of knowledge workers in today's' economy and how vital an asset they are for organizational innovativeness and renewal. Even though employees should be considered as the most crucial assets for companies, their role has not been widely recognized in the KIBS innovation creation. Previous studies have focused more on employee's role as a part of the process, rather than as a source and tool for innovation creation and exploitation. This study showed why it is essential for knowledge employees to act entrepreneurially and to create new ideas even though they may not ever be commercialized. It also highlighted some critical reasons for their individual level benefits.

Acting entrepreneurially may create positive results for their career, but it also has various significant benefits for the individuals themselves.

The empirical part showed that there is a wide variety of entrepreneurial employees and they perceive organizational innovativeness in different ways. This hopefully supports the individuals to learn these action tendencies and thinking styles even though they have not intentionally trained these before. All employees in the company matter and differ. Therefore, it is essential that everyone sees themselves as individuals and does not label themselves based on their role, experience or business function in a company. Hopefully, this thesis also motivates individuals to act as corporate entrepreneurs, even if their employer does not have any prior processes for company-wide corporate entrepreneurship in place. The change can emerge from the individuals who are willing to change their surroundings.

6.4 Limitations and future research suggestions

The results of this thesis have some limitations. In addition, the thesis created a need for further research on the related topics. There was an evident need for this kind of study as the innovativeness in the service economy has become a part of everyday business. Companies need to be able to renew themselves when they aim long-term success. This is especially vital in KIBS companies.

The subject should be studied from various perspectives. As the suggested model at the end of the third chapter is a multilevel construct, it cannot fully be examined in the master's thesis. A multilevel study on various companies could show if the model can be proved on a larger scale. The empirical part of this thesis could only cover one side of the complex constructs. No comprehensive studies regarding the individuals' organizational innovativeness and corporate entrepreneurship have been conducted prior to this. This thesis helps to create a wider understanding and a solid base for further studies. It would be beneficial to study the whole construct in the future. At this point it would be groundless to do so without fully understanding the different aspects of individual-level heterogeneity. The study conducted in this thesis should be revisited in a multiorganizational study as the case study nature did not give absolute reliability of the generalization potential of these findings.

In this study, the heterogeneity was tested in one organization. It would be beneficial to study how individual, group and organizational levels affects each other. Studying heterogeneity on a group level could provide substantial evidence for the proposed model. Additionally, further research could examine the dimensions of corporate entrepreneurship. The entrepreneurial orientation is widely recognized, but it does not comprehen-

sively cover all aspects of corporate entrepreneurship. In like manner, possible future research could study organizational innovativeness and the affections it has on individual's idea creation. It would also be beneficial to test the proposed innovation creation model in action.

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8 APPENDIX 1

Survey questionnaire

Question 1

Gender		
Answer ID	**What is your gender?**	**X**
SEX01	Female	
SEX02	Male	
SEX03	Other or does not want to tell	

Question 2

Length of employment in this company		
Question ID	**How long work career do you have in this company? (Scale is 0-60 years)**	**0-60**
CL1	How long work career do you have in this company?	

Question 3

Length of the work career		
Question ID	**How long work career do you have in total? (Scale is 0-60 years)**	**0-60**
CL2	How long work career do you have in total?	

Question 4

Work characteristic		
Answer ID	**Choose the corresponding level of your job**	**X**
WC01	Manager	
WC02	Team leader	
WC03	Coordinator	
WC04	Senior specialist	
WC05	Junior specialist	
WC06	Developer	
WC07	Engineer	
WC08	Assistant	

Question 5

Main business function		
Answer ID	**What is the main business function of yours? (Adapted from (Eurostat 2019))** **Core business functions** are money-making activities of an enterprise: the production of final goods or services intended for the market or for third parties. **Support business functions** are ancillary (supporting) activities carried out by the enterprise in order to permit or to facilitate the core business functions, its production activity. **(The scale used is a seven-point Likert scale ranging from 1 (Support business function) to 7 (Core business agree)**	
MBF01	Manager	
MBF02	Team leader	

