

LAPPEENRANTA-LAHTI UNIVERSITY OF TECHNOLOGY LUT
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**COMPETENCE DEVELOPMENT OF SELF-EMPLOYED IT-
PROFESSIONALS**

Master's Thesis

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Examiners: Professor Markku Ikävalko
Professor Kirsimarja Blomqvist

ABSTRACT

Lappeenranta-Lahti University of Technology (LUT)
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Competence development of self-employed IT-professionals

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Keywords: Competence, competence management, knowledge management, freelance work, entrepreneurship, networks.

High demand for skilled employees, especially in the IT industry, has gotten some professionals to transition from an employee into a freelance entrepreneur. Freelancers have to continuously develop and maintain their competence in order to succeed as entrepreneurs. Competence management and development have been studied comprehensively in resource management and strategic management research. Existing research has primarily focused on large and middle-sized enterprises. The competence management of freelance entrepreneurs has not been studied sufficiently.

The objective of this research is to understand how freelancers in the IT industry develop their competence in professional networks to improve their competitive advantage. The literature review examines research related to competence management and development and forms a general view of the concepts and terminology related to previous research. The focus of the empirical section of the thesis was on the freelancer's own experiences of competence development in the context of social networks and the meaning of it for succeeding as a freelance entrepreneur. The study was conducted as a qualitative case study, and eight semi-structured interviews were arranged for collecting the empirical data.

The findings of the research indicate that the motivational factors for starting freelancer work are freedom, responsibility, better compensation, and inclination towards entrepreneurship. Even though the freelancers did not have a systematic approach for competence management, they attempted to develop skills that are important in their customer work. Freelancers mostly developed their competence in their client projects as a part of their daily work. They utilize their networks for competence development, as well as discovering skills and competence areas that will be required in the future. The most important network for freelancer's competence development is the colleagues working in the same project. The freelancers had experienced that a high level of competence could give them more work opportunities and freedom in selecting suitable work for themselves.

TIIVISTELMÄ

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Korkea kysyntä osaavista tekijöistä erityisesti IT-alalla on saanut monen asiantuntijatyötä tekevän siirtymään palkansaajasta freelance-yrittäjäksi. Freelance-yrittäjän on jatkuvasti kehitettävä ja pidettävä yllä omaa osaamistaan menestyäkseen. Osaamisen johtamista ja kehittämistä on tutkittu laajasti henkilöstöjohtamisen ja strategisen johtamisen näkökulmista. Tutkimus on pääasiassa keskittynyt suuriin ja keskisuuriin organisaatioihin. Freelance-yrittäjien osaamisen johtamista ei ole tutkittu riittävästi.

Tämän tutkimuksen tavoitteena on ymmärtää miten IT-alalla toimivat freelancerit kehittävät osaamistaan ammatillisissa verkostoissa kilpailukykyä parantamiseksi. Tutkimuksen kirjallisuuskatsauksessa tarkastellaan osaamisen johtamisen ja kehittämiseen liittyvää tutkimusta, sekä muodostetaan kokonaiskuva aiempaan tutkimukseen liittyvistä konsepteista ja termistöistä. Tutkimuksen empiirisessä osuudessa keskitytään freelancereiden omiin kokemuksiin osaamisen kehittämisestä sosiaalisten verkostojen kontekstissa ja se sen merkityksestä freelance-yrittäjän menestymiselle. Tutkimus toteutettiin laadullisena tapaustutkimuksena ja empiirisen aineiston keräämiseksi järjestettiin kahdeksan puolistrukturoitua haastattelua.

Tutkimuksen löydökset osoittavat, että motivaatiotekijät freelance-työn aloittamiseen ovat vapaus, vastuu, parempi kompensatio, sekä taipumus yrittäjyyteen. Vaikka freelancereilla ei ole järjestelmällistä tapaa osaamisen johtamiseen ja kehittämiseen, niin he pyrkivät kehittämään taitoja, jotka ovat tärkeitä heidän asiakastyössään. Freelancerit hyödyntävät verkostoja sekä osaamisen kehittämiseen, että tulevaisuudessa tarvittavien osaamisalueiden ja taitojen löytämiseen. Tärkein verkosto freelancereiden osaamisen kehittämiseksi on samassa projektissa työskentelevät kollegat. Freelancerit kokivat, että hyvä osaaminen antaa heille enemmän työmahdollisuuksia ja paremmat mahdollisuudet valita itselleen sopivaa työtä.

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Helsinki, 25.5.2020

Ville Halminen

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1 INTRODUCTION

1.1 Background

Increasing decentralization and externalization of production activities have created a change in working arrangements and resulted in emergence of small sub-contracting entrepreneurs (Harrison 1994; Kautonen et al. 2010; Parker 2001). The self-employed constitute a significant share of the labor market. Self-employed individuals accounted for 14% of the total employment in the European union in 2018 (Eurostat 2019), and the proportion of self-employed entrepreneurs who do not employ others is growing in the European Union (Eurofound 2017).

In recent years, the demand for competent employees in the IT sector has been high in the Finnish market, and companies are trying to come up with ways to improve their offering for potential employees. The Finnish technology industry has a demand for significantly more technology professionals than the amount currently graduating yearly from universities (Teknologiateollisuus 2019). Employees appreciate working environments that support continuous professional development and learning. According to the European Commission (2017), in the year 2016 the shortage of IT-specialists was at 270 000 and is estimated to reach 500 000 in 2020. IT-companies are putting effort into offering opportunities for learning and forming professional networks, not only to improve the quality of the services they provide but to become more attractive employers as well.

A growing demand for skilled professionals in the field of software development has resulted in market conditions where software developers have the freedom to choose their form of employment. Many have become individual contractors doing freelance work instead of opting for traditional forms of employment. Motivators for becoming self-employed include better financial compensation, flexibility regarding location and time, as well as the freedom to choose what clients and projects to get involved with.

In freelance work, the responsibility of keeping one's competences relevant is on the individual professional, instead of the employer. In the IT industry, freelance workers have to constantly develop their competence and learn new competencies that are considered necessary by customer organizations (Süß & Becker 2013, 229). Self-employed professionals do not have the support of employer organizations and their HR practices and have to resort to alternative approaches for keeping their skills relevant in the market.

Competence development has been studied as a topic within Human Resources management as well as strategic management. Plenty of academic research has been conducted regarding competence management on the organizational and individual levels (Draganidis & Mentzas 2006). Majority of the research focuses on organizational structures and practices for managing the competence of employees. There is, however, a research gap in the area of competence development practices of self-employed professionals who work in temporary project organizations and act in professional networks. Also, the units of observation for the existing research have predominantly been large organizations. Competence development of self-employed entrepreneurs is underrepresented in prior academic research.

This thesis research explores the competence development of IT freelancers. The objective of the research is to expand the knowledge and understanding of competence development of independent professionals and how they operate in their networks in order to keep up with the rapidly changing industry's requirements. See Figure 1 for illustration of the theoretical framework for examining the subject. The thesis case study includes eight self-employed entrepreneurs who work in the field of software development. The empirical research involved interviewing conducting semi-structured interviews with each of the entrepreneurs in order to get understanding of the means of developing relevant competences.

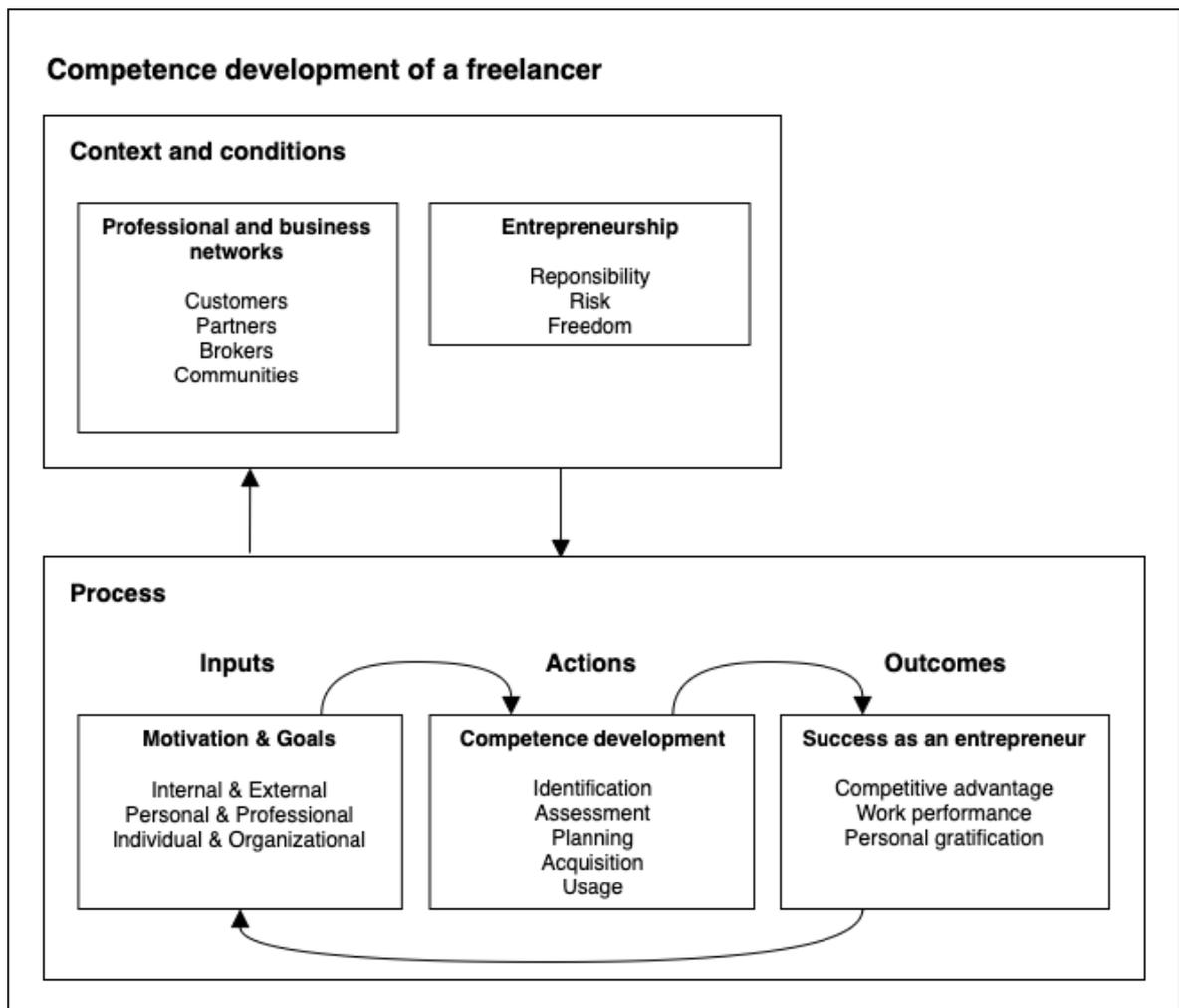


Figure 1. Theoretical framework for the study.

The thesis consists of five main chapters. The first chapter is the *(1) introduction* and it introduces the background of the thesis and presents the research problem. The second chapter is *(2) literature review*, including a review of existing research regarding the thesis topic. The third chapter is *(3) research design and methodology*, and it consists of a description of the research design as well as the methods used in the thesis. The fourth chapter, *(4) empirical findings*, is a presentation of the empirical study and its findings. The fifth and last chapter, *(5) conclusions and discussion*, comprises of the implications of the study as well as a critical review of the research and research methods.

1.2 Research objective and theoretical framework

The main research objective is to create understanding of how freelancers in IT-industry develop their competence and skills and how freelancers take advantage of networks in developing and maintaining their professional skills. The topic relates to the areas of freelancing as a form of employment, competence development, and networks. This thesis research is descriptive, meaning that answering the research problem involves attentively describing the studied subject (Trochim & Donnelly 2008, 5).

The objective of the study is to concentrate on competence development and the characteristics of the individuals studied. Networks as a context will provide the study a perspective. The thesis does not attempt to delve deep into network research or attempt to create significant theoretical contribution to network research.

1.2.1 Main research problem

The main research problem is: "How do self-employed professionals develop their competence for competitive advantage in an inter-organizational work environment?".

1.2.2 Sub-questions

Answering the primary research problem and understanding the relevance of the topic requires knowledge about freelancing as a phenomenon. Answer to the first question defines what is meant by freelancing in the context of this research. It also provides information about the popularity and factors that have caused freelancing to become more popular as a form of employment in the job market. Answering the second question involves finding out what kind of networks and communities freelancers participate in and how they might be relevant for developing competence.

Multiple freelancers are often competing for the same project opportunities. Competences are often a significant factor in deciding which freelancer ultimately gets to work on the client project. Answering the third question attempts to clarify the role of competences and how freelancers improve their chances in the competition by acquiring relevant competences. Question 4 goes into the practical level and understanding the concrete methods that freelancers use to gain new competences and maintain the ones they already have. Answer question 5 requires finding out how freelancers find out what competences are relevant now and what skills could be relevant in the future job market. Table 1 describes the connection between the research sub-questions and theoretical concepts.

- RQ1:** Who are the freelancers, and why did they become self-employed?
- RQ2:** How do self-employed professionals maintain and develop their professional skills and competence?
- RQ3:** How do self-employed professionals find out what skills are relevant and in demand in the market?
- RQ4:** How do self-employed professionals gain competitive advantage through competence development efforts?
- RQ5:** What kind of networks do self-employed professionals participate in to develop their competence?

| No. | Research question | Related theory & concepts | Answered by |
|------------|---|---|------------------------|
| 1. | Who are the freelancers, and why did they become self-employed? | Entrepreneurship, forms of employment, gig-economy, job markets | Theory, empirical data |
| 2. | How do self-employed professionals maintain and develop their professional skills and competence? | Skills, competence development | Empirical data |

| | | | |
|----|---|--|-------------------------|
| 3. | How do self-employed professionals find out what skills are relevant and in demand in the market? | Job markets, freelancing | Empirical data |
| 4. | How do self-employed professionals gain competitive advantage through competence development efforts? | Competence, competencies, human capital, intellectual capital, competitive advantage | Theory & empirical data |
| 5. | What kind of networks do self-employed professionals participate in to develop their competence? | Professional networks, networks of exchange, networking, freelancing | Theory & empirical data |

Table 1. Linking theory and empirical data to the research sub-questions

2 SELF-EMPLOYMENT AND ENTREPRENEURSHIP

This section covers the relevant information and statistics about freelance work and the freelance economy as a phenomenon. Freelancers face a different set of challenges than people in more traditional forms of employment, and different kind of competences might be relevant for managing those challenges. Entrepreneurial skills and networks play a critical role for small companies and individual contractors. The thesis will focus on so-called high-skilled freelance work, specifically the field of information technology and software development. Less emphasis will be put on freelance services such as transportation, food delivery, cleaning services.

Switching from traditional employment and long-term work commitment to more flexible project-based work arrangements as an independent freelancer, consultant, or contractor is becoming increasingly common (Friedman 2014, 171). This phenomenon is often referred to as the “gig economy” (Coyle 2017; De Stefano 2015; Friedman 2014). A freelancer offers their professional skills that to their client to be utilized together with the client’s own resources for a limited amount of time or until the contractual work relationship is terminated (Storey et al. 2005, 1040).

A growing number of workers are becoming independent contractors or freelancers, especially in developed countries. According to a survey conducted by the European forum of independent professionals (2018), the European Union has approximately 11 million freelancers, and they are the fastest-growing segment of the working population within EU -countries. In addition to full-time freelance work, a significant number of workers are taking on freelance work on the side of their primary work. The McKinsey Institute (2016) estimates that 20-30% of the working-age population in the U.S. and the EU-15 countries do some form of independent work, and 50% of them do freelance work alongside their primary job. Freelancers are often not well presented in government labor statistics and other official data and are often grouped within the SME category (McKinsey 2016, 26).

The gig economy has positive as well as negative effects for the workers and society. The gig economy could liberate workers stuck within oppressive organizations performing jobs that they dislike, and gig work could create an economic boost by allowing workers to get a better match from their job. However, gig employment could create a range of social problems, including the problems created by the instability of income and the creation of a new social class of isolated individuals who do not have the social connections that people in traditional employment have. Not only do the independent workers lack the benefits provided by their employers, but they may also have weaker social security from the government (Friedman 2014, 184; Kautonen et al. 2010, 120; Spasova et al. 2017).

Freelance work can be defined as a form of self-employment and a simple form of entrepreneurship where one works for themselves (Baitenizov et al. 2018, 4). The terms self-employment and entrepreneurship have different meanings even though the boundaries between them are not always exact, and the terms are overlapping in some areas (Bögenhold et al. 2014; Baitenizov et al. 2018, 4). Freelance work intersects self-employment and entrepreneurship, as illustrated in Figure 2 (Bögenhold et al. 2014, 11).

