Aalto-yliopisto
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Aalto University

Master's Programme in Management and International Business

Upskilling financial management professionals in the post-pandemic era

Case: Intelligent automation in a financial management outsourcing unit

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Master's Thesis
2022

Aalto-yliopisto
Aalto-universitetet
Aalto University

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Title of thesis Upskilling financial management professionals in the post-pandemic era

Degree MScBA

Degree programme Management and international business

Thesis supervisor PhD Hertta Vuorenmaa

Date 19.09.2022 **Number of pages** 89 + 4 **Language** English

Abstract

Intelligent automation (IA) refers to a set of emerging technologies that are dramatically changing knowledge work, especially in the field of finance and accounting. Accounting professionals are expected to learn various skills, for instance, technological and social skills, to work with new technologies effectively in the future. Previous studies related to intelligent automation have mostly focused on describing, for example, the definitions and benefits of these technologies. Few empirical studies have been conducted that link IA and individual people in organizations. Moreover, limited scholars have had the opportunity to to study the effects of IA in organizations with extensive experience of these technologies.

In this thesis, a case study is conducted to reach the research objectives. Employees in the case organization, especially financial specialists and accountants, are interviewed to discover how intelligent automation is currently utilized at work, and how employees feel about the increasing use of these technologies. In addition, individuals' current skill levels, motivation, and opportunities to participate in intelligent automation work and learning activities are explored. Based on the interview data and literature, the aim is to explore what kinds of learning methods can be used to address growing skill gaps and help overcome challenges that the increasing use of IA has generated in organizations. This research is carried out as commissioned work.

The findings of the study display that most employees in the case company have gained at least some experience in working with various intelligent automation tools. Generally, new technologies were welcomed, as they have provided significant help and reduced the manual work of employees. Most interviewees described that their IA related skills are on an average level. IA skills were mainly learned during basic courses provided by the company, and by conducting work that includes IA. However, individuals' motivation and opportunities to participate in IA related activities varied highly between the interviewees.

Most interviewees were certain that intelligent automation will reshape their work in the future. The challenge for HR professionals and managers is to identify which skills are needed in the future of work and how employees can learn these skills. In addition to general training and development practices, key findings suggest that individuals are most motivated by the opportunities to participate in real IA related work. Successful upskilling programs require social skills from line managers to develop an understanding of individuals' learning wishes and then provide suitable learning opportunities for the employees. In this thesis, I designed potential future roles for IA oriented financial specialists and accountants.

Keywords SHRM, Intelligent Automation, HRD, Upskilling

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Aalto University

Tekijä Riku Holopainen

Työn nimi Taloushallinnon ammattilaisten kehittäminen pandemian jälkeen

Tutkinto Kauppatieteiden maisteri

Koulutusohjelma Management and international business

Työn ohjaaja FT Hertta Vuorenmaa

Päivämäärä 19.09.2022 **Sivumäärä** 89 + 4 **Kieli** Englanti

Tiivistelmä

Älykäs automaatio viittaa nousevien teknologioiden joukkoon, jotka ovat muuttaneet ja muuttavat tietotyötä merkittävästi. Taloushallinnon ammattilaisilta odotetaan tulevaisuudessa useita teknisiä ja sosiaalisia taitoja, jotta työskentely uusien teknologioiden kanssa onnistuu vaikuttavasti. Aiheeseen liittyvät tutkimukset ovat erityisesti keskittyneet älykkään automaation määritelmiin ja näiden teknologioiden tuomiin hyötyihin. Toistaiseksi on tehty vain vähän empiiristä tutkimusta, jossa yhdistyvät älykkään automaation käyttö ja yksilöt organisaatioissa. Vain joitain tutkimuksia on pystytty tekemään ympäristöissä, joissa älykästä automaatiota on jo käytetty pidemmän aikaa.

Tässä tutkimuksessa haastattelen taloushallinnon ammattilaisia ja selvitän, miten he käyttävät älykästä automaatiota työssään ja mitä mieltä he ovat älykkään automaation lisääntyvästä käytöstä työelämässä. Tämän lisäksi tutkimus pyrkii selvittämään yksilöiden taitotason, motivaation ja mahdollisuudet osallistua älykkääseen automaatioon liittyvään toimintaan, kuten uusien taitojen opiskeluun. Haastattelujen perusteella tämä tutkimus pyrkii esittämään, minkälaisia oppimisen keinoja voidaan hyödyntää vastaamaan kasvaviin osaamisvaatimuksiin sekä haasteiden selvittämiseen, joita automaation käytön lisääminen on aiheuttanut organisaatioissa. Tämä tutkimus tehdään toimeksiantona, ja tutkimuksen tavoitteisiin pääsemiseksi toteutetaan tapaustutkimus.

Tutkimustulokset osoittavat, että suurin osa haastateltavista on jo kerryttänyt kokemusta älykkään automaation kanssa työskentelystä. Yleisesti ottaen haastateltavat ilmaisivat, että uudet teknologiat ovat tervetulleita. Erityisesti automaation kyky vähentää manuaalista ja toistuvaa työtä koettiin tärkeäksi. Haastateltavat olivat kehittäneet älykkään automaation osaamistaan osallistumalla yrityksen järjestämiin peruskoulutuksiin ja tekemällä töitä automaation parissa. Motivaatio ja mahdollisuudet osallistua älykästä automaatiota sisältävään työhön vaihtelivat merkittävästi eri ihmisten välillä.

Suurin osa haastateltavista uskoo, että älykäs automaatio muovaa heidän työtään tulevaisuudessa. Haasteena HR-asiantuntijoille ja esihenkilöille on selvittää, mitä taitoja tulevaisuudessa tarvitaan ja miten henkilöstö pystyy oppimaan näitä taitoja. Osaamisen kehittämisen mallien ja menetelmien lisäksi tutkimustulokset osoittavat, että yksilöt motivoituvat parhaiten, kun he saavat oikeita mahdollisuuksia tehdä älykästä automaatiota sisältävää työtä. Onnistuneet osaamisen kehittämisen hankkeet vaativat esihenkilöltä sosiaalisia taitoja yksilöiden oppimistoiveiden selvittämiseen, jotta he voivat tarjota sopivia osaamisen kehittämisen mahdollisuuksia työntekijöille. Tämän tutkimuksen yhteydessä suunnittelin osaamispolun case-yritykselle.

Avainsanat henkilöstöjohtaminen, älykäs automaatio, henkilöstön kehittäminen

Contents

Preface

This thesis concludes my studies in Espoo. I am grateful to Aalto University for providing me with the best possible learning opportunities. I was fortunate to be able to complete my studies flexibly while competing in professional sports during the first four years of my studies.

I want to thank the professors at Aalto University for flexibility, support, and excellent teaching to help me grow as a student and a person. Special thanks to professor Hertta Vuorenmaa for inspiration and guidance during my master's thesis process.

I am deeply grateful for my family and friends. Your never-ending support has always allowed me to pursue my goals.

Espoo, 19 September 2022
Riku Holopainen

Abbreviations

AI	Artificial intelligence
HR	Human resources
HRD	Human resource development
HRM	Human resource management
IA	Intelligent automation
KSAs	Knowledge, skills and abilities
ML	Machine learning
OD	Organizational development
PA	Process automation
RPA	Robotic process automation
SHRM	Strategic human resource management

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1 Introduction

The nature of work has been constantly changing, driven by factors such as technology, globalization, and demographic changes (Burke and Ng, 2006). Major inventions and innovations, from the development of steam engines during the first industrial revolution, to the rising of groundbreaking technologies during the current fourth industrial revolution, have been altering the way people live and work (Xu et al., 2018). In that sense, this time is no different. However, the rapid advancements in information technology, such as automation and artificial intelligence, and the ongoing Covid-19 pandemic, have increased the speed of change significantly. These elements have started to reshape and replace jobs, which is likely to continue in the future (e.g., Schwab and Zahidi, 2020). The ongoing situation has yet again set new requirements for organizations, managers, and employees to succeed.

This thesis aims to discover the current skill levels, motivation, and feelings of financial administration specialists towards the increasing use of intelligent automation technologies. Furthermore, I will explain how professionals learn and utilize these technologies at work and what kind of opportunities employees need to develop themselves. Finally, I will explicate how organizations can prepare for the change of work and upskill current personnel with training and development practices to address growing skill gaps and increased shortage of talented personnel. The goal for firms is to enable mutual benefits where both the individual and the organization benefit from upskilling activities financially and non-financially in the long run (e.g., Ghalamkari et al., 2015; Schlegel and Kraus, 2021). Reskilling and upskilling employees have become important factors of individual career paths as they help to manage the growing skill gaps, enhance work engagement, and provide new career opportunities for current employees (Chakma and Chaijinda, 2020).

In this thesis, most emphasis is set on training and development activities which are some of the key elements of human resource development in organizations. Training and development aim to provide employees with opportunities to engage in various activities that improve on their knowledge, skills, and abilities (Haslinda, 2009; Ghalamkari et al., 2015). These activities have a significant effect on reskilling and upskilling personnel (Schlegel and Kraus, 2021). To learn more skills and to be able to utilize skills at work, individuals need to be motivated. In addition, organizations need to provide suitable opportunities that allow the use of skills and motivation at work (Armstrong, 2008; Haslinda, 2009; Boxall and Purcell, 2022). To reach sustainable competitiveness, HR practices, such as training and development, should be designed to promote overall well-being of personnel

(Guest, 2017). Employee well-being should be among top priorities of people management practices in organizations, in contrast to just trying to measure the financial effects of people management (Claudia, 2015).

In the field of finance and accounting, various automation tools have gained a strong foothold in streamlining and automating tasks that are routine in nature (e.g., Jacobs, 2017; Ng et al., 2021). In addition, artificial intelligence has started to improve the capabilities of traditional software robots, making technologies capable of completing tasks that have originally required knowledge workers' decision-making and problem-solving skills (Ng et al., 2021). Currently, finance and accounting are some of the most favorable industries to deploy intelligent automation on (Schlegel and Kraus, 2021). Many tasks formerly performed by financial specialists are now being automated, and therefore jobs have started to become replaced and replaced (Madakam et al., 2019; Wang and Siau, 2019). To be able to work alongside virtual workers financial specialists are expected to possess, for instance, more social and technological skills in the future (Kokina and Blanchette, 2019; Kokina et al., 2021; Leitner-Hanetseder et al., 2021).

Despite intelligent automation changing financial specialists' work, these technologies have generated a significant amount of job opportunities for current professionals rather than only leading to job loss (Willcocks, 2020). As automation can be used to complete routine tasks, employees have more time to perform non-routine and more value-added work, such as providing insights and analysis of data instead of using time to generate and edit reports (Lacity and Willcocks, 2015; Fernandez and Aman, 2018; Kaya et al., 2019; Kokina et al., 2021). Therefore, automation has provided an opportunity for employees to engage in more meaningful work. Financial specialists may also opt for a new career in, for example, managerial or technical roles where they can utilize and benefit from their strong subject-based knowledge and work experience (Anagnoste, 2018). However, the major question is, how can employees be provided with suitable opportunities and engaged to learn and utilize new technologies in the future of work?

Successful training and development activities are designed support organizational strategy (Agrawal et al., 2020). The responsibility of developing such activities is typically appointed to HR personnel. However, the implementation of HR practices is typically conducted by the line managers which makes the change of work affect each level of employees in organizations (e.g., Harrison and Bazzy, 2017; Stone et al., 2020). Suitable training and development practices allow organizations to increase their overall competitiveness (Wilson, 2005; Hamlin and Stewart, 2011; Ruona, 2016). Ultimately, the investments made towards training and development

lead to increased productivity, retention, and performance as well as increased employee well-being (Hamlin and Stewart, 2011; Ruona, 2016).

This study is completed as commissioned work for a Finnish company. The research context are the financial specialists and accountants in the company's financial management outsourcing service unit, whose work is currently majorly influenced by intelligent automation technologies. Methodological choices, description of the case study as well as my dual role as an employee and a researcher is further discussed in the methodology section of this thesis.

1.1 Literature and research gap

Technology and machines changing work is not a new concept by any means (e.g., Cortellazzo et al., 2019; Wang and Siau 2019). However, the pace of digital transformation has been exceptional in the field of finance and accounting after RPA and AI have started to become more common. There is a considerable amount of automation potential in financial administration processes which have already become sone of the most popular processes for automation (Madakam et al., 2019). Consequently, intelligent automation technologies have begun to replace and reshape many jobs. However, recent research shows that job loss estimates are lowering, and reshaping of jobs is more likely (Willcocks, 2020). Therefore, key priorities for organizations and scholars are to discover which type of skills and competencies are needed in the future, and how they can be managed and developed in organizations sustainably (Hancock et al., 2020; Schlegel and Kraus, 2021).

Most studies related to RPA and AI have mostly concentrated on describing the definitions, benefits, and capabilities of these technologies (see Syed et al., 2020; Ng et al., 2021). Adopting intelligent automation in organizations requires full commitment and enough understanding among the HR departments and managers to be able to provide personnel enough training and development opportunities and support (Ng et al., 2021). Organizations are increasingly investing in automation strategically which will begin to reshape many jobs. Thus, it is important to discover the current capabilities and motivation of professionals, and what the requirements are related to upskilling initiatives. These activities aim to upskill to be able to work extensively alongside digital workers (Lacity and Willcocks, 2021).

Orlikowski and Scott (2008) explain that technology is not extensively included in management studies, for example, due to scholars' lack of technology related knowledge. The use of technologies stems from organizational culture and strategy which makes it difficult for researchers to

obtain data and generalize results of studies (Cortellazzo et al., 2019). The trend seems to be continuing as only few empirical studies have been conducted that research the impacts of intelligent automation on individuals (e.g., Asatiani et al., 2020), hence more empirical research is needed upon the subject. Currently, research is also lacking understanding on how HR personnel and leaders themselves keep up with technological change, or at least its effects on people and work. Thus, HR personnel and managers are also facing social and technological upskilling needs to succeed in their work in the future (Cortellazzo et al., 2019).

This introduction leads to the identified research gap. Only few empirical studies in the field of management studies have been conducted regarding the effects of intelligent automation in finance and accounting work. The studies have mainly focused on new automation initiatives, rather than being able to collect data about long-term experiences of employees (e.g., Asatiani et al., 2020; Hickman and Swisher, 2020). In this research, the case company presents an opportunity to research the effects of intelligent automation in an organization, where it has already been utilized for years.

It is well known that current skills of employees are not sufficient to fulfill the needs of future digital work (e.g., Schlegel and Kraus, 2021). However, it is not only important to determine the current level of skill, but also the feelings and motivation towards learning new skills and ways of working. Moreover, the ongoing Covid-19 pandemic has accelerated the change process towards the future of work in many industries, including finance and accounting, which makes the research of this topic very current. Managers have a significant task ahead to upskill their current personnel, as skill gaps grow and talented employees are difficult to acquire (e.g., Malhotra, 2021).

In this research, literature consists of timely discussions about the effects of digitalization, especially intelligent automation in knowledge work settings. Moreover, scholarly discussions and literature is reviewed regarding strategic people management to form the basis of this research. Most emphasis is set on training and development practices – the activities that help address growing skill gaps and overcome negative effects of increasing use of intelligent automation technologies in organizations.

