

**Finnish technology-intensive growth firms: individual capabilities during high-growth and internationalization**

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## ABSTRACT

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<p>Growth companies have been current topic for a few decades especially in the field of technological innovations and ventures. Global markets and escalating speed of new innovative solutions has provided an environment for new ventures to be born globals or to internationalize rapidly. Internationalization and even more naturally global operational environment enables companies to grow faster than previously and this has attracted new start-up companies into the markets. This study covers the topic of high growth, born globals and internationalization in technology companies from employee capability perspective. The research of this study answers questions of what kind of key capabilities and skills are required from employees in growth companies and how these skills and capabilities are developed. Also, impacts of high growth on employees is covered in this study.</p> <p>The research setting was built on Finnish technology-intensive growth firms. In total, five HR and management level representatives were interviewed on their company's views on research questions. The data from interviews was transcribed and analyzed by using content analysis method. Theme mapping was used to create logical structures within the phenomenon. The main finding from the results was that high growth companies within the technology industry rely on their employees to be in personal responsibility of developing new skills. Company participation on developing skills and capabilities comes often in latter stage of high growth when HR structures are created. Entrepreneurial attitude and learning capabilities are the most important features of a growth company employee within this industry.</p>	
<b>Key words</b> Growth companies, technology firms, capabilities, skills, intellectual capital, personnel development	

## TIIVISTELMÄ

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<p>Kasvuyritykset erityisesti teknologia-alalla ovat olleet ajankohtainen ilmiö jo muutaman vuosikymmenen ajan. Globaalit markkinat ja kiihtyvään tahtiin syntyvät uudet innovatiiviset ratkaisut ovat tarjonneet uusille yrityksille toimintaympäristön, jossa kansainvälistyminen on mahdollista nopeasti ja jo yrityksen elinkaaren alkuvaiheessa. Uusia teknologiakeskeisiä start-up yrityksiä perustetaan markkinalle jatkuvasti. Tässä tutkimuksessa käsitellään yrityksen nopeaa kasvua, born-global käsitettä ja teknologiayritysten kansainvälistymistä henkilöstön kyvykkyyden näkökulmasta. Tämä gradu pyrkii vastaamaan kysymyksiin: minkälaisia kykyjä ja taitoja vaaditaan teknologiakeskeisten kasvuyritysten työntekijöiltä, ja kuinka näitä kehitetään yrityksissä. Myös nopean kasvun vaikutuksia henkilöstöön käsitellään tutkimusongelmissa. Tutkimuksessa tutkittiin suomalaisia teknologiakeskeisiä kasvuyrityksiä. Kokonaisuudessaan haastateltiin viiden eri yrityksen henkilöstöhallinnon ja johtotason edustajia heidän näkemyksistään edellä mainittuihin aiheisiin. Sisältöanalyysia käyttämällä haastatteluista saatu data käsiteltiin ja johdettiin loogisiksi kokonaisuuksiksi. Päälöydöksenä tuloksista voidaan pitää sitä että kasvuyrityksissä vastuu henkilöstön kyvyistä, taidoista ja niiden kehittamisestä on paljolti henkilöllä itsellään. Yrityksen osallistuminen taitojen ja kykyjen kehittämiseen ilmenee usein vasta yrityksen kasvun myöhäisemmässä vaiheessa, jolloin henkilöstöhallinnon rakenteet on luotu. Yrittäjähenkisyys ja kyky oppia nopeasti korostuvat tärkeinä taitoina kasvuyritysten henkilöstössä tällä alalla.</p>	
<b>Avainsanat</b> Kasvuyritykset, teknologiayritykset, kyvyt, taidot, aineeton pääoma, henkilöstön kehittäminen	

# CONTENTS

<b>1</b>	<b>INTRODUCTION</b> .....	<b>6</b>
1.1	Research objectives and questions .....	7
1.2	Structure of the study.....	7
<b>2</b>	<b>THEORETICAL BACKGROUND</b> .....	<b>8</b>
2.1	Born global companies.....	9
2.2	High growth firms.....	12
2.2.1	High growth firm employees.....	13
2.3	Technology companies .....	14
2.4	Intellectual capital.....	15
2.4.1	Human capital.....	18
2.5	Individual capabilities .....	19
<b>3</b>	<b>METHODOLOGY</b> .....	<b>21</b>
3.1	Research method.....	21
3.2	Data collection.....	22
3.3	Content analysis.....	22
<b>4</b>	<b>RESULTS</b> .....	<b>24</b>
4.1	Background information of the interviewees.....	24
4.2	Results from the interviews .....	25
4.3	Key capabilities .....	25
4.4	How capabilities are developed? .....	29
4.5	What effects has the growth and rapid internationalization had on the employees? .....	32
<b>5</b>	<b>CONCLUSIONS</b> .....	<b>36</b>
5.1	Discussion and main findings .....	36
5.1.1	Key capabilities .....	36
5.1.2	Developing skills and capabilities.....	38
5.1.3	How high growth and internationalization has affected on the employees.....	39
5.2	Evaluation and limitations of the study .....	41
<b>6</b>	<b>REFERENCES</b> .....	<b>43</b>

## **FIGURES**

Figure 1. Structure of the theoretical background

Figure 2. Uppsala model

Figure 3. International new ventures

Figure 4. Terminology to describe the different levels of intellectual capital

## **TABLES**

Table 1. Information of the interviewed companies

# 1 INTRODUCTION

During the past two decades, the internet revolution has enabled companies to come up with new business models that can be scaled rapidly into international, or even global level (Rao, 2001). For relatively long period of time, the global markets were mainly controlled by large multi-national enterprises (MNE). This trend started to turn in 1990's when the smaller ventures started to internationalize in early phase soon from inception (Oviatt & McDougall, 1994). These international new ventures, or born globals as they are often called, are nowadays a remarkable part global international markets and they also have disputed the MNE's sole control of international markets.

Advanced internet technology services have opened new possibilities for many industries but one of the biggest revolutions has happened in industries that are mainly based on internet-based services. Actually, it is difficult to define a specific industry because there are companies in every industry that are offering cloud-based products and services or are some other way dependent on internet (Buyya, Yeo, Venugopal, Broberg and Brandic, 2009). New software and high-technology start-up companies started to bloom 2000's and 2010's and many of them have entered international markets in early phase and witnessed high growth. Software and technology driven companies tend to have above average information technology (IT) skills and, based on Zhang's, Sarker's and Sarker's' (2012) study, the IT capabilities play important role of internationalization process of born global companies.

Fast phased internationalization process can be very desirable situation for new technology ventures in order to achieve more turnover and enter new markets. However, the company focus on quick growth will set exceptional prerequisites for company's personnel. Typically for technology driven companies the human capital is the biggest asset in terms of knowledge and competitiveness, and very likely also one of the biggest cost units. When company is in high growth and entering new market areas, this highly valuable unit of employees is often under high pressure and employees have to adapt quickly into new situations. The job description may change on day-to-day basis and personnel need to learn no skills when the company grows. The personnel have to be equipped with different capabilities, such as adapting to change, flexibility and learning new skills. For this reason, it is interesting to find out what kind of capabilities are required from companies who have generated relatively quick company growth and have internationalized to new markets.

Topics such as company growth, born global companies and start-up internationalization are quite well covered in academic journals, but the personnel aspect and the individual capabilities within these categories are left for minor attention. This study will focus on individual capabilities within the technology-intensive high-growth firm employees. The primary objective is to

find out that what kind of capabilities are needed, and secondly how these capabilities and personnel resources on organizational level are developed in the successful growth companies.

## **1.1 Research objectives and questions**

The overall objective of this study is to understand individual capabilities in the context of technology-intensive high growth companies. Especially on what managers see as the key capabilities their employees should have when company is in the phase of rapid growth and how they perceive the fast pace affecting their employees. Study also aims at answering how individual capabilities are developed in a processed way in this sort of operational environment.

Main research question of this study is:

- What kind of key capabilities are required from the individuals in high growth technology company?

Sub-questions are as follows:

- How the organization develops and supports employees' capabilities during high-growth phase?
- What kind of affects the company sees the high growth has had on the employees?

## **1.2 Structure of the study**

The first chapter includes introduction to the topic with background information from the theoretical viewpoint. The introduction chapter also presents the objective and purpose of the study with research questions and sub-questions. The starting point for the study is in high growth firms who operate on technology-intensive industries. Theoretical background of growth companies and born globals is presented in chapter two. In the theoretical background the concept of intellectual capital is discussed and narrowed down to human capital and individual capabilities. The scope of this study is aimed to focus on individual level of capabilities, and therefore the structural capital is not covered in the theory section.

Chapter three explains the methodological approach of this study. The setting of the research is explained and the chosen research method of qualitative approach is presented. Also chosen interviewees are presented as well as the analysis method used. The research findings are presented in chapter four. Discussion and conclusions as well as limitations and reliability of this study are covered in chapter five.

## 2 THEORETICAL BACKGROUND

Theoretical background of this study starts with presenting views to the operational environment and business thinking of born globals, rapid internationalization and technology companies. The background to this study lies in Finnish technology start-ups and how they perceive intellectual capital and individual capabilities as enablers of internationalization and rapid growth – therefore it is justified to cover these topics also in the theoretical section of this paper.

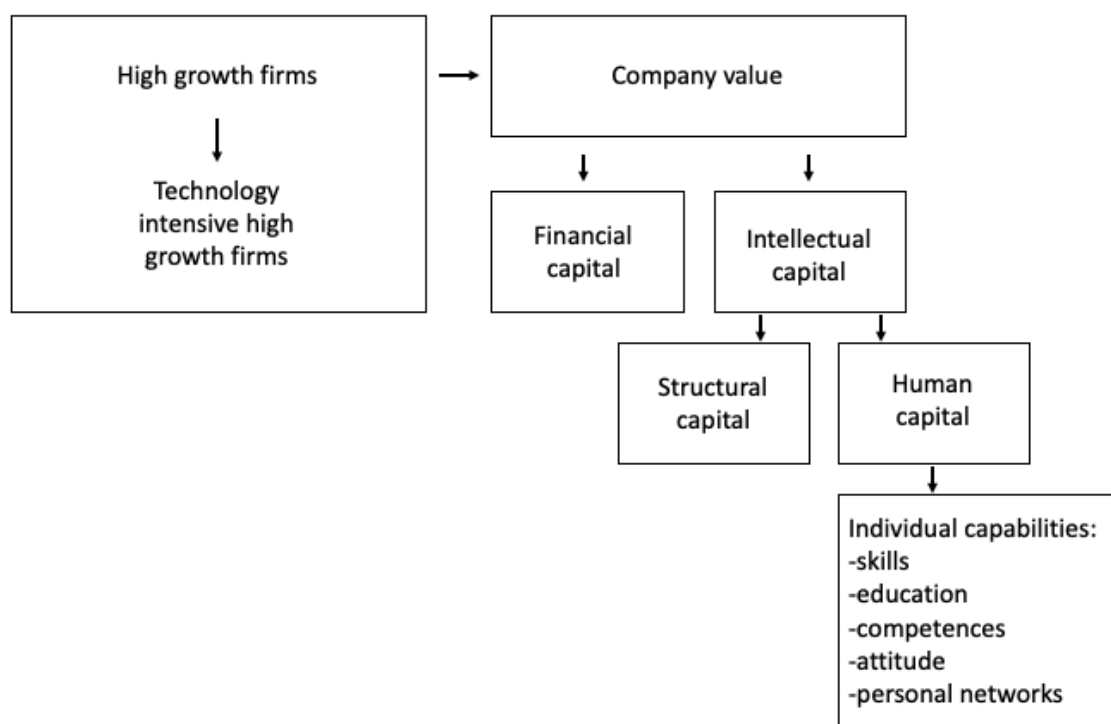


Figure 1. Structure of the theoretical background (adapted from Marr, Schiuma & Neely, 2004).