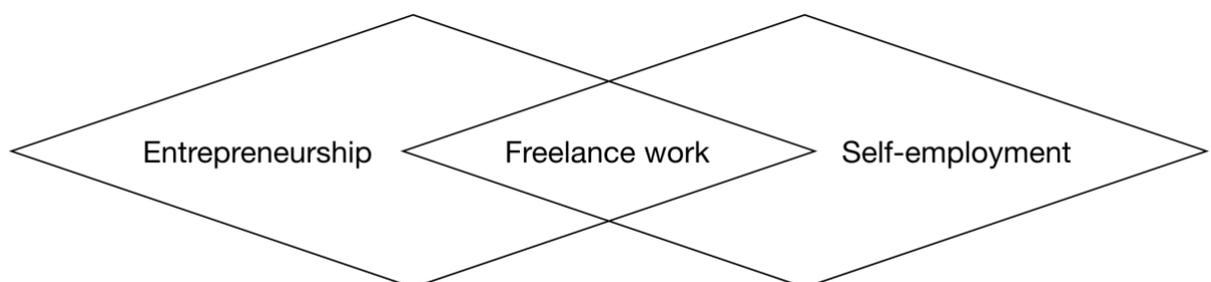


Figure 2. Freelance work intersecting with entrepreneurship and self-employment

2.1 Choosing freelance work

Freelancers are a diversified group of people with varying motivations, levels of skill, education, and income. Working life, organizations, and traditional career roles are changing, and the boundaries differences between waged work and entrepreneurship are diminishing (Hytti 2005, 608). Instead of adopting the many

stereotypes related to self-employment and entrepreneurship, the self-employed should be viewed as a diverse group with different socioeconomic situations (Bögenhold et al. 2014, 2). While many have chosen self-employment of their own will, some workers are pushed into self-employment involuntarily (Kautonen et al. 2010, 114).

Singh & DeNoble (2003, 216-219) define categories for self-employed workers from the perspective of the reasons and circumstances that led to them becoming self-employed. They differentiate between the rational who started self-employed work because of financial reasons, the reluctant who did not have many other opportunities, and the constrained who had the inclination to become entrepreneurs but have been restricted by their conditions such as personal financial circumstances or family situation (Singh & DeNoble 2003, 216-219).

The self-employed have varying degrees of entrepreneurial ambitions. While the self-employed are often considered entrepreneurs, not all of them have entrepreneurial ambitions and, therefore, should not necessarily be categorized as entrepreneurs (Bögenhold et al. 2014, 3). Self-employed workers may prefer to work only by themselves or aspire to employ and manage other people (Kautonen et al. 2014; Baitenizov et al. 2018). Some studies have split the self-employed into multiple sub-categories in order to distinguish between different kinds of self-employed workers. Kautonen et al. (2018, 12) recognize two different categories within the self-employed: the 'self-employers' who only employ themselves, and 'owner-managers' who want to employ others. Fraser & Gold (2001, 680) use the term "self-employed without employees" to describe solo workers who do not employ others.

The notion that entrepreneurship requires carrying risk is historically established and that's why it seems logical that individuals with low risk aversion are more likely to become entrepreneurs (Cramer et al. 2002). Research does indeed suggest that people who choose to become entrepreneurs are less risk averse than employees in waged work (Cramer et al. 2002; Kihlstrom & Laffont 2015). Entrepreneurs might also be overconfident in evaluation their chances to succeed. A study by Moore,

Oesch, and Zietsma (2007) suggests that entrepreneurs underestimate the importance of external factors such as competition, economic climate when they consider entering the market with a new venture.

While many leave traditional employment to become self-employed, it is also common to become an entrepreneur while still keeping one's primary job (Solesvik 2017, 33). This combination of employment and entrepreneurship is referred to as hybrid entrepreneurship (Folta et al. 2010; Solesvik 2017). Many hybrid entrepreneurs eventually decide to become full time entrepreneurs (Folta 2010). A study by Raffiee and Feng (2014) suggests that individuals who are more risk averse, are more likely to become self-employed through hybrid entrepreneurship.

Hybrid entrepreneurship can lower the barrier of entry for new entrepreneurs. Hybrid entrepreneurship can be a less risky way for individuals to transition from waged work into entrepreneurship (Folta et al. 2010, 267). Financial constraints and risk can prevent entrepreneurs from entering the market (Blanchflower & Oswald 1998). Hybrid entrepreneurs, however, seem to have fewer financial constraints when starting their business (Petrova 2010). Hybrid entrepreneurship is also meaningful in the context of competence development. It can give an individual a chance to evaluate their entrepreneurial competence and see if their skills are good enough for succeeding as an entrepreneur (Petrova 2010, 489; Folta et al. 2010, 253). Research suggests that those who begin their self-employment as hybrid entrepreneurs survive longer than those who quit their job to start their business (Raffiee & Feng 2013).

Freelancing is sometimes seen as an outcome of not having access to stable employment and having to seek other forms of work in order to make a living. However, it seems that most freelancers are not doing independent work out of necessity but by their own choice. In a study conducted by Fraser and Gold (2001, 687), 1200 freelance translators were asked whether they would take an in-house job if it was offered to them, and 76% of them answered 'no.' According to another study, a significant number of people in salary employment in developed countries would prefer to become self-employed (Blanchflower et al. 2001, 683).

McKinsey's survey conducted in 2016 supports this claim and estimates that in the EU-15 countries, 68% of independent workers are independent by choice. In addition to this, 1 in 6 workers in traditional employment would prefer doing independent work as their primary source of income (McKinsey 2016, 7). According to the Deloitte Global Millennial survey (2019), 1 in 5 of millennials would consider taking part in the gig economy, and 50% would consider doing freelance work as their primary source of income.

According to a survey conducted by McKinsey (2016), most freelancers are highly qualified and value learning new skills to adapt to the needs of the work market. 52,2% of the surveyed freelancers had a master's degree or a Ph.D., and 19% had a bachelor's degree. The reasons for becoming a freelancer included having flexibility in managing their time, ability to choose their own projects, working from a location of their choice, being their own boss (McKinsey 2016), as well as always wanting to be a freelancer, earning more, and more varied work (Fraser & Gold 2001). The self-employed also place a high value on their independence (Blanchflower 2006). On the other hand, Fraser and Gold (2011) point out that, even though freelancers are independent and can often decide on their working hours, they still have to operate within the limitations of the customer relationships.

Blanchflower et al. (2001) claim that self-employed people have higher job satisfaction than their employed counterparts. Blanchflower et al. (2001) suggest that preferring to be self-employed decreases with age, while the probability of becoming self-employed decreases with age. A study by Kautonen et al. (2014) found that entrepreneurial activity seems to increase by age for people who prefer self-employment. Reluctant entrepreneurs who work self-employed out of necessity did not show such a strong correlation between entrepreneurial activities and age (Kautonen et al. 2014). Overall, among the United States' working-age population, the proportion of self-employed workers seems to get higher with age as workers have accumulated the needed skills and resources for running a business (United States Department of Labor, 2016).

A study by Cagetti and De Nardi (2006) suggest that there is a connection between being wealthy and being an entrepreneur. According to the study, entrepreneurs in

the U.S. are, on average wealthier than those who are not entrepreneurs (Cagetti & De Nardi 2006). Business owners seem to be wealthier than the self-employed, and the ones with the least wealth among entrepreneurs are the self-employed who are not business owners, although there is a lot of variance especially within the self-employed category (Cagetti & De Nardi 2006). Several studies, however, suggest that the income of a self-employed individual is lower than what they would earn in comparable work as an employee. (Blanchflower and Shadforth 2007; Hamilton 2000). The self-employed also seem to work longer hours than employees (Blanchflower et al. 2007). Research by Hamilton (2000) suggests that entrepreneurs are willing to sacrifice higher earnings in exchange for other benefits of being self-employed, such as “being one’s own boss.”

Fraser & Gold (2001) claim that as work and careers are changing, ‘portfolio career’, a new alternative for traditional career progress is becoming more usual. In ‘portfolio work,’ professionals develop their skills and personal reputation and utilize them as resources for progressing their career and moving between companies after promising work opportunities. Self-employed workers may have anything from a single customer to a collection of clients they work for. Some freelancers have extensive portfolios with a variety of projects for different clients, and that is what sets them apart from others (Fraser and Gold 2001).

Kautonen et al. (2014) introduce a taxonomy that classifies entrepreneurs into three different categories: self-employers, owner-managers, and reluctant entrepreneurs. The taxonomy can help in understanding the circumstances of individuals and the reasons for the difference in the behavior compared to others (Kautonen et al. 2014).

Owner-managers are motivated to run a business and employing other people (Kautonen et al. 2014). They value independence highly and are more willing to take risks (Croson & Minniti 2012). Self-employers want to employ themselves but are not interested in hiring others or growing the business (Kautonen et al. 2014). Self-employers are motivated by flexibility and autonomy (Kelley et al. 2010). Reluctant entrepreneurs are self-employed because they have not gotten an option to become a waged employee (Singh & DeNoble 2003). They would rather employees instead of entrepreneurs but are doing freelance work for lack of a better alternative. They

are more likely to be risk-averse and put less value on autonomy (Reynolds et al. 2005).

Digital platforms that allow efficient exchange of information and low transaction costs have been a significant enabler for contingent work (Coyle 2017). Some companies attempt to find ways to lower employment costs and labor law regulations by hiring their workers with zero-hour contracts (Coyle 2017, De Stefano 2015). As an example, some ride-hail companies treat their workers as freelancers to avoid labor laws, which would ensure employees with at least minimum pay and a basic level of benefits and protection (Bates et al. 2019).

2.2 Freelance work platforms

All types of work enabled by digital platforms, however, are not equal. Platforms for low-skilled work such as cleaning, taxi services, and deliveries struggle with problems regarding fair pay and poor working conditions (Coyle 2017). High-skilled freelancers working on platforms that offer specialized services that require high competence and expertise have significantly more control over their work and flexibility regarding their working hours (Coyle 2017). These freelancers also rely more on their personal reputation in getting work (Coyle 2017).

The platform economy makes it possible to organize work in a way that it can be done by a self-employed worker, enable remote work and offshoring, as well as lower the barrier of entry for new freelancers (Drahokoupil & Fabo 2016). Platforms allow splitting work into tasks that require high-skill and skills that can be completed with a low level of skill. This could mean an increase in pay and work conditions for the high-skilled specialists, but at the same time, the low skilled work is likely to be offshored or automated (Drahokoupil & Fabo 2016).

3 COMPETENCES AND MANAGING COMPETENCES

The competences section of the thesis will introduce the reader to the concept and most influential views about competence, some of them listed in Table 2. The section will also explain the views and definitions that are adopted for the thesis research. Competence-based approaches for strategic management as well as competence-based tools and frameworks for human resource development are also addressed.

3.1 Defining competence

Competence is not a novel concept. The term made its debut in an article about motivation by Robert White published in a psychology journal in 1959. Its significance for managing organizations and human resources was realized later in the 1970s when a Harvard psychologist David McClelland published his work about competency as a better way to measure job candidates' ability to perform in a job (McClelland 1973). These human resource management methods built around competence are often referred to in academic literature as 'competency-based approaches.'

Competence is a complex concept, and there is no agreement among the academia for a single unique definition for it (Deist & Winterton 2005; Ellström 1997; Mulder et al. 2007). Terms competence and competency are often used interchangeably. A plethora of different definitions are used, and some of them are conflicting with each other. In their paper about perspectives and practices on competence, Boon and van der Klink (2003) describe competence as a 'fuzzy' and confusing concept. Competence is a subject for multiple branches of research, including psychology, education, training, human resources management, and strategic management.

According to Boon and van der Klink (2003), the definition of competence significantly varies between based on the geographical location, adopted view on learning theory, and the field of application. Two of the most common views on competence appearing in research are the functional view and the behavioristic

view. The behavioristic view focuses on competence as actions and behavior of an individual, while the functional view sees competence as a collection of skills, qualities, and knowledge that empower a person to successfully perform a job or a task (Prahalad & Hamel 1990).

A common attribute of many of the definitions for competence is that they describe competences as attributes of a good employee that are associated with high performance in a job, task, or role. The concept and the first definition for competence were introduced by McClelland (1973), who defined competences as components of performance formed through a set of different life outcomes of a person. Dooley et al. (2014) adopt the functional view of competencies as requirements for succeeding in a profession or a task. Athey's and Orth's (1999) view of competence expands beyond the individual traits and includes the organizational level of capabilities while linking competences to performance and competitive advantage. Athey & Orth (1999) define competence as "a set of observable performance dimensions, including individual knowledge, skills, attitudes, and behaviors, as well as collective team, process, and organizational capabilities, that are linked to high performance, and provide the organization with sustainable competitive advantage." According to Marrelli (1998), competence can be either individual skills, pieces of knowledge, a certain type of constructive behavior, or a combination of these different attributes.

Boyatzis (1982) defined competence as "an underlying characteristic of a person which results in effective and/or superior performance in a job" in his book "The competent manager". Even though Boyatzis' definition was introduced in a non-academic context, it is well known and recognized in competence research articles. Woodruffe (1993), derives their definition from Boyatzis' defining competence as a collection of behavior patterns that are required from a person to complete their work tasks with competence. Woodruffe (1993) also notes that competences are a dimension of a person's behavior that is connected with their job performance.

Elkin (1990) makes a distinction between macro and micro competencies within the academic discourse about competences. Elkin (1990) describes macro-level

competences or generic competences as underlying characteristics of a person, while micro-level competences are detailed job-level competences strongly linked to job performance. Elkin (1990) defines macro competences as deep-seated qualities of a person, such as motivation and traits. Woodruffe (1993) similarly also suggests a separation between technical skills and knowledge required for a specific job, and more generic behavioral competences. Woodruffe (1993), however, has not adopted the concept of macro and micro competences, but instead considers competences just as the more generic behavioral properties. A component of competence that could be considered to belong to the category macro competences is the motivational aspect of competence called “effectance” introduced by Robert White in 1959.

Reading through competence research, one will soon encounter varying terminology used to describe competence. The term competence and its plural competences are sometimes distinguished from competency and its plural form competencies. Woodruffe (1993) makes a distinction between the concepts of competency and competence by defining competence as a property of a person and competency as a job role or a line of work. Woodruffe (1993) suggests keeping these two separated to make a clear difference between the job role and the person. Despite these terms sometimes having different definitions and meanings, it seems that the two words are often used interchangeably within the human resources and management research. It is, therefore, critical to understand the definition adopted in the context of each separate study.

Boon and van der Klink (2003) researched why competence as a concept has recently gained popularity for companies and educational institutions. The results indicated that the motives were the changing environment, the shift of focus, as well as cooperation and communication. Companies wanted to prepare for an unpredictable future, whereas educational institutions wished to respond to the changes in labor market development. Companies focused more on outputs and performance, while educational institutions emphasized professional skills and employability. Companies saw the value of competence as a concept as a unifying and appealing concept. In contrast, educational institutions saw value in

competence as a concept that could be used to communicate with employers. (Boon and van der Klink, 2003)

Ellström (1997) attempts to explain occupational competences by distinguishing individual competences from competences as job requirements. The view of individual competences sees competences as attributes of the individual. In this view, competences are the human capital that individual employees possess and offer to the organization they are working for. Individual competences can be further divided into two categories: formal competence and actual competence. Formal competences are confirmed by some kind of formal qualification such as a university degree, time spent on studying a topic, or a technical certification. Actual competence, on the other hand, is the potential capacity to succeed in a specific situation or task. (Ellström 1997)

Although it can be agreed that formalized competence in the form of education enables a person to get a better job with higher pay, the human capital theorist view of actual competence and formal competence might be in many ways lacking. Rumberger (1994) points out that formal competence might be an inadequate measurement of actual competence and that the view might ignore qualitative differences of different schooling and their effectiveness in developing the amount of person's human capital. The quality of learning, and the qualitative differences in skills learned in different schools vary, and some argue that the primary goal of formal education is screening people, not so much developing their skills (Rumberger 1994). Lastly, in many ways, one of the most concerning critiques against using formal competence as an indicator of actual competence is that the education system may act as a structure that creates inequality by offering students of lower social class lower-quality education and therefore worse access to better jobs in the future (Rumberger 1994; Ford 1998). Effectively the same result that McClelland (1973) suggested being the result of using school performance as a measurement of a job candidate's potential to perform in a job.