1.2 Research objectives and questions

This master's thesis focuses on discovering the current skill levels, motivation, and feelings towards intelligent automation among finance and accounting professionals. After assessing the current state of the factors, the aim is to study how people management practices can help organizations

overcome contemporary challenges related to the relationship between humans and intelligent automation technologies. The second objective of this research is to explicate the future outlooks of finance and accounting as a profession, and how training and development activities can help address growing skill gaps and negative effects of increased use of these technologies.

To reach my research objectives, a qualitative case study was conducted. The study context is finance and accounting related specialist work in a Finnish company. The main qualitative data of the research consists of 12 semi-structured interviews and 6 open interviews. The interviewees work at the company in various work positions, for instance, as accountants, service managers and personnel managers. I have set two research questions that work as the basis for my master's thesis:

1) What is the current state of KSAs, motivation and feelings of financial management specialists regarding the increasing usage of intelligent automation?
2) How can training and development be used to prepare for growing skill gaps and overcome negative effects of the rise of intelligent automation?

This thesis follows a conventional master's thesis structure. After the introduction to the study, problem definition and initial research questions, the literature review will be presented. The literature review provides theoretical background for the study. Key topics of strategic people management, training and development, knowledge work and intelligent automation will be covered as well as the link between these topics. Following the literature review, methodological choices and description of the case study will be provided. After explaining the methodology, findings of the empirical data will be presented by linking them to the main research questions and literature. This thesis will be concluded by a brief summary of the key findings and managerial implications. Suggestions for further research opportunities will also be presented.

2 Literature review

2.1 Upskilling employees in organizations

The World Economic Forum has estimated that by year 2025, 97 million new roles can emerge from work that requires interaction between employees, machines, and algorithms. In addition, 85 million jobs may be altered or replaced, a change driven by technological advances such as automation (Schwab and Zahidi, 2020). In organizations, technological change has been accelerated by the Covid-19 pandemic, which has led in a significant need to train and upskill personnel, as companies can not only rely on gaining new talent through recruitments (Chakma and Chaijinda, 2020; Bennett and McWhorter, 2021; Li, 2022). Companies need to take on newer technologies to keep up with competition, thus making the change inevitable (Younger et al., 2007; Chakma and Chaijinda, 2020; Sawant et al., 2021).

Upskilling refers to the activities that increase the skill level of an employee to fulfill current and future competence needs. The goal of upskilling is to enhance employees' skills through both formal training and informal learning activities. In addition to developing hard skills, upskilling also aims to develop the soft skills of employees and increase the understanding of their profession and its future outlooks. The aim is to enable the use of new knowledge in the within the current work and help individuals prepare for changes in work (Chakma and Chaijinda, 2020; Sawant et al., 2021). Upskilling promotes continuous learning as it aims to develop new skills and deepen existing ones, making employees become more adaptive and flexible as workers (Sessa and London, 2015; Goos et al., 2019; Fung, 2020). Due to technological advances and crises, such as the Covid-19 pandemic, employees need to develop a more dynamic skill set to be prepared for the future of work (Goos et al., 2019; Chakma and Chaijinda, 2020). However, succeeding in this objective requires significant leadership skills and knowledge from managers (Pietenpol, 2020) Furthermore, upskilling is a strategic activity, which needs to be combined with a sufficient budget to achieve desired benefits from upskilling programs (Agrawal et al., 2020).

In the modern knowledge-based world, much more than domain-based skills are needed to succeed. Agrawal et al. (2020) suggest that upskilling should start from non-role specific skills that are needed in the future, despite the work position. These include social, emotional, and digital skills that support working and can be utilized in almost any role. Next, organizations should start to build more individualized learning paths that are ideally based on the future career outlooks of the professionals. Tailored learning paths are valued by employees and can lead to increased work engagement (Poell,

2017; Agrawal et al., 2020). Companies that invest in talent development and upskilling also have a higher possibility to retain current staff as well as attract new employees (Younger et al., 2007). From an individual's perspective, possibilities to reskill and upskill oneself in an organization has significant importance for their careers. These activities can help individuals address the skill gaps that have risen from, for instance, changes in the competitive environment or disadvantageous choices made by the employee during their studies. Thus, upskilling programs are highly beneficial for individual employees and not only for companies. As competencies develop, employees can engage in more challenging and meaningful tasks in their current jobs. In addition, their value in the labor market typically increases as their skills are enhanced (Chakma and Chaijinda, 2020; Fung, 2020).

To succeed in upskilling programs, organizations need to establish an enabling environment and provide individuals with suitable upskilling opportunities. On a firm-level, these opportunities should aim to challenge employees and develop their critical thinking skills through active participation in learning events and on the job learning (Bierema and Callahan, 2014). Learning that focuses on informal learning is highly effective regarding organizational performance (Törmänen et al., 2021). On the other hand, leaders are required to choose suitable employees that are most likely to improve and generate value for the company in the future while maintaining work engagement and well-being. Managers should support employees in the upskilling process by providing suggestions and guiding them towards suitable learning paths (Agrawal et al., 2020). However, some responsibility should also be taken by employees themselves, for example, when designing and proposing their future career development ambitions (Antoniu, 2010; Jaiswal et al., 2022).

To be able to affect the outcomes of any learning programs, both formal and informal, organizations should focus on developing their own organizational learning culture (Marsick, 2013). Learning culture, similar to any other culture, is based on shared meanings and values which enable learning and also make the transfer of knowledge possible in organizations (Marsick and Watkins, 2003). Cultures are originally based on the values and goals of the founders and are maintained by the current employees and HR departments in organizations. Regarding learning cultures, the motivation, skills, and attitudes of individuals are important factors that affect the outcomes of learning programs, such as enhanced innovative behavior of employees (Brogaard, 2017). Organizational learning can occur on both individual and collective levels, such as in teams. Learning helps remove barriers between groups, for example, between technical and non-technical people. Additionally, it enables transferring knowledge to other employees in the organization. Furthermore, a strong learning culture typically encourages

employees to develop their competencies, while increasing their motivation and work engagement levels (Odor, 2018).

To achieve a strong learning culture and enable its benefits on both individual and organizational level, a foundation of processes, practices and opportunities need to be established. These include various learning methods, such as formal training, e-courses, mentoring, coaching and group learning events provided by the organization. In addition, systems such as rewarding, recognition, empowerment, and opportunity to participate in learning activities are some of the enabling factors for a strong learning culture (Asroh and Abdullah, 2017; Odor, 2018). Upskilling practices can take place in live situations, but also remotely. The developments in information technology have allowed companies to use virtual learning and communication environments which helps reach all employees. Virtual learning environments are used to provide live and on-demand content which are consistently used for providing introductory content or trying to attract new learners to use certain platforms. Organizations can develop their own virtual learning platforms which can be used to engage employees into continuous learning programs in hybrid or remote environments (Bennett and McWhorter, 2021).

Organizations which foster diversity and inclusion can fully enable the potential of all employees in the organization. In diverse organizations, heterogeneity is valued, and inclusive actions aim to engage and integrate diverse groups into all activities in the organization (Farndale et al., 2015; Ely and Thomas, 2020; Kuknor and Bhattacharya, 2020). Diversity in workplaces is an advantage which can be used to enhance learning and innovative behavior of individuals and groups (Derven, 2014). For example, diverse companies are better prepared to use external knowledge as a source for learning and innovation (e.g., Bogers et al., 2018). This is a difficult task for the managers, as they need to understand issues related to diversity and inclusion to maintain a culture of acceptance where differences are appreciated. Therefore, this is the only way to enable benefits of diversity in organizations (Farndale et al., 2015; Ely and Thomas, 2020). However, a well-established learning culture considers the individual and the environment by supporting cultural diversity and equality when upskilling activities are performed in organizations (Bierema and Callahan, 2014).

On the other hand, organizations are most likely to face some challenges during their efforts to reskill and upskill personnel. For example, once a company has committed to invest in technology and start encouraging employees to learn new technological skills, resistance to change is likely to occur within the organization (Bolcu and Boharu, 2021). Failing to adapt to the changes and to the “new situation” can ultimately lead to loss of skill

content in people's jobs or even possible deskilling of professionals. However, this is typically a result of poor change management and leadership in organizations (Asatiani et al., 2019; Sawant et al., 2021). If skill gaps are not dealt on the organizational level, efficiency and productivity will suffer and ultimately it will harm future investments in technologies as trust towards technologies decreases among employees (Brunello and Wruuck, 2019). At best, upskilling can be a cost-efficient way to gain new talent when considering, for example, the cost of onboarding processes or even failed recruitments (Younger et al., 2007; Antoniu, 2010).

However, sufficient change management efforts and open communication have been identified as key factors to overcome change resistance in such situations. Employers could also try to benefit from the changes by engaging their employees in decision-making processes and providing enough learning opportunities. These efforts can ultimately lead to improved work engagement as employees start to feel more valued and important (Bierema and Callahan, 2014). However, it is important to note that not all people want to retrain or upskill themselves which should also be acceptable. For such situations, organizations can support people by trying to find and offer more suitable work for the person. Ultimately, companies can offer outplacement assistance and guidance to promote good employment (Smit et al., 2020).

2.1.1 Human resource development

Training and development of employees is a key task for human resource development professionals. Whereas human resource management can be seen as various policies and practices related to the management of employees, human resource development (HRD) specifically refers to various organized tasks and activities that aim to improve on the growth and development of people in organizations. Already in 1989, McLagan (1989) defined HRD as "the integrated use of training and development, career development and organizational development to improve individual and organizational effectiveness". HRD is seen as a "subset" of the umbrella concept of HRM. The aim of HRD is to proactively address to the continuous changes in the organizations' environment and to support organizational strategy and growth via various activities (Haslinda, 2009; Ruona, 2016; Swanson, 2022). These activities include specified methods associated to training and development, career development, change management, and performance and appraisal management (Haslinda, 2009; Swanson, 2022).

There have been many attempts to define the key functions of HRD. According to Hamlin and Stewart's (2011) review of HRD research, the activities and objectives of HRD can be defined under four separate, descriptive categories:

1) "improving individual or group effectiveness and performance"
2) "improving organizational effectiveness and performance"
3) "developing knowledge, skills and competencies"
4) "enhancing human potential and personal growth"

To reach these objectives, Armstrong (2008) group the key tasks of HRD to four elements *Learning, Training, Development,* and *Education*. Based on this categorization, topics related to learning, training, and development have been the most researched topics among HRM scholars mainly because of the importance of these activities is to allow organizations and their employees to keep up with the change of their competitive environments (Hamlin and Stewart, 2011; Ruona, 2016). The best predictors for organizations' performance have also been related to training and development, and compensation systems, which highlights the importance of these topics among both organizations and scholars (Dimba, 2010).

Similarly, to human resource management, there is no single person who is responsible for the development and implementation of HRD activities in organizations. Although there are not many dedicated "HRD departments" yet, there are numerous HRD professionals that have been appointed by HR departments to take overall responsibility for the development of people. In the individual's perspective, personal manager is typically the first contact for the employee that is responsible for performing the actions related to HRD (Ruona, 2016). Thereby, the overall responsibility of HRD can be assigned to a single person but is typically developed and implemented by many people in organizations (Ruona, 2016; Dirani et al., 2020).

There are multiple aspects when discussing about the benefits of HRD activities which can be measured in financial and non-financial benefits. Typically, modern organizations have invested a significant number of financial resources towards technology, such as financial systems and software. The end users of these technologies are mainly operative-level employees, such as accountants. Therefore, the starting point of HRD is to improve effectiveness by, for instance, training people to have sufficient skills to exploit existing resources efficiently in their full potential (Boxall and Purcell, 2022). Therefore, training and development practices lead to reduced costs and increased efficiency and effectiveness of employees (Chakma and Chaijinda, 2020; Fung, 2020; Boxall and Purcell, 2022).

However, maybe the most important factor of HRD lies in its future oriented nature. Especially, the term "development" refers to long-term activities, which are used to link individual level development and organizational strategy and objectives. Thus, human resource development supports the organization reaching its long-term goals (Riley et al., 2017). Successful HRD practices foster the development of strong learning cultures. Furthermore, HRD can nurture employees' innovative behavior, and increase job satisfaction and work engagement levels (Bakker and Demerouti, 2007; Sheehan et al., 2014; Ghalamkari et al., 2015; Sareen, 2018). The image of an organization that puts effort into developing their employees and processes increases the reputation in the consideration of suppliers and customers. Stakeholders can rely on working with professionals who possess up-to-date skills and competencies. In addition, experiences, and examples of successful HRD can be used as a significant advantage to attract new employees (Riley et al., 2017).

Comprehensive development opportunities, that are tied with individual long-term career ambitions and job opportunities, are highly valued by employees. Career opportunities typically increase the motivation and engagement of employees. Moreover, underlying potential of employees can be discovered during the implementation of HRD activities, which can be used for future career planning and upskilling purposes. Developing and maintaining HRD practices and learning culture are some of the key tasks of HR professionals that promote to firms' success (Brunello and Wruuck, 2019; Bennett and McWhorter, 2021). In the next chapter, I will discuss training and development practices in organizations, which are key tasks for organizations to carry out upskilling activities.

In the field of management research, organization development (OD) and coaching are two concepts which are closely related to HRD (e.g., Bond and Seneque, 2013). Hamlin and Stewart (2011) discuss that these definitions, and the purposes of the functions overlap with each other in many cases as they all relate to the development and growth of people's capabilities. However, for the purpose of this research, the definition of HRD and the four categories defined will work as the basis for this thesis' theory. Therefore, methods that contribute to the goals of HRD are included. As Hamlin and Stewart (2011) discuss, this distinction should be made in research that relates to HRD to prevent misunderstanding.

2.1.2 Training and development in organizations

Training and development refer to various organized activities that are used to update the skills, knowledge, and competencies of individuals in organizations. The goal of providing these activities is to improve on the job performance, motivation and work engagement of individuals and groups (Wilson, 2005; Niazi, 2011; ALDamoe, 2012; Bell et al., 2017). Ghalamkari et al. (2015) define training and development as learning events, programs and instructions that modify the behavior and attitudes of individuals. Being one of HRD's key tasks, training and development activities enable individuals to reach the necessary level of knowledge, skill, and abilities (KSAs) that the current or future work position requires (Armstrong, 2008; Ghalamkari et al., 2015). For organizations and individuals, training and development is necessary as employees' skills start to depreciate over time work changes and develops. In established jobs, some skills can become less useful or even worthless when, for instance, new technology dramatically changes the way the work is done. Therefore, training and development provides organizations with activities that can be utilized for upskilling purposes (Armstrong, 2008; Wang and Siau, 2019).

Training and development are similar terms with one another, which are occasionally used as synonyms. However, as Wilson (2005) notes, training should be considered as something that focuses on the current needs in organizations, whereas development is based on a longer timeframe. The focus of development is to develop the KSAs of individuals that are needed to succeed in the future of the business. It is important to note, that training and development refer to much more than just, for instance, systematic training sessions or pre-recorded lectures. Nowadays, the role of training and development is more about facilitating learning in various ways that are best suitable for different individuals and groups. Training and development are typically linked to other HRM related activities, such as individual career planning and development, performance management and talent management. The role of training and development is to enable the possibility to work efficiently as well as provide new opportunities for employees (Wilson, 2005; Haslinda, 2009).