Question 6

Entrepreneurial Orientation (adapted from the (Bolton & Lane 2012; Fellnhofer et al. 2017; Heinonen & Toivonen 2008)		
Question identification / Dimension	**Question (The scale used is a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).) (1 = Strongly disagree, 2 = Disagree, 3 = Slightly disagree, 4 = Neither disagree or agree, 5 = Slightly agree, 6 = Agree, 7 = Strongly agree)**	**1-7**
PROA1 / Proactiveness	I usually act in anticipation of future problems, needs or changes and start actions to which others respond.	
PROA2 / Proactiveness	I excel at identifying opportunities and tend to plan ahead on projects.	
PROA3 / Proactiveness	I prefer to "step-up" and get things going and on projects always trying to take the initiative in every situation rather than sit and wait for someone else to do it.	
RISK1 / Risk-taking	I like to take bold action by venturing into the unknown encouraged to take calculated risks with new ideas.	
RISK2 / Risk-taking	I am willing to invest a lot of time and/or money on something that might yield a high return taking bold, wide-ranging actions to achieve my objectives.	
RISK3 / Risk-taking	When confronted with decisions involving uncertainty, I tend to act boldly in these situations.	
COMM1 / Straightforward communication	Issues are discussed openly at my work-place.	
COMM2 / Straightforward communication	Problems are solved quickly at my work-place.	
COMM3 / Straightforward communication	It is easy for me to get help at my work.	

Question 7 (1/2)

Organizational innovativeness (adapted from the Organizational innovativeness scale by Wang & Ahmed 2004)		
Question identification / Dimension	**Question (The scale used is a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).) (1 = Strongly disagree, 2 = Disagree, 3 = Slightly disagree, 4 = Neither disagree or agree, 5 = Slightly agree, 6 = Agree, 7 = Strongly agree)**	**1-7**
INNO1 / Product	In the new product and service introductions, our company is often first-to-market.	
INNO2 / Product	Our new products and services are often perceived as very novel by customers.	
INNO3 / Market	Our recent new products and services are only minor changes from our previous products and services.	
INNO4 / Market	New products and services in our company often take us up against new competitors.	
INNO5 / Product	In comparison with our competitors, our company has introduced more innovative products and services during the past five years.	
INNO6 / Product	In comparison with our competitors, our company has a lower success rate in new products and services launch.	
INNO7 / Market	In comparison with our competitors, our products' most recent marketing program is revolutionary in the market.	
INNO8 / Market	In new product and service introductions, our company is often at the cutting edge of technology.	
INNO9 / Strategic	Our firm's R&D or product development resources are not good enough to handle the development need of new products and services.	
INNO10 / Process	We are constantly improving our business processes.	

Question 7 (1/2)

Organizational innovativeness (adapted from the Organizational innovativeness scale by Wang & Ahmed 2004)		
Question identification / Dimension	**Question (The scale used is a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree).) (1 = Strongly disagree, 2 = Disagree, 3 = Slightly disagree, 4 = Neither disagree or agree, 5 = Slightly agree, 6 = Agree, 7 = Strongly agree)**	**1-7**
INNO11 / Process	Our company changes producing/working methods at a great speed in comparison with our competitors.	
INNO12 / Process	During the past five years, our company has developed many new management approaches.	
INNO13 / Behavioural	We get a lot of support from managers if we want to try new ways of doing things.	
INNO14 / Strategic	Key executives of the firm are willing to take risks to seize and explore “chancy” growth opportunities.	
INNO15 / Strategic	Senior executives constantly seek unusual, novel solutions to problems via the use of “idea men”.	
INNO16 / Behavioural	In our company, we tolerate individuals who do things in a different way.	
INNO17 / Behavioural	We are willing to try new ways of doing things and seek unusual novel solutions.	
INNO18 / Behavioural	We encourage people to think and behave in original and novel ways.	
INNO19 / Strategic	When we see new ways of doing things, we are last at adopting them.	
INNO20 / Process	When we cannot solve a problem using conventional methods, we improvise on new methods.	