The further research presented is not investigating born global companies as such, but it is necessary to understand the born global concept and the uniqueness of this group of firms, how they behave and what are the key principles. High growth technology-intensive ventures are typically looking for international markets in early phase, and therefore born global approach is relevant for this study (Cannone & Ughetto, 2014). The method presented later in this chapter of defining high growth companies has also been guiding the selection of companies chosen to be interviewed to this study. The section of internationalization and high growth is followed by theories on intellectual capital, human capital, and key capabilities are also covered in this theoretical



background. All these are important when researching the individual competences as part of rapid growth. Especially the latter section of individual capabilities which is natural continuum of the previous is in the core of this particular study.

Studies of start-up internationalization and firm growth have been a common topic past couple decades and that field is well covered from different viewpoints. Remarkable part of growth are organization's dynamic capabilities and the capacity to leverage the capabilities into new opportunities and innovations (Teece, Pisano and Shuen, 1997). With dynamic capabilities can be referred to organization's capability to adapt the current resources in the rapidly changing business environment (Teece, Pisano & Shuen, 1997; Barreto, 2009). However, dynamic capabilities concentrate on organization level capabilities and competence while the importance of individuals is left for minor attention. Especially for companies with intangible goods and services, the greatest value relies often on personnel capabilities because the products are typically developed and created based on the personnel competence and expertise. In the modern knowledge economy, the environmental turbulence, complexity and dynamism are on high level. In this environment the knowledge assets are key organizational factors to gain sustainable competitive advantage (Castro & Verde, 2012).

Personnel resources are an important part of successful growth company, but the topic is not really well covered in academic studies. Individual capabilities are part of company capabilities, but the academic papers do not cover question of what kind of skills, capabilities and characteristics are required from international growth company's personnel. Sapienza, Autio, George and Zahra (2006) have studied how early internationalization effects on company survival and growth. They found out that rapid internationalization will decrease the firm's possibility of surviving but at the same time the opportunities for growth will increase. The early internationalization improves the dynamic capabilities for rapid adaption to new environment which are very valuable for future growth. Simultaneously the lack of experience can reduce the likelihood of surviving. How to impact on growth and survival, Autio, Sapienza and Almeida (2000) have pointed three key factors; managerial experience, resource fungibility and age at initiation. The lack of international experience can be compensated to some extent by managerial experience and management's individual capabilities. The dynamic capability literature focuses on how an organization can leverage their capabilities into a new business opportunities and growth, but only few studies concentrate on the experience of managers and individuals in general (King & Tucci, 2002).

## **2.1 Born global companies**

Few decades ago, the global markets were mainly controlled by multinational enterprises (MNE's) that were developed from mature domestic firms. This trend started to evolve after the second world war and MNE's caught researchers'

interest for many decades (Oviatt & McDougall, 1994). However, new technological innovations started to create totally different possibilities for entrepreneurs and ventures with the intention to internationalize early from inception and skipping the traditional incremental steps of internationalization process (Onetti, Zucchella, Jones & McDougall-Covin, 2010). Johanson and Vahlne (1977) had developed the stage internationalization model, called Uppsala model, at the end of 1970's

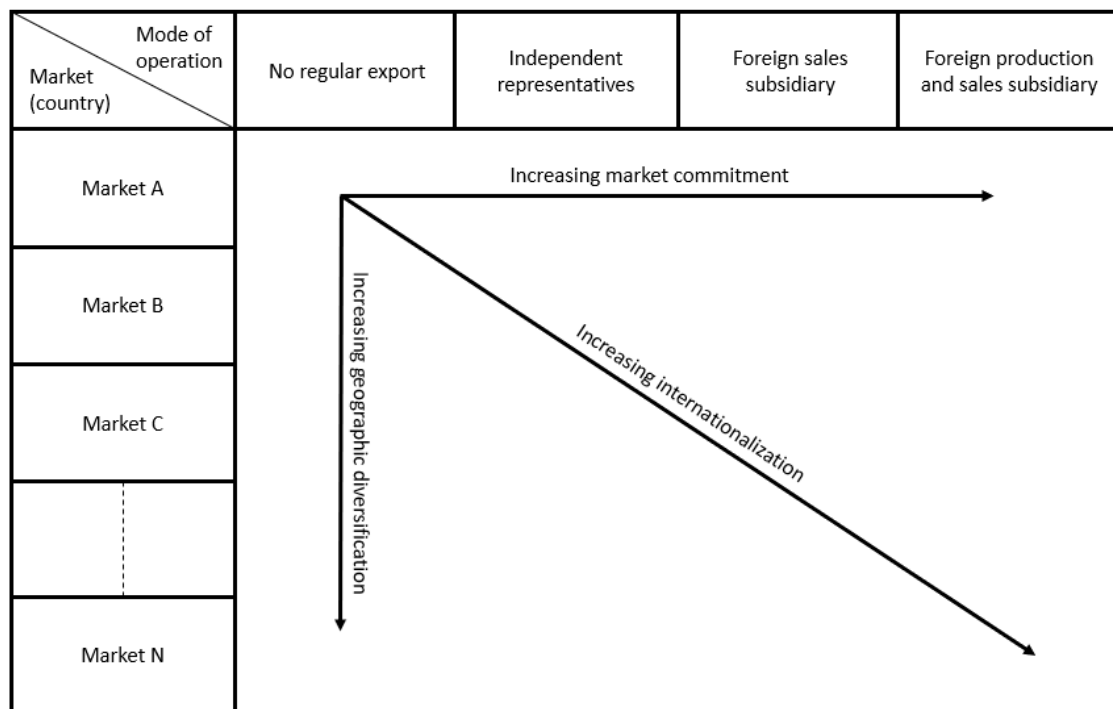


Figure 2. Uppsala model (Johanson and Vahlne (1977))

In 1990's Oviatt and McDougall (1994) challenged the model, as they realized that incremental internationalization did not support these modern rapidly growing ventures. Especially small technology-oriented firms tend to skip the stage model of internationalization (Coviello and Munro, 1995). This new phenomenon started to fragment the traditional internationalization theories and also destabilise the MNE's position as undisputed rulers of global business (Oviatt & McDougall, 1994). There are several different descriptions to these new ventures; such as born global companies, international new ventures, international entrepreneurship and accelerated internationalization (Zahra 2004).

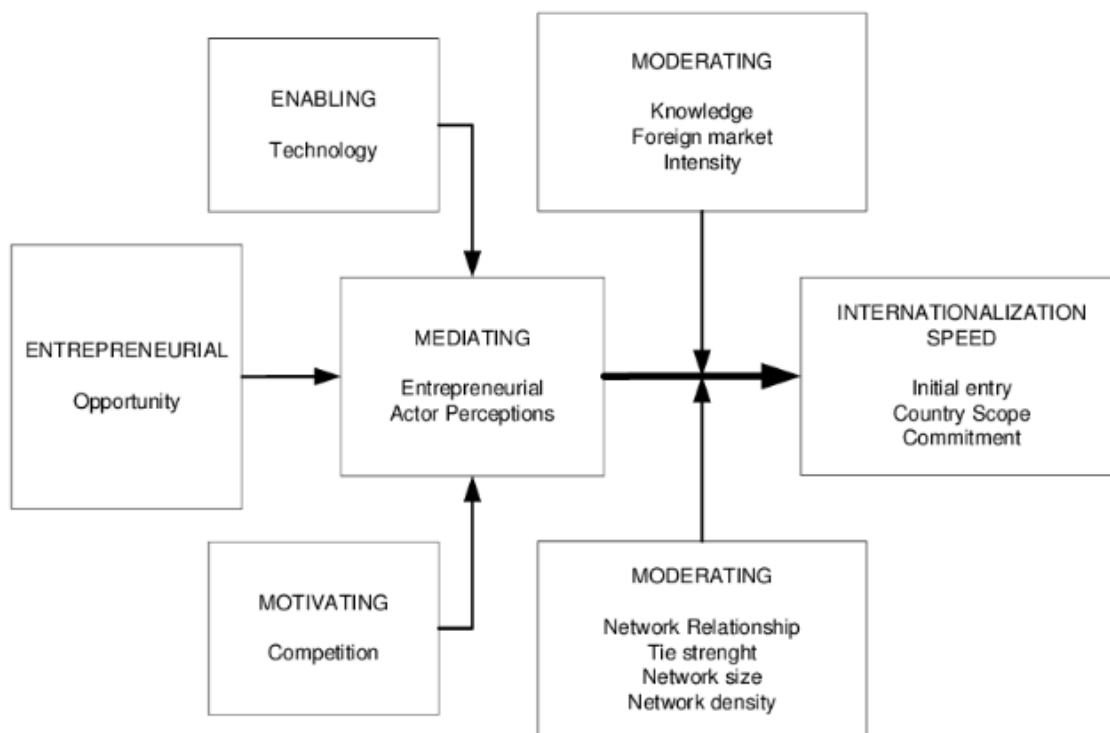


Figure 3. International new ventures by Oviatt and McDougall (1994)

Based on Oviatt and McDougall's (1994) theory of international new ventures, the born global companies have few key characteristics such as; a business model that is designed to global approach, the systematic usage of existing, limited, resources in multiple countries instead acquiring the foreign assets, and the control over unique resources. Born globals can create strategic alliances for manufacturing or distribution to avoid the expensive investments, and often the unique resources are related to personnel's skills and capabilities (Freeman, Edwards & Schroder, 2006). It can be challenging to define which companies can be counted as born globals. McDougall & Oviatt (1996) as well as Coviello & Munro (1995) considers that if company internationalizes within less than two years from inception, it can be counted as born global. Often the driver for this rapid internationalization is due to a fact that in some countries and some industries, the market potential is relatively low and this forces companies to look more revenue streams from abroad (McDougall & Oviatt, 1996).