As discussed, training and development consists of various processes and practices that are typically developed by the HR professionals in organizations. To get started with training and development, organizations can adopt widely used learning models, such as the 70-20-10 model that is a basic and efficient continuous learning model. This model contains elements of both formal and informal learning activities. 70% of learning happens on the job, which consists of a sufficient number of challenging tasks. 20% of learning is resulted from the learning through collaboration between people,

such as co-workers, mentoring and coaching, and only 10% of learning is arranged as formal training, learning and education programs. Typically, the personnel managers are responsible for monitoring and supporting the employees on personal learning ambitions (Sessa and London, 2015; Boxall and Purcell, 2022).

As the model suggests, it is crucial for organizations to understand that formal training is only a narrow part of the learning process regarding an individual's development. In fact, feedback, reflection, and on the job learning are major elements that contribute to individual learning. These elements also enable shared learning among groups of knowledge workers. In addition, learning can be facilitated by personnel managers and thus, communication between the employee and their manager is important to support learning (Sessa and London, 2015; Jacobs, 2017). Learning happens effectively in formal and informal events, such as systematic and non-systematic feedback forums, that are used to evaluate employees' work and performance. Purposeful feedback and performance management systems support learning which promotes individual growth and development. These factors also help fulfil individuals' need of autonomy and generate a positive cycle that bolsters further learning (Bakker and Demerouti, 2007; Bakker, 2011; Ghalamkari et al., 2015; Sareen, 2018).

Training and development should not only focus on enhancing domain-based skills and knowledge, but it should also focus on the soft skills of individuals. Soft skills relate to various skills, such as critical thinking, logical reasoning, teamwork, adaptability, and empathy (Bennett and McWhorter, 2021). Soft skills consist of human skills and behavioral skills that are needed to be able to apply domain-based skills, such as knowledge, experience, and technical skills at work (Hendarman and Cantner, 2018). Moreover, to prepare for the changing knowledge-based and digital world, Chakma and Chaijinda (2020) explain, that four C's including *Creativity and Innovation, Critical thinking and problem solving, Communication* and *collaboration* are critical skillsets that are most needed in the future, in addition to fundamental, domain-based knowledge or technology skills.

Successful implementations of training and development activities lead to increased productivity and performance in organizations. Development practices can also establish sustainable competitive advantage and increased adaptability in organizations (Wilson, 2005; Niazi, 2011; ALDamoe, 2012). By possessing up-to-date skills and well-trained individuals, organization's adaptability improves. Thus, the staff is more likely to survive potential challenges in the competitive environment by adapting to the situation and finding new ways to operate (Niazi, 2011). Moreover, employees value the investments and efforts towards training and development that

organizations make as it provides them opportunities. Typically, workers that participate in long-term career development opportunities are more satisfied with their jobs. On the other hand, organizations see the effects as improved retention rate (Bierema and Callahan, 2014; Chakma and Chaijinda, 2020).

Organizations should consider training and development practices as long-term investments that support the goals of the business. For both firms and employees, it is important to understand that individuals cannot become highly skilled professionals in a new or changing job immediately after they have been appointed in training and development programs. However, significant potential in the current employees can be uncovered that can be utilized in the future and developed even further. Career ambitions and possible future career paths should be discussed and created on an individual level in collaboration with the employee and the manager (Smit et al., 2020).

Personalized and tailored career paths have been trending in organizations, which allows the support of employees' career development wishes. Individuals are increasingly looking for companies that are willing to invest in their development. Therefore, HR practitioners and managers should be aware of the situation and use it as a tool to engage employees through mutual career planning activities (Poell, 2017). Ideally, the employee can impact heavily impact on their own work and role in the future through methods such as job crafting, which is an employee-driven method. Job crafting allows individuals to modify their work to better match with their personal skills and goals that the organization can utilize to reach its goals. Job crafting is an effective method that promotes learning and work engagement of employees substantially (Bakker, 2011).

From an individual's perspective, there have been various effective methods that support learning. For example, mentoring and coaching have proven to be efficient methods (Bond and Seneque, 2013; Germain, 2020). Intuitively, these activities are performed in a "senior-junior" relationship, where the junior learns from more experienced colleague. However, reverse mentoring, where younger employees with recent education mentor and teach mature workers skills that are acquired in recent degree programs. Mentoring and coaching are also used to manage growing skill gaps (Germain, 2020). By creating low-threshold forums where anyone can ask questions, such as a company-wide Ask-Me-Anything platform, co-operation is improved, and learning can be shared among employees (Bennett and McWhorter, 2021).

2.1.3 Assessing KSAs in organizations

Before starting to implement any training and development processes, HR managers should first assess what the current availability of knowledge, skills and competencies are in the organization. This is a base requirement to understand which capabilities the organization currently possess and which they need to improve on to meet future job requirements (Moustaghfir, 2014; Smit et al., 2020). To assess the current state, organizations should use all employment data available, including competence mappings of individuals, career paths and performance indicators (Moustaghfir, 2014).

One process that can be used for the assessment is jobs audit. The aim of jobs audit is not only evaluating the current state of jobs but also to provide a forecast of jobs and required skills that are needed in future work. Organizations get an understanding of their strengths and weaknesses related to their KSAs during auditing of jobs (Mathis et al., 2015). During the process, it is important to identify specific details from jobs within the organization. For example, basic information includes knowledge of how important a job is and how many people are performing the job. More importantly, organizations need to discover which KSAs are needed to perform the jobs currently and in the future by utilizing internal and external information sources (Mathis et al., 2015). After the audit of jobs, HR managers and personnel managers can start to evaluate the need of personnel and skills, based on the skill gaps occurred. Companies can acquire more skill by either recruiting or upskilling personnel. However, as discussed earlier, creating individual career paths, and learning opportunities is possible to perform utilizing the results of the audit process. Thus, identifying the KSA needs of future is the starting point to start developing individuals and groups (Mathis et al., 2015).

2.1.4 Covid-19 pandemic as change accelerator

The Covid-19 crisis has been influencing the world for over two and a half years now. It has started to become clear, that the pandemic has resulted in accelerated change of work. Up-to-date methods and experiences related to reskilling and upskilling employees are needed, as businesses have become even more dependent on technology and working in remote conditions (Agrawal et al., 2020). There is no doubt that the pandemic has forced some companies into survival mode. However, companies with high company resiliency have been able to manage difficult situations and strengthen the recovery process. Moreover, organizations with high company resilience and adaptability have managed to discover new and better ways of working efficiently in new conditions. Many organizations are now looking for new

ways to succeed as the amount of Covid-19 restrictions have slowly been decreasing (Antonacopoulou and Georgiadou, 2021; Hamouche, 2021).

Many knowledge workers have been forced to work remotely during the pandemic, which has accelerated digitalization in organizations (Bennett and McWhorter, 2021; Wang et al., 2020; Malhotra, 2021). Naturally, the situation also affects HR professionals' and managers' work as they are also required to do their job, such as managing people, remotely. Thus, reskilling and upskilling concerns all levels of the organization (Antonacopoulou and Georgiadou, 2021). Some best practice models and guidelines have arisen among management research during Covid-19 pandemic. However, it is still important to remember that, at this time, the pandemic is still ongoing and more radical changes in work could occur in the near future (Hamouche, 2021). In any case, employers should pay attention to the well-being of employees as the crises may affect their personal lives as well. For example, taking care of employees' work-life balance in the remote world has become more difficult (Field and Chan, 2018).

Remote working policies have not only been introduced during the pandemic. Even before the crisis, knowledge work has already become more flexible as most work can be done regardless of the employee's location. Companies with remote working arrangements have had a head-start in the change of work. These working arrangements have also been valued by employees and working full-time at the office is not likely to happen again (Field and Chan, 2018). At latest now, it's time for organizations to start identifying required actions to work productively in a more technological environment (Malhotra, 2021). This also affects to the need of developing advanced remote training and development activities (Field and Chan, 2018).

Some key skill needs to work in the changing environment, amplified by the pandemic, relate to digital, interpersonal, and cognitive skills (Agrawal et al., 2020). As a prerequisite, soft skills, such as teamwork by utilizing social distancing technologies should be trained to personnel (Bennett and McWhorter, 2021). HR can be initiating the training and development activities and personnel managers should implement and make sure that they are adopted by the operative-level employees (Bennett and McWhorter, 2021; Dirani et al., 2020). After the base-level has been reached, more specific training and development can be launched to reach desired skill levels through upskilling employees within a suitable time period, such as during the next 12 to 18 months (Agrawal et al., 2020).

Some of the new training and development methods are using virtual learning environments and platforms. Bennett and McWhorter (2021) introduce virtual human resource development (VHRD), which aims to

provide training and development activities to personnel through E-learning, online learning, and other digital self-learning methods. In addition, Zou et al. (2020) describe four categories for training and development in the post-covid era. These are *Virtual instructor-led training, Online courses, Flipped classrooms* and *immersive learning*. These learning methods should be built upon adult-learning concepts and should include various choices and methods of active learning. These methods have been developed before the pandemic, however, now the methods have become a necessity for organizations working in hybrid or remote environments (Hancock et al., 2020).

2.2 Strategic people management

2.2.1 Evolving nature of strategic people management

People are the prime resources for organizations that contribute to the success of a business. Individuals and groups of people perform tasks by using their skills knowledge and experience. At work, people utilize other available assets, such as technology, equipment, and financial resources. Without people, companies couldn't operate and survive, let alone become successful (Armstrong, 2008; Haslinda, 2009; Boxall and Purcell, 2022). However, the success of people isn't only a result of utilizing skills and other assets. In addition, the work of people consists of personalities, attributes, motivation, and other intellectual capabilities that can be identified as the strengths and weaknesses of different people. People are from various backgrounds and possess various combinations of skills and attributes. This creates diversity between people and make their unique attributes in-imitable. Skilled, diverse groups of people are the basis for sustainable competitive advantage, as the *Resource based view* suggests (e.g., Mathis et al., 2015; Boxall and Purcell, 2022).

As companies are highly dependent on having enough skilled people, they must organize the management of personnel to acquire and retain employees. On the contrary, organizations human resource policies are also responsible for downscaling of personnel when business is declining (Boxall and Purcell, 2022). The management of people is guided by human resource management (HRM) which consists of numerous policies and practices. Thus, human resource management refers to all activities that relate to the management of people and their work in organizations (Mathis et al., 2015; Boxall and Purcell, 2022). The activities of HRM include tasks, such as recruiting and staffing, training and development, performance and talent management, and compensation management. HRM consists of everything that is needed to acquire and develop individual people and social capital in

organizations. Human resource management plays an important role during whole employee life cycle starting from initial employee attraction to their separation from the organization (Mathis et al., 2015; Rasool et al., 2019; Boxall and Purcell, 2022).

Traditionally, the role of human resource professionals has been strongly associated with administrative work, such as providing payroll services, maintaining internal documentation, dealing with legislative issues, and communicating with external partners such as insurance vendors (Mathis et al., 2015). However, the role of human resource management has been changing and developing due to trends and constant changes of working. HR units can still be responsible for organizing administrative tasks, however, many of the tasks are typically outsourced to various service providers. This has enabled the evolution of HR work to become more business oriented. Human resource management activities have become progressively more linked with organizational strategy, which has led to the rising of strategic human resource management (SHRM), also called strategic people management (Mathis et al., 2015; Sareen, 2018).

The main objective of strategic people management is to connect human resource management and strategy to support and enable organizations reach their long-term goals and objectives. Many HR professionals are now working as "strategic partners" in organizations in various generalist and supportive roles. In strategic people management, HR professionals provide support to various business units and aim to improve on employee performance, sustainable competitiveness, and the development of individuals. The objectives of strategic people management aim to enable two-way benefits between individuals and organizations by strategically integrating the interests of both sides. Thus, the modern role of HR professionals includes a substantial amount of communication and interaction between employees, business units and managers. The interaction allows HR personnel to understand the business and its goals, which can be used to create suitable HR strategy for the business unit. The aim is to support the business units accomplish their goals while managing and developing the employees (Bagga and Srivastava, 2014; Harrison and Bazzy, 2017; Sareen, 2018; Stone et al., 2020; Boxall and Purcell, 2022).

Similar to the long-term focus of strategic people management, organizations have had to redesign their HRM practices to make them more sustainable. Instead of thinking people as capital, sustainable HRM aims to focus on long-term development and renewal of human resources. The goal is to influence on job satisfaction, work engagement and development of people in organizations while taking other responsibilities, such as environmental, social and governance (ESG) related issues into account. In addition, talent

attraction and retainment are in the focus of sustainable HRM. These factors enable organizations reach sustainable competitiveness and success, which is one of the major goals of sustainable HRM (Ehnert, 2009; Davidescu et al., 2020).

Sustainable HRM practices suggest that organizations should focus on employees as individual people and not just workers. Sustainable people management takes employee's private life, training and development wishes, engagement and inclusion into account. To succeed in sustainable HRM practices, HR professionals and managers have a key role in developing leadership skills that foster the intentions of sustainable HRM (Macke and Genari, 2019). Sustainable HRM practices nurture equality, diversity, and flexibility in organizations (Davidescu et al., 2020). The practices can help organizations address various HR related issues, such as retention, low performance, or employee well-being. Overall, these practices aim to create sustained social, economic and environmental performance through people management practices (Ehnert, 2009; Macke and Genari; 2019; Davidescu et al., 2020).

In organizations, human resource management and the broad range of tasks related to it are not only performed by HR professionals. A significant number of responsibilities have been shifted from the HR professionals to other managers, such as personnel managers in organizations. Therefore, people management is conducted by HR departments and managers of teams in the organization (Mathis et al. 2015). The role of HR professionals has become more supportive, long-term focused and strategic. Typically, tasks include training, supporting, and giving feedback to personnel managers, who are the main stakeholders for HR employees' work. The goal of HR is to ensure that people management policies and practices are implemented as planned by the personnel managers (Mathis et al. 2015; Boxall and Purcell, 2022).

On the other hand, HR professionals and personnel managers also have various overlapping responsibilities and roles. These two groups frequently participate in mutual processes, for instance, staffing and recruiting. When a skill gap needs to be filled within a team, the HR department can support the team manager to fill the gap via internal or external recruitment. HR personnel typically have the responsibility of attracting talent, assessment, selection, and legal process of recruitment. The line manager's responsibility is to select the most suitable candidates for the team. The line manager will commonly be the first contact of the new employee at the start of the employment and onboarding (Mathis et al., 2015; Pombo and Gomes, 2020).

In addition to participating in recruitment and selection processes, line managers' key roles are to motivate employees and support their training and development in the company. The role includes talent and performance management practices, which are used to monitor employees' performance and career ambitions. Being the closest supervisor of employees, personnel managers play an important role in talent retention. Moreover, line managers generally have responsibilities in the success of the team (Torrington et al., 2020; Boxall and Purcell, 2022). The increasing role of line managers requires a wide skill set, including various social and technological skills, to be able to succeed. The increasing requirements of line managers also need to be addressed. Therefore, they should also be included in upskilling activities to keep up with current skills and trends of leadership (Cortellazzo et al., 2019).

For a long time, organizations have been reporting about the shortage of high-quality and skilled employees. To acquire new talent to organizations, new employees should first be attracted, selected, and recruited to the firm. However, once the employments start, it is key to manage talent retention and development in organizations to ensure that they will have enough talent to fulfill business needs in the future as well. Thereby, organizations should invest in people management practices to ensure that employees are retained, developed, and guided in a way that benefits the individual and the organization in a changing environment. Organizations have two ways of obtaining more skills, knowledge and abilities. This is done by recruitment and, training and development of employees, which can only be executed in collaboration of HR professionals and line managers (Crook et al., 2011; Riley et al., 2017; Boxall and Purcell, 2022).