9 APPENDIX 2

Independent samples T-test results

Independent Samples Test (Female / Male)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Proactiveness	Equal variances assumed	,202	,655	,368	87	,714	,093785	,255101	-,413255	,600825
	Equal variances not assumed			,359	54,818	,721	,093785	,261263	-,429837	,617407
Risk-taking	Equal variances assumed	4,428	,038	-1,579	87	,118	-,446704	,282882	-1,008962	,115553
	Equal variances not assumed			-1,466	48,180	,149	-,446704	,304684	-1,059253	,165844
Innovativeness	Equal variances assumed	,994	,322	-,072	87	,943	-,018644	,259339	-,534109	,496821
	Equal variances not assumed			-,068	49,723	,946	-,018644	,275814	-,572709	,535421
Entrepreneurial orientation	Equal variances assumed	3,090	,082	-,484	87	,630	-,11333	,23419	-,57881	,35215
	Equal variances not assumed			-,451	48,665	,654	-,11333	,25122	-,61827	,39160
Product / Service Innovation	Equal variances assumed	,021	,886	-1,205	87	,232	-,255085	,211721	-,675903	,165733
	Equal variances not assumed			-1,187	56,155	,240	-,255085	,214880	-,685515	,175345
Market Innovation	Equal variances assumed	1,221	,272	-1,179	87	,242	-,213277	,180868	-,572771	,146217
	Equal variances not assumed			-1,299	75,367	,198	-,213277	,164224	-,540402	,113848
Strategic innovativeness	Equal variances assumed	2,221	,140	-1,812	87	,073	-,38531	,21267	-,80802	,03740
	Equal variances not assumed			-1,982	74,133	,051	-,38531	,19443	-,77271	,00209
Process Innovation	Equal variances assumed	,414	,522	-,002	87	,998	-,000424	,194575	-,387163	,386316
	Equal variances not assumed			-,002	70,295	,998	-,000424	,181665	-,362717	,361870
Behavioural Innovation	Equal variances assumed	,292	,590	-1,369	87	,175	-,356073	,260153	-,873155	,161008
	Equal variances not assumed			-1,338	55,001	,186	-,356073	,266101	-,889352	,177205
Organizational innovativeness	Equal variances assumed	,608	,437	-1,416	87	,160	-,23449	,16563	-,56369	,09471
	Equal variances not assumed			-1,525	71,279	,132	-,23449	,15381	-,54115	,07217

Independent Samples Test (Core business function / Support business function)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Proactiveness	Equal variances assumed	,602	,440	,621	94	,536	,141290	,227380	-,310178	,592758
	Equal variances not assumed			,628	92,820	,532	,141290	,225034	-,305595	,588175
Risk-taking	Equal variances assumed	,202	,654	,780	94	,437	,200527	,257151	-,310052	,711106
	Equal variances not assumed			,781	90,537	,437	,200527	,256711	-,309434	,710487
Innovativeness	Equal variances assumed	,029	,866	1,247	94	,216	,287846	,230918	-,170647	,746338
	Equal variances not assumed			1,227	83,236	,223	,287846	,234618	-,178781	,754472
Entrepreneurial orientation	Equal variances assumed	,064	,801	1,042	94	,300	,21768	,20883	-,19696	,63232
	Equal variances not assumed			1,036	87,609	,303	,21768	,21013	-,19994	,63530
Product / Service Innovation	Equal variances assumed	,655	,420	-,891	94	,375	-,174967	,196481	-,565085	,215151
	Equal variances not assumed			-,875	82,305	,384	-,174967	,200009	-,572827	,222892
Market Innovation	Equal variances assumed	,728	,396	,744	94	,459	,129333	,173784	-,215719	,474385
	Equal variances not assumed			,752	92,789	,454	,129333	,172018	-,212271	,470937
Strategic innovativeness	Equal variances assumed	,543	,463	,676	94	,501	,13559	,20070	-,26291	,53408
	Equal variances not assumed			,685	93,311	,495	,13559	,19808	-,25774	,52891
Process Innovation	Equal variances assumed	,221	,640	,376	94	,708	,066806	,177524	-,285672	,419283
	Equal variances not assumed			,371	84,610	,711	,066806	,179849	-,290807	,424418
Behavioural Innovation	Equal variances assumed	,053	,818	,934	94	,353	,224441	,240345	-,252771	,701652
	Equal variances not assumed			,931	88,960	,354	,224441	,241016	-,254456	,703337
Organizational innovativeness	Equal variances assumed	,784	,378	,464	94	,644	,07312	,15772	-,24004	,38627
	Equal variances not assumed			,464	90,268	,644	,07312	,15758	-,23993	,38616