In Ellström's (1997) model, competences as job requirements are divided into officially demanded competences and competences required by the job. Officially

demanded competences are requirements that are being used for recruitment, while competences required by the job are the requirements for successfully performing in the job. In an ideal situation, the officially demanded competences would be the same competences that are actually required by the job. Unfortunately, officially demanded competences may often be lower or higher than the competences required by the job. Figure 3 illustrates how formal competences, actual competences, competences required by the job, and officially demanded competences interact with each other to form “competence in use,” which is the competence that is used in order to perform the job. (Ellström 1997)

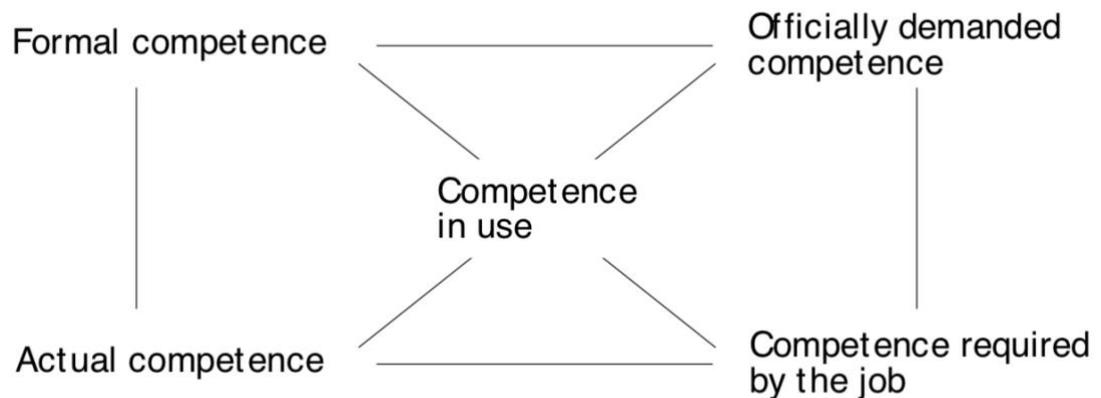


Figure 3. Occupational competence and its meanings by Ellström (1997, 268)

| Concept | Definition / usage | Author(s) |
|-------------------|---|-------------------------|
| Core competencies | Functional sense, key activities that a company performs to gain competitive advantage. | Snyder & Ebeling (1992) |
| Competences | Competences can be categorized into micro and macro competences | Elkin (1990) |
| Competence | “Competence in use” is formed by the interaction of formal competence, actual competence, officially demanded competence, and competence required by the job. | Ellström (1997) |

| | | |
|------------------|---|-----------------------------|
| Competence | “A set of observable performance dimensions, including individual knowledge, skills, attitudes, and behaviors, as well as collective team, process, and organizational capabilities, that are linked to high performance, and provide the organization with sustainable competitive advantage.” | Athey & Orth (1999) |
| Competence | Behavioral capabilities for acquiring skills, knowledge, and ability. A recursive definition for competences. | Dooley et al. (2004) |
| Competence | Useful, but a fuzzy concept that connects education and job requirements. | Boon & van der Klink (2003) |
| Competence | Three different usages for competence: outcomes, tasks performed, personal traits | Mansfield (2004) |
| Competence | Four different usages for competence: personal, outcome, education and training, standards (benchmarking) | Mangham (1986) |
| Competencies | “Measurable human capabilities that are required for effective work performance demands.” | Marrelli (1998) |
| Core competences | Most important organizational resources that can be managed to gain competitive advantage. | Hamel and Prahalad (1990) |
| Competences | Constructivist and interpretative views see competence as a function of the person and the context (Sandberg, 2000). | Sandberg, (2000). |

Table 2. Summary of definitions of competence

3.2 Competence management

Competence management (CM) is a field of study that contributes to finding the critical knowledge that is required for an organization or an individual to succeed in reaching their objectives (Draganidis & Mentzas 2006). Competence management can be considered to belong within knowledge management, where the focus is on the skills and competences of the employees of the organization. In order to efficiently support competence development of their workforce, an organization has to establish a framework for facilitating the skills and competences of its employees (Houtzagers 1999). Competence management studies both the personal and organizational aspects of identifying key competences and acquiring them (Draganidis & Mentzas 2006). In addition, Berio and Harzallah (2005) identify the group level of competence management. While many organizations can benefit from competence management, it can be particularly valuable for knowledge-intensive and technologically advanced industries (Corallo et al. 2010).

Competence management gained interest in the 1970's in USA within the context of professional education. In that time, a heavily behavioristic view on learning had been adopted. Experiments were done in training teachers with a competency-based approach. A competency-based approach had an underlying assumption that closely imitating the behavior of successful professionals was a logical way to train new professionals. The behavioristic methods were largely replaced in the 1980s and were criticized for paying too much attention to behavioral actions and too little attention on context-specific aspects of competence. Initially, the competency-based approach was utilized in job applicant selection, but eventually, other HRM applications for competency-based approach were taken into account as well. The concept of competency remains a topic of interest in the fields of HRM and professional education. (Boon & van der Klink 2003)

A Harvard psychologist David McClelland (1973) argued that IQ-tests and academic success are a poor indicator of a person's job performance or success in career

development or even life in general. McClelland (1973) also concluded that intelligence tests in the 1970s USA had too much power over the future of young people, categorizing people into qualified and less qualified groups, effectively ruling out minorities from college admissions. In an attempt to improve the selection process of US Foreign Service Officers, he created a competence-based approach to evaluating candidates' ability to perform in a job. McClelland (1973) insisted that instead of IQ -tests, candidate selection should be made by transparently measuring both generic competences, and job-specific competences.

Justification for the strategic importance of competence management finds support from strategic management and the knowledge-based view (KBV) on the theory of the firm, extending on the resource-based view (RBV). The knowledge-based view considers knowledge resources as the most strategically valuable resource for a company (Grant, 1996). According to the knowledge-based view, sustainable competitive advantage is created by the knowledge resources and capabilities that are valuable, rare, imperfectly imitable, and non-substitutable (Barney 1991, 107-111). In addition to the strategic management aspects of strategic decision making and competitive advantage, the knowledge-based view attempts to explain the coordination, structure, boundaries, allocation of decision-making power, and innovation within the company (Grant 1996). Blackler (1995) suggests that instead of viewing knowledge as something that is owned, knowledge should be viewed as the actions that people do instead. The systems and processes used for creating new knowledge and knowing should have more emphasis.

Differing stands on what are the most valuable competences and what companies should focus on seems to exist between areas of research literature. According to Deist & Winterton (2005), there is a contradiction between human resource development (HRD) literature and strategic management literature regarding competences. HRD literature focuses on generic competences that are needed in many different roles and are transferrable between organizations (Deist & Winterton 2005). Strategic management, on the other hand, emphasizes the unique, organization-specific competences (Deist & Winterton 2005).

This misalignment of focus is challenging since the competitive advantage of an organization is argued to be explicitly created from unique, company-specific competences (Prahalad & Hamel 1990; Bergenhenegouwen et al. 1996). Some generic competence lists that attempt to apply across different organizations might ignore the competences that make companies successful. (Thompson et al. 199, 49). Stuart (1983) argues that creating an ideal framework for competence management has limitations. A perfect framework would be three things: generalizable, simple, and accurate. However, a framework can only successfully have two of these qualities.

Many competence-based approaches have been created in the effort of developing better means for HR management tasks such as selecting and assessing candidates, identifying competence gaps, and finding training needs, and performance assessment (Hustad & Munkvold 2005; Berio & Harzallah 2005; Corallo et al. 2010; Houtzagers 1999). Competences can act as an integrator of management HR practices by creating a shared vision and helping in setting shared priorities across the functions (Intagliata et al. 2000).

Houtzagers (1999, 27) suggest creating competence profiles as a flexible alternative to strict work function descriptions, which can limit potential of the employees. Competence profiles act as a foundation for other HR activities such as career development, performance appraisal and development (Houtzagers 1999, 28). It also tells what the employees should thrive for with their competence and skills development (Houtzagers 1999).

3.2.1 Competence development

Löfstedt (2001) addresses that competence development concerns both the organization as well as employees. According to Löfstedt's study (2001), there is a tendency within organizations to think that competence development is something that organizations do while the subject of change and development is the employee. While it is not possible to develop competence of another individual, it is possible to create the enablers and provide the tools to support competence development of an

individual (Sundberg 2001). Sundberg (2001) proposes an approach for competence development that involves mapping the training needs of the employees and creating a development path for each of the individuals. The paths include three dimensions on a within a chosen time frame: deepening knowledge, broadening work tasks, and changing work tasks (Sundberg 2001, 107).

While management competence of the owner manager of a SME company plays a major role in the success of the organization, competence development in smaller companies has received far less attention in research (Jennings, Banfield, & Beaver 1996). A meta-study by Löfstedt (2001) suggests that systemic approaches to competence development can have great value for small and medium-sized enterprises.

3.2.2 Competence management systems

Large organizations may benefit from having an IT system for competence management. Houtzagers (1999) suggests that an organization that has more than 100 employees benefits from an IT system for their competence development efforts. Competence management IT systems are closely related to knowledge management systems and learning management systems (Berio & Harzallah 2005, Draganidis & Mentzas 2006).

Implementation of a competence management IT system is not trivial, but it has potential for providing global access to the competence resources within an organization and can improve efficiency of competence management (Hustad & Munkvold 2005, 86). A case study by Corallo et al. (2010, 311) involving an organization in the aerospace industry, suggests that a competence roadmap together with a competence management software can improve the efficiency of competence management, allocation of human resources, and organizational performance. Competence management processes that should be supported by a competence management IT system can be classified into four different categories: competence identification, competence assessment, competence acquisition and usage of competences (Berio and Harzallah 2005, 21-22; Corallo et al. 2010, 300).

3.2.3 Core competences

Core competences of a company consist of skills and technologies that provide competitive advantage for a company. Core competences are the collective knowledge of individuals and different business units, joining together to create unique products. Managing core competencies can create a systemic advantage that is hard for competitors to imitate. (Prahalad & Hamel 1990). Teece et al. (1997) define core competences as competences that define an organization's fundamental business and recognize that core competences can be enhanced by appropriate complementary assets. Deviating from the previous descriptions and adopting a more individual-focused view, Marrelli (1998) uses the term "core competencies" to describe the most important capabilities that individuals need in order to complete their work successfully.

Snyder & Ebeling (1992) suggest that core competencies should be seen as the most value-adding actions in business processes. They argue that often products or reputation of a company are mistakenly labeled as core competencies. This takes focus away from the most critical activities in the company and makes companies waste resources in less relevant areas of the business. Instead of focusing on product and service portfolios, companies should invest in key activities. Correctly identifying these key-activities indicates companies what they should be doing. (Snyder & Ebeling, 1992)

Snyder and Ebeling (1992) introduce four rules for identifying core competencies:

1. Focus on less than a handful of core competencies
2. Top management should agree on the core competencies
3. Strengthen your core competencies and organize around them
4. Share your core competencies and form alliances

3.2.4 Dynamic capabilities in competence management

The topic of the problem that strategic management seeks to answer is how organizations manage to obtain sustainable competitive advantage. Less scrutiny had been placed on how some successful organizations are able to build competitive advantage in a rapidly changing operating environment (Teece et al. 1997). To answer this question, Teece et al. (1997) introduced the concept of dynamic capabilities framework in their research paper. They argue that companies that have succeeded in global competition rely on dynamic competences that demonstrate the capability of the management to effectively manage competences and quickly respond to market needs (Teece et al. 1997; Eisenhardt and Martin, 2000; Winter 2003). A study of 217 organizations conducted by Jantunen et al. (2005) supports the claim that the dynamic capabilities of the organization together with the organization's entrepreneurial orientation have a positive effect on the performance of the organization in international markets.

While operational competences can be considered to be capabilities that are currently utilized in an organization's current operations, dynamic capabilities are the organization's capability to adapt their operations and resources in a changing environment. Teece et al. argue that operational competences are creating business opportunities in the short term, whereas dynamic capabilities can create long term competitive advantage by allowing the organization to react and adapt to changes effectively. (Teece et al. 1997) Furthermore, Winter (2003) suggests that dynamic capabilities can be seen to belong to the category of higher-order competences, a concept created by Collis (1994) describing organizational capabilities that enable "learning to learn".

The dynamic capabilities framework is built on the assumption that wealth creation of organizations in an environment with fast technological development relies on being able to optimize organizational, managerial, and technological processes within the organization (Teece et al. 1997). Winter (2003) expands on this premise by stating that the creation of long-term competitive advantage relies on dynamic capabilities, not the competences themselves. The authors of the framework suggest that that dynamic capabilities can be more crucial to organization's success than conventional strategic activities based on Porter's (1980) views on strategic

management such as, excluding new entrants, raising rival's costs, and causing competitors to go off balance (Teece et al. 1997).

3.2.5 Competence modeling

A competence model is used for identifying the most important capabilities needed in different roles within the organization. It is a collection of competences required in an organization in the context of a conceptual framework. The model aims to improve understanding, discussing, and utilizing competences. Visual aids such as diagrams or charts can be used to help in discerning the model. (Marrelli 1998) Uses for a competence model within human resource management include functions such as workforce planning, employee career development, performance management, and determining optimal employee compensation (Houtzagers 1999; Marrelli 1998).

According to Houtzagers (1999), competence management can be used as a way to empower employees and a source of competitive advantage, innovation, and effectiveness. Houtzagers also (1999) argues that it is crucial for employees in an organization to know what competences and skills are needed in different tasks within the organization to be able to choose the right path for their professional development. Intagliata et al. (2000, 4-5) argue that competence models are a useful tool for human resource development, because competences can be measured and unlike personality traits, they can be learned by setting development steps and goals. Defining skills and creating competence profiles can however be labor-intensive and potentially expensive (Houtzagers 1999). Organizations can also fail at creating useful competence models by selecting too generic competences, and consequentially not differentiating itself from its competitors (Intagliata et al. 2000, 6).

The process of competence modeling involves creating the conceptual framework for competences. One way to organize competences is to create competence categories. According to Marrelli (1998) it is essential to consider what attributes you choose for describing the selected competence categories as they will create the foundation for the competence modeling effort. In their paper about competency

analysis and modeling, Marelli (1998) emphasize that competence modeling is a continuous effort and lists common steps for a competence modeling process in an organization:

1. Establish the objectives for the project
2. Get the support of the senior management
3. Create the conceptual framework for competence analysis and select the methodology
4. Create education plans and decide how to communicate
5. Execute the communication and education plan before the analysis
6. Identifying competences
7. Formulate a competency model based on the collected data
8. Apply the model to HR functions
9. Integrate the model into existing HR systems
10. Evaluate and reflect the competence analysis process and results
11. Plan for updating the model

Management systems based on competences can empower employees by giving them more autonomy over decisions regarding their own careers and responsibilities. Employees have a better idea of what are the expectations for their current position as well as what competences are needed in other roles, in case they are interested in progressing to a different role. Competence-based systems also promote transparency and fairness when clearly defined guidelines are being used in employee selection and compensation. (Marrelli 1998)

3.2.6 Competency identification

Competence analysis is a method for identifying the competences that are essential for the value creation of the organization (Marrelli 1998). When these key competences are applied successfully in work, they should improve performance and help reaching the objectives of the organization (Marrelli 1998). There are various approaches for competence analysis. Some organizations create models that involve all of the different roles and competences of their employees, while

others focus on specific areas of competence (Marrelli 1998). Marrelli (1998) suggests defining categories of competence based on specificity, and what kind of roles might need them. Marrelli's (1990) model also involves defining different levels of competence for evaluation of the current level of each competence in the organization.

3.2.7 Competence lists

Attempts have been made for creating generic lists for competences linked with organizational performance in a given role, especially management (Thompson et al. 1996; Boyatzis 1982; Dulewicz 1989). Thompson et al. (1996) point out that many existing competence lists and competence frameworks are a result of studies of large organizations in the United States and that there are a specific set of competences that are relevant to SME -companies.

Woodruffe (1993) argues that while generic competence lists can apply to a wide variety of companies, there are also more organization specific competences. Organizations also face the issue of picking the most valuable competences from these generic lists as all of the listed competences seem to be to some extent applicable. When creating a list of competences for a specific job, instead of starting with a generic list, Woodruffe (1993) suggests starting with an empty list and later once the list has been filled, comparing it to an existing list of generic competences.

Since the purpose of the competence list is to concentrate on developing the competences that enable future success, the competence lists should focus on competences that will be needed in the future (Woodruffe 1993). The lists should also be reviewed frequently in order to keep the list relevant (Woodruffe 1993). Focusing on past and current high performers and their competences might result in a list that won't be useful in creating a more performant organization in the future (Woodruffe 1993).

4 PROFESSIONAL AND BUSINESS NETWORKS

Networks and inter-organizational relationships act as a context for the subject of the thesis research. In order to understand the context this section will introduce the reader to the core concepts regarding networks and the prevalent areas of interest in the research of networks. The amount of research related to social networks has been growing rapidly and the subject has gained interest in many areas of research (Borgatti & Foster 2003). Networks have been studied from social and organizational aspects within multiple different contexts, such as organizational theory, business, sociology, computer science, physics, and psychology (Provan et al. 2007). This thesis will focus on social networks from the business perspective, adopting views from organization theory and sociology.

4.1 Networks, actors, and ties

Borgatti & Foster (2003) provide a good description for the core concepts related to networks. A network consists of a set of actors connected by ties (Borgatti & Foster 2003). Actors, which can also be called nodes can be persons, organization, concepts etc. Ties represent a social relation, such as friendship between actors. (Borgatti & Foster 2003).