The development of information technology and spreading availability of internet have been the major forces of enabling the rapid growth of born global phenomenon (Knight & Cavusgil, 2004). This is obvious due to improved information technology that helps companies to operate and communicate across the borders. Internet opens up the access to market and makes it possible to contact the potential partners and customers easier without delays, compared to time with low access to internet and real-time communication tools (Zhang et. al 2012). In the beginning of this phenomenon, born global companies were mainly organizations that operated on niche market in rather small domestic market, and therefore they were forced to go global early. Soon phenomenon evolved and born globals were not limited only on niche market or smaller economies. Of

course, international new ventures are more popular in some industries than the other, e.g. information technology and software companies do not necessarily require any production facilities, and therefore distribution of the products or services can be done online because in many cases the sold products and services are intangible. When again, companies in manufacturing industry do produce tangible goods that requires manufacturing and physical distribution channels. Due these limitations, the born global approach is popular especially on information technology industry. Autio et. al (2000) also claim that the older the company is when doing the first internationalization, the slower is its subsequent growth.

## 2.2 High growth firms

High growth firms (HGF) are companies that experience exceptional pace of growth in terms of chosen variable, typically using the growth of employment, growth of sales or a combination of both (Delmar, Davidsson & Gartner, 2003). The concept of HGFs is relatively new and this can be seen by looking at the number of studies concerning the topic; Coad, Daunfeldt, Hölzl, Johansson and Nightingale (2014) found out the fact that during 1990-2010 there was only 20 studies about the topic, but only few years later in Google Scholar was more than 200 studies concerning HGFs (Coad et al. retrieved Google Scholar on November 7<sup>th</sup> 2013).

Often the growth of a company is measured by sales or employee growth (Daunfeldt, Elert and Johanson, 2013). There is not a single chosen method to define HGFs, but two ways stand out from the crowd; first method is to gather the share of the companies with highest growth, typically 1 % or 5 % of all the companies, and the second method is to take the firms with above certain growth pace during chosen period or over specific number of years (Coad et al. 2014). Autio, Arenius and Wallenius (2000) counted the companies with more than 50 % of annual sales growth during 3-year period in a row. One common definition comes from the Organization of Economic Co-operation and Development (OECD), that counts the firms with 10 or more employees that has at least 20 percent annual growth employee count for three years in a row to be counted as a high growth firm (Daunfeldt, Johanson and Halvarsson, 2015). Coad et al. (2014) defines HGF's as "firms growing at or above a particular pace, measured either in terms of growth between a start and end year, or as annualized growth over a specific number of years". The challenge of defining HGFs comes from the fact that majority of HGFs experience the high growth period during one year. Due this challenge, it is important that the growth is not calculated based on performance from one individual year (Coad et al. 2014).

Weinblat (2017) believes that in addition to high personnel and revenue growth numbers, the HGF's typically possess good capabilities to adapt into change, high risk taking and bigger than average R&D investments to finance new innovations. Within the small and medium size enterprises, the investments to product innovation is the most popular way to expansion, and if compared to

other firms, HGFs the level of innovation plays huge role in company growth (Coad & Rao, 2008). Coad & Rao (2008) claim that huge R&D investments may generate superior growth, but it also involves big risks because if the plan does not work out, the rivals will take the market share.

The studies about HGF's examine the growth typically from three growth perspectives that are growth in employees, growth in productivity and growth in revenue (Demir, Wennberg and McKelvie, 2017). All these three growth factors are general metrics of growth but none of them can solely define if the firm can be counted as a high growth firm or not. The combination of different growth metrics gives a more comprehensive overview of firm's status (Delmar, Davidsson & Gartner, 2003). Demir, Wennberg and McKelvie (2017) have compared multiple studies that focused on HGF's and their strategic aspects of contributing growth. They found five focus areas that affected on growth of HGF's, and they are capabilities, innovation, strategy, human resource management and human capital. Muhos (2011) points out four different growth stages for technology-intensive companies; concepting and development, commercializing, growth and balance and renewing. In the fourth phase the risk-taking decreases and the personnel starts to specialize.

Every firm has their growth potential, which is based on diverse growth paths. These are influenced by firm's strategic choices in order to maintain, develop and create their resource base (Heimonen, 2013). For high-growth ventures it is typical to develop their resource base constantly by growing their know-how and knowledge reserves (Teece, 1982). From the firm success perspective, Acs, Parsons and Tracy (2008) has investigated that there are many different high growth and successful firms in the market, but only a vast minority can keep up the high growth and success over the longer period. Nonetheless, this small group of companies can make a significant impact on economy, in terms of new economic value and job creation (Heimonen, 2013).

### **2.2.1 High growth firm employees**

HGFs generate relatively big amount of job opportunities compared to firms with lower growth (Coad, Daunfeldt, Johansson & Wennberg, 2014). Coad et al. (2014) have studied on what kind of employees HGFs are hiring on knowledge intensive industries. There are many studies of HGFs on organization level, but the individual employee level has been more ignored current researches. The results indicate that HGFs hire personnel with lower experience such as young people, immigrants, unemployed, and train them new skills and capabilities to get more productive for the company. Hiring personnel with lower experience is cheaper, but also the HGFs that have experienced growth already a while tends to hire also people with higher human capital from other companies. All this depends on firm's age and needs (Coad et al. 2014). When working in high growth firm, adapting to constant change is the prerequisite, and in smaller firm

the impact of fluctuation in economy and surrounding environment is typically bigger than in larger firms (Muhos, 2011).

Rutherford, Buller and McMullen (2003) have studied the human resource management challenges that firms are facing in different growth stages. Based on the results, HGFs have biggest problems in human resource management development. This is because HGFs live in rapidly changing environment where the owner has been responsible for personnel trainings and onboarding, but when new people come in and roles develop, the owner cannot control the human resource management effectively. In this phase companies must shift into more formal human resource management manners and hire personnel who are responsible for employee trainings and management (Rutherford, Buller & McMullen, 2003). This transition is often painful and requires financial resources (Keating and Olivares, 2006). On the other hand, HGFs have minor challenges with employee retention because HGF employees do normally enjoy the fast-paced atmosphere. (Rutherford, Buller and McMullen, 2003)

### **2.3 Technology companies**

Technology companies have taken up an important position of today's economies as they are driving the economic growth and creating new innovations into the market (Grinstein & Goldman, 2006). Technology firms are typically intensive in R&D and they provide valuable, sometimes rare products and services in which advanced technological knowledge is used at (Muhos, 2011).

This study concentrates on Finnish technology-intensive growth firms, but the technology firm itself have many different definitions. Grinstein and Goldman (2006) have researched the definitions and characteristics of technology firms by comparing different studies that have defined technology firms but a clear and unambiguous definition for this group of companies is missing. Dunn, Friar and Thomas (1991) have defined technology companies by choosing companies from typically technology-minded industry such as software and telecommunication industries but that is not yet a solid definition because registering into a specific industry does not necessarily mean that the firm is technology-intensive (Grinstein & Goldman, 2006).

Pavitt (1984) characterized different industries based on their R&D activities, and these characteristics are relatively widely used among the studies (Grinstein & Goldman, 2006). However, the R&D activities as a key attribute to technology level is later criticized (Grinstein & Goldman, 2006). Although Pavitt (1984) is not the only one to determine technology level based on R&D activities. Maidique and Hayes (1984) as well as Medcof (1999) have counted firms that invest more than 3 percent of their revenue into R&D activities as a technology firm, as well as Makri, Lane and Gomez-Mejia (2006) calculated technology intensity by measuring the ratio of annual R&D expenditures to sales. There are more little

vague definitions, as MacDonald (1986) counted companies that develop complex products as technology firms, and Roger and Larsen (1985) selected criteria of having a fast growth rate and a global market for the products, as a technology firm.

However, since multiple ways of characterising the technology-intensive audience exist and one common definition is missing, there is no one single method to say what is a technology-intensive firm and what not. In this study, the technology companies are chosen based their product and service offering, the level of R&D activities and operating industry. The target audiences' products and services rely on advanced technology, the R&D activities are on high level and they operate on computer or software industry.

## **2.4 Intellectual capital**

Traditionally company value has been measured in physical resources (e.g. machinery, financial capital) yet in the past decades also intangible assets have been acknowledged as a part of total company value (Marr, Schiuma & Neely, 2004; Pedrini, 2007). Often company value based on the financial reporting (book value) is less than the actual market value - gap between can be explained at least partially by intellectual capital (Kujansivu & Lönnqvist, 2007). Business environment's increased complexity, dynamism and turbulence has raised the importance of intellectual capital (Castro & Verde, 2012; Pedrini, 2007) as well the growing emergence of new knowledge-intense businesses especially in the field of IT (Kujansivu & Lönnqvist, 2007; Tan, Plowman & Hancock, 2007; Stähle & Hong, 2002). Intellectual capital is important for company competitiveness (Kujansivu & Lönnqvist, 2007; Stähle & Hong, 2002). It is also stated that company with physical capital is not creating value without the intellectual capital (Marr, Schiuma & Neely, 2004). Intellectual capital is increasing its importance in today's competitive environment. Knowledge-related assets are seen as more sustainable source of gaining competitive advantage (Roos & Roos, 1997; Castro & Verde, 2012) especially in knowledge intensive industries (Castro & Verde, 2012), as well as in innovative businesses (Edvinsson & Sullivan, 1996)

Intangible assets can be divided into two; intellectual property and knowledge-related intellectual capital (Marr, Schiuma & Neely, 2004). Or it can be viewed that intellectual capital includes aspects of human capital, structural capital and relational capital (Cabrita & Bontis, 2008; Kaplan & Norton, 1992). However, further also the component of technological capital is categorized to be part of intellectual capital (Castro & Verde, 2012). To get a comprehensive overlook of the topic: human capital includes aspects of individual knowledge and skills, whereas structural capital includes aspects of organizational intangible assets, relational capital refers to knowledge that is generated through institutional relationships, and technological capital is organizational technology knowledge and resources (Roos, Roos, Dragonetti & Edvinsson, 1997; Castro & Verde, 2012; Hayton, 2005). Human capital or knowledge assets can be viewed to include e.g. employee knowledge and information capital (Nahapiet and Ghosal, 1998)

whereas intellectual property are perhaps those which the company can claim to own as such (e.g. patents) (Marr, Schiuma & Neely, 2004). Edvinsson & Sullivan (1996) state that intellectual capital would be organized and focused set of knowledge which can be leveraged into profitability. The claim that all intellectual capital would be organized and focused could be argued.