Despite the overlapping roles of HR and line managers, there are some major differences in the scope of the work of the two groups. Firstly, HRM focuses on the overall view of developing and maintaining HRM policies and practices which they also oversee and validate that they are applied suitably in the organization by managers. Additionally, HR personnel focus their work on long-term organizational level activities and provide support for business units and line managers and have high responsibilities in maintaining and managing organizational culture. On the other hand, personnel managers' actions and work is reactive and ad-hoc in nature that lets them respond to quick changes in the environment (Torrington et al., 2020; Boxall and Purcell, 2022). Table 1 highlights the main differences of Personnel management and Human resource management, described by Torrington et al., (2020).

Table 1: Personnel management versus human resource management

Aspect	Personnel management	Human Resources Management
Time and planning perspective	Short term	Long term
	Reactive	Proactive
	Ad hoc	Strategic
	Marginal	Integrated
Psychological contract	Compliance	Commitment
Control systems	External controls	Self-control
Employee relation perspective	Pluralist	Unitarist
	Collective	Individual
	Low trust	High trust
Prefers structures/systems	Bureaucratic/mechanistic	Organic
	Centralised	Devolved
	Formal defined roles	Flexible roles
Roles	Specialist/professional	Largely integrated into line management
Evaluation criteria	Cost minimisation	Maximum utilisation (human asset accounting)

Source: Torrington et al. (2020). Table edited.

2.2.2 Measuring the success of people management

Humans' knowledge, skills and abilities are intangible, which makes investments related to them difficult to measure (Riley et al., 2017). However, organizations cannot operate without people with sufficient skills for long. The basis of sustainable competitive advantage in a changing environment is well-being, motivated and skilled staff, which is the basis of why human resource management is necessary in organizations (Crook et al., 2011; Riley et al., 2017; Boxall and Purcell, 2022). Fortunately, there are numerous ways to influence these issues through HRM activities. One of the methods to especially improve on employees' skills is by applying human resource development activities which aim to train and develop a capable workforce which is a prerequisite for competing in the knowledge-based economy (Riley et al., 2017).

The success of people management practices can be measured in various ways. For example, measuring the cost of hires, turnover rate, overall well-being, training effectiveness, and financial performance of the organization are some factors that HR professionals can contribute to (Heffernan et al., 2016; Boxall and Purcell, 2022). The linkage between HRM and performance is an important but difficult metric to measure organizational success. One of the most referred and utilized frameworks to present the relationships of employee performance in HRM research is the AMO model, or AMO framework, after its appearance in the 2000s (e.g., Jiang et al., 2012). The AMO framework proposes that employee performance can be defined as the

function of three fundamental components: *Ability, Motivation* and *Opportunity* (Paauwe, 2009; Marin-Garcia and Tomas, 2016; Boxall and Purcell, 2022). The model is not flawless since there are also other factors that affect performance than the elements linked with the AMO model. However, it is a simple and well-known approach to evaluate the relationship between HRM and performance (Marin-Garcia, 2016; Boxall and Purcell, 2022).

Considering that the AMO model is based on three separate components, organizations need to focus on various activities to increase performance. Abilities can be acquired through recruitment or upskilling current personnel. However, the talent needs to be retained and given opportunities to perform. Individuals need to be motivated so that skills are put into practice. Motivated employees are willing to go the "extra-mile" at work (Munteanu et al., 2014; Marin-Garcia and Tomas, 2016; Boxall and Purcell, 2022). Next, I will summarize each component of the AMO framework by referring to Marin-Garcia and Tomas (2016), and Boxall and Purcell (2022) implications of the theory.

Ability: Generally defined as the knowledge, skills and abilities of an individual. Possessing sufficient abilities is the basic requirement to be able to perform any tasks. On an individual level, abilities can be increased through human resource management practices, such as training and development. On organizational level, recruitment and selection is key in obtaining more ability in the company.

Motivation: Individual's motivation to put their abilities in to use. It means that there is a willingness to do work because one wants to. Motivation can be divided into two parts, intrinsic and extrinsic motivation. Intrinsic motivation originates from individual's willingness to perform tasks and learn new things because it feels interesting and satisfying. Extrinsic motivation stems from external rewards that are linked to work, such as pay and benefits. Organizations can enhance motivation by various activities, such as performance management, rewarding, recognition and promotion.

Opportunity to participate: Relates to opportunities that are arranged by the employer. Opportunities enable employees to use their abilities and motivation to perform their current work and support their future career. It includes flexibility and autonomy, involvement in career planning, and support from managers and HR. Opportunities also include various learning related activities, for example, possibilities to access job rotation and knowledge sharing activities.

To increase performance through HRM activities, HR personnel and managers need to work in collaboration with each other. Personnel managers have an impactful role in implementing HR practices to try to increase each factor of the AMO model. In fact, managers' own abilities and motivation to develop personnel vary, and thus they should also be trained accordingly (Van Waeyenberg and Decramer, 2018; Pombo and Gomes, 2020). For organizations, other indicators of HRM success are also important. For example, overall employee satisfaction influences performance, well-being, and motivation, which contribute to the success of an organization (Munteanu, 2014). Studies have also indicated that positive emotion, employee engagement and intrinsic motivation are key factors in increasing innovative behavior especially in small and mid-sized companies (Al-Tal and Emeagwali 2019; Sheehan et al., 2014).

2.3 Work of financial administration professionals

2.3.1 Knowledge work in modern digital world

Phrases "knowledge work" and "knowledge worker" have first been introduced by Peter Drucker in the 1950s. Knowledge work is a description for work that comprises of problem-solving, creativity and autonomy (Schultze, 2004; Costas and Kärreman, 2016). Especially after the Covid-19 pandemic started, knowledge work could also be described by words digital and location-independent (Wang et al., 2020). Thus, knowledge work is an overall term for various professions where knowledge is the main capital of employees. Knowledge workers are working as, for example, managers, lawyers, scientists, and accountants (Jacobs, 2017; Asatiani et al., 2020).

Knowledge work is constantly influenced by many external forces which has led to significant changes of work. Currently, digitalization and advances in information technology (IT) have been the main reason for changes in knowledge work. However, the changing nature of work and loss of jobs is not a new subject among knowledge workers. Previously, computers have replaced working with paper, and machines have been able to take on many tasks formerly conducted by humans (Wang and Siau, 2019). Notably, technological advances have generally influenced the emotions, feelings, and attitudes of people in both positive and in negative ways. For instance, human-agent relationship between a person and a robot is far different from face-to-face interaction between people. Therefore, the relationship between people and new technologies needs to be constantly evaluated as they can start to influence on the person in various ways (Shank, 2014; Tettegah and Noble, 2015). Even by changing the colors or the shape of objects in hardware or software affect how people feel and react. Therefore, usability is highly

linked with the emotions and perceptions of the systems (Thüring and Mahlke, 2007; Beaudry and Pinsonneault, 2010). Beaudry and Pinsonneault (2010) group the emotions that have occurred during IT implementation projects into two groups: positive, which includes excitement and happiness, and negative, which includes anger and anxiety.

In knowledge work, recent technological advances have added significant possibilities to improve on the productivity of employees by, for instance, reducing routine and non-value-added work. More time is available during workdays which can be used towards more productive and meaningful tasks (Palvalin et al., 2013; Goos et al., 2019). Knowledge workers are increasingly required to use new technologies and even work collaboratively with technologies in a human-agent relationship (Leitner-Hanetseder et al., 2021). Knowledge workers, such as accountants, are majorly affected by AI and different forms of automation (Wang et al., 2020). Therefore, employees need to be informed and involved in the change process when starting to implement new technologies. Employees need education and training to work with and along new technologies. Essentially, the goal for organizations is to enable more efficient work by training employees to utilize technological capabilities in their full extent (Petropoulos, 2018; Leitner-Hanetseder et al., 2021). However, as Shank (2014) suggests, technologies can affect individuals in different ways and cause distress. Thus, relationship between human and technologies should be observed to prevent unnecessary distress.

To be an expert in any profession, an employee needs to possess strong domain-specific knowledge (Jacobs, 2017). However, due to the changes in knowledge work occurring over time, knowledge workers' skills start to depreciate gradually. This means that previously learned skills, for example, at school are not going to be valid forever due to the changes in the business context. Knowledge workers are expected to adapt to such situations by acquiring new skills to complete work more efficiently (Robbins et al., 2010). In addition to domain-specific knowledge, an increasing number of technological and social skills are needed (Kokina et al., 2021; Leitner-Hanetseder et al., 2021). Thus, organizations' ability to upskill personnel through training and development practices help people adapting to new situations (Antonacopoulou and Georgiadou, 2021).

On the other hand, some scholars have argued that knowledge work could lose some of its knowledge-related elements due to management practices and the financial focus of organizations. Managers of knowledge workers are typically evaluated by utilizing financial and non-financial performance indicators. Regarding financial performance indicators, managers could try to increase the efficiency of their employees by applying various practices that don't support long-term success. Perhaps one of the most known

management practices is the theory of scientific management, introduced by Frederick Taylor in the early 1910s (Puusa et al., 2014). Scientific management or Taylorism refers to the standardizing of tasks, originally conducted in factory settings. However, standardizing tasks has also influenced knowledge work as processes are streamlined and split into various smaller sub-tasks. These small tasks are finally split between many employees, which could lead to work becoming more repetitive again (Costas and Kärreman, 2016).

Within knowledge work, Wang et al. (2020) describe this phenomenon as *Digital Taylorism*, which could be an outcome of current technological advances, such as the increased use of automation and artificial intelligence. Thus, knowledge work could also become monotonous and repetitive in workplaces, which is alarming (Wang et al., 2020). Supporting the phenomenon of *Digital Taylorism* and possible de-skilling of work, vast in contrary to the definition of knowledge work which consists of problem-solving and creativity, some knowledge workers have reported that their work has become repetitive, boring or dull (Costas and Kärreman, 2016).

2.3.2 Intelligent automation

The second starting point of this thesis relates to recent technological advances - intelligent automation technologies. The subject is not entirely new as digital technologies have started to change knowledge work already in the 1980s. Today, an increasing number of jobs can be completed by machines and automation by themselves, or in collaboration with a human (Palvalin et al., 2013; Goos et al., 2019). Advances in information technology have created numerous opportunities to increase efficiency of work in organizations, particularly in knowledge work. Currently, IT systems and software are generally well available at affordable prices for organizations. Typically, workers accept and trust new technologies and their capabilities in, for example, automating manual processes (Goos et al., 2019; Bolcu and Boharu, 2021). According to Petropoulos (2018) the effects of technological advances can be grouped into two categories. Firstly, technology has a displacement effect. This means that the technology has capabilities to perform tasks a human has completed before. The technologies can either fully replace or assist the employee in completing the tasks. Secondly, emerging technologies lead to reshaping of work due to new demands in certain skills and competencies which should be addressed in organizations.

Intelligent automation (IA) or cognitive automation (CA) are some of the most convincing sets of technologies that have begun to reshape work during the last century (Oracle, 2019; Willcocks, 2020; Ng et al., 2021). In the

context of this thesis, intelligent automation (IA) is used as an umbrella term for a group of technologies and tools. It consists of robotic process automation (RPA) and artificial intelligence (AI) technologies, such as machine learning, intelligent document processing and natural language processing. Therefore, RPA and AI technologies are considered as tools in the intelligent automation "toolbox", but the independent use of RPA or AI technologies cannot directly be called intelligent automation. Notably, companies and scholars also use the expressions artificial intelligence and intelligent automation frequently misleadingly, as a narrative add-on, when in fact automized processes utilize little to no AI-capabilities (Lacity and Willcocks, 2021). The definition of intelligent automation presented above is also used by the case company, which will be displayed more closely in the empirical part of this thesis.

The first element of IA, robotic process automation, is a widely known software technology which is used to automate rule-based digital tasks and processes. Automations created with RPA technologies are carried out by so-called *software robots*. Software robots can be configured and deployed by either writing scripts or by utilizing RPA dedicated robot software. Typically, these technologies are chosen to automate high-volume digital tasks that are routine in nature (Aguirre and Rodriguez, 2017; Kaarlejärvi and Salminen, 2018; Oracle, 2019). The goal of RPA is to create software robots that mimic human actions by working in digital environments by utilizing various software and systems. RPA is categorized as "low-code" technology, which means that limited programming skills are necessary to develop an operating automation from ready-made building blocks (Aguirre and Rodriguez, 2017).

One of the major weaknesses of RPA is its incapability to handle exceptions as the technology is based on configuration and pre-determined rules. RPA also lacks the ability to perform tasks that require extensive decision-making or interpretation of data. However, RPA with the addition of AI capabilities can help overcome the challenges that rule-based automation is associated with. These intelligent automation technologies have been proven to be effective in processes that require decision-making. Today, this is mainly done by utilizing RPA and machine learning (ML), which is a subset of AI. Machine learning models are trained by using historical data related to a process. Machine learning models become more accurate over time, as more data is available and human supervision is applied. The rising capabilities of intelligent automation have majorly begun to shape knowledge work as even difficult tasks can now be fully automated (Oracle, 2019; Coombs, 2020).

Organizations have reported various benefits related to different automation projects. To begin with, software robots increase processing speed and efficiency in digital processes as they are capable of working at all times -

around the clock. In addition, software robots don't feel fatigue or make humane errors which leads to predictable and flawless quality of work (Aguirre and Rodriguez, 2017; Alberth and Mattern, 2017; Tietz et al., 2020). Automation can steer employees towards more meaningful work when routine and stressful tasks are completed by software robots (Anagnoste, 2018). Automation also helps organizations manage risks related to data handling, as fewer employees need to have access to confidential data. Moreover, software robots leave an extensive audit trail for all the tasks they have performed which makes the monitoring of robot's work simple (Kaya et al., 2019; Costa, 2020). Organizations are interested in investing in RPA, as new RPA initiatives do not require expensive software or changes to underlying systems. Software robots can work with essentially any system which makes it an appealing technology for companies to try (van der Aalst et al., 2018).

Moreover, the wide set of AI capabilities have increased the possibilities to automate lengthier processes than before, especially when only RPA was utilized. Intelligent automation has led to increased efficiency and major cost reductions in organizations' processes (Coombs, 2020). Furthermore, intelligent automation has released a significant amount of time for knowledge workers to participate in non-routine and value-added work as many of the routine tasks have been automated. Knowledge workers, such as accountants, can now use their time to analyze and provide insights to data which increases their value for organizations. Moreover, professionals have more time to spend communicating with the customers of the organizations and have an opportunity to increase customer satisfaction levels (Jacobs, 2017; Fernandez and Aman, 2018).

The rise of intelligent automation is inevitable as many organizations need to engage in new technologies to maintain competitive edge by reducing costs of low-value-added jobs through automation (Wright and Schultz, 2018). To succeed in intelligent automation initiatives, companies need to evaluate the risks and requirements of these technologies to reach desired goals and objectives (Gotthard et al., 2020). To mitigate risks and succeed in new automation initiatives, extensive teamwork is required between departments, such as IT, HR, and business units (Gotthardt, 2020). In addition, the employees must be familiarized and trained to be able to work with digital workers side by side in the future (Alberth and Mattern, 2017; Anagnoste, 2018).