According to Gulati (1999), inter-organizational networks are created when organizations create ties between each other (Gulati 1999). The exogenous view of networks attempts to explain the reasons why organizations enter into these ties with each other. According to the exogenous view, ties are being formed for purposes such as getting access to resources and capabilities, as well as managing uncertain environments (Gulati 1999).

Alliances are agreements between organizations that establish exchange between the companies, but a new co-owned organization is not formed (Dickson & Weaver 1997). Organizations in an alliance are participating in a substantial amount of exchange, sharing or co-developing (Gulati 1999). Strategic alliances might be used

as a way to reduce uncertainty but forming an alliance without having enough information about the partners could pose a risk of becoming a victim of opportunistic behavior from other organizations involved. (Gulati 1999)

Organizations leverage their existing inter-organizational networks for getting information on their potential partners. Previous partnerships, therefore, affect the decision making about new partnerships and how new inter-organizational relationships develop. Gulati et al. studied the forming of strategic alliances and how organizations map the risks involved with alliances. The results suggest that inter-organizational networks are being formed is affected by endogenous evolutionary dynamic where new and existing actors in the networks change the network dynamics through their actions. This will affect the way that the network will develop in the future. (Gulati et al. 1999)

Companies may gain significant competitive advantage and knowledge resources by being a member of an inter-organizational network (Dyer & Singh 1998). Small companies might reap even more substantial benefits by participating in networking activities. Research conducted by Schoonjans et al. (2011) suggests that formal business networking has a positive correlation with SME company growth. Participating in a formal business-to-business network for knowledge and experience sharing resulted in increased asset and added value growth. Since SME's often lack some knowledge and resources internally, it can be beneficial for them to invest time and effort into building and managing networks that provide them convenient access to knowledge and other resources. (Schoonjans et al. 2011)

4.2 Networks and competence

While competence development is often seen as an activity that happens on organizational or individual levels. Competence development can, however, also happen between organizations, spanning across organizational boundaries (Andersson et al. 2002). Transferring knowledge between organizations has a cost (Grant 1996, 111), but competence development between organizations can be improved by effective knowledge management practices (Andersson et al. 2002).

Different knowledge resources are required for enabling innovation and organizations are reliant on each other's know-how and technological resources in implementing their vision (Gemünden et al. 1996). Competence development of an organization can be greatly influenced by customers, suppliers, and other actors within the company's network, especially for companies that provide professional services (Awuah 2007).

Capabilities for networking can be an important resource for a company. The ability for an organization to create and maintain relationships with suppliers, customers, and other actors within their business network can be considered a core competence (Ritter et al. 2002). Findings of a study by Baron et al. (2003) suggests that there can be a positive correlation between entrepreneur's social competence and their financial success. Organizations operate in networks of exchange that include many different actors, such as suppliers, customers, competitors and other organizations as illustrated in Figure 4 (Awuah 2007; Gemünden et al. 1996, 450). Findings of a study by Håkansson et al. (1999) indicate that interacting with different suppliers within a contracting network can improve organizational learning by becoming a part of a larger organizing process.

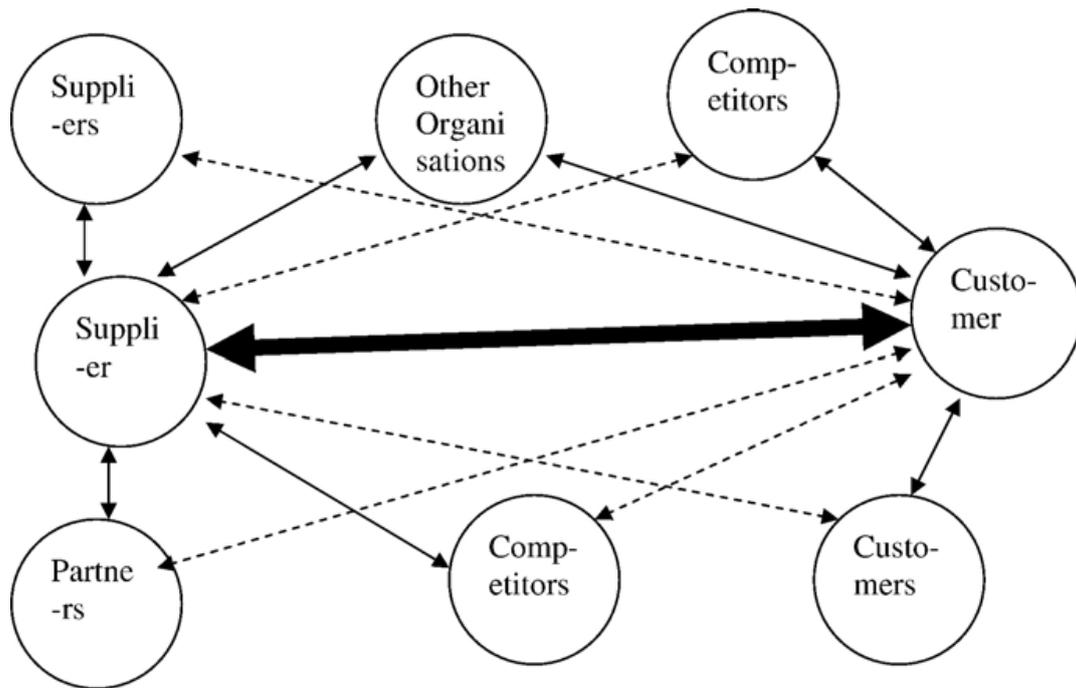


Figure 4. Network relationships for a professional services company (Awuah 2007, 1080).

5 RESEARCH DESIGN AND METHODOLOGY

The assumed research philosophy and the methods chosen for guiding and conducting the research are described and justified in this chapter. The selected approach for each component of research design is summarized in Table 4.

| Component of research design | Selected approach |
|-------------------------------------|---|
| Research paradigm | Interpretivist paradigm |
| Philosophical assumptions | Subjective view on ontology. Realities are socially constructed, and knowledge is contextual. |
| Research strategy | Case study |
| Method for data collection | Semi-structured interviews |
| Method for analysis | Highlighting, coding, theming |

Table 3. Components of research design for the study

The goal of research is to systematically find an answer to a practical or philosophical problem with the end result being either a generalizable research outcome or a practical solution (Varto 2005, 8). In order to reach that goal, the research started by finding and defining a research problem with a preliminary literature review of the subjects of freelance work and competence development. The results of the initial literature review revealed that while the topics of competence development and freelance work both have been studied, there is only a limited amount of research about competence development of self-employed entrepreneurs or freelancers. There is existing research about competence development in small and medium-sized enterprises (Schoonjans et al. 2011), but the competence development of freelancers specifically was lacking research.

Once the research gap was identified, the research problem started to become more clarified. Sub research questions were selected to narrow down the scope and the

focus of the research. Once the research scope was defined and the sub-questions were selected, a first version of the theoretical framework was formulated, and a research plan was created. Creating the research plan included deciding how to answer the research questions utilizing the existing research and theory and the empirical data collected in this thesis research. Planning the research also included defining the research approach and choosing the methods for data collection and analysis. The approach that got selected for the research was qualitative research in the form of a case study.

After creating the research plan, a more detailed literature review was conducted. Literature review can be seen as a disciplined mapping of existing literature and recognizing gaps in it (Cunliffe et al. 2018, 492; Easterby-Smith et al. 2015, 13). Getting familiar with the existing literature can improve the researcher's ability to identify nuances in the empirical data, create concepts, ask critical questions, and spot opportunities for developing concepts (Denzin & Lincoln 2018, 732; Corbin & Strauss 2008, 37). A literature review can also give the research justification for why it should be done (Easterby-Smith et al. 2015, 14). The literature review of this study gave the research a frame of reference within competence research and research where the subject is freelancing entrepreneurs.

In the next step, interview questions for the semi-structured interviews were created, keeping in mind the research problem and the research questions. The interview structure and questions were tested in a pilot interview with a subject with a colleague who had some prior experience of freelancing as well as competence development in technology communities. The interview questions were refined in an attempt to make sure that relevant knowledge could be gathered while still keeping the lengths of the interviews under 60 minutes. An interview guide for the actual interviews was created as a conclusion. The selection criteria for the interviewees included that they had to have worked as a self-employed entrepreneur in contract IT work for one or multiple customers in the recent few years.

After the interviews were recorded and transcribed, the data were grouped into different themes based on the answers. Categorizing each of the interviewee's

answers together based on each question was not enough since the semi-structured interview approach meant that the questions were open-ended, and the interview structure was loosely defined. The relevant discourse to each theme was dispersed into different discussions in different parts of the interview, and collecting the insights together was necessary. After the collected data was categorized, an analysis was done in order to answer the research questions. An overview of the multiple steps involved in the research process is visualized in Figure 5.

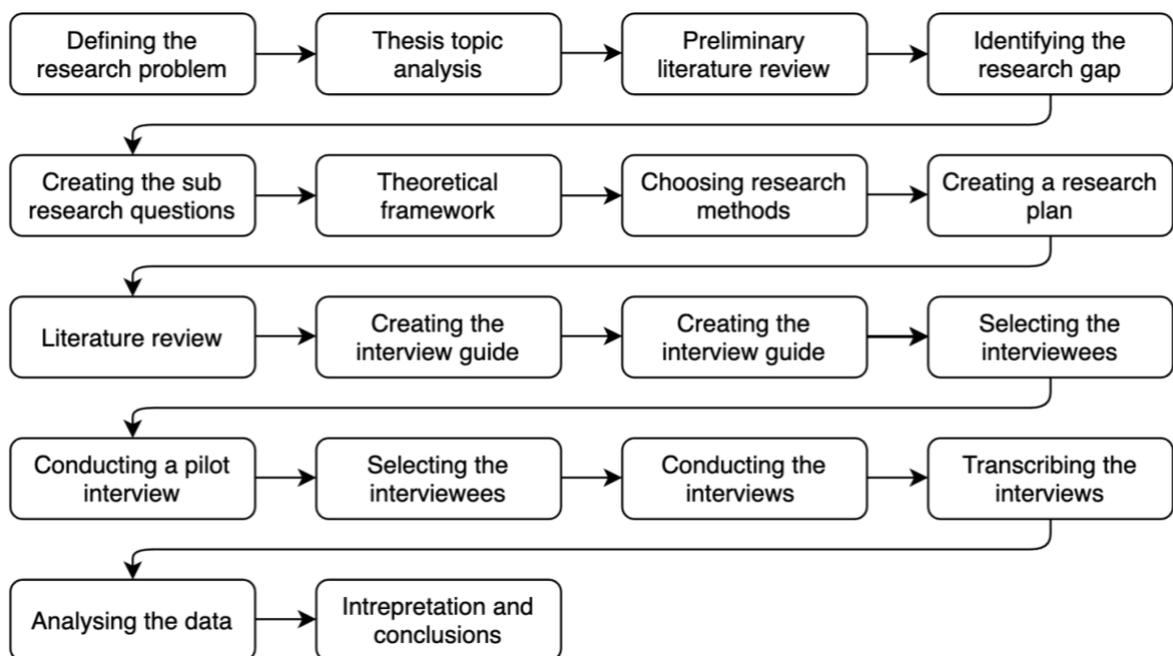


Figure 5. Overview of the research process.

5.1 Research philosophy

Understanding research philosophy is vital for the researcher as well as the audience of the research. Research philosophy understanding helps the researcher in creating a suitable research design for their study. Conducting research and selecting research methods requires adopting some assumptions regarding research philosophy and deciding on what means will be used to achieve relevant results (Easterby-Smith et al. 2015). To be able to evaluate their philosophical assumptions critically, the researcher should understand opposing and alternative views. The chosen philosophical view will influence the research throughout the

whole research process, and that is why it is important for the researcher to understand what the implications are for adopting the view. Explaining the underlying assumptions transparently to the audience of the thesis is of equal importance (Cassell et al. 2018, 180).

Research philosophy involves answering epistemological and metaphysical questions (Godfrey-Smith 2003). According to Easterby-Smith et al. (2015), philosophy of research involves assumptions about ontology, epistemology, and methodology. They define ontology as the assumption about the nature of reality, epistemology as assumptions about how information about reality can be acquired, and methodology as combination of research techniques. The broader term “metaphysics” is also used in similar contexts as ontology when discussing research philosophy: see e.g. Godfrey-Smith (2003), Tebes (2005), and Trochim and Donnelly (2008). Before answering questions about methodology, the views on ontology and epistemology should be chosen first as methodology builds on top of them.

Philosophical paradigms are models that attempt to answer questions regarding ontology and epistemology. Some paradigms are preferred in qualitative research, and others are predominantly used in quantitative research. Qualitative and quantitative methods are however both suitable with any research paradigm (Guba & Lincoln 1994). Paradigms that were considered as options for this research include positivism, pragmatism, realism, critical theory, and interpretivism.

The paradigm chosen for this research is interpretivism. Interpretivist paradigm assumes a subjective view on epistemology, adopting the assumption that the reality can be interpreted subjectively. While positivist research attempts to make propositions that can be applied to other cases, the interpretive research attempts to create principles that manifest in ways that are specific to a case (Lin 1998). According to the subjective view of the nature of reality, multiple realities can exist, and there is no single truth since reality and truth are bound to the context and the interpreter. Opposing view for subjectivism is objectivism, which assumes that there is only one correct version of reality and truth. Subjectivism and objectivism should

not be confused with objectivity of the research. Objectivity of the research means avoiding prejudice, and bias in the belief-forming process (Godfrey-Smith 2003, 238). The objectivity of qualitative research is created through the identifying and describing of underlying factors that might affect the interpretations made by the researcher (Cassell et al. 2018, 523). For a qualitative study it is essential to acknowledge that the research is always affected by presumptions, attitudes, and values of the researcher (Eskola, Suoranta 2014, 17). This thesis attempts to reach objectivity by recognizing these presumptions of the researcher and being transparent about them.

5.2 Research methods

Research methods should act as tools for collecting and analyzing data in pursuance of answering the research question and understanding the target phenomenon of the research. It is common for qualitative studies to not to define a hypothesis in the beginning, but instead explore the subject before making assumptions of the research outcome (Silverman 2014 112-114). The approach for this study was to find an answer to the research problem by inductive reasoning, where no hypothesis is set, and theory and explanation are formulated through careful observation and interpretation. Inductive research is suitable for studies which attempt to not limit the research with too many theoretical assumptions and the intention is to discover new areas for further research surfacing from the context and circumstances of the study (Saunders et al. 2009, 502-503).

Research methods can be categorized into quantitative and qualitative methods based on their characteristics. Qualitative research typically focuses on fewer cases, whereas quantitative research uses a larger sample (Silverman 2014, 6). The ways of collecting, analyzing, and interpreting the data differ in these two approaches. Quantitative research approaches a research problem through numerical analysis and identifying correlations between multiple variables, while qualitative research attempts to create understanding of the phenomenon by describing it in its context (Silverman 2014, 4). Ercikan and Roth (2006) suggest that the categorization into qualitative and quantitative research can be too polarized and focusing too much on

only one approach might take focus away from the most important topic: defining great research questions and conducting good research.

The qualitative approach was chosen for the research because it made it possible to constitute a deep understanding of the freelancers and their work context. Spending more time on each individual allowed making careful, more detailed observations about their views, thoughts, and motivations related to competence development. Qualitative analysis can help to discover common practices and perspectives to continuous learning and the challenges that the self-employed entrepreneurs might have. Some exciting and relevant views on the topic might emerge from the discussions with them. Some of these insights might be left unnoticed with an approach that deals with data in a quantitative manner.

The case study approach was selected as the primary research strategy for the research after evaluating different approaches for conducting the research. The case study research strategy is used for studying a single instance and its circumstances (Eisenhardt 1989, 534). The case study doesn't attempt to detach the studied phenomenon from its surrounding circumstances (Yin 1981). Case studies can involve different data collection methods and the data can be quantitative, qualitative, or a combination of both (Eisenhardt 1989, 534; Yin 1981).

According to Yin (2018, 42) the case study research approach can be suitable for a study if (1) solving the research problems requires answers to questions "why" or "how", (2) the researcher does not have much power over behavioral events and (3) the studied phenomenon is of contemporary nature. Table 3 illustrates the suitability of different research methods in different research settings. After evaluating these three criteria against the chosen research problem and the potential sources of information for the study, the case study approach was chosen.

| Research method | Research question | Control over behavioral events | Studies contemporary events |
|------------------------|--------------------------|---------------------------------------|------------------------------------|
| Experiment | How, why? | Yes | Yes |

| | | | |
|-------------------|---------------------------------------|----|--------|
| Survey | Who, what where, how, many, how much? | No | Yes |
| Archival analysis | Who, what where, how, many, how much? | No | Yes/no |
| History | How, why? | No | No |
| Case study | How why? | No | Yes |

Table 4. Suitability of different research methods in different settings (Yin 2018, 42).