The terminology to describe different levels and models of intellectual capital is presented below (Figure 4) paraphrasing the study's theoretical background. The literature presents several terms to describe the different levels of intangible assets and views to divide them, yet those include the same aspects; knowledge-related (more individual and human level assets) and on the other side more measurable (structural- and company-level assets and properties). Structural capital is also referred as the platform of which company uses to turn human capital into intellectual property (Edvinsson & Sullivan, 1996). Also in some papers market or customer capital is presented in the terminology (Tan, Plowman & Hancock, 2007).

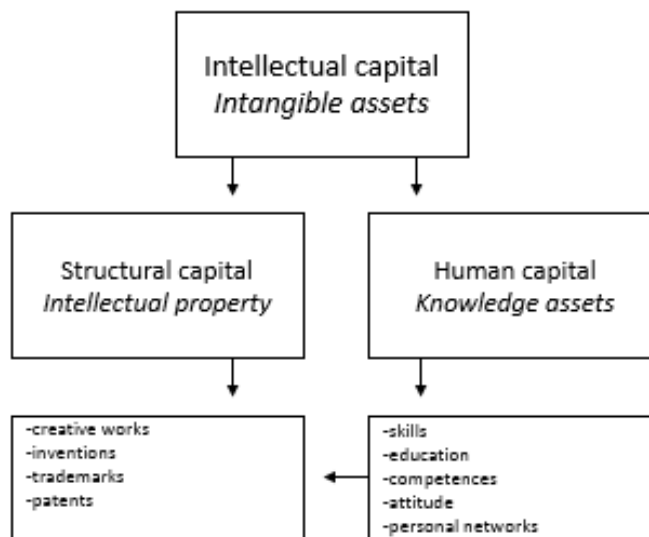


Figure 4. Terminology to describe the different levels of intellectual capital

When viewing managing assets; companies should be able to strategically include intellectual capital as a part of value creation and visually explain employees more comprehensive view of their needed inputs (Marr, Schiuma & Neely, 2004). Managing intangible assets or intellectual capital can be done by using two perspectives; value-creation (focus on human capital) and value-extraction (focus on commercialising intangible assets, e.g. trademarks, patents) (Edvinsson & Sullivan, 1996). Ståhle & Hong (2002) present terms Knowledge management and Intellectual capital management to explain the same: how to benefit from knowledge and how to measure and grasp the human capital. This



is also presented in Figure 4, as literature often refers to gaining value to intellectual property from individual knowledge.

Edvinsson and Sullivan (1996) state that knowledge-intensive and innovative companies must be able to create value and revenues by extracting human capital or knowledge assets into intellectual property. Marr, Schiuma & Neely (2004) claim in their paper that knowledge-related assets are dynamic by nature and require other equivalent to create value. Requiring other assets is argued by Edvinsson and Sullivan (1996); in knowledge-intensive industries human capital can create value as such (e.g. lawyer can guide clients as such without any other assets or resources), yet they state that ideal situation would be to manage human resources in "pools" where knowledge is shared for "collective intelligence". Pedrini (2007) states that accumulation is the key where value is created with intangible assets; development of an asset benefits from the previous. It is stated that intellectual capital management needs to evaluate interrelationships and interdependencies of all needed assets (Marr, Schiuma & Neely, 2004). Edvinsson and Sullivan (1996) also claim that companies and managers are not often able to identify the intellectual capital and how to convert that into profits. Yet Tan, Plowman & Hancock (2007) found that when intellectual capital is managed accordingly and expanded, it has positive impacts on the company performance. Organizations can gain long term competitive advantage by managing the knowledge assets and intensive organizational capabilities (Marr, Schiuma & Neely, 2004).

Challenging aspect of intellectual capital is its measurability (Kujansivu & Lönnqvist, 2007). In many cases the intangible assets or intellectual capital is not included in the financial reporting - mostly due to still vague methods. (Tan, Plowman & Hancock, 2007). Traditional valuation methods are not sufficient in today's operational environment and not adequate to measure intangibility (Pedrini, 2007). Some also claim that the traditional methods to measure company value have even lost their relevance as they are not capable to provide information on intangible assets and their input on total value (Tan, Plowman & Hancock, 2007). Companies especially in knowledge-intensive business rely heavily on assumed market value, which often would require measurable evidence of their intellectual capital - therefore methods of measuring intellectual capital are required in today's market environment. (Kujansivu & Lönnqvist, 2007)

Some tools to measure intellectual capital are developed to be used in internal reporting and valuations, yet those are often non-comparable between firms being non-financial by nature (Kujansivu & Lönnqvist, 2007). Pedrini (2007) has divided the measuring methods into financial (monetary valuations, knowledge-capital earnings and discounting) and non-financial (identifying components of intellectual capital and following their development, scorecards, trend monitoring). Often method used in measuring monetary value of intellectual capital is VAIC™ (by Ante Pulic, 2002, adapted from Kujansivu & Lönnqvist, 2007). Kujansivu and Lönnqvist (2007) in their research used this method to value intellectual capital of Finnish companies in different industries. The

relative values were among highest in Business Services (i.e. technology companies - knowledge-intensity) demonstrating that more than half of company value comes from intangible assets.

### **2.4.1 Human capital**

Human capital is the resources and capabilities the people are bringing to the firm (Wright, Dunford & Snell, 2001). The assets are i.e. education, skills and experience that helps to succeed in given work (Boxall & Steenveld, 1999). People with greater human capital are more capable of performing relevant tasks effectively (Knockaert, Locket, Clarysse and Wright, 2006). The human capital is split into three categories that are competence, attitude and intellectual agility (Roos, Bainbridge & Jacobsen, 2001). These can be examined on individual and organization level. Competence is about person's skills and education, attitude relies on behavioural components of employees' work and intellectual agility calculates the person's abilities to innovate (Marr, Schiuma & Neely, 2004). Edvinsson and Sullivan (1996) present knowledge being as the key human capital in business context, which can be divided into coded knowledge (learned, defined, can be passed on in written and protected) and tacit knowledge (know-how, difficult to describe, can be passed on by demonstrating).

Human capital is one of the most valuable assets for a company, especially in knowledge industries where the innovations and product development rely heavily on employee capabilities (Castro & Verde, 2012). These firms can be called knowledge intensive companies (Eckardt, Skaggs and Lepak, 2018). Good examples are the industries with less tangible capital and products. Technology based companies are often included in this category, because they do not necessarily have big tangible assets such as manufacturing plants or other capital assets. Instead, their success comes from technological innovations that can be developed into products and services. Information technology and software companies are typical players in this category. Ideas behind the innovations comes from people in the company, and they can be counted as human capital of the particular firm.

Israelsen and Yonker (2017) state that people in the firm can contain different levels of human capital. Some are more vital for the firm performance than the others. For example, highly educated employee with unique skills set can be very hard or almost impossible to replace. These key employees take bigger part of company's human total human capital compared to average employee. Firm with key human capital are typically more innovative, but at the same time key human capital is risky because losing this kind of person is difficult to replace. In some industries key human capital is more popular, these are typically smaller and younger firms with low amount of tangible assets such as computer programming companies. (Israelsen and Yonker, 2017)

Human capital resources are proven to generate positive impact on company growth in terms of efficient and high-quality production, financial performance and innovation (Eckardt et al., 2018). Rauch, Frese and Utsch (2005) investigated how human capital can impact on firm success in small enterprises, meaning the companies with 1-50 employees. The results supported the hypothesis that human resources are an important part of company growth within small-scale businesses. Many studies look this matter from manager's and business owner's human capital perspective, but Rauch et. al (2005) expanded the research by studying the importance of employees' human capital as well. The human capital of managers and owners is positively correlated to company growth and based on the study, the same correlation is in company growth and the human capital of employees. Employee's human capital leads to more efficient way of working and so it generates better results. (Rauch et. al, 2005)

## **2.5 Individual capabilities**

The focus of this study is on individual capabilities and especially on technology-based growth companies. Employee's human capital consists of ability to provide productivity and technical skills to add value to the company (Shrader & Siegel, 2007). Intellectual capital on individual level can be referred as human capital, which consists of knowledge and skills (Castro & Verde, 2012). It is also noteworthy that human capital is a concept that covers entrepreneurs, managers and employees and the characteristics required can differ within these groups. (Shrader & Siegel, 2007) The entrepreneurial human capital is relatively well covered in the current literature yet as already stated before the individual employee level is in need of further research. Rothaermel and Hess (2007) state that individual capabilities are also source of competitive advantage in a form of dynamic capabilities which is not studied on individual level as much as other levels of organizational capabilities.

In this paper's context the employee human capital and individual capabilities, such as education and experience, have impact on firms' possibilities to take advantage of new technologies (Shrader & Siegel, 2007), as well as adopt to changing market requirements and changes in the innovation processes (Rothaermel & Hess, 2007). Shrader and Siegel (2007) in their paper suggest that company employees and especially managers and their previous experiences have a significant role in executing company strategy. The more experience employees have on similar strategic approaches and within similar field of business in the past, the more likely the performance outcomes are positive in terms of potential growth. Rothaermel and Hess (2007) claim that heterogeneity of individual capabilities and knowledge-sets is often neglected when company level capabilities are studied. Yet Shrader and Siegel point out that in new growth ventures noteworthy is to have a heterogenic group of employees yet they all should have background knowledge or experience to support the company's competitive strategies. Experience as an individual capability is an asset that increases company performance, value and ability to make more strategic choices.

Companies need employees with different skills and knowledge sets to increase the competitive advantage they might already possess (Rauch et al. 2005; Rothaermel & Hess, 2007)). It is stated that especially for new ventures internationalizing rapidly their internal resources (employees' capabilities) are often the main driver for innovations which allows the high company growth (Knight & Cavusgil, 2004). Rothaermel and Hess (2007) also highlight that companies need to understand that individual capabilities often are distributed unevenly in the organization. Individuals possess both explicit and tacit knowledge: explicit knowledge is universal whereas tacit knowledge is often unarticulated - the silent knowledge which is embedded in all individuals; values, beliefs and ways we all act upon (Nonaka & von Krogh, 2009). It is stated that the most valuable intellectual capital can be developed from interaction and sharing of tacit knowledge of the highly skilled human capital (Rothaermel & Hess, 2007). Individuals' knowledge as such is the most important asset company might have and company performance is based on its management's ability to integrate the individual's knowledge and skills to build the organizational-level capabilities. (Knight & Cavusgil, 2004; Rothaermel & Hess, 2007). Investing in employee training is vital because employees with better skills and higher education can be in key role of development in technology-intensive firms (Castro & Verde, 2012).