Independent Samples Test (Leader / Other)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Proactiveness	Equal variances assumed	8,232	,005	3,602	94	,001	,782214	,217190	,350978	1,213450
	Equal variances not assumed			3,888	93,802	,000	,782214	,201172	,382772	1,181656
Risk-taking	Equal variances assumed	,321	,572	2,946	94	,004	,739564	,250999	,241200	1,237929
	Equal variances not assumed			2,988	82,917	,004	,739564	,247543	,247204	1,231925
Innovativeness	Equal variances assumed	2,079	,153	3,107	94	,002	,700544	,225451	,252907	1,148182
	Equal variances not assumed			3,249	89,885	,002	,700544	,215613	,272184	1,128905
Entrepreneurial orientation	Equal variances assumed	1,594	,210	3,691	94	,000	,73675	,19960	,34044	1,13307
	Equal variances not assumed			3,876	90,660	,000	,73675	,19007	,35918	1,11432
Product / Service Innovation	Equal variances assumed	,311	,578	1,188	94	,238	,236615	,199147	-,158797	,632027
	Equal variances not assumed			1,154	71,329	,252	,236615	,205091	-,172293	,645523
Market Innovation	Equal variances assumed	2,437	,122	-,681	94	,497	-,120463	,176800	-,471503	,230578
	Equal variances not assumed			-,641	63,225	,524	-,120463	,187906	-,495938	,255012
Strategic innovativeness	Equal variances assumed	7,922	,006	,725	94	,470	,14791	,20401	-,25716	,55298
	Equal variances not assumed			,672	59,627	,504	,14791	,22014	-,29250	,58832
Process Innovation	Equal variances assumed	8,682	,004	,230	94	,819	,041515	,180604	-,317078	,400109
	Equal variances not assumed			,207	53,900	,836	,041515	,200132	-,359741	,442772
Behavioural Innovation	Equal variances assumed	6,342	,013	-,472	94	,638	-,115699	,245241	-,602631	,371234
	Equal variances not assumed			-,441	61,867	,660	-,115699	,262116	-,639684	,408286
Organizational innovativeness	Equal variances assumed	7,201	,009	,201	94	,842	,03219	,16053	-,28654	,35093
	Equal variances not assumed			,182	55,447	,856	,03219	,17655	-,32157	,38595