Communication is one of the most important factors that support the organization to mitigate risks and overcome negative effects, such as fear and stress, that the use of intelligent automation may cause (Wright and Schultz, 2018; Coombs, 2020). In contrast to the fear of losing one's job and radical

change of work, firms should focus on engaging their personnel in automation implementation processes. To greatly benefit from IA initiatives, organizations need to use their employees' domain-based knowledge and social skills. Therefore, communicating in a way that describes how users are affected and how they could benefit from automation is key to engage employees (Rozario and Vasarhelyi, 2018; Coombs, 2020). Moreover, companies could start with pilot projects or proof-of-concepts and engage their employees in the projects. This increases the confidence of end users towards automation which is useful before large-scale investments are made in new automation projects (Rozario and Vasarhelyi, 2018). As an established technology, RPA can be used as the starting point for investing in automation in organizations. Initially starting from small-scale investments in RPA, then investing the savings generated by automation towards AI related activities and intelligent automation, is preferred (Lacity and Willcocks, 2021).

2.3.3 Intelligent automation reshaping financial specialists' work

Financial management, or financial administration, refers to processes and systems that are used to manage financial tasks. These tasks are conducted by the CFO and finance departments within organizations or by utilizing outsourcing services. The tasks of financial management include, for example, paying employees and suppliers, keeping records, borrowing money, and financial reporting (Lasher, 2016). Within finance departments, financial specialists and accountants are responsible for these processes. Lahti and Salminen (2014) categorize main processes of financial management as *Procure to Pay, Order to Cash and Record to Report*. These processes consist of various tasks, such as processing purchase invoices or sales orders, tasks related to month-end closing, and reporting financial data (Lahti and Salminen, 2014).

Preparing for the future of work requires new skills from financial specialists. Accountancy as a profession is in a turning point as automation has started to replace many employees' tasks (Wang and Siau, 2019). Financial administration processes related to accounts payable, accounts receivable and fixed assets are already among the most automated processes (Aguirre and Rodriguez, 2017). Finance and accounting are some of the most vulnerable professions that encounters substantial changes due to increasing use of automation (Schlegel and Kraus, 2021). Most of the routine work that accountants perform is highly likely to be automated within the next decade or two by utilizing various technologies (Frey and Osborne, 2017). However, automation can also be used to support professionals. Some employees already have experience in working side-by-side with software robots and AI

solutions. This trend is likely to increase in the future (Alberth and Mattern, 2017; Anagnoste, 2018; van der Aalst et al., 2018; Oracle, 2019). However, not everyone is still experienced even with RPA technologies, let alone AI, which could generate new requirements and responsibilities for accountants in the future that we don't know of yet (Leitner-Hanetseder et al., 2021).

One of the major benefits of intelligent automation is that it saves time from employees. Typically, accountants are overloaded with work and need help to complete all tasks in time, for example, during month-end closing. Automation can help with the routine tasks during the busiest times, which leaves more time for the employee to perform other timely tasks (Yigitbasioglu et al., 2022). Accountants have reported that the use of intelligent automation has been crucial due to their good assisting abilities. Moreover, the use of automation is expected and wished to increase in the future of the profession (Cooper et al., 2019). When time is spared from everyday work, financial specialists and accountants can use their time to produce insights and deeper analysis of financial data, in contrast to spending time on searching, exporting, and editing data. These tasks typically generate more useful information for decision-making purposes which is becoming an important role and skill regarding future financial specialists (Lacity and Willcocks, 2015; Fernandez and Aman, 2018; Kaya et al., 2019; Kokina et al., 2021).

Nonetheless, the emerge of new technologies, such as robotic process automation and artificial intelligence, have influenced the work of accountants. Greenman (2017) notes that technologies, for example, AI will not replace the jobs of accountants, but it will majorly change the focus of their work. In other words, these technologies are most likely to lead to a restructuring of current jobs and creating numerous new jobs rather than leading to unemployment of accountants (Willcocks, 2020). Presently, accountants benefit from intelligent systems as non-routine work is automated and time can be spent on tasks that require decision-making and problem-solving skills which makes work more meaningful and interesting. Simultaneously, these technologies generally increase the efficiency and effectiveness of work (Greenman, 2017; Stancheva-Todorova, 2019). Hence, AI is not necessarily a competitor for human workers, however, it could be a complementary tool for employees to improve on efficiency and business growth of organizations (Jaiswal et al., 2022). Employees can also work together with AI solutions by dividing tasks, such as monitoring work between human and technologies (Oracle, 2019).

On the other hand, one could say that financial specialists' skills are not likely to depreciate in the future and the fear of losing jobs is unnecessary. Financial specialists' and accountants' work requires strong domain-specific

knowledge which they currently utilize to perform routine and non-routine work (Stancheva-Todorova, 2019). Within the profession, it is already common that employees need to learn new skills during employment due to changes in legislation, technology, and new best-practices of processes. Moreover, one of the most important skills as an accountant is to be a motivated and efficient learner to keep up with changes and new requirements of work (Kavanagh and Drennan, 2008; Stancheva-Todorova, 2019). Subject-based knowledge is still needed to create new automations that are efficient and legal. Thus, the role will keep developing and restructuring rather than leading to unemployment (Willcocks, 2020). In addition, automation has not significantly changed the work of accountants at all in many cases. It has simply increased the volume of tasks what an accountant is can process during a day of work (Greenman, 2017). Working effectively alongside IA requires familiarizing oneself with new technologies and their usage (Zou et al., 2020; Leitner-Hanetseder et al., 2021).

Despite the significant benefits of intelligent automation, negative effects have also been reported among financial specialists. For example, some employees have presumed that automation has led to fewer job opportunities once automation has started to take over their work. Change reluctancy and difficulties in accepting new technologies have also been reported, which can be seen as their thoughts of decreased job security. Possible deskilling was also seen as a major risk of automation (Fernandez and Aman, 2018; Asatiani et al., 2020). For mature workers, learning technical skills could not even be possible anymore which has created challenges in organizations (Schlegel and Kraus, 2021). Furthermore, automation and other technological advances could lead to the loss of skill content in jobs making them more routine-based and monotonous again. On the other hand, this could also be a factor of motivation for individuals to engage in reskilling and upskilling activities (Sawant et al., 2021).

From the employer's perspective, financial specialists with more than just domain-based knowledge are more sought after than others. Currently, employers value and look for skills, such as teamwork and problem-solving skills rather than just looking for a person with the highest subject-based knowledge. It is certain, that jobs are going to require more creativity and social intelligence – work that automation most likely will not be able to conduct. Hence, jobs that require social skills, service orientation and development tasks, are likely to remain and increase in the future (Frey and Osborne, 2017). In addition, tech-related knowledge and the ability to work with various technologies has become more important over time, as organizations are looking for more tech-savvy employees to work and develop processes that utilize emerging technologies (Kokina and Blanchette, 2019; Kokina et al., 2021). Moreover, successful implementations of

intelligent automation require extensive collaboration with financial specialists and IT professionals to create effective digital systems and processes. Facilitating this collaboration is a difficult but an extremely important task for the managers (Friday and Japhet, 2020).

To become a successful *Accountant 4.0,* as Stancheva-Todorova (2019) puts it, organizations need to provide enough support and help to financial specialists understand new technologies and possible new requirements of the profession. Some routine-based jobs will still exist in the future but there will be many new roles that are reshaped and formed from old jobs during the emerging of intelligent automation (Leitner-Hanetseder et al., 2021). The starting point of these new jobs is still strong domain-specific knowledge and strong learning capabilities of individuals. However, as Brunello and Wruuck (2019) suggest, there are significant skill gaps in Finland which relate to process skills, problem-solving and social skills that should be addressed in the first place. In the future, successful accountants require a wide skill set including communication skills and technology related skills. Combining their business knowledge with IT is an asset which also helps generate more value for the customers (Yigitbasioglu et al., 2022). Technology-related upskilling starts with learning basic IT skills before engaging in more complex technologies, such as intelligent automation (Fernandez and Aman, 2018). To do this, accountants need to learn working in a human-machine interaction, and even programming skills would be beneficial in some of the future roles (Wang and Siau, 2019).

Recently, so-called low-code and no-code software tools have become a possibility for almost any person to start programming, configuring, and deploying automations. These tools encourage non-technical people, such as financial specialists to access technical work by utilizing uncomplicated software. People, who participate in the development or develop their own processes without notable programming background are called *citizen developers*. (Thacker et al., 2020; Hoogsteen and Borgman, 2022). To enable citizen development in organizations, co-operation between business professionals and IT department needs to be established (Hoogsteen and Borgman, 2022). Lebens et al. (2022) indicate that the usage of citizen development tools is continuously increasing in organizations. Citizen development offers similar benefits than IA overall, however, it is designed for employees that want to shape their own work towards being more meaningful and efficient. The increasing use of these tools can also help manage the shortage of IT professionals in companies (Lebens et al., 2022).

Strong subject-based knowledge of financial specialists and accountants, enables various career opportunities for the current professionals in the future. New roles can relate to, for example, managing software robots, advisor roles or consultative work roles (Syed et al., 2020). Future professionals should be capable of monitoring the work of automation by utilizing reporting software (Bolcu and Boharu, 2021; Coombs et al., 2020). Moreover, they need to be able to collaborate with technologies, control them and solve possible malfunctions (Coombs et al., 2020). Financial specialists can also pursue a career in a more technical role. There is a shortage of IT professionals and developers that have subject-based knowledge of finance and accounting. Accountants that are willing to move towards a more technical role could be involved with development, testing, and support of automation processes (Kokina and Blanchette, 2019; Kokina et al., 2021). Their expertise is valuable when describing and mapping the process before the technical solution is developed (Cooper et al., 2019). In the future, the work of financial specialists could be categorized in the *Identifier, Trainer, Sustainer, Explainer* or *Analyzer* roles, which are further explained in table 2 (Kokina et al., 2021). These roles include, for instance, the training of AI systems to operate correctly and humanly, link technological people with business units and leaders, and monitor that systems are operating the way they are supposed to (Wilson et al., 2017; Kokina et al., 2021).

Table 2: Roles of future financial specialists and accountants

Role	Tasks	Hard skills	Soft skills
Identifier	Understands business. Is able to identify and communicate automation potential in processes	Strong subject-based knowledge. Understands end-to-end processes. Basic level understanding of intelligent automation.	Logical reasoning, problem-solving, brainstorming
Explainer	Collaborates and communicates between technical and non-technical people about potential processes for automation	Strong subject-based knowledge. Understands end-to-end processes. Mid level understanding of intelligent automation to communicate with technical people.	Logical reasoning, problem-solving, communication, teamwork, questioning
Trainer	Utilizes technical skills to support IA development	Low-mid level subject-based knowledge. Understands end-to-end processes. High level understanding of intelligent automation, for example, experience from programming or utilizing robot software.	Logical reasoning, problem-solving, creative thinking, communication
Sustainer	Monitors IA solutions' performance. Understands business and technology aspects. Is able to utilize data.	Strong subject-based knowledge. Understands end-to-end processes. Mid-high level understanding of intelligent automation. Experience from reporting software and risk management.	Communication, problem-solving, leadership (change management), logical reasoning
Analyzer	Analyzes IA solutions' performance, is able to measure, provide insights and communicate its benefits to stakeholders	Mid subject-based knowledge. Understands end-to-end processes. Mid-high level understanding of intelligent automation. Experience from reporting software and data analysis.	Creative thinking, communication, analytical, innovative, interpersonal, logical reasoning

Source: Kokina et al. (2021). Table modified.

3 Research material and methods

3.1 Research context

The research context and thus the focus of the empirical part of this research are the people that work in the *Digital Financial Management Service Department* at a Finnish company. The company specializes in financial management software services, consulting, and financial management outsourcing services. In addition, the company provides software and services related to intelligent automation and other low-code applications to its customers. Overall, the company employs over 300 business and technical experts. The Digital Financial Management Service department consists of around 80 financial specialists and accountants that work in teams which provide outsourcing services for various client companies. The jobs of financial specialists and accountants include numerous tasks related to accounting, for example, accounts payables, accounts receivables and other general ledger related tasks. The department is fully paper-free which means that all work is being done digitally by utilizing computers with multiple screen settings and modern software. In addition, software robots and artificial intelligence have been used for over 5 years to increase the efficiency of work by, for instance, reducing manual tasks within the business unit.

During recent years, the company has set major goals regarding the usage of intelligent automation. For example, the company aims to encourage employees to produce ideas about processes that could be automized and significantly increase the number of hours spent by software robots. In addition, the company aims to sell a certain number of artificial intelligence services to its customers. To reach the goals, the company relies on the collaboration between technical and non-technical people. Thus, they have started to encourage non-technical employees, such as financial specialists and accountants with strong domain-specific knowledge to take part in intelligent automation activities. These activities include participating in mandatory and voluntary training, watching webinars, and attending to workshops and events that are designed to help employees get started and understand the potential of intelligent automation and other technologies in their work. However, the company has faced challenges in scaling automation levels and attracting more financial specialists and accountants to participate in intelligent automation activities. The desired objectives and expectations have not been reached. With Covid-19 pandemic enhancing the changes in work life, it is a favorable time to explore the issues by focusing on the individuals.

To gain a holistic view of the company, its management practices, roles and responsibilities, and objectives, I have included team managers, service managers and employees in the research. By creating a comprehensive view of the business unit, I can, for example, mitigate the risk of making biased conclusions from a small data set, point out possible controversial comments and discover outliers from the data set. At the end of the thesis, I will also provide managerial implications based on the research, especially concerning the case company.

It is also important to note that I work at the case company in a team called the *RPA & AI Practice* as an Intelligent Automation Consultant. My current role and experience from working in the field of intelligent automation have offered me the opportunity to perform this research, access data, recruit interviewees and utilize my experience and insights regarding the industry. The goal of the case company is to better understand the requirements of attracting more employees, especially financial specialists, and accountants to participate in intelligent automation activities.

3.2 Methodology

I have chosen a qualitative research approach to answer my research questions. Eriksson and Kovalainen (2008) express that qualitative research is essential when the understanding of a topic is moderate, which is the case in researching the effects of intelligent automation on individuals in the field of management studies. Typically, qualitative research methods also enable flexibility and allow the researcher possibilities to explore to increase the knowledge of a novel topic (Eriksson and Kovalainen, 2008).

In the context of qualitative business research, I have chosen case study research as my research approach. In case studies, contemporary real-life phenomena in their environmental contexts are researched in-depth (Ridder, 2017; Yin, 2009). In this thesis, the case study is considered as a holistic single case study design. As Yin (2009) explains, a single-case study focuses on reaching thorough understanding in a certain context that are clearly bounded and defined. In a single-case design, I should be able to gain a holistic view from real-life events within the chosen research context. The efforts made towards intelligent automation highly vary between different organizations. For example, the pace and effectiveness of technological change are dependent on many factors, such as, company size, industry, or financial situation. Noting these factors, single-case setting is supported in this thesis as there would be great difficulties to find companies operating in similar environments. However, in future research, cross-case and comparative studies could be conducted as multiple case studies (Yin, 2009).

As Eriksson and Kovalainen (2008) suggest, in intensive case studies the goal is to find and explain this unique case in detail and provide wide and contextualized descriptions from a unique case. These factors also distinguish case studies from other research approaches as Yin (2009) explains. By providing a thick description of the case, the researcher aims to provide a clear picture and present true meanings of the case, which includes individuals or a group. Thus, my goal is to provide an interesting and in-depth research of the people in one business unit in a specific company through a thick description of the case through subjective perceptions and experiences of individuals (Eriksson and Kovalainen, 2008).