First, this research attempts to gather new knowledge about competence development and its importance for freelancers by discussing with different individuals who have different situations, motivations and approaches. That is why the research problem answers to the questions “why” and “how”. Secondly, a case study is a fitting choice as a research method for the topic since creating an experiment with limited variables and conditions would not be meaningful in understanding freelance competence development. The phenomenon can’t be isolated from the complex environment that freelancers operate in, and the researcher does not have the power to affect the behavior of the individuals. Lastly, answering the chosen research question requires an understanding of the contemporary phenomenon of freelancing and cannot be examined by relying purely on historical documents and historical data.

5.2.1 Research data collection

The empirical data for the thesis was collected by arranging semi-structured interviews with freelancers. There were eight interviews in total and the average duration for an interview was 53 minutes. The interviews were conducted during November and December of 2019. An interview guide (Appendix 1). was used in order to have a clear framework and a set of questions that address the research problems of the thesis. All the interviews were recorded, and transcription was created based on the recordings for later analysis.

Interviews allow the researcher to access otherwise inaccessible, subjective realities that consist of people's experiences, opinions, and attitudes (Denzin & Lincoln 2018, 1163). The purpose of the interviews was to discover the experiences, thoughts, and motivations that the interviewee has about freelancing and competence development. The interview structure and interview questions were predefined to ensure that the relevant topics are sufficiently covered.

Semi-structured interviews allow the interviewees to freely answer open-ended questions in their preferred way and they might ask supplementary questions to find out more information about topics that arise in the discussion (McIntosh & Morse 2015). Instead of having a hypothesis for the results of the research, the attempt was to stay open to any information gathered and to develop the theory and propositions of possible results during the research process.

5.3 Sampling

The empirical data for the thesis consisted of eight semi-structured interviews of freelancers who provide services related to building digital systems and products. Seven of the interviewees were software developers, and one of them was a user experience designer.

When studying a phenomenon, the researcher attempts to achieve replication by adding cases until discovery of new information about the topic becomes diminishing and saturation is reached (Schwandt & Gates 2018, 608). Selecting cases for a case study should not be done randomly, but by selecting cases extend or replicate the theory being formulated (Eisenhardt 1989, 533). The criteria set for the sample selection was that each of the interviewees should be freelancers and they should offer services in the field of information technology. In order to be categorized as freelancers in the context of this study, the interviewees should have done freelance work within the two past years. As experienced freelancers often form small companies with their acquaintances, interviewees also include founders and co-owners of small consulting companies that have five or fewer employees.

These individuals had started their journey as a small group of freelancers working together and therefore have a lot in common with self-employed solo consultants.

5.4 Data analysis

Eisenhardt (1989, 539) considers data analysis as a core component of forming theory from case studies, but also notes that it's the most difficult steps of the research process. Alvesson and Kärreman (2007) suggest new theory should be discovered from the data, instead of using data to justify existing theory. They encourage pursuits to discover phenomena that are not explained by the currently established theory and trying to find an explanation for it.

Eisenhardt (1989, 540) suggests that analysis of data within a case study should start with a within-case analysis, where the unique features of each case are identified. This step can help succeeding in the next step of the process: the cross-case analysis (Eisenhardt 1989, 540). Following the within-case analysis, a cross-case analysis is performed, allowing the researcher to identify similarities and differences between the cases in order to make generalizations based on the data (Eisenhardt 1989, 540).

All of the interviews were recorded and carefully transcribed. Once the interview transcripts were completed, the processing of the data started by creating a within-case analysis of each of the cases in an attempt to understand each case individually. Next step of the process was highlighting the experiences and learnings of the interviewees about competence development and the role of competence development in freelance work. The purpose of coding the data is to split the material into smaller, more easily interpreted parts (Eskola & Suoranta 2014, 156). The chosen highlights were then be grouped into themes based on the theory as well as themes that were constructed based on the interviews.

The chosen themes for the study were the following:

- Freelancing as a phenomenon
- Networks & competence development
- Competence and competitive advantage for freelancers

- Competence development
- Skills needed for client projects

Cross-case analysis was done by analyzing interview data theme by theme, identifying patterns and differences between the cases. Discussions with different interviewees were compared, and comments recurring in the discussions were identified.

5.5 Reliability and validity of the research

Even though it's possible to argue that a chosen method would be better fit for researching a specific phenomenon, there's no ultimate method that leads to the best outcome (Denzin & Lincoln 2018). The validity of the research is created by carefully evaluating suitability of the methods and explaining why the chosen method is be suitable.

According to Denzing and Lincoln (2018), a researcher should distinguish between descriptive hard data and interpretive soft data in the interview transcript. They explain that interpretive soft data describes the interviewees perceptions, beliefs or behavior, while hard descriptive data consists of statements of truth or facts. Furthermore, interpretive soft data may only be confirmed and validated by asking the interviewee to confirm them and it cannot be validated by and external source. The descriptive hard data on the other hand, can gain validation from an external source.

6 EMPIRICAL FINDINGS

6.1 The Interviewees

The empirical data collection involved 8 semi-structured interviews of individual freelancers. Table 5 describes their current professional role, education, age, and experience in the field of information technology. The entrepreneurs interviewed all offer consultation services for designing or implementing digital services. They usually work as a member of a team consisting of other professionals working in either the client company as an in-house employee and other consultants from different companies. Their client project length varied from a few months to several years. According to the interviewees, the work is mostly completed at the customer premises with some days of remote work.

The interviewees are founders and owners of their company, and most are operating a Finnish limited liability company. Most of them are the sole owner and employee of the company, but two of the entrepreneurs had other people working for them. Two of the interviewees had moved to Finland from abroad. One of them started their freelance work before moving to Finland. In this case, the person was performing client work remotely in different countries. Every one of the interviewees had started as an entrepreneur by themselves or with one partner. Most of the entrepreneurs interviewed did not have ambitions for hiring people but instead prefer to work by themselves.

Most of the entrepreneurs had university degrees in STEM disciplines with exceptions of one person with a business degree and one with a master's degree in arts. The interviewees were fairly senior, each of having experience in their current field, ranging from 5 to 15 years. In addition to formal education, many had started programming as a hobby before starting their studies, some already as adolescents.

Most of the interviewees had worked previously in a consultant company, and roughly half of them had worked as an in-house employee of a company developing digital products or services. Working in a consultancy was considered to be similar

to working as a freelancer. In both, they had worked in client projects of varying lengths and sometimes had time between the projects. Some of the freelancers had worked in roles that were different from their current work. These included scientific research, management, and industrial design.

| Interviewee | Role | Education | Experience | Age |
|-------------|--------------------------|---|-------------|-----|
| 1. | Software developer | B. Eng. Media Engineering | 7 years | 30 |
| 2. | Software developer | M. Sc. Computer Science and Engineering | 10 years | 37 |
| 3. | Software developer | B. Eng. Software Engineering, Electronics | 15 years | 40 |
| 4. | Mobile developer | B. Sc. Computer Science | 10-15 years | 40 |
| 5. | Software developer | BBA, Business | 8-10 years | 33 |
| 6. | Software developer | B. Sc. Computer Science | 5 years | 30 |
| 7. | Software developer | B. Sc. Physics | 6 years | 28 |
| 8. | User Experience Designer | MA. Industrial and Strategic Design | 13 years | 37 |

Table 5. Description of the interviewees.

6.2 Self-employment and entrepreneurship

6.2.1 Motivation and challenges in freelance work

Many of the freelancers had previous experience working in the software industry and had university degrees relevant to software development. Some had previously done shorter gigs like developing small websites or web applications during their studies or on the side of their full-time employment. These “portfolio projects” were

considered to be a great way to build a portfolio that would later be valuable for finding employment or more freelance work. Freelancers were more willing to make compromises on the pricing of these projects since the primary goal was to get experience, learn new skills, and improve their reputation for the future. Many pointed out that working as a freelancer in software development requires a certain level of seniority since clients would be unlikely to hire a junior-level freelancer. None of the freelancers started their freelancing career without first getting experience working as an employee for a consulting company or software product company.

Motivations for becoming an independent worker were various. The interviewees had chosen to become independent entrepreneurs, because of increased freedom, more independence, having responsibility, better compensation and strong entrepreneurial inclination.

One of the most important reasons for the interviewees to start their own companies was the freedom and independence to decide about their own ways of working and times they would work. While most of the work the interviewees were involved in were consulting projects, many wanted to have the power to arrange more time for developing their own projects and products. Some considered freelancing as a good way to transition in to building a product company or a consulting company and employing other people. Freelancing allowed them to build a financial buffer to take off time to work on projects that would not immediately generate income. The interviewees also valued being able to decide by themselves when they have their vacations and for how long their vacations last. One of the freelancers explained why they left employment and established their own business:

“One of the reasons [for starting as a freelancer] was that as an employee in a consulting company, I experienced that my power to influence things was quite limited. Sure, you can affect things within the projects and the organization, but in the end the decisions were made by someone else. I thought that first of all, I would like to do these decisions myself, and second of all I felt that that I am able to do this myself.”

Another freelancer listed better financial factors, vacations, and working times as reasons for starting their freelance career:

“Two reasons. A little bit more independence in certain things, such as working times and ability to have extra vacations. Also, it [freelancing] is financially more profitable.”

While most of the entrepreneurs spent most of their time working at the client premises, two interviewees valued the opportunity to work remotely as a freelancer. One of them worked for a company based in San Francisco in the United States, while they were working remotely in different countries in Europe and East-Asia.

Working in a consulting company as an employee had taught the entrepreneurs the essentials of the software consulting business, including a basic understanding of sales, pricing, and managing customer expectations. Working in consulting companies had taught some of the interviewees how much the work they do is worth to the clients they worked for. Consultation work is often billed on time & material basis, and the consultants were aware of their hourly price. Some of the interviewees had evaluated the difference between the value of their work to the client and the salary they were being paid and concluded that they wanted to get a larger share of the compensation for their work. The entrepreneurs were able and willing to do the tasks that the consulting organization had done for them. Doing freelance work enabled them to take more responsibilities for themselves while at the same time getting larger compensation for themselves.

“I thought that what the organization did for me was fairly simple. – I knew what I was paid and in fact also what rate the customer paid for my work. – I came to the conclusion that the margin that the employer got was too large compared to what the organization did for me.”

The freelancers felt that by freelancing, they can have a more significant impact on their client projects and had experienced that by being independent contractors, they collected the benefits of hard work and successful projects for themselves. Two

of the interviewees pointed out that that they felt good about clients respecting and valuing the work they are doing. As freelancers, the interviewees felt like they were responsible for their own decisions, successes, and failures. As the person responsible for the failure, they could not point fingers at others, but had to learn from the experience and fix the situation they had caused. Some had experienced that while working in a larger consultation company, their ability to influence their work was more limited than while working as a freelancer. While being able to affect decisions as an employee, they felt that the decision, in the end, was being made by the management of the organization.

“The best thing is perhaps that everything that you do, credits yourself. It can also be a negative thing, but if you do your job well, you develop your own brand.”

One of the interviewees, however, argued that freelancers have less ownership of their work compared to an in-house employee. As a freelancer, they only worked on a project for a limited amount of time, usually at the beginning of the project. They often did not participate in the late phases of the software project, where maintenance and continuous development of the product happens.

Five of the freelancers told that they had wanted to become entrepreneurs years ago, some already from a young age. They wanted to feel strong ownership of their work and achieve building something by themselves. They started their own company once they had accumulated enough competence and experience in their field and felt confident that they would be able to find work for themselves. The high demand for developers and the high availability of freelance work made it possible for them to start their company with lower risk and lucrative compensation. One of the interviewees expressed their propensity for entrepreneurship as follows:

“I had this entrepreneurial drive, and I always from a young age knew that I wanted to be my own boss or do something of my own.”

The challenges that the freelancers faced in their work were uncertainty, sales, managing time and focus, taxation and finances, as well as other paperwork

required for running a company. Those without prior entrepreneurial experience found that they need to develop their entrepreneurial competence in order to fulfill the legal requirements of running a company and succeeding as entrepreneurs.

The uncertainty of cash flow and being able to find projects can cause some stress for freelancers. As an entrepreneur, there is a higher chance of the client not paying their invoices on time. The Finnish labor laws protect employees, and the probability of not getting a salary on time is low. As an entrepreneur, there is a risk that the contract will be discontinued leaving the freelancer without invoiceable work for the time they are finding a new project for themselves. The entrepreneurs are responsible for building enough financial buffer within their company to be able to pay themselves even in months where they do not have invoiceable work. Some of the freelancers also pointed out that a change in demand for software development work or an economic recession, the freelancers could be the most likely workers to end up without work.

“Uncertainty of cashflow. After you've done consulting on your own for few months, you can easily build yourself a buffer to through any potential gaps. But never really knowing what next. That's difficult.”

While most of the entrepreneurs used the services of a professional accountant, many of them had to educate themselves about the legislation regarding the Finnish limited liability companies. That was especially time-consuming in the beginning when they were establishing their companies. The freelancers acquired knowledge from other entrepreneurs, different government agencies, such as the tax administration and the trade register's advisory service. These services were considered helpful, especially by those who did not have full fluency in the Finnish language. The motivation for learning was mostly based on necessity rather than a specific interest in the subject. When asked how they developed entrepreneurial competences, one of the interviewees answered:

“I hadn't really studied anything in advance. I just had to do specific things and I've

been learning them on the fly. During the summer when I was starting my business, I had to find out what things to do and in which order.”

The interviewees found sales as one of the difficult aspects of freelancing. Finding the next client project and building the networks required was challenging without having prior experience in sales. A few freelancers found customer work through online networks and social media, and some found work through their previous employers. Most of the freelancers utilized different IT-work broker companies to find client work and effectively outsourced some of the sales efforts to the broker company. Some thought that the broker companies have made it easier to find projects, especially at the beginning of one's freelance career. One of the interviewees, however, pointed out that long subcontracting chains could result in the hourly price being small for the freelancer after the margins collected by the different middlemen.

When asked about the uncertainty and risk involved with freelancing, most of the respondents thought that while there is some uncertainty about cash flow, the demand for software development work in Finland is high enough to find new work. One of the interviewees stated that if they could not find any client work for their company, they could always apply for software jobs to become a full-time employee in a company.

6.2.2 Future outlook of freelance work

Generally, the interviewees had a positive outlook towards the future of freelancing and being able to find work as a freelancer in the future. All of the interviewees believed that the amount of freelance software work would either grow in the same proportion as the industry or faster than the industry itself. The freelancers thought that there was enough work available, but finding suitable work is a matter of how strict requirements the freelancer has for the work they are willing to take on. The factors that the interviewees evaluated when evaluating a client project were the following: the client organization's reputation, way of working, product, and technology they use. On the other hand, one of the interviewees suspected that the

current growth in demand for software developers might not be completely sustainable:

“I have a small fear that the developer demand might be a bubble. At the moment, it is growing, and it’s being discussed a lot. I, however, find it hard to believe that the demand will go away or that there will be some kind of a developer recession.”

The interviewees were asked what they think are the reasons for the growing number of high-skilled freelancers in developed countries. The interviewees thought that the freedom and opportunities for higher income were the main reasons for getting more people to start freelancing. Also, transitioning to freelance work after working in a consulting company was considered to be quite straightforward. Many of the interviewees who had previously worked at a consultancy did not have a strong connection to the company employing them since they spent most of their time on client work physically located at the client premises.

Some of the interviewees thought there had been a change in client behavior and attitudes towards using freelance services. The trend of having ownership of the IT systems developed and managing the software development process has resulted in a shift towards using smaller partner companies for software development expertise instead of large consultancies who offer the whole system and manage the development process. Even with the change in preferences towards smaller vendors, one of the interviewees pointed out that in Finland, most organizations are not ready to spend time finding multiple individuals to build a team by themselves. They are more comfortable contracting whole software teams from small or mid-sized consultancies. One of the more experienced interviewees described the change:

“I believe that the business has changed over the years. Formerly companies would pick a large well-known company to deliver IT-systems. The ways have changed, and nowadays, companies will rather have smaller companies do the work and are willing to use individuals from different companies. The clients have changed their way of thinking in a way that they trust the smaller companies more. They have also

taken project leadership into their own hands. That means that who employs the developers in the project isn't so significant."

Many of the interviewees envisioned the future of freelance work to involve a subcontracting tree, where client organizations purchase teams from medium to large-sized consultancies, which then form the teams with their own employees with the addition of individual freelancers to fill in the gaps. This way, consultancies have the ability to quickly scale their team size and have access to a large pool of freelancers with competences that they might not have internally available at the moment. Some of the freelancers had experienced complicated sub-contracting chains with multiple organizations between the freelancer and the client, such as the one visualized in Figure 6.