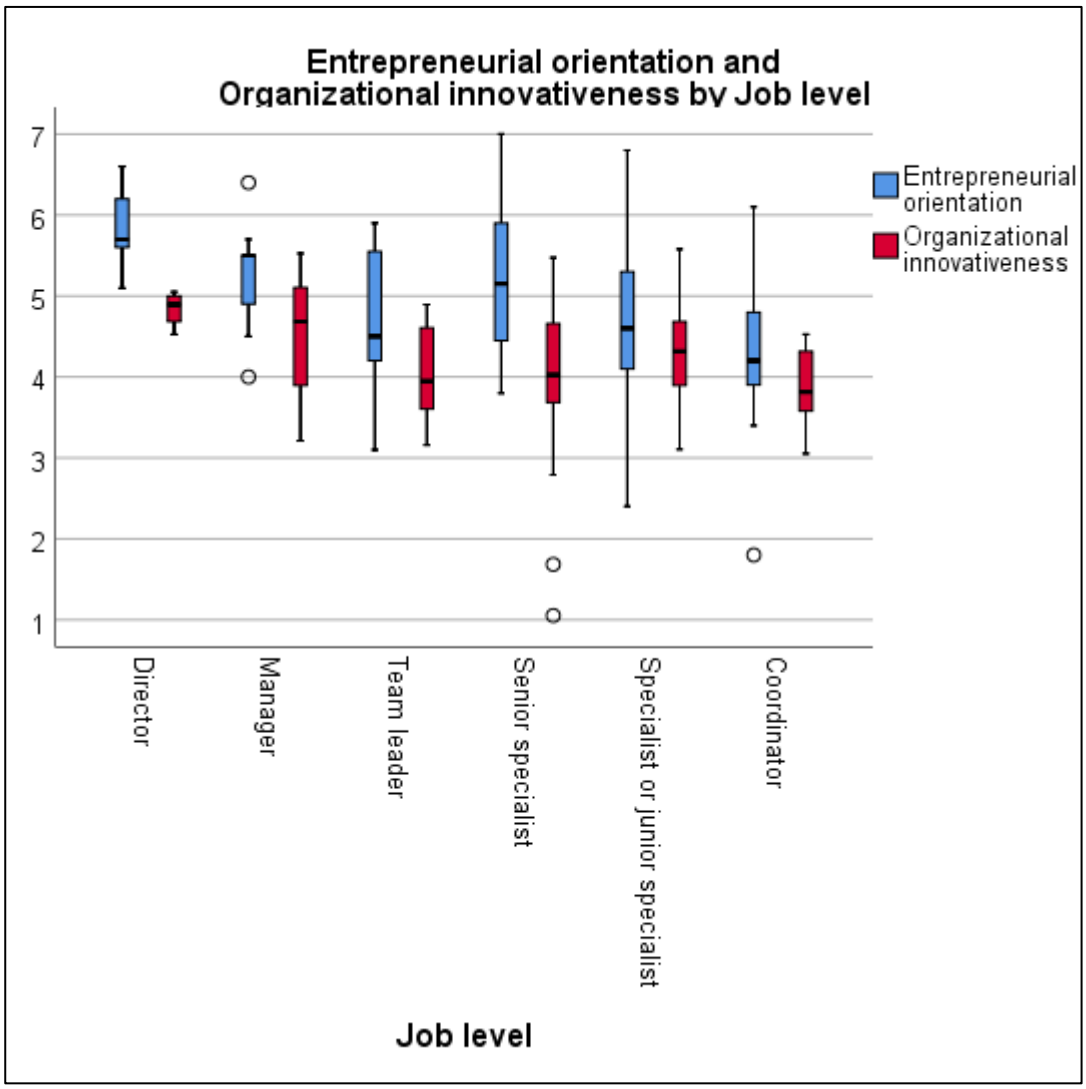
10 APPENDIX 3