In qualitative approaches, it is also important to define the ontological and epistemological starting points of the preferred research approach. Ontology tries to explain *"What is there in the world"* (p.13) whereas epistemology explains *"What is knowledge and what are the sources and limits of knowledge"* (Eriksson and Kovalainen, 2008). This thesis is based on the philosophical notion that subjective experience is the basis for establishing reality. In this study, emphasis is placed on human actions, skills and feelings, and the interaction between people and technology which could vary depending on time and place. This leads to my epistemological approach which lies somewhere near substantialism. According to Eriksson and Kovalainen (2008) substantialism recognizes that reality is an input material knowing that people interpret it differently in different circumstances. As mentioned above, I aim to understand defined issues related to specific people in a specified research context.

3.3 Method, data collection and analysis

The main qualitative data for my thesis will be collected from qualitative interviews. The interview data will be the source of *primary data* for the empirical part of the thesis. To gain a holistic understanding of the current situation in the financial administration business unit, I interviewed a total of 18 people from various job positions from top level executives to financial administration specialists (see table 3). The average age of the interviewees was 34 years. Due to the ongoing Covid-19 pandemic and the company's remote work policy, all interviews were conducted remotely via Microsoft Teams. All interviews were recorded with in-software capabilities and the interviews were transcribed after each interview to prevent data loss. The average duration of the interviews was 1 hour and 9 minutes.

To develop a broad understanding of the company, I interviewed the Chief People Officer, HR Business Partner, and the General Manager of the Financial Management Service Department. In addition, I interviewed three

team managers. These interviews were conducted as open interviews. Open interviews are frequently used in qualitative business research to explore a topic from the interviewee's perspective and to also gain unanticipated insights to the discussed topics. This type of interview method gives the interviewer a chance to ask more freely and lead the conversation to a meaningful direction (Eriksson and Kovalainen, 2008). In my interviews, it was important to determine the company's processes related to training and development practices, role of HR and line managers, talent management and performance management goals. I also gathered the opinions of these people regarding the future outlooks of finance and accounting as a profession.

For the interviews of financial administration specialists, and service managers, I chose semi-structured interviews as the main interview method. One of the major advantages of such interviews is that it allows the researcher, for example, to ask follow-up questions or vary the order of the interview questions to make the interview more purposeful (Eriksson and Kovalainen, 2008). This allowed me to, for example, ask questions from service managers from a broader perspective than from financial specialists and accountants. For instance, the service managers could elaborate how they see the issues within their own service teams, whereas the focus of financial specialists and accountants were on their personal points of view.

Table 3: Interviewees

Interviewee	Job title	Worked in current role in the company	Date of the interview
1	Service Manager	2 years 1 month	15.6.2022
2	Financial Specialist	3 years 6 months	20.6.2022
3	Financial Specialist	2 years 7 months	21.6.2022
4	Team Manager	8 months	21.6.2022
5	HR Business Partner	1 year 6 months	22.6.2022
6	Accountant	2 years 2 months	23.6.2022
7	Business Unit Director	2 years 2 months	27.6.2022
8	Team Manager	1 year	27.6.2022
9	Accountant	7 years	28.6.2022
10	Financial Specialist	2 years	30.6.2022
11	Financial Specialist	1 year 9 months	30.6.2022
12	Team Manager	3 years 6 months	1.7.2022
13	Financial Specialist	3 years 11 months	6.7.2022
14	Service Manager	2 years 7 months	6.7.2022
15	Chief People Officer	11 months	7.7.2022
16	Financial Specialist	2 years 7 months	7.7.2022
17	Financial Specialist	1 year 7 months	7.7.2022
18	Accountant	1 year 4 months	8.7.2022

For the semi-structured interviews, I created an interview guide to ensure that all key questions and topics were discussed during the interviews (see appendix 1). Patton (2002) explains that a careful preparation of an interview guide will guide the researcher to cover all essential topics during the interviews and help maintain a systematic approach from one interview to another. Most of the questions were formed as open-ended questions. This was my main goal, as I tried to keep the interviews consistent and focus on giving the interviewees a possibility to express themselves freely.

In addition to the interview data, with permission from the case company, I utilized HR related documents found from the company's intranet as a *secondary data* source. Eriksson and Kovalainen (2008) describe that secondary data is empirical data, that exists before the research takes place. In this case, the documents I utilized were related to overall HR practices including learning and development policies, job and role descriptions, and career paths, which gave me some insights to the company's current policies that had already been defined. In addition, the interviewees were asked to describe these issues in their own words to develop an understanding of each interviewee's role and tasks. The roles and tasks will be further specified in the findings section.

After conducting the interviews and writing the transcriptions of the interviews, I started to process the data by following the thematic analysis approach. The process starts with coding of the data. In this approach, codes are appointed to pieces of the interview data to start summarizing the meaningful subjects that were discussed during the interviews. The aim of thematic analysis is to find and explore the meaningful data of the interviews to find patterns and repeating themes. Finally, the goal is to map the data under descriptive categories called "themes" (Braun and Clarke, 2012).

In this research, I used inductive approach to apply thematic analysis. In an inductive approach, raw interview data was used as the starting point for developing the final themes of the data, rather than theory (Braun and Clarke, 2012). Based on the interview guide, I had initial expectations about the upcoming themes which mainly helped me to organize and map the interview data under specific categories. However, the final themes of the analysis were generated from the interview data, as Braun and Clarke (2012) suggest doing in an inductive approach. Certain themes were abandoned during the research, due to their irrelevancy regarding the research questions. The final themes and overview of the interview data can be found from the tabulation of the interview data, which was generated from the semi-structured interview data (see appendix 2). Based on the final coding and after analyzing the qualitative data, I finalized my research questions, which were presented in chapter 1.

3.4 Limitations and ethical considerations

Typically, empirical case studies include limitations, for example, related to the generalizability of the results. In that sense, this thesis is no exception. The case company has already evolved into a notable intelligent automation service provider in the Finnish market. These services are also provided to the Digital Financial Management Service department. Thus, many of the 18 interviewees have at least heard of the technologies and some have been using them at work for a long period of time making the employees more familiar with technological change. Currently, all new employees at the company go through a ''RPA Essentials" learning program during their onboarding process, which introduces the basic concepts and capabilities of the technology. Moreover, the company has started to attract people who are willing to work with newest technologies which could influence the results of the interviews when comparing to other organizations.

This thesis was conducted as commissioned work for the case company where I also work at. Regarding my dual role, my goal was to be separated from operative work during the research process. I avoided being attached to the company to retain subjectivity as Vaivio (2008) suggests. To ensure separation from the employee status of the company, I chose interviewees at random. The interviewees were chosen from a pool of employees that I don't typically work with. Some limitations of case studies can also occur due to the individual researcher's choices. As Yin (2009) explains, every person has their own way and method choices of collecting and analyzing data in a case study context. As I work at the company as a consultant with IA related tasks, I have rather positive feelings and assumptions on new technologies to begin with. However, during this research project, I have tried to remain critical towards the interviewees' comments and seek for a broad range of answers from different people. This has helped me to answer the research questions and contribute the most to management and business research.

Regarding ethical concerns, I have followed the ethical guidelines by Eriksson and Kovalainen (2008) as the basis of my research process (p.62-76). For example, I have ensured anonymity of the interviewees and left out all data that could be connected to individual people. All participants were asked to attend to the interviews voluntarily. Before the participants took part in the interviews, an email regarding the background of the study was sent to the participants. In addition, consent for recording, issues regarding data handling and display of results were topics that were discussed with the participants prior to the interviews. I encouraged the interviewees to ask for any information or comment on any of the procedures before, during and after the interviews. No information outside of this thesis work was published during or after the project to any of the case company's stakeholders.

4 Findings

In this section, I will present the findings of the study. I will begin by providing background information of the research group and further grouping the interviewees based on their current roles and tasks. Next, I will discuss the roles of the employees that work in *people focused* roles, such as HR personnel, based on the open interviews and HR documents. Then, I will focus on the semi-structured interviews that were especially designed for financial specialists and accountants. I will explicate the perceptions and feelings related to new technologies that were discovered during the interviews. I will then go through the main findings of the abilities, motivation and opportunities of the interviewees related to intelligent automation. I will also discuss the learning methods and enablers that were brought up by the interviewees. To conclude this section of the thesis, I will summarize the main findings of the study before proceeding to the discussion section of the thesis.

4.1 Roles of the participants

To gain an overall understanding of the case company's organizational structure and roles of employees, especially people working for the digital financial management service unit, I utilized the case company's HR related documents that were found from the intranet. To support the findings, the interviewees were asked to specify their job titles, roles, and tasks in the company during the interviews. Based on these two data sources, I summarized role descriptions of Chief People officer, Business Unit Director, HR Business partner and Team Manager (see table 4). In this study, these four roles are considered as *people focused* roles, which is the unifying factor of the jobs. People that work in these roles are mainly responsible for developing, maintaining, and implementing HR processes and practices in the organization. The role Business Unit Director also includes sales related activities, whereas the employees in the other three roles are mostly focused on internal work.

The Chief People Officer is responsible for the management of the *People and Culture* team and its members. The HR Business partner and the Business Unit Director are associated with the development of their specified unit, which in this case is the Digital Financial Management Service unit. Main focus of the HR Business partner's work are the Team Managers in the organization, whereas the Team Manager is responsible for the implementation and monitoring of HR processes on the operational level.

Thus, the main focus of Team Managers are the financial specialists and accountants within the business unit. Overall, the roles and responsibilities of the case company follow a typical hierarchical organizational structure.

Table 4: People focused roles

Job title	Role in company
Chief People Officer	Manages People & Culture team. Is involved in the strategy process and takes part in developing and supporting in HR processes, such as recruitment, staffing, training and development and performance management processes. Has an important role in developing and maintaining organizational culture.
Business Unit Director	Responsible for operational management, service level, delivery capability and competencies of the business unit. Sets objectives and goals in collaboration with executives and implements these within the unit. Has a key role in managing financial success. Sales, change management and strategical projects are included in the role.
HR Business Partner	Advises and implements HR policies and practices in the business unit. Works in collaboration with the leadership to support organizational goals through people practices. Develops HR practices and ways of working. Also has ownership of some HR processes and systems.
Team Manager	Provides high-quality leadership to their teams efficiently. Takes care of capacity, competencies, and service levels of the team. Has an important role in evaluating potential employees, developing competencies, and maintaining a well-being staff by implementing HR policies and practices. Ensures employee satisfaction, organizational culture, and customer satisfaction through behavior.

The second group of interviewees consists of employees in roles that are focused on *operational* duties. This group is comprised of Financial Specialists and Accountants that are employed to perform financial management tasks for the company's external customers that have decided to purchase outsourcing services from the company. The members of this group are the main focus of this research. In addition, I have included the role of service managers in this group, mainly because they have an active role in performing additional sales activities for the company's current customers. Therefore, the role requires extensive knowledge of overall offering of the case company, including intelligent automation services. To succeed in service managers' activities, they are assumed to possess enough knowledge about these technologies to be able to discuss about them with customers. Based on the semi-structured interviews and HR documents, I have summarized the roles of Service Manager, Accountant and Financial Specialist in Table 5.

Table 5: Operational roles

Job title	Role in company
Service Manager	Is responsible for service management, development, successful customer service and additional sales of designated customers. Sets and manages customer-specific objectives and goals and directs tasks agreed with the customers. Service managers allocates resources, sends invoices, and creates forecasts of the customers. Collaborates with Team Managers in people-related issues.
Accountant	Accountants are responsible for managing designated customers' outsourced financial management regarding the general ledger accounts. They perform their tasks in high-quality within the agreed timeframe to ensure customer satisfaction. Accountants may also participate in developing processes, training, and supporting other employees and other consultative work.
Financial Specialist	Responsible for tasks in accounts payable, accounts receivable and travel expense processes. Financial specialists may also support in accounting related tasks. They provide support regarding financial management and user guidance for various customers. Professionals are expected to perform high-quality work and provide service in-time to ensure customer satisfaction.

4.2 Perceptions and attitudes towards IA technologies

The case company has gained considerable experience in intelligent automation projects during the last few years. Automation is part of many customers' processes and is seen as an efficient way to increase efficiency of work and profitability. Based on the interviewees' experiences working with and alongside automation, I will report the current perceptions and attitudes towards intelligent automation initiatives in the company.

To begin with, interviewees 4 and 17 emphasized the contemporary nature of intelligent automation. They expressed that there is a need to understand more about these technologies. They felt mainly excited to engage in intelligent automation activities.

> *"[intelligent automation] is the future and we are moving towards that direction, and we will be using it increasingly in the future. Of course, I want to be part of that and understand more about it and not fall by the wayside"* – Interviewee 4, Team Manager

> *"To my mind, new technologies are very inspiring, and I am motivated to learn more about them […] we have already seen that even if you use, for example, RPA to automize a lot of tasks, it still doesn't fully remove human work. Even if it's feared at first, it will help work by a lot"* – Interviewee 17, Financial Specialist

For many of the respondents, such as interviewee 18, automation has been part of their daily work for a long time and is seen as an ordinary technology that can be used to automate processes that are standardized and repetitive in nature. Interviewee 6 adds that automation has significant capabilities to help busy professionals.

> *"Automation does not really raise any specific feelings anymore. However, it helps in my work life - I think processes with large volumes and lots of data could always be automized because they always go the same way"* – Interviewee 18, Accountant

> *"I think it's very good that automation exists, because if it didn't, there would be significantly more work for me […] I don't even want to think about how to manually manage fixed assets […]. It's hard to see that a robot would take my job. I don't see it as a threat currently."* – Interviewee 6, Accountant

However, there were also some negative perceptions towards the increased use of automation tools and the change of work. Notably, many of the interviewees described that a common thought among people is that automation could forcefully take some people's jobs in certain scenarios. None of the interviewees feared that automation would take their job. However, the change of work isn't suitable for everyone. With some hesitation, interviewee 3 described their feelings:

> *"It has been discussed a lot lately that will automation take our jobs and make them disappear […] however, at this point, I don't think I'll be unemployed, at least not yet"* – Interviewee 3, Financial Specialist

In only one of the interviews, increasing use of automation was mainly associated with negative outcomes regarding the person's work. The interviewee considered routine work as the most enjoyable and important aspect of work. Therefore, when automation reduces routine work, the work of a specialists becomes more difficult as interviewee 11 explains:

> *If work goes the way it's supposed to and you get used to it, why would you change it? […] I see that [intelligent automation] is the future but if all routine tasks are automated, people are only left with the most difficult special cases… is it a threat or an opportunity? […] I do a lot of routine work and I enjoy it"* – Interviewee 11, Financial specialist

Overall, discussions regarding the emotions, attitudes and feelings towards intelligent automation can be described as mainly positive, hopeful, and confident. Therefore, positive emotions, such as excitement was dominant. However, regarding interviewees 3 and 11, also negative emotions could be noticed. Most of the interviewees described that automation has helped them at work to reduce routine tasks. Some of the interviewees had already been working jointly with software robots and AI for a long time. These people were used to the technologies and their capabilities. Interestingly, many of the interviewees had an overall perception, that automation has the possibility to replace human work, possibly even jobs which they discussed about. Yet, none of the interviewees feared that automation could replace their current job.