Social capital or personal networks is an interesting concept when looking into companies who are on the verge of internationalization or have already entered into new market. Social capital on organizational level is defined to be a combination of resources that company can turn into durable social networks, and it can be divided to individual and organizational level (Lin, 1999). Yli-Renko, Autio and Tontti (2002) found positive correlation between social capital and international growth within technology-based companies. This study included individual and organizational level networks, and on individual level this means that personal network and connections are important part of giving information of market and technological development. Companies are expected and required to even more pay attention to individual capabilities and how to acquire and support the development of knowledge of the individuals (Rothaermel & Hess, 2007).

### **3 METHODOLOGY**

There are three research questions this study aims to answer to. When a company is in the middle of rapid growth and internationalization, the required amount of resources is typically bigger than in a company that is steadily operating in domestic market. This sets new demands for managers and personnel as well, and the main research question of this study is what kind of key capabilities are required from the individuals in high growth technology company. The research focuses on technology driven companies because relatively large amount of companies related on high technology tend to internationalize earlier than the ones who represent the lower technology industries (Cahen, Oliviera jr and Borini, 2017). Highly technology driven industries are also very competed as new innovations occur with rapid pace. This volatility also gives a special twist for the employees while working in high volatile industry does not necessarily guarantee clear sight for the future.

Companies who enter to new markets in early stage might not have superior experience of the market environment. The organization as a whole needs to adapt into new situation fast and so the personnel will need to acquire new skills and competences. The second research question, a sub question, is to find out what effects the early internationalization and high growth has had on the individuals within the chosen organizations and how the individual capabilities of employees have developed during the process of company growth and internationalization.

#### **3.1 Research method**

The research method used in this study is qualitative as it aims to contribute on topic which is relational by nature. Qualitative method can be seen suitable when the studied phenomenon is being explained by specific actors rather than being divided by those and causality relationships are studied (Metsämuuronen, 2002). Qualitative method aims to contribute by describing phenomena from individuals' perspective or their views of the topic regarding. Qualitative research is inductive; hypotheses are developed during the research and data collection (Koskinen, Alasuutari & Peltonen, 2005).

The empirical research conducted in this study can viewed as a case study. Case study aims to construct an understanding of a certain phenomenon on a deeper level. While using case study as a research method the possibility is that the data is already existing yet is in a form that it is difficult to organize and understand. (Metsämuuronen, 2002). Important is to include different perspectives which are to increase the study's reliability. Also, theoretical background needs to be built to support the studied phenomenon and offer information where to reason the need for the specific case study (Koskinen et. al 2005). In this context of studying a specific phenomenon within the field of fast growing and internationalizing

companies and their employee's individual capabilities and how those develop within time, it can be viewed that this is a specific case as such.

Case studies often aim to contribute also on a practical level by making the studied phenomenon more easy to understand and to find practical solutions to move forward with (Eriksson & Kovalainen, 2008) While presenting the empirical research it is crucial to present the setting, data collection and results so that reader can follow the researcher's thinking and justifications to decisions that have been made during the process (Koskinen et al. 2005).

### **3.2 Data collection**

There are several different data collection methods that can be used in qualitative research. The most common one used is interviewing yet one study can include several different collection methods. Interviews can be conducted by face-to-face interviews or they can be done via phone or videocall solutions. The interviews can be done with just one interviewee at a time or they can be group-interviews. Interviews are often at least to some extent pre-planned by nature and often there is a clear interviewer-interviewee setting present. It is mentioned that interviewing as a data collection method is suitable when e.g. interviewer wishes to ask follow-up questions and gain more in-depth knowledge of the chosen phenomenon, the phenomenon is still relatively unfamiliar, or the aim is to receive descriptive explanations from the interviewees. (Metsämuuronen, 2002). In this study the aim is to gain in-depth knowledge and therefore it is important to be able to ask complementary questions and to discuss matter which might not be fully thought through in the chosen organizations, therefore interviewing was seen as a suitable method to be used.

Interviews can be divided into structured, semi-structured and open interviews, based on how pre-formatted they are. Structured interview is suitable when the same questions are asked in the same order from all interviewees. (Koskinen et al. 2005; Metsämuuronen, 2002) Semi-structured interviews are conducted by using a pre-formatted list of questions, yet the list does not guide the interview but is rather a note for the interviewee so that all needed questions are covered (Koskinen et al. 2005). Open interviews on the other hand can be viewed as more of a discussion-like setting. (Koskinen et al. 2005; Metsämuuronen, 2002). In this research setting the chosen collection method is to use semi-structured interviews or also known as theme interviews.

### **3.3 Content analysis**

In qualitative research the analysis of the results often occurs, at least partly, simultaneously with the data collection (Metsämuuronen, 2002). Important is to pay attention to the process and construct logical whole of the studied phenomenon (Alasuutari, 2011, Koskinen et al. 2005). The aim is to arrange the results in a form that those can be derived from the single interviewee and

occurrence and transfer into a more conceptual and theoretical level. This requires that the collected data is first transferred into a format that it can be analyzed. This most often refers to transcribing the interviews. (Metsämuuronen, 2002)

Metsämuuronen (2002) describes content analysis to include several steps. First the researcher must fully understand and know the collected data as well as the theoretical background of the study. This requires profound familiarity with the chosen topic. Next the collected data can be divided roughly into key themes after which the researcher should re-define the most key concepts and research problems of the study. Alasuutari (2011) refers to this stage as making the results more underlying and focus on the relevant aspects. After this the roughly divided themes can be looked into more detail, their frequency in the results can be identified and anomalies noted. Next it is important to cross-examine how the results are supported by the literature or if the literature and found results are in conflict. Finally researcher should present the key findings and interpretations. (Metsämuuronen, 2002)

As explained previously the chosen method was to use semi-structured interviews and the data was then analyzed by using the content analysis following the steps described in previous section. All of the interviews conducted were done via phone and they were all recorded. The interviews were then transcribed, and the key themes were identified mainly following the structure of the preliminary formatted questions and research questions.

	<b>Industry</b>	<b>Number of employees</b>	<b>Revenue € (2018)</b>	<b>Growth of revenue past 3 years</b>	<b>Founding year</b>
Company A	Cloud based services	200	12,2 million	47 %	1998
Company B	Real-time analytics	67	3 million	133 %	2011
Company C	Data platform	180	10,5 million	377 %	2013
Company D	Sales and customer service platform	73	11 million	50 %	2009
Company E	Digital consulting	550	50,6 million	172 %	2001

Table 1. Information of the interviewed companies.

## 4 RESULTS

The target organizations for this study were chosen based on a certain criterion. The first criteria is the technology-intensity, meaning that technology must be highly involved in organization's business strategy. All five chosen organizations are information technology companies and they offer products and services with high technology focus. The second criteria is company growth in terms of financial figures. Each company had increased their annual revenue more than 30 % during the last fiscal year, and all of the companies had generated steady growth for several years in a row. Lastly, the interviewed companies operate all in international markets. They either sold products and services abroad or they had also established offices in foreign countries.

### 4.1 Background information of the interviewees

Company A is a software company offering cloud-based services and solutions. The company was established in 1999 and during past three years the firm has made constant growth in terms of revenue and employee number. The economic recession at the end of last decade had an impact on Company A's business resulting remarkable decrease in revenue but during the past years company has found a new coming and the firm is growing fast and steadily. At this moment Company A has around 200 employees and 13 million euros in revenue.

Company B is a 2011 founded software company, offering solution to gather website visitor data and tool to communicate with website visitors in real time. The company does business globally, but the main market is still in Finland. Company B has 63 employees, around three-million-euro revenue and the annual growth in revenue from past three years has been above 30 % on average. In 2017 company B received remarkable funding which lead to major recruitments. Since the received funding, the personnel count has nearly doubled.

Company C was founded in 2014 and it offers company data SaaS solutions for business-to-business organizations. During the five-year history, company has grown from local software company to remarkable player in the industry, employing nearly 200 employees, generating around 10,5 million euros of revenue (2018) and establishing offices to Helsinki, Stockholm, Oslo, Copenhagen, Amsterdam, Rotterdam and New York. The growth is generated organically without receiving external funding.

Company D operates also in SaaS business, offering solution for high volume sales and customer services organizations. The firm was founded in 2010 and the growth is generated organically. Company has offices in Finland, Germany, Sweden, Poland, Norway and Netherlands. The overall turnover of 2018 was 11 million euros and company employ 67 employees. The total employee count was much bigger, 110 at the highest, but the headcount decreased when firm was prepared to go public. Company D went public in spring 2018.



Company E is the biggest company of the research. The company is founded in 2009 and now it has around 550 employees with 50 million turnover. The firm works as consulting and executing partner for helping companies to step into digital era, by implementing new technologies into daily business. Company has offices in nine countries. Company E has offices in five countries outside Finland, but the growth has generated mainly in Finland.

## **4.2 Results from the interviews**

After collecting the data, analysing the results, organizing the data in correct categories the next sub-sections present the results. The results are presented in segments based on the topics following the research problems starting from key capabilities during high growth, then looking more into personnel strategy, then continuing on how the capabilities and skills are developed within the interviewed organizations and lastly how the high growth has affected on company employees.

## **4.3 Key capabilities**

Companies may require different skills and capabilities from its employees depending on which phase of lifecycle the company is. In early start-up phase the requirements can be very much different compared what they are in high growth phase. The interviewed companies opened up the key capabilities and skills that are needed in order to succeed and help the firm achieve the set targets.

One common personnel capability in all of the interviewed firms was the learning capabilities. This basically means the person's ability to adapt into new situations and working environments quickly and learn the new way of working. All the target organizations operate in information technology industry which changes relatively fast and added to that companies are in high growth which makes the situation even more unstable. The learning capabilities are highlighted also because today the personnel development is heavily relied on individual itself. It is an assumption that personnel will educate themselves individually by being interested of their job and also developing themselves also on leisure time. Company A highlighted the learning capabilities as the most important capabilities of their employees. Personal development is based on the employee's learning capabilities, and the skills will improve alongside everyday work. With good learning capabilities the individual will adopt the best practices in everyday business which most likely leads to increased performance and better results.

Company A.

*"Probably the most important criteria of recruiting personnel is to evaluate individuals learning capabilities. This has become more and more important because the constant change in working environment and technologies."*

The learning capabilities alone are not enough, because to gain knowledge and learn requires strong will of adapting the received information and generate it into action. Actually, the will of learning is as important as good learning capabilities, since they combine each other and by maintaining both, the individual will most likely succeed in job and achieve good results. In addition, company A also highlights the importance of attitude of succeeding together as a team. The projects are done in teams and co-working attitude will emphasize as a strong attribute to achieve success. The importance of social capabilities and ability to work in a team are lifted up as important skills also in Company B.