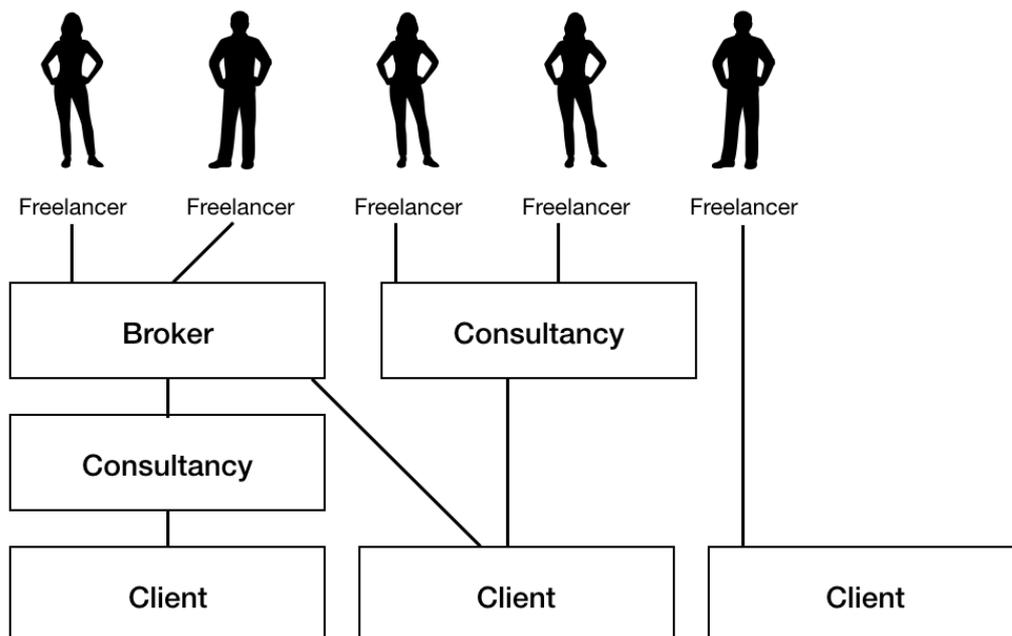


Figure 6. Freelancers and various sub-contracting relationships.

Clients are becoming more willing to utilize freelancers, and the improved access to client work through brokers was suggested to lower the barrier of entry for freelance work. In addition, two of the interviewees mentioned that the common perception of IT entrepreneurs has improved with the success stories of technology startups in

the media. They thought that improved perception might make people more willing to consider starting their own businesses. Clients are also more willing to utilize multiple vendors in order to avoid vendor lock-in situations.

One of the interviewees brought up that for growth-driven organizations such as startups in their early phases, contracting freelancers gives access to competence that might be otherwise hard to acquire quickly. Companies can have people working for them that would not otherwise be interested in working in a startup. The interviewees also thought that contracting freelancers could allow the organizations to react to changes faster than by hiring their employees of their own. One of the interviewees elaborated on the topic:

“Companies want to increase the share of variable costs. They want to be able to react to changes in demand as fast as possible. If the demand goes down, they want to lower costs immediately. If the demand explodes through the roof, they want to scale up quickly.”

Organizations might want to find the right proportion of freelancer subcontractors and employees in order to achieve the desired level of scalability while keeping the costs manageable. One of the interviewees suggested that while significantly increasing the proportion of freelancers to employees would provide companies with better scalability; the increased costs might limit them from doing that. Employing freelancers was considered to be more costly even when accounting for the employment related costs that the organization have to pay.

6.3 Competences and managing competences

6.3.1 Competence assessment and development for freelancers

The interviewees were asked about the methods they use for managing their own competence. Based on the answers, most of the freelancers did not have a systematic way to manage their competences. Even without a systematic approach, all of the interviewees did planned activities that could be categorized as

competence management. Many of the freelancers were accustomed to the fact that their work would require them to develop their competences continuously.

The interviewees did not have a process for regularly assessing their own competences. The interviewees also found assessing their own competence challenging. The most common way for the interviewees to assess their competence was by comparing themselves with their colleagues. Usually, they would compare themselves to the people working with them in the client project and other people they would know through their professional networks. The point of comparison is essential. If the interviewee is by far the most experienced person in the project, it might be pointless to compare themselves with the rest of the team. According to one of the interviewees, the comparison is less complicated if the project team consists of more senior and more junior individuals with a wide range of different skillsets. One of the interviewees explained that the context is essential when assessing their competences by comparing oneself to others:

“I compare it to others who are around me. I follow and estimate other’s competences and place myself in relation to others in my observational context. The observational context is important because if you are the only senior-level person in the project team, and your primary goal is to make them as good software developers as possible. You have to take the context into account.”

Some interviewees had utilized client and peer feedback for assessing their level of competence. They, however, mentioned that getting constructive feedback that is helpful for forming competence development plans is rare. One of the interviewees had experienced that feedback consisted of generic compliments that could not be used for the basis of further development. More specific feedback, especially critique, was found to be more valuable for identifying the shortcomings in their competences. One of the ways of getting valuable feedback was not getting selected for a project or failing in some way. Reflecting on these events would often result in concrete improvement ideas. One of the interviewees questioned the usefulness of assessing competence separately from project work. They suggested

that the best way to find out about their level of competence is indicated by how well they perform in their project work.

The interviewees would determine what competences require more development based on several factors. They would retroactively evaluate their project performance and think what kind of competences would have made their work more efficient. The interviewees would do this by assessing what kind of competences were useful in the project and what kinds of competence did the most effective colleagues have. Encountering tasks that would require new skills would also be a concrete indication that they lacked some skill that would be required. The interviewees would also consider what kind of skills are in demand in projects, but they would be lacking. Sometimes they would encounter some relevant topics by having discussions with their colleagues.

In order to understand the competence development efforts of freelancers, it is important to understand personal motivations. Since freelancers and their competence is essentially the same as the competences of their one-person organization, competence development is strongly affected by personal motivation and interest. In general, the interviewees would find developing themselves and learning to be enjoyable and gratifying. Based on the interviews, the freelancers would balance between what they were interested in and what would be most useful for their clients and their own company's financial success. It seemed though that most of the things that the freelancers were interested in developing would be the same competences that they thought would be useful for their company's success.

Most of the freelancers got their motivation for developing competence from their client work. They would develop competences that helped them complete work tasks or allowed them to handle a broader range of work responsibilities. The views about developing competences that were not useful for work in the near future clearly differed between the interviewees. Three of them stated that they are not very interested in developing skills that would not be useful for them in their work. Four of the freelancers, would also practice skills that were not related to their work out of their own interest or for a hobby project they were doing. Contributing to a

community can also be a strong source of motivation for learning, as one of the interviewees expressed:

“The passion and drive for me it's more than a job. I'm just genuinely interested, so I read about stuff. If you are active in communities and you want to give talks and stuff, you want to study the subject. You don't want to embarrass yourself in front of 70 people.”

6.3.2 Planning competence development

Most of the interviewees did not have a systematic approach for planning their competence development. For short term competence development planning, four of the interviewees were utilizing self-composed lists of books and other learning materials. When they had time to use for developing their competence, they would pick a topic from the list and study it. For long term competence planning, the interviewees did not have many concrete approaches. Most of the freelancers had not consciously done long term planning but had some direction they were headed.

For long term competence development planning, the freelancers thought that skills related to specific tools were not as crucial as the more general competences and soft skills. Software development tools and technology would continuously change, but well-established principles in computer science and software development would change very little over the years. The interviewees also felt that so-called soft skills such as those related to communication, teamwork, and leadership would not become outdated and would take more time to develop. These competences would, therefore, be something that would be a suitable target for longer-term development plans. One of the interviewees told that they tend to emphasize competences that stands the test of time, but sometimes utilize experimentation for getting familiar with short term progress of tools and technology:

“I look mostly for principles rather than trends, and those don't really go away. So, in the short term I don't really do that much. In the short term, it's kind of interest-driven. If I see something cool, I'm interested in, the next weekend I will test it.”

For long term competence development, the freelancers found it important to evaluate each new client project based on what direction that project work would take their competences. The freelancer would often have to commit to the client project anywhere from 3 months to several years. The role in the project, the technologies used, and the industry of the client are relevant elements to consider from the competence development point of view. If the freelancer wanted to learn a new role, they would prefer projects that allowed them to practice competences that would be useful for them in the future for getting client work within that role. If they wanted to develop their technical competence in a specific area, they would prioritize projects that would give them the opportunities to get involved with the preferred technologies. Industry-specific competence can help the freelancer in getting client work in that specific industry in the future.

6.3.3 Training and certifications

The interviewees had varying preferences towards courses and certification as a way to develop and formalize competences. None of the interviewees had lately taken courses with lectures that had physical attendance. The interviewees found that training sessions would be most useful when the studied subject would be applied to practice at the same time or right after the course. Without applying the new knowledge, the learnings would soon be forgotten as one of the interviewees noted:

“I believe in trainings in a way that it would have to happen right before you start applying the knowledge heavily. I have done some certifications and done different trainings and my conclusion is that they are nice, but if you don’t use the knowledge right away, it will be forgotten.”

One of the interviewees pointed out another shortcoming of training courses. They felt that many of the courses were not up to date with the latest available information. The technology in software development is changing so rapidly that people arranging training as a profession might not be up to date with the latest knowledge

unless they still do software development work in addition to providing training. The interviewees thought that one of the best ways to deepen their existing skills and knowledge would be learning something in client work. The interviewees would, however, consider courses for learning a completely new area or topic.

Some found online courses more useful for learning new skills and would use online courses when the skill would be required in their client project or if the topic is something that they think will be useful in the future. Another interviewee also pointed out that for learning the fundamentals related to, for instance, computer science, they found university courses useful. Many universities have a good offering of online courses available for free.

Some of the interviewees had formalized their competences by completing professional certifications in different technologies and agile software development methodologies and frameworks. In general, the interviewees thought that certifications are not valued very highly by clients unless the certifications are known to be very challenging or advanced. Some interviewees pointed out that certificates might be more relevant for some larger corporate clients, and that the importance varies by technology. The freelancers thought that certifications might complement an otherwise convincing candidate. The interviewees did not have plans to complete certifications in the near future, as they did not consider them necessary for finding client work.

According to the interviewees, clients rarely offer them training for working with specific technologies. Clients are paying for their expertise and therefore expect them to have the required professional skills and knowledge to complete their work. The interviewees felt that clients would probably invest in providing more training for their own employees since the employee would likely spend more time in the company. Freelancers still have to learn a lot about the client's business domain in order to understand the terminology and concepts required for designing and developing the software.

Building a solution for a business problem often involves getting to know the customer's business processes. According to the interviewees, learning about the business domain usually happens organically in the project work as the freelancer gets involved with a specific area of the business. Developers were usually briefed about the topic by a person responsible for the business process or study the process by themselves utilizing the knowledge in a client knowledge base system. Freelancers were expected to be proactive in asking the right questions from project colleagues and clients in order to gain a sufficient understanding of the topic. One of the freelancers described how they learn the domain knowledge required in the client project:

“You familiarize yourself with the operational environment and the business. While you work, you often get support and advice. But it's very rare that actual trainings would be arranged.”

6.3.4 Identifying important competences

The interviewees would try to find out what competences are relevant to organizations by finding out what kind of technologies other professionals currently use in different organizations and what new technologies they are adopting for new projects. They would get this knowledge through colleagues and technology communities. Some freelancers also read job listings of software consultancies and their client organizations. The competences required for these positions would likely be the same competences that the client expected from a freelance worker. As mentioned before, the project team is a vital peer group for competence development. Some of the freelancers mentioned that they discover important the most relevant competences from their project colleagues:

“It happens a lot through my peer group. You tend to work a lot in projects with a lot of developers. Then one of them has some new idea or you encounter a new idea yourself. Then it [the idea] kind of spreads from there as a more comfortable way to do this thing.”

"You often find out about new technologies by hearing some people talking about them and that way you can get the spark to familiarize yourself with the topic."

For the interviewees, the most used online resources for finding out about competences are in demand were podcasts, news sites, newsletters, the social media service Twitter, as well as programming community platforms such as Stack Overflow and GitHub. One of the interviewees mentioned that industry experience and intuition have a role in analyzing the signals from various sources. Experience and intuition would help to identify the most impactful changes and filter out less significant ones. As one of the interviewees stated:

"I think that's a mixture of intuition, industry experience, and the signals you get online, social circles and community circles. When you've been in this game long enough, you know that it's not the safest bet to bet on the latest framework, but you should rather go for some deeper things."

6.3.5 Identifying changes in required competences

Many of the interviewees thought that it is difficult to analyze trends and to predict what competences will be relevant in the future. Most of the interviewees thought that it is good to follow some trends, but it is not necessarily essential for having client work. Interviewees past experiences suggested that even with substantial changes in the demand of competences, the existing competences did not lose their value. The interviewees also thought that they would have enough time to develop new competences as requirements change and demand for new competences grows, as one of the freelancers stated:

"—once a thing such as a framework X or Y is created, you do not need to be able to predict if it will become something. You have enough time in between the time of publishing a new framework and the time it becomes commonly adopted. You have enough time to learn it if needed."

The sources used for finding out about the competences that might be required in the future were mostly the same ones that the freelancers used for finding out about the competences that had demand currently. Some follow the research and tools the technology giants such as Google are investing in and make conclusions accordingly. Artificial intelligence and augmented reality were mentioned as examples of future technologies that have the potential to have a substantial impact on the IT industry as a whole. These technologies could require software freelancers to acquire new competences to keep up with the changes in the technology landscape. One of the interviewees believed that Google's efforts within the field of artificial intelligence suggested that competence in that area might be useful in the future:

“These things that Google and others have done regarding AI [artificial intelligence]. You can with quite good confidence predict that it's not going to die soon. These things you might not encounter soon in your own work, but they are something that you might face later in a project.”

The freelancers would find about upcoming trends from social media, technology conferences, and meetups, as well as following thought leaders of their industry. Technologies discussed in technology conferences would often be about novel technologies that do not yet have high adoption. Some of these technologies would eventually make it into the daily project work and become requirements for freelance work. Topics from large conferences would also be picked up by more local communities.

6.3.6 Competence and competitive advantage for freelancers

The interviewees were asked about what kind of competences customers value when looking for a freelancer. It is worth keeping in mind that this is the freelancer point of view since no people in client organizations were interviewed. Nevertheless, the experiences of freelancers in the validation and selection process might give us valuable information about what competences help them succeed in getting client work. The interviewees had found that most valued competences for clients when

looking for a freelancer were technical competence, communication, adaptability, social skills, as well as attitude and responsibility towards their work.

For the interviewed freelancers, competitive advantage meant being able to get the client work that suited their needs with a high enough hourly price. The interviewees had varying experiences of the client organization selection processes. Some organizations would evaluate and interview multiple consultants and pick the ones they found most suitable. Freelancers would, therefore, be competing against other consultants being offered or applying for the same contract. The selection process would involve activities typically associated with recruitment, such as screening resumes and interviewing candidates.

Many of the interviewees pointed out that no matter how exceptional the technical skills of the freelancer would be, they would not be selected if they could not communicate well enough about their work and work as a member of a team effectively. Communication skills mentioned by the interviewees included keeping the client up to date about the progress of the work and being able to express technical topics in terms that people from different disciplines would be able to understand the issue. Effective communication can create a shared understanding of the work required for achieving the objectives of the project. One of the interviewees also mentioned that clients also value quick response times. Responding on time could build trust between the freelancer and the client. One of the interviewees had personally experienced the importance of communication competence in the selection process:

“I think that the main theme is communication. I noticed that it was talked a lot at the first client. They mentioned that they had a person they were interviewing for development work. The person was seemed promising, but they did not believe that the person could communicate effectively enough.”

The extent of technical competence required would depend on the client project and the role. A technology company might be looking for a freelancer with profound knowledge in a specific topic, but the majority of the work had a standard set of skills

required. Most of the freelancers specialized in a specific area of software development, such as web development, mobile development, user interface design, or backend development. Within these competence areas, there would be some common theories and concepts that they would have to be familiar with. On top of that, there are a lot of different alternatives for programming languages, frameworks, and other tools. According to the interviewees, the client organizations would sometimes look for experienced people in a specific tool, but often experience with a similar tool in the same context would be sufficient for successfully delivering results.

The interviewees had experienced that the expectations for freelancers were often quite similar to consultants from larger consultancies. The interviewees did, however, point out that freelancers do not have the reputation and support of a large company behind them in the consultant selection process. Larger consultancies might convince their customer with an extensive portfolio of high-profile software projects. These consulting companies would often offer the competence of their collective, whereas freelancers were selling the competence of an individual. Many of the interviewees felt that freelancers would go through a stricter validation. The distinction between consultancies and freelancers can sometimes be blurred from the customer perspective. Individual freelancers would often work for the end client organization through a larger consultancy. The freelancer would have a contract with the consultancy while the consultancy would have a contract with the end client. In cases where there are these kinds of subcontracting chains, the clients might not even notice the difference between freelancers and other consultants. One of the interviewees described how their client perceives them:

“For me the situation from the client point of view is that I’m there as a consultant from a large consultancy even though I’m a freelancer. – I doubt that many of the clients even know that I’m a freelancer.”