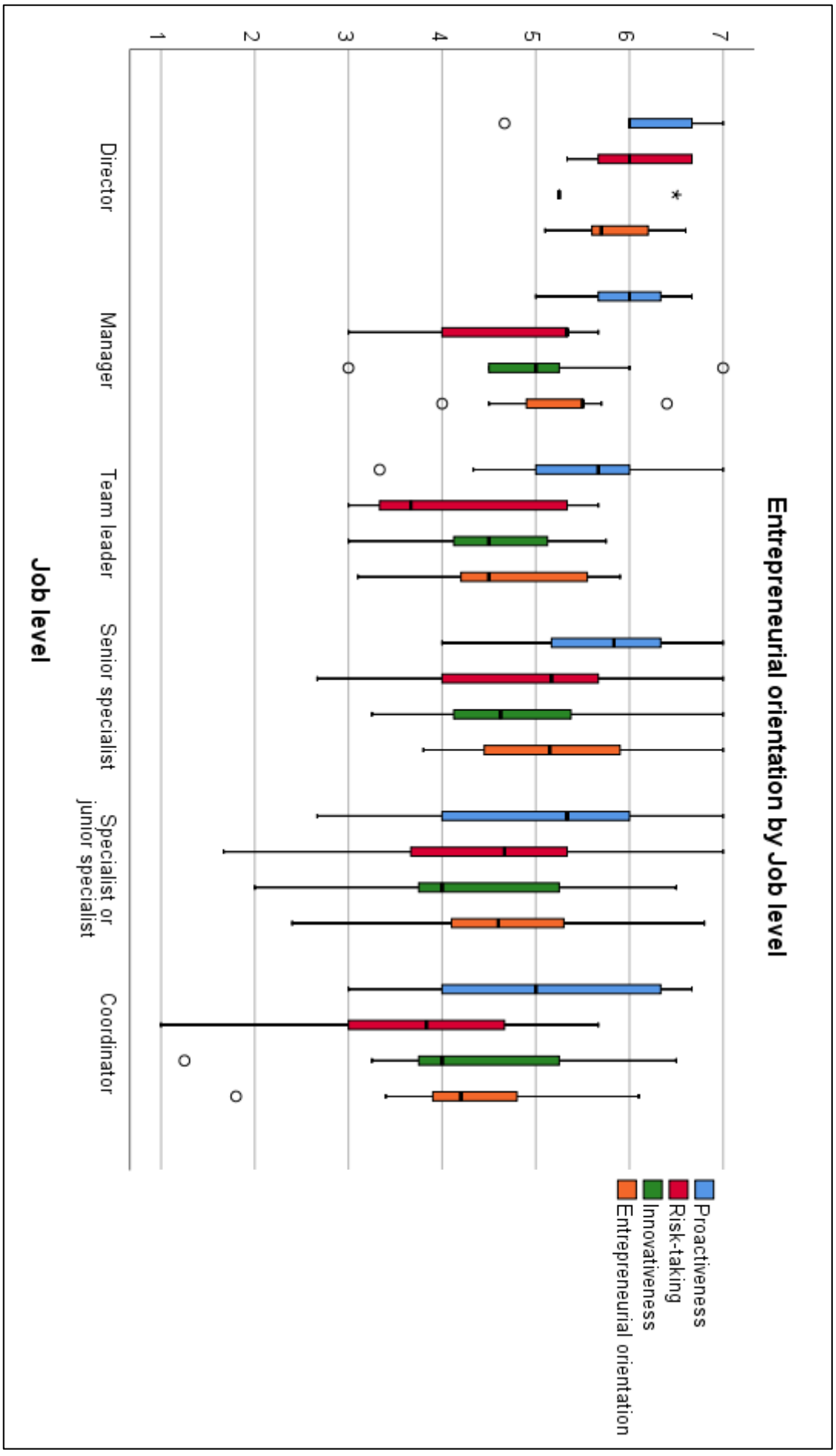
Additional figures for the job level results