Company B:

*"Past years we have tried to maintain the family orientation in our company. The people in company are same kind of people who have the same interests, same style and are even at same age. Of course, when we have grown the pattern have changed a bit and we have more variability and also elder people, but at the same time these elder people are young from their mind and that way fits perfectly to the team. Co-working capabilities are highly important for each individual."*

Company B has a strong common team work culture where colleagues help and support each other in everyday activities such as finding ideal solutions in customer cases or supporting in problem solving situations. This family culture is also visible in Company D, where the thumb rule is that the person must enjoy the start-up life in order to match into team. On a high level the start-up life means that the person does not hesitate to take risks with not having clear picture of future. Working as a team and achieving the targets together without looking too much into general guidelines is necessary in growth company. People in the organization comes from different backgrounds and cultures. Working together requires that the personnel has good ability to co-work and solve problems together with different people. According to Company D, start-up and growth companies are typically not very structured, which means that the employees should be able to work in an environment with less structures and hierarchy. As assumed the situation most likely would be different in bigger corporation where structures and clear rules are often required.

Company D:

*"The ground rule is that the people who enjoys working in start-up company, most likely do not enjoy working in stabile environment, and vice-versa. This is because people will get frustrated in mismatched working environment. People who are looking for clear structures, the start-ups are not for them. If you compare founding a company and founding a start-up, founding a company is like jumping from the cliff and building an airplane on the way down but founding a start-up is like jumping from the cliff and building a space ship on the way down. In another way, risk taking is mandatory in start-up life. You should choose only the fights that can destroy you."*

The importance of start-up atmosphere and entrepreneurial attitude are highlighted also in Company B. The growth and culture was molded its shape in start-up atmosphere, but when the company has grown, the entrepreneurial mindset and start-up atmosphere has started to disappear in the whole organization. When company has grown, it has come up with new structures and more systematic ways of working. At the same time this brings kind of a corporate thinking into the organization which decreases the earlier entrepreneurial mindset and may also hinder the eagerness of growing. However, entrepreneurial attitude has been one of the main growth drivers and company is willing to maintain and revive this asset in their personnel. In addition to entrepreneurial mindset and co-working capabilities, Company B puts up the innovativeness as important capability within the personnel. This means the ability of approaching things from the new perspective and also ability to challenge current working methods.

Company B:

*"In the beginning when the venture was newly founded, the first employees obviously knew that this is a small young company with lots of start-up spirit. Therefore, the flexible start-up mentality was well visible in everyday business. But lately it has been much more difficult to remain the entrepreneurial attitude in place. The corporate atmosphere among individuals has been much more visible and this can also hinder the growth; new employees are not necessarily as flexible as before and much more strict of their working schedules. The entrepreneurial attitude is one thing we are trying to bring back into the company culture. It is great to see the entrepreneur's attitude and enthusiasm among employees.*

*Of course, during the growth period it has been necessary to move into more systematic way of doing things and built certain structures to support the growth. The methods that were used in early start-up phase does not simply generate enough sales when company gets bigger and therefore the processes are mandatory. This rule applies across the company in sales, engineering, HR and management. With this amount of people and customers it is impossible maintain without automatized processes."*

The entrepreneurial attitude is realized in other target companies as well. Company C emphasizes the skill of taking ownership and responsibility of own work, meaning that the individuals can steer and manage themselves into right direction and being proactive in everyday business. The ability to take ownership is important in personal development, since most of the improvement happens alongside the work without guidance. When the individual is eager to learn new and find new ways of working, the development is most likely faster and new skills will arise. Especially in entry level roles, the learning capabilities are super important in Company C. Most of the recruited employees in entry level positions have a very limited prior experience so the capability to learn and develop steps into important role. This is also one of the key recruiting criteria in Company C, who has recruited around 150 new employees since the HR Director

started, during a 2,5 year period. It is important that each employee has a steep learning curve and to ability to turn knowledge into action.

Company C:

*"The growth is mainly generated through company employees. During the fastest internationalization and high growth phase, the strategy was to hire new employees in a way that each can generate the certain amount of new sales. This meant that the HR had to get enough new personnel starting who fit well in the determined role. When we are looking for the required individual capabilities and skills, the most important is the learning capability. The one should absorb new things fast and take ownership of personal work in this fast-paced environment."*

Company C:

*"Typically HR is not measured based on the number of recruited personnel, but in Company C this was the case. This is due the business needs and to support the high growth. For example, if the sales budget in one month is X euros, it can be calculated how many sales persons the company needs to achieve the targets. Due these requirements, the importance of learning capabilities steps into a big role. "*

Company D mentioned one capability above others, which is prioritizing on the right things. Individual has big impact on this, but so has the company. The prioritize on the right things comes much from the targets that are set for the employees, and the company is responsible to set the targets and goals on a right way. This comes together with being goal-oriented in work, and while the goals are set so that the individuals prioritize the right things and at the same time the individual is oriented to meet the targets, the results will be most likely promising.

Company D:

*"Goal-orientation is very important capability in our company. In employee survey the personnel scores very high in goal-orientation. This capability is a pre-requisite to enjoy working in our organization."*

When looking at the biggest interviewed organization, company E, the first required capability is to be able to operate in rapidly changing environment. Technology-, and especially information technology industry changes fast from many perspectives; technologies evolve, the demands within the whole market change and at the same time so does the companies that operate in the industry. For that reason, the most important feature for the individual is to obtain a capability of adapting into fast-paced environment. Company E highlights also the importance of being self-guided. The projects and tasks will not happen by itself so proactive attitude is required. The third important capability in company E are the relationship skills because this will have an impact internally and also with customers, since in most positions employees are doing projects together with customers.

Company E:

*"We are looking for people who can operate individually with customers. Even though self-guidance is a trendy word, it describes very well the needed capabilities since our employees work individually with customers and are required to make decisions by themselves. Of course, this is teamwork, but self-guidance in customer projects is valuable asset."*

Prior experience was not highlighted by all the interviewees. Company C mentioned that sometimes they have need for an employee with specific knowledge or skillset, yet they employ new-to-the industry level employees especially for the entry level positions. Company E also mentioned a need for employees with background in the same field of business where the required capabilities, such as technological skills, are involved. On the other hand, Company B had a negative experience where their employee had prior background from corporate environment and therefore was not adapting into a growing start-up company environment.

#### **4.4 How capabilities are developed?**

All the interviewed companies have differences how they develop their employees but on an upper level the personnel development activities can be divided into four main categories; 1) individual development without any organized training, 2) external trainings organized by the individuals themselves, 3) internal personnel development, 4) external trainings organized by the company. Noteworthy is that all the interviewed companies highlighted the importance of employees' individual responsibility when it comes to developing ones skills and capabilities. From these previously presented categories the first two are individual driven (organized by the employee him/herself) and the two latter ones are organized by the company.

When looking how the interviewed companies develop the employees and their capabilities, the most visible trend in all organizations is that the main responsibility in personnel development is in individuals themselves. Within the field of technology and growth companies, the employees tend to be self-driven and naturally interested in their work. This means that the individuals also on their spare time look into current phenomena and gather information about the industry trends and new methods. This is also expected from the companies. For example, Company A stated that they have reduced external trainings because they expect that their employees are interested in these topics, gather the information and improve they own skills set also on their spare time. Many employees are very interested on these work-related topics and they are eager to learn and educate themselves individually. Company A viewed that it is company's responsibility is to support this learning. Also company B and D mentioned that they expect entrepreneurial attitude which appears in this sort of behaviour. When looked together with the key capabilities mentioned on the

previous chapter, the individual responsibility correlates to skills and capabilities that the employers expect from the employees; being self-driven and possess good learning capabilities. Therefore, companies are looking for personnel who can develop themselves into the next ladder and bring more value to the firm. Especially Company C mentioned that when they hire a new employee, they invest in way also to the future and expect that the individual will bring more value to the company in the future as they continue to develop oneself.

Company A:

*“Our personnel is very self-driven and people constantly educate themselves also on leisure time. The learning has shifted from organized trainings more into individual learning and we are glad to support this.”*

As mentioned, Company A stated that it is company's responsibility to support individual's interests to develop oneself also during spare time. Company E mentioned that they also support financially if individuals suggest external courses or certifications which would support future capabilities and skills. Also, Company A stated this especially relevant in order to increase skills and competences with technologies and software needs. In their company, one day in a month can be used to for self-development and studying. In organization E, 6 % of the working hours is allocated for personal development and in organization D the employees are required to participate at least on one external training annually for employer's bill. These external trainings can also be international trainings or seminars.

Company D:

*“Our employees participate at least once a year into some training or seminar to develop themselves. We have a certain budget for trainings, but personnel can freely choose on which kind of training, seminar or event to participate. Often these events are abroad if there is not relevant offering available in Finland.”*

Other common development method is to set up the targets together with the employee and foreman in a way that the set targets will steer the personal development and possibly opens up new career opportunities in later phase. Organization B has 1-on-1 discussions where personal development needs and plans are created and evaluated, the same formula is widely used also in organization C and D. Career paths are one way to create logical paths for personal development. All the interviewed organizations aim to build career paths for their employees, but this varies a lot between the companies and positions within the organization. In organization B, the typical development path has been moving from team member to team leader. This has worked well in some cases but sometimes the transition has not been the best possible solution for the individual, mainly due the lack of management skills and expertise. For these purposes the company has supplied external training.

Organization C has made big personnel recruitments during the past couple years and creating new roles used to be common in fast growing company. This was common especially in commercial department. However, when a start-up company recruits nearly 100 new employees in a year, there is no room for new roles for each individual. Later on, company C has brought more stability in personnel roles and concentrates on substance performance instead of creating many new managerial roles. Organization D has tried to create career paths, but it has not been that simple either. In SaaS product company the organization is not necessarily very complex, hence there are not very many different roles or levels to reach. Company D's aim is to develop their personnel into high level SaaS product sales persons, and most likely the ones who are looking for bigger challenges move into bigger organizations. Company E does not have any clear model for creating career paths. And instead, everything starts from the individual; if one is aiming to a new and more demanding role, the projects and current role can be tailored to support the future aims.