The interviewees also pointed out that freelancers in the software business tend to be quite experienced in their field. Most clients would most likely not hire an inexperienced freelancer for their project. An exception was mentioned by one of

the interviewees. Small companies with a more limited budget might hire someone who is less experienced in order to save on development costs.

The freelancers had noted that 'years of experience' was quite a common metric used by client organizations for selecting consultants. It was believed to be one of the most critical factors when client organizations evaluated and compared candidates. One of the interviewees pointed out that the number of years of experience was used in filtering candidates in a similar matter as formal education. It allowed clients to reduce the number of candidates they would spend time interviewing and getting to know better. One of the interviewees mentioned that total years of experience and experience with specific technologies is even more important for many public sector project tenders, where it is used as a quantifiable metric for evaluating and comparing competing companies and their candidates for the project.

The interviewees thought that 'years of experience' is used as a metric that could give some indication about the consultant's competences for the work role. The intention would be to measure traits such as a holistic understanding of software projects, system architecture, and different environments. Another interviewee mentioned that years of experience could indicate maturity accumulated from having worked on multiple projects in the past. Clients would also deduct the level of technical skills based on it. Some of the interviewees pointed out that while too little experience could get one filtered out of the selection, too much experience in the same field could have the same result. Someone who has worked many years on the same subject might be considered stagnated. One of the interviewees commented on the optimal amount of experience and the importance of experience measured in years for public sector clients:

"I believe it [years of experience] is one of the decisive factors. In one particular customer segment it's crucial: public sector organizations. My view is that there's a sweet spot. If you are a junior, it might be hard to get in as a freelancer, because if the client wants a junior, they are going to hire one as an employee. – If you have a lot of experience, some clients are excited, while others can think that you have

been doing the same thing for a long time and wonder if you are in a rut and see it as a negative thing.”

While the ‘years of experience’ is relatively easy to measure based on work history, the interviewees questioned its usefulness for indicating job performance or competence. The interviewees considered the number of years to be a poor indicator of competence since they had encountered people with only a few years of experience performing excellently, as well as people with numerous years of experience performing poorly in the project. The interviewees found that clients did not always have sufficient capability to evaluate technical competences of the candidates and, for that reason, had to resort to something easy to quantify.

Although all of the interviewees had university degrees, many of them did not consider formal education to be an essential factor for getting client work. On the other hand, an interviewee mentioned that some organizations only do hire software developers with university degrees. The fact that all of the interviewees had at least a bachelor’s degree suggests that either people interested in software development tend to get university degrees, or that software developers without degrees are not getting employed or contracted as freelancers. The views of the interviewees might also be skewed in the sense that none of them had worked as a freelancer without having completed at least some university studies. It might, therefore, be hard to make conclusions about the importance of formal education for freelancers within the field of software development without researching the client organizations and their selection criteria.

Most of the interviewees recognized the usefulness of a university degree in a relevant field, but it was not seen as the only way for getting the skills required for working as a freelancer in software development. The interviews seemed to agree that a degree in software engineering or computer science wouldn’t guarantee that the person would necessarily be highly performant at their profession but would indicate that the person most likely has some basic understanding of the concepts and theory related to their field of study. The interviewees mentioned that the importance of a degree was higher in the early years of their career, but the

importance of a degree was decreased with every year of experience accumulated. According to some of the interviewees, formal education is also be used as a way to filter the number of candidates in the early screening phases in some client organizations.

The interviewees thought that it is quite important for a freelancer to know what kind of competences are advantageous for getting client work. Knowing about what competences are in high demand would allow the freelancers to plan their competence development in a way that would make it easier for them to get client work in the future. Knowing what is in demand might also help the freelancers in identifying gaps in their knowledge and skills within some areas. If some of the technical skills have become outdated, the freelancer might want to learn about a newer and more relevant alternative for the outdated technology in order to keep their competence up to date. Once a technology becomes outdated, the freelancer might want to learn about a newer and more relevant alternative in order to keep their competence up to date.

6.4 Competence development in networks

6.4.1 Freelance work and competence development in communities and networks

The professional networks that the interviewees participate in include different technology meetups that typically gather once a month to presentations on topics related to a specific technology or a programming language. One of the attendees also mentioned that they attend events arranged by the Startup Sauna community, a startup hub for entrepreneurs to meet and discuss topics related to entrepreneurship, business, and technology. The interviewees also mentioned technology conferences as a common way to share knowledge and learn about new things, but only a few had attended conferences lately. In addition to participating, two of the freelancers also gave presentations in different technology meetups and small conferences.

In addition to meetups, some of the freelancers are active members of different online communities. All of the interviewees also have an informal network of colleagues, friends, and acquaintances working in the industry. One of the freelancers was also a member of an organization of micro-entrepreneurs in Finland. The organization helps small entrepreneurs in different industries with matters related to entrepreneurship and growing their business.

The online communities that the interviewees were active in varied from different discussion groups and social media sites to open source communities. In open source communities, developers work together on a project or share their work to be freely used by others.

The reasons why the interviewees participate in these networks include learning, meeting new people, growing networks, helping others, and scouting for potential employment opportunities. The communities allow freelancers to ask for advice from a large group of professionals in the same field. Some freelancers felt that since customers are paying for their expertise and have high expectations for their knowledge, they might hesitate to tell the client that they do not know about a specific topic. They will instead research the topic and, in some cases, reach out to communities for guidance. One of the freelancers noted:

"I feel that as a freelancer, you have a higher threshold of asking someone else advice at the client because the client pays you for your competence. I feel that if you ask for help in too easy topics, they might start thinking about why they are paying for this person for this. I might, in those cases, ask my friends."

Community events were considered by the interviewees an effective way of finding out what competences might be valuable in the future. The topics of the presentations in the events were often about technologies that might not have reached enough maturity to be used in client projects but might become relevant in the near future. Informal discussions allowed the interviewees to get to know what kind of projects others were working on and what kind of competences are required in those projects. Participating in different events also helped in discovering new

alternatives for technologies and ways of working. Getting to know about the new topic inspired them to learn more about the topic and to apply the method in their work. In addition, one of the interviewees pointed out that participating in communities as a freelancer can compensate for the work community that they are usually lacking:

“The whole thing goes to competence development for me. That's how I augment as a freelancer for not having an x amount of colleagues around me. I can go to these events and meet all the people that are there, and I can learn something from them, or I can share something I know.”

Community events were also considered valuable for network building for freelancers, since having large networks can help freelancers find client work. Some of the freelancers had been contacted for contract work by people they had gotten to know in technology events or online communities. People that they had gotten to know through these communities were also considered to know the skills and interests of the freelancer well, and the work offered would be relevant for them in terms of technologies used. One of the freelancers who is an active member in programming language communities told that he had gotten work opportunities through the communities:

“I would say that I've observed people getting jobs through some of these networks. I've certainly been offered multiple jobs and interview requests through these networks. If you are part of a [programming] language community and you produce a lot of things there. People who use the [programming] language professionally will ask if you would like to work on a project or in their company. For freelancing, it is especially very important to be part of these.”

Some of the interviewees did not participate in communities or build networks as actively as others. The reasons were mostly related to time management and work-life balance. These interviewees thought that there is value in participating in communities because they gave other activities a higher priority. One of the interviewees pointed out that in addition to client work, different entrepreneurial

activities take time. They felt that they do not have enough time to participate in communities during work time and did not want to compromise their personal time for work-related activities. Based on the interviews, the most experienced entrepreneurs seemed to highly value their work-life balance and prioritized a clear distinction between free time and work. When asked what the reasons were for not actively attending events and groups, one of the freelancers answered:

“Nothing in particular, other than I’ve not had time for it. These days I spend my free time mostly on completely other things than programming related activities.”

Regarding competence development, one of the interviewees pointed out that the event structure where few people give presentations, and others are listening, is not an effective way for them to learn. They would rather attend more interactive events where participants would discuss and there would be more opportunities to meet and get to know other people. Other interviewees also valued the informal discussions in events to have high value, sometimes higher than the presentations themselves. Preparing and giving presentations in these events was considered to be much more effective for learning than participating in the event without presenting anything. Besides learning, giving presentations was considered to be an effective way for a freelancer to build a brand and reputation that would help them find clients.

The interviewees select which communities they participate in based on several criteria. The interviewees find out about different communities from other people in their network, and their recommendations affect the decision to become a member. With communities that have meetings, interviewees value convenience regarding location, time, and venue. The interviewees would also select their communities based on what topics they are interested in at the moment and might pick a single session to attend if the topic is relevant for them. This was particularly the case for technology communities, which might be focused around a single technology or programming language. The relevance of the topic for work projects was also a factor brought up in the interviews.

Technology communities for most of the interviewees were not the primary venue for client networking, but rather for networking with other developers and competence development. Some thought that technology communities consist mostly of peers and were lacking people who would be in a position to hire freelancers. One interviewee mentioned that larger communities might be more useful than small ones for finding client work. Larger communities would allow the freelancer to reach a larger amount of people.

One interviewee mentioned that even if the central theme of the network would be relevant to them, they have in history chosen not to participate because they did not find the people pleasant. Another interviewee, on the other hand, said that the purpose or theme of the network is not necessarily critical if the people and discussions had been pleasant and exciting:

“-- whereas something where I don't have such a high interest in the actual topic, but they meet every week, and there's a lot of people, and there's always interesting discussions happening, I might still go there.”

Although many of the communities that the interviewees had participated had a strong technology focus, the interviewees found that in addition to gaining knowledge and skills about technology, participating could develop their communication and social competences. Discussions and presentations would require skills to communicate complex and abstract topics with people from different backgrounds. Some interviewees who had given presentations and workshops developed their pedagogic competences by attempting to teach others in a way that would be engaging and easy to understand for the participants.

Most of the interviewees thought that communicating about their competences to the people in their network would be useful for getting recognized in their field. Writing blog posts and sharing their experiences and knowledge about a topic would allow them to build a reputation as an expert in their field. According to some of the interviewees, they were able to get inbound business leads and find client work through people who are familiar with the content they have created and shared. The

people would specifically contact them if they had work related to the freelancer's field of expertise. Another way that sharing their knowledge with their network is useful in finding clients is when they apply for freelance work in a company is the credibility and validation that being active in certain communities and sharing knowledge can give. The person validating whether the freelancer is a good fit might find it easy to check that the person has the required competences based on the person's online presence or recommendations from people in their network.

Five of the entrepreneurs found the support of other entrepreneurs in their network beneficial. They would reach out to other entrepreneurs for any topics related to running a company, such as insurance, taxes, accounting, and financing. The interviewees had also discussed their hourly rate for their services, helping them to understand what the market rates are and what their rate should be. Freelancers would also discuss potential clients. Getting information about a potential client or partner from someone who had worked with them would be valuable when selecting a project to work on. Three of the interviewees did not utilize the help of other entrepreneurs and could find the information they needed elsewhere.

The most important group of people that the interviewed freelancers would learn from and develop their competences with is their client project colleagues. The project colleagues were usually other consultants as well as employees of the client organization. Many of the software development projects had processes and mechanisms that helped the team and the individuals to continuously develop themselves to be better at their work. The methods that supported developing their software development competences include the agile methods, code review practices, and feedback processes. One of the freelancers described the importance of project colleagues for competence development:

“Overall, the project team you work with is probably the biggest influence. I think that's true regardless if you are working in-house or consultancy or freelancer. Because of these ways of working, where you have code reviews, you can get a lot and teach a lot as well.”

Agile approaches to software development include many practices that support continual improvement of the people, product, and processes. Iterative work and recurring retrospective meetings would allow people to continually evaluate what the team needs to do and what competences they need to develop in order to become improve their work. The retrospective meetings are focused on evaluating past work on the team level. The learnings from these sessions might include technical topics, but more often focus on competences related to teamwork and communication. Code reviews involve one or more developers reviewing the code written by another software developer before it gets accepted and integrated into the software product. These reviews often involve many feedback rounds and allow the author of the code to learn about different approaches to solving the problem and fixing any issues in their implementation. The interviewees considered code review practices to be valuable for developing their technical competences. Both the reviewer and the reviewee would learn in the process. Some of the freelancers had also attempted to get feedback from their peers and clients, but most felt that there was not enough actionable feedback from the client-side.

The interviewees worked in different industries, and many had worked for a variety of different clients in the past. Therefore, starting in a new customer project would often involve learning about some aspects of the business domain and the industry. The interviewees felt that they would often have quite good skills in the primary tools and technologies used in the project, but there would always be some aspect of the project that they were not that familiar with. Some of the interviewees pointed out that an optimal new project for them would have a certain percentage of familiar topics, where they could utilize their existing skills, as well as a certain percentage of new topics that require them to learn new skills. For them having some new topics to learn about would be motivating and would keep them productive and engaged in their work. Having too many new topics would result in increased stress and less effectiveness in the short term as most of their time would go to learning instead of completing the project work.

Not all of the freelancers were active in building reputation and communicating about their expertise to online communities. Nevertheless, even those who were not active

on social media platforms would build their reputation within their client projects. The work is often done in large teams, and the recommendation from someone who has worked with the person on an actual client project might be valuable for getting the next client project. Some of the interviewees pointed out that freelancers have to pay extra attention to being productive and making the customer satisfied with their work. Without the support of a brand of a well-known company helping them get recognized, the only validation and reputation is based on satisfied clients and colleagues in their previous projects. One of the interviewees emphasized the importance of integrity and strong ownership of their work in achieving high customer satisfaction. Two of the freelancers emphasized the importance of reputation formed in client projects:

“Not really. The only communication channel we use is that we go into projects and try to be sharp as hell and try to make that our brand.”

“I think that the message spreads more in a way that people have worked with me. When you don’t do personal branding or communicate your competences externally, colleagues and project work becomes even more important.”

6.4.2 Competence development in client projects

Most of the interviewees experienced that most of their competence development happens in client projects. The interviewees said that they needed to continuously develop their skills in order to complete their work tasks. While a majority of the work was similar to what the freelancers had previously worked on, most of the client projects would still have some area that would be new to them and required learning new technical skills or ways of working. The interviewees would also prefer projects where they had to learn new skills. One of the freelancers, however, did point out that they would have to learn entirely new competences, but instead mostly applied their existing skills and knowledge in a new context. When learning new skills, the freelancers would reach out to their colleagues as well as utilize online resources to research the problem at hand. One of the freelancers commented on proportions of familiar work and work tasks that require new skills in the project:

“I think that for the most part 75% of the project work is quite familiar. And the rest requires learning.”

The interviewees felt that they were able to find client work that allowed them to develop the competences that they needed to develop. The learning objectives of the interviewees would strongly affect what kind of project work they would be willing to do. Freelancers would turn down work that did not align with their existing competence and competence development goals. A freelancer described what would be the optimal project for them from the competence development point of view:

“The best would be that you know enough to be productive in a project, but everything on top of that would be growth. If you have too much growth, productivity goes down. That’s not good either, since you do need to deliver something to the client.”

Some of the freelancers pointed out that in some projects, they were using older technologies that were no longer that relevant when starting a new software development project. Working on these kinds of projects might result in learning technologies that might not be very useful for finding new client work in the future. These technologies might although still be relevant in some organizations that have a lot of long lifetime systems and where technology adoption is slower than average. The interviewees experienced that clients expect a freelancer to be experienced with the technology they are using and would not be willing to pay for the freelancer to learn the skills required in the project work. In these cases, the freelancer might not be able to get a project even if they would be interested and motivated to learn the new skill required.

In addition to learning at work, many of the freelancers developed competences outside working hours and between client projects. The freelancers would develop their own programming projects mostly with a purpose to learn new technical skills. The hobby software projects would allow them to work on things that they might

otherwise not encounter in their work. The freelancers would also listen to podcasts, watch videos from technology conferences, and read books to learn about new topics. The freelancers found it valuable to learn about topics that were not directly related to their work at the moment.

The temporary nature of freelance work was considered to have a positive effect on competence development. The freelancers would have to adapt to different organizations and their working methods in order to complete their work effectively. One interviewee thought that the pressure to learn new things could be a negative or a positive thing:

“In the best case, there’s constantly something new. You get the pressure of having to learn all the time and do not have time to settle. It’s a positive or negative pressure that you have to learn something new all the time.”

Another interviewee stated that the freelancers get to use and learn multiple software development frameworks and tools in their client work:

“One positive thing is that you use a lot of different techniques and frameworks and such. - - Earlier in my career, I worked a long time in a product company, and we did the same code base for years, and the situation was that I was not aware of everything happening around me.”

One of the interviewees compared the differences between working in product companies and doing freelance work. They told that they have to start new projects from the beginning more often than when working in software product companies, resulting in better competence in setting up projects:

“Starting a new project from scratch would have been more difficult. As a consultant or freelancer, if you do a little bit shorter projects and start a new project every now and then, it makes it easier.”