4.3 Abilities, motivation, and opportunities

Before starting any training and development activities, the first step is to analyze the current level of skills and competencies (see Smit et al., 2020) of financial specialists and accountants regarding the use of intelligent automation. Based on interview data, I analyzed the abilities of the interviewees to create an understanding of available talent in the organization. In addition, motivation and opportunities to participate in intelligent automation activities were assessed and grouped under each category of the AMO framework (see Marin-Garcia and Tomas, 2016). This part of the study mainly focuses on the comments of financial specialists, accountants, and service managers – the group of interviewees the semi-structured interview guide was designed for. In addition, some reflections from the first group of interviewees are reported to reach a holistic view of the current situation in the case organization. The findings of this section can be used to estimate the enablers and restrictions related to the goal of increasing the use of intelligent automation in the company.

Abilities:

The first part of the assessment was to understand the current knowledge, skills, and abilities that the personnel possess. The interviewees freely described their KSAs related to intelligent automation, as well as their current tasks that involve intelligent automation technologies. To activate the interviewees, I provided background information and questions of the company's automation development process during the interviews. For example, these activities include identifying new processes for automation, designing processes, drawing flowcharts, and programming or developing intelligent automation solutions. The answers of this section were used to reach an understanding of the complexity of tasks that each employees perform related to these technologies currently.

To begin with, every interviewee had completed a course called *RPA Essentials*, which is a pre-recorded web course found from the company's own learning platform. The course was designed specifically for new employees to illustrate the basics of RPA technologies and their role in the company. Currently, the course is mandatory for new employees in the financial management outsourcing unit during the onboarding process of employees. This is due to the assumption that almost everyone is likely to face automation during their employment at the company. As a result, most employees have at least a basic understanding of RPA. However, depending on various factors, there were major differences in the current skill levels of the employees. As Bierema and Callahan (2014) explains, learning in

organizations happens in various ways. Some people have learned new skills on the job, some during formal training events and some at school and other external courses.

Similar to many other interviewees, interviewee 16 explained the importance of the *RPA Essentials* course. However, the course is designed for basic knowledge and self-reflection is generally needed to reach a better understanding of the technologies in real-life work.

> *"RPA essentials included many good entry-level learning points, which has helped me to understand what automation means in the first place. […] The essentials training is good for basic knowledge and then I deepen my knowledge within in our team – how automation connects to the work in our team. […] it gives perspective - what it actually means" – Interviewee 16, Financial specialist*

When discussing about other abilities related to intelligent automation, the interviewee also brought up interesting ideas about the future skill sets of financial specialists that could work in an explainer role as a communicator between technical and non-technical people:

> *"My technical and programming skills are poor, but I would say I'm good at the work that happens in the middle of a programmer and a [financial] specialist. I understand technical language and its importance, and I can communicate it towards both sides […] since change is constant, coordinating is important. I have seen that at work and somewhat done it at work myself" – Interviewee 16, Financial Specialist*

On the job learning and familiarization with RPA have happened through certain tasks at work. Most of the entry-level tasks of financial specialists and accountants related to the monitoring of software robots and the verification of the outputs. However, during these tasks, some experience in understanding how software robots work, has been achieved as interviewee 10 discusses:

> *"I follow robot runs of purchase invoices and credit invoices […] it completes them from the beginning to the end and gives us reports of the runs […]. I feel like my skills are mediocre, from the beginning I started to understand how the robot could be utilized to process certain vendors' invoices […] when I actively followed the robot" – Interviewee 10, Financial Specialist*

In addition to the monitoring of software robots, some employees have been working alongside AI solutions daily. Nevertheless, the tasks are very similar in nature. Employees working with AI solutions also monitor the performance of AI. In addition, incorrect outputs and failures in software need to be reported to the support team as interviewee 3 explains:

> *"Automation is part of my daily tasks, like Snowfox AI and RPA […]. When I know what is supposed to be done by automation, I can send a message forward if something doesn't go as planned […] that much I can do […]. I'm interested in automation, but I don't have good enough abilities, so some of the new things go way beyond my understanding" – Interviewee 3, Financial specialist*

In addition to on the job learning, many of the employees mentioned other internal and external learning programs and events that they have either completed or have planned to complete in the future. Interviewees 2, 10 and 18 discuss other abilities they have developed or want to develop by engaging in learning activities.

> *"I have attended almost all training sessions organized by our company. I understand how a flowchart is drawn […] and I can identify new processes for automation. […] I still need help to decide if it's done correctly and that all steps have been included" – Interviewee 2, Financial Specialist*

> *"I attended a Python programming course at school. During another course, we did something with UiPath software […] nowadays, when it's quieter at work, I watch quite a lot of webinars related to these subjects" – Interviewee 10, Financial Specialist*

> *"The University of Helsinki has one of those free basic AI courses, which I am planning to complete in the future" – Interviewee 18, Accountant*

As discussed, the role of service managers includes active participation in the development of their customers' processes and sales activities. As interviewee 14 describes, learning has occurred during projects, but additional IA knowledge would be beneficial for role of a service manager:

> *"Development plays an important role in my work […] I have learned a lot about artificial intelligence during customer projects and I want to learn and know more about the solution to be able to talk about them more deeply" – Interviewee 14, Service Manager*

However, it seems that the abilities of some employees related to intelligent automation haven't developed significantly during their employment.

> *"At least I know about robots, what they can do and what they are able to do, but my knowledge is rather superficial. However, I would be interested to hear more about the current opportunities and what have been done to others" – Interviewee 17, Financial Specialist*

Overall, most of the interviewees expressed that they only have basic level knowledge of intelligent automation even though automation has been part of their work for a long time. Interviewees mostly discussed about RPA and its capabilities and how it affects their work. The work related to RPA was considered as routine of monitoring reports and process outputs. Only few of the interviewees described that they are able to identify processes for automation or possibly even configure software robots. No one except service managers had an understanding of business case evaluation. It is notable that no AI related training is required from the employees at this time. Most of the AI related abilities have been learned on the job during projects and customer related work.

Motivation:

Understandably, people have different areas of interest and have various ambitions regarding their professional career. In fact, not everyone is interested in intelligent automation technologies at all, which was also seen as a notable spread in the interviewees' answers; some were highly interested and willing to participate in IA activities, some were not interested at all. However, many of the interviewees have realized that automation plays a key role in the future of finance and accounting jobs and expressed that automation brings help regarding their work. Therefore, learning new skills was still considered important, since keeping up with the current technologies maintains a high level of professionalism. On the other hand, some of the interviewees explained their willingness to move away from finance and accounting tasks altogether. In these cases, it was interesting to discuss the reasons that have led to such feelings and explore if automation could have helped in the situation at all.

The interviews included discussions of intrinsic and extrinsic motivation factors of individuals. In addition to a person's own willingness to spend their spare time or "quieter" times at work on improving on their capabilities, we discussed about extrinsic motivation factors that can be used to motivate employees. These included elements of the rewarding system and how they

affect the performance and willingness to participate in intelligent automation activities. Interviewees 2 and 16 reflected on their ambitions regarding intelligent automation:

> *"At first, I wasn't too interested in automation, but when I realized it helps my job, I have had lots of motivation to deepen my knowledge. It has been really nice to notice, that I can do an automation and help everyone's work […] working with Accounts payable is just not enjoyable anymore" – Interviewee 2, Financial Specialist*

> *"We can see how our company is strongly aiming and targeting [to utilize AI], which makes me want to expand my knowledge in respect of how artificial intelligence can be utilized and how many other new things I could utilize in my work […]. Those are my real points of interest at the moment" – Interviewee 16, Financial Specialist*

Interviewee 13 explains that the importance of learning can be much more significant than high pay when considering motivation:

> *"When I started at this company, I felt that learning new skills and the way I could develop as an employee and person was way more valuable than getting paid a lot […]. Of course, I have to feel that the salary is fair and justifiable – but it's definitely not the most important thing for me" – Interviewee 13, Financial Specialist*

Many other participants also found new technologies inspiring, however, the lack of time was one of the main reasons that has eventually led to decreased motivation, as interviewees 17 and 10 describe:

> *"For me, technology is a really inspiring subject and I have had motivation to learn new things, however, the lack of time is now the thing that has been decreasing my motivation […] if I still worked with accounts payables, I would really have zero time to start learning new things" – Interviewee 17, Financial Specialist*

> *"Overall, I have positive feelings and I think that the [IA related] objectives of the organization motivate me. It is important to keep up with the technological advances […]. However, even if there were interesting training sessions in the calendar that have been organized, I have never had enough time to detach from work to do these extra things" – Interviewee 10, Financial Specialist*

Interviewee 18 adds a major concern related to the work of accountants:

> *"I am so fed up with having to be flexible, when the first two weeks of the month you have to stretch everywhere and the next two weeks you are already preparing for the next sprint. […] I hope that the use of automation will increase in the future in the field of financial management. The workload of employees is terrible. It would be nice to just breathe sometimes, I have been working many over 10-hour days. […] even in my previous job, the robot did all the VAT reports. That already spared me half a day" – Interviewee 18, Accountant*

Interestingly, even a person with strong interest in intelligent automation, motivation can be dramatically reduced if learning doesn't lead to actual work as interviewee 9 describes:

> *"If I learn something (IA related) alongside work […] not just learning something and then after a few years you get to do something related to it. If I knew it from the beginning, that I would make use of my new skills, learning would be much more motivating and meaningful for me" – Interviewee 9, Accountant*

However, when IA responsibilities increase, extrinsic motivation factors, such as pay, benefits and bonuses were considered as important elements that contribute to the overall motivation of an employee as interviewee 2 explains:

> *"I am the main user of my customers' RPA solutions and I take care of it; I solve issues and I take responsibility for the solutions, I think it should have an effect on my salary […] until now it hasn't had an effect on my pay or work title, but I really think it should" – Interviewee 2, Financial Specialist*

Few of the interviewees expressed limited ambitions towards learning new IA related skills. Interviewee 3 explains the situation:

> *"At this point of time I have no specific motivation towards developing my intelligent automation skills […] some of the things go way beyond my understanding. I think it would be nice to know more about them because I feel it's a contemporary theme […]. I learn by doing, so I guess I could do it myself, but then again, there's the motivation issue with me. I think that those who are motivated probably do more learning than others" – Interviewee 3, Financial Specialist*

Understandably, some of the interviewees were not that interested in prioritizing IA learning due to other career ambitions. Some of the interviewees discussed their willingness to deepen their knowledge regarding accounting or legislation, which help them become experts within their field. These people still recognized that there is a need for learning IA skills. However, a basic level of knowledge would be enough to fulfil the needs in this case. In addition to deepening knowledge, the interviewees brought up other skill needs, such as communication and social skills.

> *"Of course, I'm interested in automation. However, regarding my career wishes, I'm more focused on deepening my current skills related to accounting, rather than being interested in technical stuff […] In accounting, the things you can learn are never ending. however, I'm still not interested in routine work. After my workload has started to become steadier, I have started to upskill myself and would maybe even like to help others learn in the future" – Interviewee 6, Accountant*

Generally, most of the employees expressed a willingness to learn new skills. These skills relate to accounting, legislation, technologies, and other relevant skills depending on the person's career wishes. Most of the interviewees expressed the importance of intelligent automation and the need to learn automation related skills in the future. Depending on the situation, employees have learned new skills at work and by attending to other interesting external training sessions. On the other hand, time was considered as the most important factor that is restricting employees from learning new skills. Only few interviewees had personal goals that related to learning and development. Simultaneously, the morale and motivation of employees have been reducing as there has been low continuity in learning.

Opportunities:

In this case, opportunities refer to the circumstances and possibilities that enable employees to perform certain tasks or jobs and participate in various activities that influence their work. The focus is mainly on the factors that allow employees to learn new intelligent automation skills and participate in work that involves new technologies to utilize newly acquired skills and the motivation of an individual. To reflect on the employees' career ambitions, autonomy, participating in decision-making and career planning activities are also included in the opportunity section.

To begin with, in almost every interview, the role of team managers was discussed. The interviewees felt that their supervisor was the first person to

hear about individual's wishes about their work. In the case company, personnel managers have a key role in discussing and contributing to career and learning wishes of individuals. Based on the wish, team managers attempt to provide and organize opportunities for the individuals. Interviewees 2, 10 and 16 explain the importance of supervisors in the process and how they can participate in decision-making processes:

> *"At least when I told my ambitions to my supervisor, they immediately took it forward when I said I'm interested in RPA […]. In our one-to-one meetings we have discussed about this, and I have been allocated more time to do these activities" – Interviewee 2, Financial Specialist*

> *"I would say that it's my supervisor (who supports the most). When I tell them about my interests, I get advice immediately or they would at least find out what to do next and how we can proceed later. […] I have brought up ideas to my supervisor about new things I want to do. If it's possible to do for the current customer, the ideas have been heard and executed accordingly" – Interviewee 10, Financial specialist*

> *"It's my supervisor, who has been exemplary and at least I have got a lot of help regarding my learning and development […] those discussions I have had with my supervisor have been encouraging, I have opportunities to choose from in this company and its clear to me… and I can do the things next I want to" – Interviewee 16, Financial Specialist*

However, team managers may not be able to fulfil all employee wishes. If an employee expresses that they want to start learning certain skills and possibly shift to a new role, the team manager cannot promise that it's going to happen anytime soon. Team managers need to align learning goals with organizational goals and customer related goals, which are considered prerequisites to get support from top-level managers. Interviewee 4 explains the challenges related to employees' wishes to learn new IA skills and participate in projects:

> *"We maybe need to look at the overall picture more – what is also financially beneficial for the company […]. If we train and develop an employee, is there a future? We can't just go by the person's own areas of interest and perform those things […]. I try to fulfill the wishes, but if there's no projects, then I just can't" – Interviewee 4, Team Manager*

Therefore, customers' reluctancy to invest in intelligent automation is one of the major risks that could prevent employees from the case company participating in intelligent automation activities. In addition, some customers may have restrictive policies which automatically lead to a hopeless situation. However, without new projects, financial specialists and accountants do not have a chance to utilize their current skills and learn during real automation projects. Interviewees 18 and 6 explained about the restrictions:

> *"I have so many ideas and wishes what the automation could do, but I have no idea how it could be done or can it be done at all […]. [For another customer] we hoped that we would've started developing automations, but unluckily, the customer wasn't ready to start the development project" – Interviewee 18, Accountant*

> *"We have had customers, who weren't interested in identifying processes for automation, or the corporation didn't let us automate processes in their systems, those customers don't have automation related objectives and goals" – Interviewee 6, Accountant*

Interviewee 9 explains that there could be an emerging risk due to the increasing of team sizes:

> *"I'm beginning to see lots of large teams where many of the people are just quiet […]. You must check for trainings yourself. It's always self-imposed, deciding how and what you want to learn next and improving on your knowledge" – Interviewee 9, Accountant*

In addition, some employees could be overloaded with certain type of work, as interviewees 17 and 3 describe:

> *"If I still worked with tasks only related to accounts payable, I would never have time to start learning anything new […] sometimes you find time to study but do you want to use all your excess time to learn new things or just try to make progress with your other tasks" – Interviewee 17, Financial Specialist*

> *"My days are pretty full of basic work […] so it would be good to learn new things, but I'd have to do it either as overtime work or on my free time" – Interviewee 3 – Financial Specialist*

Even with the restrictions, within certain groups and teams, employees have managed to establish well-functioning learning methods, such as knowledge sharing forums. While discussing about suitable learning methods for employees at the case company, interviewee 6 brought up an idea that could also be used for cross-team purposes that:

> *"There's this accountants' knowledge forum [...] for example, regarding the accountants here, we have a lot in common with other colleagues who do similar work [...]. We learn new things together, we teach and spar each other, so it's not just that we are making one person an expert of the field" – Interviewee 6, Accountant*

In addition to knowledge sharing forums, interviewee 17 sights a possibility to share knowledge between technical and non-technical people. In this case, both parties could benefit and learn from each other during mutual projects.