Company C:

*"In early growth phase the typical career path was to begin as a sales person, then move to team leader position, then to sales director and so on. So basically the career path was seen as stepping up the ladders. But this gets impossible when we have recruited more than 100 new employees. Instead of creating multiple foreman positions, we have decided to improve capabilities by creating new responsibilities and develop the substance capabilities."*

In order to support these career paths and personal development, for example company A highlights the importance of teams and learning from the more experienced colleagues. This is seen as a method to provide deeper understanding of the company specific knowledge needs. Peer learning and knowledge sharing is also present in Company C as a weekly internal workshop where best practices are shared. Workshops are divided and customized under teams and individuals' expertise in order to target the content. Also company E organizes internal workshops where internal experts share their knowledge within very specific topics for the whole organization. These workshops are highly structured and frequent and a major part of organizational learning.

However, each company also organizes external training for the employees. As mentioned, Company A has decreased the amount of external trainings, yet they still see them relevant if they do not have specific knowledge within the organization. Company C has the same point of view, if they don't possess specific knowledge or capabilities within the organization, they will organize external trainings. Company B has implemented method called 70-20-10, meaning that 70 % of the learning is conducted alongside the work, 20 % through internal trainings and 10 % through external education. For example, the company B has used external consulting and training in a case where they adopted a new sales model. The usage of external training was viewed successful and the employee satisfaction also improved due to new gained capabilities. Company D stated that they are willing to provide also MBA education to their

dedicated employees alongside work. They see this also as a way to commit their employees to the company.

Company B:

*“When moving from unstructured start-up phase sales process into more systematic way of doing sales, we used external consulting and training to make it happen. This was very useful for employees as well because they found a way how to do sales better and this also led to better results and better commissions for sales personnel.”*

The common rule in each interviewed company is that the personnel used to be very unsystematic until they hired the first human resources (HR) professional. The companies necessarily did not have any well-planned onboarding program for new employees, neither they had a well-structured personnel strategy. This changed when the first human resource (HR) professionals was hired, which opens up lots of resources because then there is at least one person in the company who gives the full attention to personnel development and into personnel strategy to steer the company from personnel perspective. In company C, the key role of HR Director during the high growth phase is to make sure that the growth does not hinder due the personnel. This means that the company must focus on recruiting the personnel that fits the company and ensure that the personnel have needed capabilities and skills to perform well in their work. Company B mentioned also that the personnel development was very occasional before the first HR professional. In the beginning the personnel development is mainly company founders' responsibility and the founder typically has limited resources for focusing on the personnel.

Company B:

*“The biggest leap in personnel development was taken when we hired the first human resources professional. This released relieved time from management and we had much more resources for recruitment and personnel development.”*

#### **4.5 What effects has the growth and rapid internationalization had on the employees?**

All the interviewed companies have experiences of high growth and internationalization in their lifetime. When looking at the perspective on how this high growth environment has affected on employees, the results shows both positive and negative impacts. When company has moved from early start-up phase into growth stage, the companies comes up with more systematic ways of working, structures, rules and processes. This change can suit for some individuals, but at the same time can cause challenges for another.

In Company B, the growth has generated new opportunities for the employees but also brought employees into a new working environment which does not necessarily suit for everyone. The structures have decreased the flexible start-up



atmosphere and flexibility from the past, and this have caused a situation when some employees have left the company.

Company B:

*"People are different – some can grow and adapt alongside the new challenges that growth generates but some do not feel the new working environment and challenges natural and then decides to continue somewhere else."*

At the same time the growth has generated new opportunities, such as working in a foreman position. For example, Company C in a very early stage offered team leader positions for the more senior employees as natural promotional career path. Yet new career opportunities have also gained challenges in interviewed firms: newly promoted foremen do not necessarily have any prior leader experience which has led to situations where they have not had the knowledge on how to face challenging cases with their team members. Company B mentioned that promotions and new leader positions have been often accepted with enthusiasm, yet the expectations have not always met the reality. This is often then visible to both parties; the employees do not necessarily enjoy their new positions and the employer doesn't gain the wished outcome. This was mainly relevant to company B, yet all companies mentioned on overall level similar experiences. Company C also mentioned, when company gets bigger the employee's job description become more focused. But this does not mean that the skills and capabilities would go narrower.

Company C:

*"When we have grown bigger, I would say the everyday activities are more focused on certain sector than it used to be before, but at the same time the general know-how among employees is increased."*

Company A mentioned that especially in growth company's foreman positions can be especially demanding due to high number new recruited employees and constant change. All companies also mentioned a specific characteristic to growth companies; often in a start-up phase the employees start with a very wide job description where they are part of several different functions within the company. And then after some time the employees tend to focus into a more specific role and gather more detailed knowledge within that field. Hence the high growth offers employees opportunities to climb up on their career ladder and even stretch their role beyond their background and prior skills-set. This has happened during the internationalization; entering new markets opens up new international opportunities with new responsibilities and challenges.

Increased complexity is a typical consequence for growth companies, in good and bad. It is necessary to create more structures to keep control of company operations and support growth. However, employees that have used to work in flexible start-up environment can get frustrated and leave the company when

organizational complexity increases. Complexity can create silos that may cause communication issues within companies, and this can raise problems to daily operations. In company A, the increased complexity and decreased start-up atmosphere are recognized as potential threats for growth and they may have an impact on individuals as well. Company B has recognized the same, and some employees from early phases have left the company when it got bigger. Company C has felt the silo effect when employees started to specialize more into new roles. Different teams worked more individually, and in some cases in different offices. Sometimes the knowledge sharing across the teams was not as smooth as it used to be. From employee perspective, working more closely between the teams is not necessarily a negative step, but in knowledge sharing this gets problematic if the information gets stuck between the teams. Employees do not have clear enough picture of the whole company as they could have in optimal situation. In Company E the growth has affected on employees in positive way by bringing more resources and expertise to leverage into customer cases as well. The employees work in teams and these teams tend to be very individual. Can be said that the silo effect happens but more in a positive way.

Company A:

*"When thinking about the growth generated challenges, the silo effect is one threat – meaning that how we can keep the unified way of working across the company. But on individual level, the biggest challenge is to shift from start-up-way-of-thinking to more process driven way. Many of our employees have used to work in a start-up mood and would like to stay on this way. However, growth needs processes and this may cause challenges."*

Company B:

*"People are different; some are capable of adapt into new environment but some do not feel the new environment and challenges, that growth has generated, as their own and decide to continue their career somewhere else."*

Based on the interviewed companies, the growth has a positive impact on employees when looking at the available resources. In early start-up phase the resources are scarce but growth and increasing revenue typically opens up new opportunities.

All the interviewed companies highlighted the importance of company culture. The culture is created by the personnel of the company, and one important part of growth is to remain company culture, which is basically the identity of the company. Company A saw it as a challenge to ensure that new employees fit well into the company culture. The management has an important role in this when they are planning the employee onboarding and other activities when employees start in the company. Company A maintains the culture by ensuring that communication is efficient between the teams and doing things in a same, "Company A way" across the company. This Company A way must be clear from the beginning when a new employee starts in the company. Company C highlights also the company culture as crucial element of company success. The

company personnel are quite homogenous which helps creating the culture and maintaining it during the growth and internationalization.

Company C:

*"When thinking from HR perspective, we should build on our strengths. For us one of the biggest strengths is our culture. We have a strong culture most likely due our homogenous group of people in all of our countries. Therefore, creating a unified culture is more clear for us because the personnel values the same things."*

Company D has realized that the growth brings diversity into a team and when the team grows the certain structures steps in. Earlier the personnel were quite homogenous and bigger structures were not needed. However, things change when the company grows, and employees have to adapt at the same time. In early start-up phase the employees may have had certain kind of humour at the office, but later the same atmosphere cannot remain when diversity grows. For example, some jokes are accepted between friends but in more professional atmosphere things are different. In Company D, the employees have gained lots of new experiences on how to work together with different people. This is mandatory to succeed in growth company.

## 5 CONCLUSIONS

This section covers discussion and main findings of this study. Discussion draws together the main findings from the research and the theoretical background. Also, managerial implications are presented as well as limitations and evaluation of the study. Finally, suggestions for further research are stated in this section.

### 5.1 Discussion and main findings

The main objective of this study was to find out what kind of capabilities and skills are required from high growth information technology company employees, and how the capabilities are developed within the companies. The interviewed firms have all experienced high growth. In this section the results are presented to reflect straight to research questions. The results are combined to discuss with earlier literature and the theories related to topic.

#### 5.1.1 Key capabilities

Demir, Wennberg and McKelvie (2017) highlighted capabilities as one of five focus area affecting growth. When looking at the key capabilities and skills required from the growth company employees, the results are evident that same characteristics are present in each company in a way or another. The main research question was stated as: what kind of key capabilities are required from the individuals in high growth technology company. Four main characteristics were identified from the interviews: adaptability and learning capabilities, co-working skills, self-driven and goal-oriented attitude and entrepreneurial mindset.

Adaptability in general describes the growth company personnel pretty well since all the interviewed companies work in information technology industry which is quite volatile itself. Growth is a characteristic defining the whole operational environment and therefore seen as a major factor also to employees and needed skills set. Results show that adaptability can be seen as a part of learning capabilities. It is self-evident that the changing operational environment requires employees to adapt into new situations, new company structures and processes and also adapt into uncertainty to some extent. As claimed by Muhos (2011) and Weinblat (2017), adapting into constant change is a prerequisite for growth company personnel. This constant change is high especially in smaller scale companies. Adaptation can be also mean having prior experience and then adapting those learned skills and knowledge into a new working environment. Shrader and Siegel (2007) and Rothaermel and Hess (2007) suggests that employees who have previous experience within similar field of business can

positively impact on the potential growth of the company by adapting their previously learned skills.

Employee candidates are required to orient themselves promptly into the business and learn how to be successful in the job. Learning capabilities also mean that the company expects their employees to stay on top of relevant and new issues and trends within the industry. Therefore, the company also expects employees to be in charge of their own personal learning. Knowledge as a human capital and its importance to whole company success is stressed in theory. Edvinsson and Sullivan (1996) as well as Castro and Verde (2012) claim that knowledge is the key aspect of human capital in all business context and especially important in knowledge-intensive industries. Castro and Verde (2012), Israelsen and Yonker (2017) and Knight and Cavusgil (2004) continue that innovation and product development, which are critical to these industries, rely heavily on employee capabilities. It is also noteworthy that it might be a great risk to a company to lose any of its key employees with high rate of needed capabilities (Israelsen & Yonker, 2017).

Results show that when hiring an employee, the company sees it as an investment for the future where they expect to gain even more value as the employees grow their own expertise along the way. Coad et al. (2014) has also investigated that HGF typically hire personnel with lower experience and train them to gain more value in longer run. Also, theory suggests that on financial reporting, company value is less than its actual market value – the gap is often explained by intellectual capital (Kujansivu & Lönnqvist, 2007). Especially important knowledge related assets are in information technology industry where these are seen as a sustainable source of gaining competitive advantage (Roos & Roos, 1997; Castro & Verde, 2012; Edvinsson & Sullivan, 1996).