7 CONCLUSIONS AND DISCUSSION

This chapter of the thesis will present the conclusions of the research by providing answers to the research questions. The theoretical, managerial, and methodological implications of the results and the research process are also discussed. The discussion includes an assessment of the methods and execution of the research and suggestions for further research.

7.1 Addressing the research questions

The focus of the thesis was to understand the freelancers working in the field of information technology and their competence development efforts. In addition, the attempt was to find out what is the importance of networks for their competence development. The sub research questions were defined in a way that they would guide the study towards constructing a better understanding of how and why freelancers develop their competences and what kind of advantages competence development efforts have for them. It is worth emphasizing that the thesis research captures the view of the freelancer and that the interpretation of the results of this study should be made accordingly.

7.1.1 RQ1: Who are the freelancers, and why did they become self-employed?

The freelancers interviewed were experienced and had a high level of education in their field. Their experience included working in software product companies and consultancies before becoming entrepreneurs.

According to the empirical study, motivations for becoming a freelancer included freedom, independence, responsibility, better compensation, and strong entrepreneurial inclination. Freelancers felt that entrepreneurship gives them freedom, control over their work, and the potential to have a more significant impact on their work. The results seem to align with previous studies (Fraser & Gold 2001,

Blanchflower 2006, McKinsey 2016). Even though some self-employed workers have become self-employed reluctantly (Kautonen et al., 2014), all of the IT freelancers interviewed in this study had chosen to become self-employed out of their own will. The outlook towards the future of freelancing for the interviewees was mostly positive, and they thought that their access to work would stay sufficient in the future. Not all freelancers receive better compensation than their employed counterparts (Blanchflower and Shadforth 2007; Hamilton 2000), but the individuals interviewed in the study described freelancing as a financially favorable option.

For the sake of understanding creating a balanced description of freelancing, the study examined both the positive and the negative aspects of freelancing. The interviewees were asked about what they disliked about freelancing, and the answers included activities such as sales, taxation, finances, and the paperwork required for running a limited liability company. Uncertainty of entrepreneurship was also one of the significant negative aspects of entrepreneurship for the freelancers. Many also found managing time and focus challenging as a freelancer.

7.1.2 RQ2: How do self-employed professionals maintain and develop their professional skills and competence?

Despite not having a systematic approach for planning and managing competences, IT freelancers acknowledge the importance of competence development for their work and undertake competence development activities. IT freelancers primarily develop their competences within their client work when needed and prefer learning skills that would be useful in their current work. Secondary motivations for developing themselves included personal interests, hobby projects, and learning things for being able to contribute to professional communities by developing open source software or giving presentations and teaching others.

Some of the freelancers did competence assessment deliberately, while others assessed their own competences routinely as a part of their work. Some of the freelancers utilize feedback from their clients and their peers for assessing their current level of competence. There, however, seemed to be a lack of high-quality

feedback for the freelancers. The feedback was used in identifying competence gaps and areas that would benefit from being improved. Most of the freelancers would identify shortcomings in their skills while working on new areas or with new technologies and considered that a fundamental part of the work of a freelancer in their field.

The interviewee's view of the usefulness of training courses varied significantly. Most of them did not rely on course -type learning for developing their competence, but some freelancers were actively studying on their own with the help of online course materials. The clients did not usually provide training for the freelancers, but the freelancers would often have to learn the business domain of the client in order to get their work done efficiently. Most of the freelancers did not think that having technology-related certificates would be necessary, but some suggested that they might be useful when working with specific technologies and clients.

7.1.3 RQ3: How do self-employed professionals find out what skills are relevant and in demand in the market?

IT freelancers think that it is essential to keep learning new skills in order to keep their competence relevant. Despite the constant change, it is possible to gather fundamental competences that will retain their value. Freelancers get the knowledge about competences that are in demand from their colleagues, technology communities, and different online sources. Freelancers have access to different freelancer work listings through various freelance broker networks, and some follow the listings for seeing what kind of competences appear in the listings the most. IT freelancers also follow what the tech giants such as Google are developing and how the technology and tools that they develop might change their work in the future. A lot is happening regarding new technologies and required skills. The freelancers have to rely on their experience and intuition to identify the technologies and related competence that they think will be important in the future. Freelancers found it challenging to analyze changes in the longer term.

7.1.4 RQ4: How do self-employed professionals gain competitive advantage through competence development efforts?

Competitive advantage in the context of this study means the attributes of the freelancer and their company that can give them an advantage compared to other freelancers in getting contract work that is well paid and suits the preferences of the freelancer. It is critical for a freelancer to know what kind of competences are in demand and required for getting client work. The freelancers attempted to keep up about which skills are needed and made active efforts in order to keep their competences up to date. The most important competences for getting client work were technical competence, communication skills, social skills, adaptability, and attitude. Communication was found to be the most critical of these competences.

The competition for freelancers culminated whenever they had to search for the next client project and went through client interviews and negotiations. The clients would often have a selection process where they evaluated multiple consultants for the same position. The freelancers believed that the clients screened candidates in the initial phases of the selection process based on the candidates' skills, education, and amount of their experience. It is worth noting that the freelancers thought that the capability of the client to validate technical competences of the candidates was lacking.

7.1.5 RQ5: What kind of networks do self-employed professionals participate in to develop their competence?

IT freelancers participate in different networks, many of which are focused on learning and sharing knowledge. These networks include different technology communities, recurring technology meetups, entrepreneurial communities and events, and online technology communities. The motivations for being active in these networks include learning, meeting new people, growing business networks, helping others, and finding potential employment or business opportunities. Most freelancers participate as observers rather than contributors, but being a contributor was considered more useful for competence development than merely observing.

Many of these activities happen outside office hours. Not all entrepreneurs participate in them because of a lack of time or prioritizing free time activities or other entrepreneurial activities over participating in these events.

The client work project group consisting of client personnel and other consultants is considered by far the most important group for a freelancer's competence development. Different work processes and agile practices support the competence development of the freelancer, allowing them to learn from their peers and the client. Finding a suitable client project with competence requirements that have the right balance of new competences and existing competences for the freelancer can be impactful for their learning. Being able to change projects often is considered to have a positive impact on the freelancer's competence development.

7.2 Theoretical implications

Existing research about competence management is focused on larger companies with multiple employees. This thesis contributes to the existing discussion by providing insight into the less studied group of self-employed entrepreneurs and their competence management. The thesis constructs a better understanding of the IT freelance workers, their circumstances, and their motivations. Similarities about motivations and circumstances for the IT freelancers can be identified with other independent workers such as the freelancers working as translators and journalists (Fraser & Gold 2001, Bögenhold & Heinonen 2014).

The results of the study imply that actors within the company's network of exchange have a significant effect on competence development of freelancers. Competence development objectives and concrete competence development are influenced by actors in the customer organization, project organization, freelance work brokers, other freelancers, and friends. These results are aligned with findings of earlier studies of competence development involving networks, see: Andersson et al. (2002), Awuah (2007); Ritter et al. (2002); Håkansson et al. (1999).

Some definitions of competence include the requisite that competences provide competitive advantage to its holder (Athey & Orth 1999). The results of the study suggest that competence management is considered essential for freelancers and could be a source of competitive advantage in the freelance market where candidates and their competences are being compared in the selection process.

7.3 Managerial implications

The results could have managerial implications for freelance entrepreneurs, organizations who use freelance services, as well as other organizations involved in the freelance business, such as freelance network brokers.

The client organizations can better understand the motivations of freelancers and understand the value of competence development in the work they provide. With the current demand of highly skilled IT workers, the client organizations can attempt to get the best people by providing them better opportunities to develop their competences in their work projects. With the growing number of workers in different forms of employment, organizations that use the services of freelancers should aim to construct a holistic view of competence management. The managed competences should consist not only of the organization's internal competences, but the competences of their partners and their contingent workforce.

The results might also have some implications for the brokers that do matchmaking between the freelancers and the client organizations who use the services provided by the freelancers. Understanding the freelancer's current competences, as well as what competences they wish to develop in the future, could result in better matches for both the freelancer and those who wish to employ freelancers. Freelance brokers could also build new business offering by providing services that help freelancers to improve their competences and consequently get better access to client work.

Freelancers can benefit from knowing what kind of approaches other freelancers have taken to competence development and incorporate new practices or establish a more systematic approach towards competence development. It became apparent

in the interviews that most of the competence development happens in client projects. The freelancers should be mindful of their competence development goals and how client project work could support them in achieving those objectives, especially when they are choosing client projects. Even though not required, some freelancers might also consider participating in different professional networks for competence development. As a last note, understanding the connection between the competences and competitive advantage in finding client work might help, especially inexperienced freelancers, in building their skills to the level that client organizations are expecting.

7.4 Methodological implications and limitations of the study

Admitting the subjectivity of the researcher is a fundamental part of qualitative research, and the researcher is a critical part of evaluating the reliability (Eskola & Suoranta 2014, 211). A research report for a qualitative report should describe the research process, the principles, and the decisions that the researcher has made in each step of the research process, including the mistakes that were made (Varto 2005, 183-184).

Steps were taken in data collection to ensure validity of the research. Recording and transcribing each of the interviews ensured that there was no need to rely on the researcher's memory and decreased the risk of forgetting or remembering what was discussed incorrectly. The semi-structured interviews as a method for data collection in this thesis allowed clarifying the questions in a way that some other methods do not, and that can contribute to the validity of the study (Saunders, Thornhill, Lewis 2009, 327). A conscientious effort was made to make sure that the interpretations and conclusions made based on the discussions had with each of the interviewees would truthfully describe the views of the interviewee. In a qualitative data collection as well as analysis, there is, however, always some chance for misinterpretation.

Eisenhardt (1989, 533) suggests that having a combination of qualitative and quantitative data for case study research could give a more synergistic perspective

of the subject. The data collected for the research consisted of solely qualitative interviews. All phenomena however have both, qualitative, and quantitative dimensions (Ercikan & Roth 2006, 22). To capture a more holistic view, the study could have benefited from having quantitative data in addition to the qualitative material. In addition, a case study can gain better triangulation by using multiple data collection methods (Eisenhardt 1989, 533). Using multiple methods for data collection instead of relying only on interviews could have improved the validity of the results. Yin (1981) suggests that considerable amount of case study research fails at preserving the visibility of the analysis process from individual cases, to cross-case analysis, and finally findings and conclusions of the study. The different steps of the case study analysis process could have been kept more distinguishable from each other in this study to provide a clear chain of evidence.

The transferability of the thesis study results is limited. There are some existing studies about high skilled freelance work (Bögenhold & Heinonen 2014, Fraser & Gold 2001), but the amount of studies of competence development of freelancers is scarce. The selection of the interviewees could limit the transferability of the results. All of the freelancers picked for interviews are located in the Helsinki capital area in Finland, and many have been doing freelance work successfully for years. The sample is missing the people who have quit being freelancers and have returned to traditional employment. Because the interviewees are all located in Finland, strong general statements about competence development of IT-freelancers in other countries cannot be made. It is still fair to argue that some of the results should be transferable to other high-skilled IT-freelancers and perhaps to some degree to other high-skilled freelance workers in other developed countries, because of a set of characteristics being shared between the high-skilled self-employed professionals. It is, however, essential to acknowledge that cultural, societal, and legal differences inevitably have some effect on the transferability.

When analyzing the collected empirical data, the intention was to capture each of the interviewee's insights on each question and topic. There were some significant differences in the communication style and the verbosity of the answers given by the freelancers. The ones who were quieter might not have mentioned something

that a more outspoken individual would have said. There was an attempt to ask more additional clarifying questions from those who had more precise short answers to the questions. These individual differences could still affect the credibility of the results.

7.5 Suggestions for further research

Competence management research is often observing large companies and their human resource management efforts. The relevance of competences is at least equally important for high skilled freelancers as their product is essentially the competence that they provide for the client organization. An individual freelancer is, at the same time, the one who manages competence, as well as the one being managed. This sets a different starting point for competence management. Studying SME's and especially self-employed individuals deserves particular attention since the results from studies where competence management practices of large companies are being analyzed, might not necessarily fully transfer to smaller companies.

As the number of self-employed entrepreneurs increases and the impact of freelance work grows, it becomes more important for the freelancers and the client organizations to rethink their competence management strategies. This thesis addressed the freelancers' point of view. Understanding the freelancers is undoubtedly essential, but in order to understand the topic and its effects comprehensively, new research would be needed, especially from the client organizations' points of view. The effect of using a contingent workforce and augmenting the internal competence of the organization with a specialist freelance workforce is a topic worth exploring.

While the individuals participating in this study were all full-time entrepreneurs, some of them had entered freelancing by becoming hybrid entrepreneurs. The freelancers mentioned that their clients expected them to be highly skilled in their area of expertise and experience was considered important for getting client work. Folta et al. (2010) suggest that hybrid entrepreneurship as a process could be a valuable

approach for learning and evaluating entrepreneurial competence. Further research of competence development of hybrid entrepreneurs would be valuable in understanding the potential benefits of hybrid entrepreneurship for competence development. Hybrid entrepreneurship could be a viable approach for less experienced individuals to develop entrepreneurial and other professional competences required for full time entrepreneurship.

The topic of competences as a source of competitive advantage for freelancers was addressed in this thesis. Further insights into the topic could be discovered through research that would attempt to find out how important are competences of the freelancers in the selection process and which competences are more important than others. It would be valuable to gather data from organizations that use the services of freelancers as they could provide a different view on the topic. The freelance work brokers might also have valuable insight into the impact of competences for the freelancer matchmaking and selection process.

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Appendices

Appendix 1 – The interview guide

| Section | Content |
|--|---|
| Introduction to the subject | Introducing the interviewee to the subject, the goal of the research and the structure of the interview. Telling the interviewee how the interview will be used in the thesis and asking for consent. |
| Background | Introductions of the interviewer and interviewee. Gathering relevant information about the background of the interviewee. |
| Freelancing as a phenomenon (RQ1) | Freelancing and the motivations behind becoming a freelancer. |
| Networks & competence development (RQ5) | The role of networks in competence development. |
| Competence and competitive advantage for freelancers (RQ4) | Importance of competence for success of freelancers. |
| Competence development (RQ2) | Freelancers developing and maintaining their competences. |
| (RQ3) Skills needed for client projects | Approaches for finding out what skills are relevant and in demanded by clients. |
| Closing up | Closing up the discussion, last words and additions if anything was missed during the interview. |

The structure of the interview

Introduction to the subject

- The interviews are done for a master's thesis in a knowledge management programme in LUT University
- The main goal is to find out how freelancers develop their professional competence in a networked environment
- Secondary goals include understanding the importance of competence for freelancers and understanding freelancing as a phenomenon
- Total amount of interviewees will be 8 and the thesis will be finished in 2020
- Asking for interviewee consent for recording the interviews and using the data for the thesis research.

Background

1. What is your professional history like?
2. How many years of experience do you have in your profession?
3. What's kind of education do you have?
4. What is your age?

Freelancing as a phenomenon

1. What were the motivations for becoming an independent professional?
2. The number of high-skilled freelancers has been growing globally. What do you think are the reasons?
3. What do you think about the future of freelancing in the software development business?

Networks & competence development

1. Do you participate in any professional networks such as competence groups and their events?
2. Do you think participating in professional networks can improve your competence?
3. How do you select which networks you participate in?
4. What kind of courses, trainings, events, groups, or online communities do you participate in to develop your competence?
5. Do your clients provide you with training?

6. If so, what kind of training?

Competence and competitive advantage for freelancers

1. What kind of attributes you think clients appreciate when selecting consultants to their projects?
2. How do you think they differ if the consultant is an independent contractor?
3. How important is the role of formal education such as university degrees for clients when they are selecting a freelance software developer?
4. How important is the role amount of experience for clients when they are selecting a freelance software developer?
5. What do you think the amount of experience is an indicator of?
6. Is it important for a freelancer to know which competences are important for getting and performing in customer projects?
7. Do you seek ways to formalize your competence through certifications?
8. How much do you think that customers value professional certifications?
9. How important is it for a freelancer to know which competences are important for getting customer projects and performing well in them?

Competence development

1. How do you know if some area of your competence needs more development?
2. How do you assess your own competence?
3. How do you find out which competences are in demand by customers?
4. What are the motivations for acquiring a new competence or developing one?
5. Do you develop your competences outside client project work? If so, how?
6. How much do you work with tasks that require you to learn new competences?
7. How do you assess your own competence?
8. In what way do your competences or your desire to develop specific competences affect what client projects you select to work on?

Skills needed for client projects

1. The software industry is progressing rapidly, and new skills are required. How do you keep up with the development?
2. How do you find out what competences are in demand at the moment?
3. How do you get to know what skills and competences might be required by clients in the future?
4. What kind networks or communities do you use to find out about upcoming trends?
5. How much do customer demands for skills affect your plans for developing or acquiring new competences?

Closing up

Asking the interviewee if they would like to add something. Thanking them for their time and explaining how their interview results will be further analyzed and used in the thesis project.