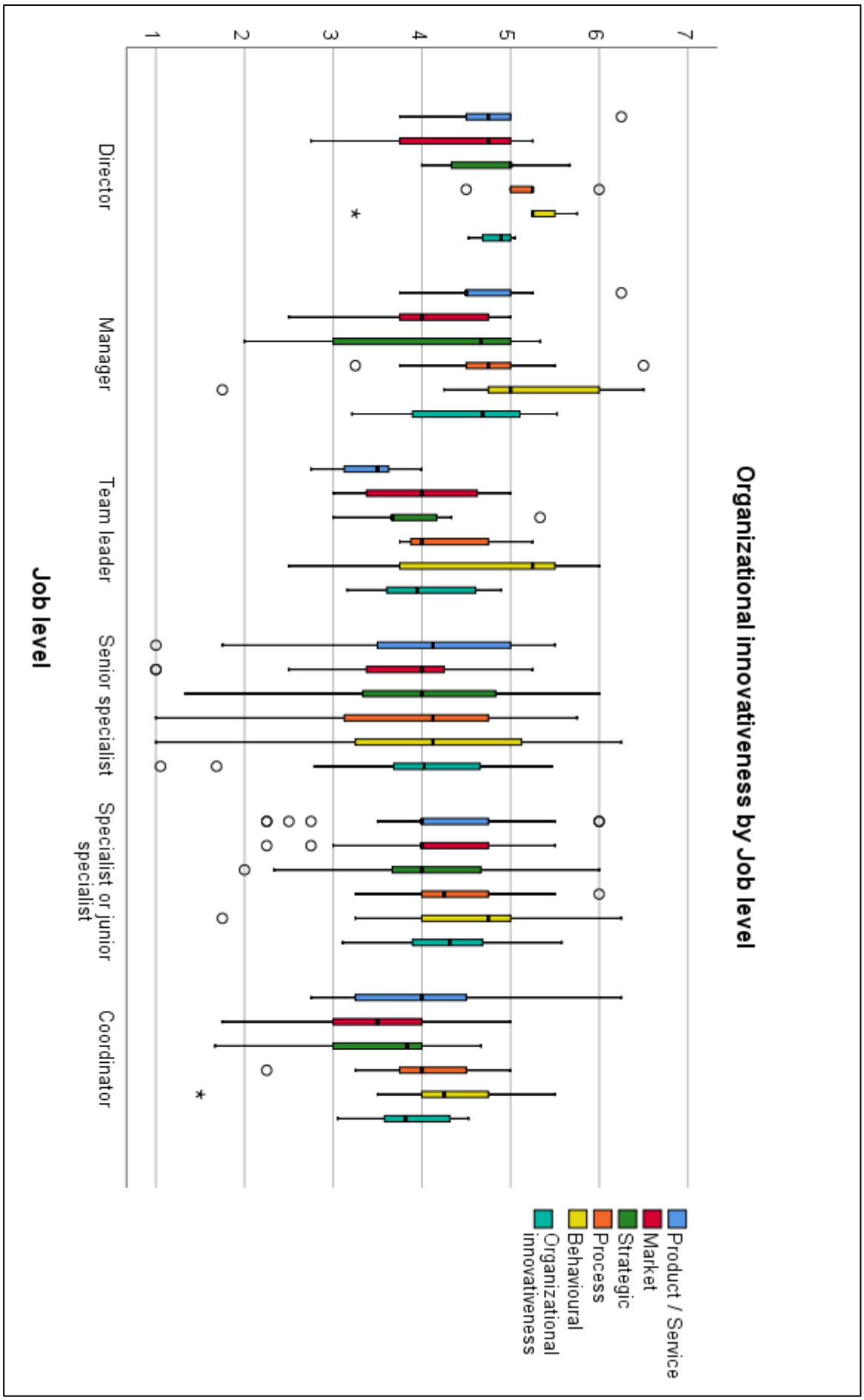
Mean

Job level	Proactiveness	Risk-taking	Innovativeness	Entrepreneurial orientation	Product / Service	Market	Strategic	Process	Behavioural	Organizational innovativeness
Director	**6,07**	**6,07**	**5,50**	**5,84**	**4,85**	**4,30**	**4,80**	**5,20**	**5,00**	**4,83**
Manager	6,04	4,74	5,03	5,24	4,72	4,06	4,04	4,75	4,94	4,53
Team leader	5,43	4,24	4,54	4,71	3,39	4,00	3,95	4,32	4,61	4,06
Senior specialist	5,76	4,97	4,90	5,18	**4,10**	3,74	3,94	**3,92**	**4,09**	3,96
Specialist or junior specialist	5,05	4,48	4,30	4,58	4,23	4,13	4,02	4,29	4,60	4,27
Coordinator	**5,00**	**3,73**	**4,18**	**4,29**	4,13	**3,50**	**3,57**	3,98	4,18	**3,88**
Total	5,40	4,61	4,58	4,84	4,21	3,96	3,99	4,26	4,48	4,19

Group means by Job level


Entrepreneurial orientation and
Organizational innovativeness by Job level
7
6
5
4
3
2
1
Entrepreneurial orientation
Organizational innovativeness
Director
Manager
Team leader
Senior specialist
Specialist or junior specialist
Coordinator
Job level


Entrepreneurial orientation by Job level
7
6
5
4
3
2
1
Director
Manager
Team leader
Senior specialist
Specialist or junior specialist
Coordinator
Job level
Proactiveness
Risk-taking
Innovativeness
Entrepreneurial orientation


Organizational innovativeness by Job level
7
6
5
4
3
2
1
Director
Manager
Team leader
Senior specialist
Specialist or junior specialist
Coordinator
Job level
Product / Service
Market
Strategic
Process
Behavioural
Organizational innovativeness