Co-working skills stood out from the interviews as a capability required from employees. During high growth, companies are forced to increase the number of employees. High growth often also means that team structures and divisions might change even rapidly. This sets also requirements to the employees as they need to adapt to new team member with different backgrounds and new working methods. It can be derived from theory that sharing knowledge and values and believes in interaction between individuals is developing the whole intellectual capital of the firm (Rothaermel & Hess, 2007). During growth and increased number of new employees, company culture naturally shifts. To some employees that are used to smaller number of colleagues it might be challenging to adapt into these changes and therefore the new employees recruited are expected to have good co-working skills from the start.

From the interviews self-driven attitude and goal-orientation were identified as somewhat similar topics. Self-driven attitude is expected from the employees as company in start-up and growth phase does not have resources to invest to full-time employee development and training. Even if the resources would exist, the companies would still expect their employees to take ownership of their development and success. This is closely related to goal-orientation which also

stood out from the results. Employees in growth companies need to be hungry for success and aim to exceed their set targets rather than just achieving them. Goal-orientation is seen more as an attitude and individual mindset rather than way of working.

Last of the identified capability required from the employees in growth companies is entrepreneurial mindset. This was definitely important to all of the interviewees. Entrepreneurial mindset combines many aspects of the previous capabilities mentioned, yet it is seen as a separate and important capability required. Entrepreneurial mindset to growth companies interviewed often meant taking entrepreneurial responsibility; employee is expected to treat the company as it would be theirs. This shows in the everyday business as going for that extra mile to achieve and exceed the targets. Employees are awaited to be flexible when it comes to for example working hours; often there are no standard office hours, but the employees can work where ever and whenever yet they are expected to achieve the goals. As mentioned, the entrepreneurial is more of an attitude rather than a skill.

Theory states that education, skills and experience are key capabilities that help individuals succeed (Boxall & Steenveld, 1999). And Shrader and Siegel (2007) state these to have an impact also on company growth and future possibilities. This was identified, yet not highlighted in the results of this study. Some companies required e.g. a specific education level from their employees. Heterogeneity of individual capabilities and their importance to overall company growth was discussed in the theory. Rothaermel and Hess (2007), Rauch, Frese and Utsch (2005) claim that more heterogenic capabilities yet otherwise similar work experiences have a positive impact to support company's competitive strategies.

### **5.1.2 Developing skills and capabilities**

The first sub-question was: how the organization develops and supports employees' capabilities during high growth phase. From the interviews the results can be divided into two: individual's responsibility of developing capabilities and company's responsibility for developing capabilities. Theory suggests that the ideal way of developing employee knowledge and skills would be to create "pools" where knowledge is shared (Edvinsson & Sullivan, 1996; Marr, Schiuma & Neely, 2004). This was also identified from the interviews, since team working was highlighted in several companies as a way of sharing knowledge and information.

As mentioned before, the companies are looking for employees who are self-driven and interested of developing themselves. Interviewed companies highlighted that they wish their employees to have passion towards the industry and from there develop themselves further. Employees need to be interested in operational environment itself, keep up with the current phenomena and develop themselves accordingly to stay relevant in the rapidly changing business environment. Individual's responsibility also includes to organize needed trainings and further educations needed if any.

Companies interviewed mentioned that they often support employees if they want to educate themselves more. Support comes often by offering monetary support (e.g. course fees, certification trainings and paid education) and time (e.g. self-development during the working hours). Some interviews even mentioned that they have stated the need for self-development in their strategy. The characteristic defining the capability and skills development is that the main responsibility is on the employees themselves. This is somewhat different compared to what theory suggests: e.g. Heimonen (2013) and Teece (1982) highlight the importance of company growing their know-how and knowledge reserves, yet the results from this study indicate that growth companies highly rely on the individuals' personal enthusiasm towards developing their personal knowledge and skills.

Company responsibility of developing skills and capabilities often comes in later phase when the has reached the mark where they need to set up some company structures. As mentioned in the section of presenting results, it was stated that company growth needs some structural development within the company - it is not possible the maintain the growth nor internationalize without having a more thought-through business model and systematic processes. As mentioned in previous section, companies in growth tend to support individuals who are in charge of their own development yet as the growth continues the company starts to take more responsibility in organizing trainings. In many of the interviewed cases the developing of individuals started when they invested in HR more systematically. Also, Demir et al. (2017) claimed that human resource management is one of the key elements to enable growth. The separate HR personnel built the structures and plans how to invest also on individual development within the organization. It is also stated in the research made by Rutherford, Buller and McMullen (2003) that HGF's face relatively big challenges in human resource management development due the rapidly changing environment and big number of recruited personnel. In this phase the company is required to move into more systematic and formal human resource management and hire dedicated personnel to human resource management. The change is not necessarily easy, because going formal means more structures that may be unwanted for start-up-minded personnel (Keating and Olivares, 2006).

### **5.1.3 How high growth and internationalization has affected on the employees**

In the second sub-question the aim was the find out how the growth and internationalization has affected on the employees. Three main affects were identified from the results: new career opportunities, more specialized job descriptions, change in working environment due created structures and new company culture.

It was stated in the interviews that the companies tend to recruit younger and less experienced employees in the early phases of growth and

internationalization. These companies see this as a method to gain enthusiastic and open-minded new employees to whom they can promise promotional steps in their careers to compensate possibly lower salary rates. This is in line with Coad et al.'s (2014) research where they found out that HGF's tend to hire younger and less experienced personnel whose value and human capital can be increased during the way. Results show that the employees in start-up and growth companies change their positions in the organizations relatively regularly. Coad, Daunfeldt, Johansson & Wennberg (2014) claim that in comparison to lower growth rate companies HGF's generate more job opportunities. Team leader and other foreman positions are a normal development path to step into the new role. Due to growth and internationalization the new career paths may also take the employees into international positions elsewhere. This sometimes comes with challenges too. Employees might not have the required knowledge and skills set to lead other people. Also theory suggest that high growth stage combined with lack of experience and expertise among employees can actually reduce the likelihood of success (Autio, Sapienza & Almeida, 2000). And the same is with international positions. However, Autio Sapienza and Almeida (2000) claim that management's individual capabilities and managerial experience might have positive impact although not experience from international positions.

The environment itself in new place might not have met the expectations or the positions itself has not been suitable for each individual. If there has been challenging cases, the company has tried to support the employees with the needed training. New opportunities also cover the identified effect of more specialized positions. In many cases employees who have been part of the company from the early days, have been in charge of several different functions. In growth phase they are often able to focus and deepen their knowledge on more specialized business areas.

As mentioned previously, growth and internationalization create structures. How employees experience this varies between the individuals. To some the structures mean that the company loses some of its youthfulness, agility, start-up mentality and overall fell of the company. These individuals might not adapt to these structures well a struggle a bit to find their place in the organization. On the other hand, to some the structures mean more possibilities to focus on their core responsibilities or positions rather than trying to balance multiple tasks at the same time. This was definitely highlighted in the interviews as one of the main effects in the employees - in good and bad.

The shift on company culture is also closely related to growth and its impacts on structures. In early phases employees might have relatively homogenous group of people who need to adapt more complex group of people. And ultimately it is the people who create the company culture and therefore it changes along the way. Culture impact on individuals as the culture provides the guideline for common values and ways of working. This also has an international aspect as in how the culture is passed on and adapted in new locations abroad. Growth and internationalization definitely impact the employees, yet the effects are individual experiences due to different capabilities and skills.



## 5.2 Evaluation and limitations of the study

The aim of this study was to understand what kind of capabilities are required from technology-intensive growth company employees and how these capabilities are developed within the organizations. There was a clear research gap identified as the employee perspective is still less covered in current literature. Studies within this topic often view the capabilities, their development and importance to growth from entrepreneurial and managerial point of view. This also set some preliminary challenges to building up the theoretical background of this paper. The chosen theories of internationalization and born global companies, high growth firms, intellectual capital and individual capabilities were chosen to support the understanding of the overall topic. Also, in order to be able to answer to the set research questions it was critical to build understanding based on these chosen theoretical viewpoints. It can be viewed, that the outcome of this study is successful. The set research questions were answered with the key findings from the interviews.

The methodological approach of qualitative semi-structured interviews was seen as the most appropriate one for this particular study. The studied topic was still relatively unknown and with previously thought structure of questions offered a platform for open discussion and more deeper understanding of the phenomenon. All of the interviews were recorded, analyzed by using content analysis approach and the key findings were presented under mapped themes. Anonymity of all interviewees was covered throughout the process and results are presented in logical order.

When assessing the research, aspects of transferability and credibility need to be covered. The overall adherence of this study comes from the logical structure and how the results are documented. This study aimed to present the phenomenon and the results in a comprehensive way by relevant theoretical background, research setting and the order of presenting and analyzing the results. It can be viewed that the number of interviews is sufficient as the saturation point was achieved for new information. Yet it needs to be noted that this study only touches on specific industry setting of technology-based companies in the early growth stage from one geographical area and therefore the results are limited in terms of their generalization to a larger extent. For example, there might be organization culture related differences in different industries (e.g. competitiveness in tech) or speed of change (e.g. capital goods).

This study was carried out from perspective of company representatives (HR or management) although individual capabilities were studied – this is a company perspective on individual capabilities. This was a decisive way to approach these research questions in this research setting, yet in future studies there is a need to cover these aspects also from employee perspective also by using quantitative methods. In total the concept of intangible assets is interesting and especially on the context of high growth technology companies. This research only touched the surface of the potential studies to be carried. For further research it would be interesting to study how intangible assets are noted in the financial reporting in

this research context of knowledge-intense industries as well as how companies measure the intellectual capital. As mentioned, individual capabilities are well covered in recent studies from the entrepreneurial context yet the individual level from employee perspective is still rather under-researched. Some studies are available from the perspectives of dynamic capabilities on individual and organization level and knowledge-intensity. It would be interesting to also study other individual capabilities such as emotional intelligence and attitude in the context of human capital.

From the analysis of the research it can be stated that the most important capabilities for employees in growth firms are ability to learn and develop oneself independently alongside the everyday work. Learning capabilities also mean adaptability to rapidly changing environment. This is especially relevant in technology industry where the development and speed of change is extremely rapid, and competition is fierce in comparison to many other (e.g. manufacturing industry). There often are no clear development structures for employees in the early phases of the growth yet the speed itself sets requirements for constant development and learning. Often the abilities to learn are linked to an entrepreneurial attitude which refers to taking strong ownership and commitment to the company and its goals. These can be referred as the main findings of this study and these are in line with the theoretical views.

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