> *"Going through processes together helps both sides [Financial management unit and the Cloud business units] you can definitely find things to improve from both units and their processes" – Interviewee 17, Financial Specialist*

Lastly, interviewee 10 described that there is an established learning path for financial specialists to deepen their skills. Interviewee 10 proposes that similar paths could also be useful for IA purposes:

> *"Nowadays there is that so-called accountant's learning path. So, I guess there could be something like intelligent automation path or something related to this subject. I think it would create a lot of interest [...] it would be nice to have something more formal [related to IA] and not just go case-by-case" – Interviewee 10, Financial Specialist*

The opportunity to participate in intelligent automation activities is highly dependent on the customer that the specialist is working for. If the customer does not give permission or have a willingness to develop intelligent automation, the specialists are in a hopeless situation in the service team. For individuals, support from the team manager was the most important way to get started with upskilling activities. Although there are no learning programs or knowledge sharing forums for intelligent automation, there have been positive experiences from similar forums created for other teams' purposes. Knowledge sharing and defined learning paths support learning. However, most employees wished to utilize their skills in real work contexts.

4.4 Upskilling methods in the post-pandemic era

It has become clear that the Covid-19 pandemic has dramatically started to change the way people work, study, and spend free time. Currently, we have been working for two and a half years influenced by restrictions and rules. The pandemic has forced organizations to discover new and innovative ways of operating and doing business. From the perspective of individuals and the learning that happens in organizations, it is now a propitious time to study the effects of the pandemic. For example, in many places, the restrictions of working at offices have been removed which allows employees to see each other and participate in live events.

The purpose of this section is to present the findings related to employees' thoughts about the role of a financial specialist in the future. In addition, I will discuss about the employees' wishes and hopes regarding learning and development activities in the post Covid-19 era. By better understanding the situation and taking employees' wishes into account, learning can be effectively organized in the company going forward – mainly focusing on intelligent automation activities.

To begin with, interviewee 6 reflected on the future of accountants' work and the need for upskilling:

> *"I think that in the future if you are an accountant or want to stay as an accountant you would need new skills [...] the requirements may be even higher in the company we are working at" – Interviewee 6, Accountant*

During the interviews, we discussed most suitable methods of learning for the interviewees, while reflecting on both the time before and after the pandemic. Interviewees 3 and 17 described the situation:

> *"I learn best in live events, when you don't just look something happening on your screen [...] you have to be doing something and when you are doing something you need support and help" – Interviewee 3, Financial Specialist*

> *"I enjoy web learning programs, but I also learn best by doing. Especially during the pandemic, lots of new web courses have been released, which I have really enjoyed" – Interviewee 17, Financial Specialist*

Interviewee 16 elaborated the need of knowledge sharing to reach the goals of the business unit:

> *"What I think is that we (in the financial management service unit) need more knowledge sharing and sparring events to reach our automation goals" – Interviewee 16, Financial Specialist*

In addition to various organized activities, employees felt that their skills develop significantly better when they are appointed to a project or a continuous learning program after learning basic skills.

> *"I think we have something called an accountant's learning path… So, there could also be an intelligent automation path or something like that. I think that kind of a path would raise a lot of interest […] there should be something more structured and not just go case-by-case" – Interviewee 10, Financial Specialist*

While discussing about the required abilities of financial specialists and accountants in the future, an idea was brought up by interviewee 14:

> *"I don't know exactly what the level of ability should be, but it would be good to know the requirements regarding personnel management. If you need to use certain tools, what are the technical requirements? […] To achieve the results, it could mean clear learning paths, 'hat roles', or organizational roles. It could help people understand how knowledge can be increased and what kind of work they would be able to do with new skills. For example, I can draw a flowchart, or I can fully define a process for automation" – Interviewee 14, Service Manager*

One of the accountants was feeling very positive about the possibilities intelligent automation could bring to the work. Time saved through automation could be utilized towards more value-added work in which they would prefer to focus on as interviewee 18 describes:

> *"Anything that helps my work is great, if we think about bookkeeping, analyzing the financial statements would be very important. Now there is literally no time to analyze the report during month-end closing, because there are so many tasks, I need to complete by myself […] if even one of the tasks was automized, I would have more time to become familiar with the customer and understand their business better" – Interviewee 18, Accountant*

During the interviews, we discussed the possibilities of how financial specialists and accountants would benefit from learning new IA related skills. In addition, the interviewees were asked to reflect on how their closest stakeholders, such as their team members or customers could also benefit from upskilling activities. Interviewees 6 and 2 explain how they could utilize new skills at work:

> *"The customer and our company would benefit if we had more opportunities to identify processes for automation in our own work and even think about how it could be solved with automation. If the ideas became into automations, work would be significantly more efficient" – Interviewee 6, Accountant*

> *"Our company would benefit from my IA skills. I would be able to do more and develop more myself without the need for too much external help. For example, I would be able to discuss and go through my ideas straight with the developer. The hours needed would thus not multiply" – Interviewee 2, Financial Specialist*

For a person working in service management, new IA related skills would help in guiding professionals and during sales activities as interviewee 14 explains:

> *"I would be able to guide our specialists to look for the correct solutions […] that it's not just based on poor but a thing that one should really try. Related to customer management, I would be able to see how different solutions work with each other. If I knew the basic set-ups, I would have some knowledge to propose a new solution for a customer […] I require more assurance for myself, If I propose something, I need to know how it really can be done" – Interviewee 14, Service manager*

A team manager had similar thoughts – new skills would be beneficial by increasing efficiency and effectiveness in decision making. Interviewee 4 describes:

> *"It would help our team in a way that I would be able to deploy the best possible people to do the job without having to ask around so much. […] In that sense, working would be more efficient when I can understand more myself and make decisions faster. It's effective and serves the customer better when one doesn't make error estimates" – Interviewee 4, Team Manager*

Regarding future upskilling needs of employees, all interviewees expressed that there would be at least some benefits if they learned new IA related skills. For example, accountants would be able to focus on providing financial analysis and start to understand customers' business better which would result in more value-added work. Service managers and team managers would benefit from IA especially as decision-making efficiency would be enhanced. From the perspective of financial specialists and accountants, the most effective learning methods consist of knowledge sharing forums, co-working events and on the job learning. Interestingly, most of the interviewees preferred learning in small group live events with active participation. On the other hand, employees mostly expressed frustration if they had to attend remote lectures or events.

5 Discussion

Researchers have had difficulties in including technology in management studies, for example, due to the scholars' background and lack of technology related knowledge (see Orlikowski and Scott, 2008). The use of technologies in organizations may also be a major source of competitiveness, culture and strategy, which is why not much data is available for researchers (Cortellazzo et al., 2019). This theme has been continuing as only few empirical studies have been conducted, which focus on researching intelligent automation technologies from the perspective of human resource management (e.g., Asatiani et al., 2020). Studies related to intelligent automation technologies have mainly focused on explaining these technologies regarding definitions, capabilities and benefits (Syed et al., 2020; Ng et al., 2021). However, the rapid advancements in automation and artificial intelligence, sped up by the Covid-19 pandemic, have significantly paced up the change of work. Knowledge workers require new skills and competencies to work with new technologies effectively (e.g., Schwab and Zahidi, 2020).

On a positive note, recent research suggests that intelligent automation is not replacing as many jobs as was previously expected (Willcocks, 2020). As a matter of fact, increasing use of intelligent automation has led to reshaping of many current jobs. Therefore, technologies, such as artificial intelligence, will not replace the job of an accountant, but will change the focus of an accountant's work (Greenman, 2017; Willcocks, 2020). In addition, numerous new jobs have been established, such as technical and managerial roles. Therefore, the ongoing situation has set major challenges for employees, managers and organizations to operate and succeed (Schwab and Zahidi, 2020; Willcocks, 2020). In this thesis, the relationship between people and intelligent automation technologies was examined from the perspective of human resource management. Most emphasis was set on training and development practices, which aim to upskill and reskill personnel through organized activities and address upskilling needs in organizations (Haslinda, 2009; Boxall and Purcell, 2022).

This thesis is based on two major research objectives. Firstly, I had an exceptional opportunity to conduct an empirical study in an organization, where intelligent automation technologies have already been used for a long time. The goal was to discover employees' perceptions and feelings towards intelligent automation technologies. In addition, intelligent automation skills, motivation towards learning, and opportunities to participate in learning enhancing activities were explored. The second goal of the research was to explore what kinds of training and development activities can be used to prepare employees for the increasing use of intelligent automation. Moreover, discussions about the most important and desirable learning

activities were discussed with the interviewees. Based on the research objectives, I finalized my two research questions:

1) What is the current state of KSAs, motivation and feelings of financial management specialists regarding the increasing usage of intelligent automation?
2) How can training and development be used to prepare for growing skill gaps and overcome negative effects of the rise of intelligent automation?

Next, I will summarize and discuss the key findings to answer my research questions based on the literature and empirical findings. I have categorized the discussion under four separate sub-headings:

1) Perceptions, emotions and feelings
2) Knowledge, skills and abilities
3) Motivation
4) Learning methods and opportunities

Perceptions, emotions and feelings:

The case company has been using and providing various automation tools and services for over 5 years, and therefore, is an established company by many standards. The experience could be determined from the interviewees' comments, as they mainly discussed positively and decisively regarding intelligent automation. In addition, since the company provides a basic-level course to raise awareness of RPA during onboarding, almost all respondents had some knowledge of intelligent automation technologies. This has helped the employees to create an understanding of the technology and mitigate biased views. Based on the categorization of Beaudry and Pinsonneault (2010), positive emotions, such as excitement, happiness and amusement towards new technologies, were dominant in the interviews. However, regarding two of the interviewees, negative emotions, such as anxiety and confusion were reported. In this case, communication between team managers and employees may have been lacking as fears and stress have not been handled properly. To solve such problems, engagement and open communication about the effects, such as benefits and drawbacks of IA have usually helped overcome issues as Wright and Schultz (2018) suggest.

Most interviewees felt that intelligent automation technologies have either helped or could help them in the future by, for instance, saving time by automating routine-based work. Automation benefits, described by the

interviewees, were in line with benefits discovered in previous studies (e.g., Kaya et al., 2019; Kokina et al., 2021; Yigitbasioglu et al., 2022). Most importantly, work has become less boring, and more efficient and meaningful. In organizations, automation is typically used to cut costs and reduce value-added work (e.g. Wright and Schultz, 2018). The interviewees understood these starting points and agreed with the goals and ambitions of the organizations even if they were not keen on participating in IA related activities. Therefore, limited change reluctancy was reported among the interviewees. Especially in new automation initiatives, fears of deskilling, decreased job security and change reluctancy have been reported (e.g., Asatiani et al., 2020). However, these negative factors were not reported during this study. On the contrary, employees generally felt that the use of IA will continue to increase. Employees acknowledged that their subject-based knowledge is as a strong asset which will be needed in the future, no matter how extensively IA is used.

Overall, the perceptions, emotions and feelings were mostly in line with previous studies. However, only limited negative arguments towards new technologies were made. This could be result of a strong company image and experience in the field of intelligent automation. This could also result in increased attraction of new employees, who are already interested in learning new technologies, to apply for jobs in the company. One of the major goals of sustainable HRM is talent attraction (Davidescu et al., 2020), which could be enhanced by informing potential employees about IA related opportunities in the company. Thus, strong company image could be a source of sustainable competitive advantage, which should be fostered. Regarding the future of the case company, the findings can be seen as a significant advantage as the employees are typically interested in new technologies. This can be used to attract employees in upskilling programs and IA related work which should ultimately lead to increased performance.

Knowledge, skills and abilities:

Assessing the current KSAs of employees regarding intelligent automation was one of the key objectives for this research. As Smit et al., (2020) note, the analysis of current skills and competencies is one of the most important tasks before starting training and development activities. Therefore, organizations need to know the starting point before planning desired goals, methods and schedules. To understand the current KSAs, different company-specific tasks related to intelligent automation were discussed. Interview data was tabulated to develop an understanding of different IA related tasks of the interviewees (see appendix 2).

The interviewees described that their IA related knowledge is only on a basic level despite working with IA for a long time. As discussed, the basic-level course of RPA is available for everyone and mandatory for the financial specialists and accountants. AI related skills were mostly learned on the job and external training activities. Most of the interviewees worked as the main users of automation, meaning they were responsible for monitoring IA tasks and reporting of possible malfunctions within processes. Only few of the interviewees mentioned that they can identify new processes for automation or possibly even configure software robots. Only service managers were able to describe how business case evaluation is done, while the financial specialists and accountants did not understand how the benefits of IA initiatives is calculated.

Drawing on the roles introduced by Kokina et al. (2021), the interviewees would fulfil the requirement of possessing strong subject-based knowledge. However, as the understanding of intelligent automation and reporting technologies was rather superficial, most of the employees could be considered as *Identifiers*. Half of the employees could work as the link between technical and non-technical people, which could allow them to work in the *Explainer* role (see table 2).

Based on the interview data, current skills of the employees are currently enough to fulfil basic needs in a company, where the use of intelligent automation is the rule rather than the exception. However, to succeed in IT projects, a strong relationship between financial specialists and technical professionals needs to be established (see Friday and Japhet, 2020; Yigitbasioglu et al., 2022). The collaboration between these groups is essential for developing purposeful intelligent automation processes. Financial specialists and accountants bring process and software understanding, whereas technical professionals, for instance, programmers can utilize their analytical and technical skills to improve on the process and develop the automation. Therefore, the identified shortage of social skills (see Brunello and Wruuck, 2019) could be the reason for ineffective collaboration between technical and non-technical people and current structures do not support collaboration between these groups. Ultimately, this leads to missed opportunities, when processes that are suitable for automation are not discovered due to poor communication and mutual understanding. Enhancing the communication between technical and non-technical people could benefit both parties as increased learning and efficiency during intelligent automation projects.

Motivation:

Despite the role, most interviewees expressed a willingness to learn new skills. Learning ambitions varied highly between the interviewees. Some people were interested in becoming an expert in a certain subject, such as bookkeeping. On the other hand, some employees wanted to learn a broad range of skills that benefits their work, for example, legislation, technology and communication skills. Most of the interviewees expressed the importance of utilizing intelligent automation at work. Moreover, the interviewees felt that they need to learn at least some IA skills in the future to maintain professionalism. Most of the interviewees wanted to deepen their skills regarding intelligent automation technologies. However, lack of time, shortage of systematical learning paths, absence of challenging IA related work, and insufficient resourcing were considered as the main reasons for reduced morale and motivation of employees.

Marin-Garcia and Tomas (2016) introduced various HR practices that can improve on motivation both intrinsic and extrinsic motivation. As discussed, many of the employees were willing to learn new IA related skills and utilize these skills at work. This suggests strong intrinsic motivation of the employees, which is the basis for engaging employees in any work-related activities. However, in some cases the lack of purposeful extrinsic motivation factors can lead to decreasing intrinsic motivation, which could be the reason for the interviewees' decreased motivation and effort. During the interviews, the employees discussed that extrinsic factors, such as pay for performance, possible promotion, and other extrinsic incentives did not support employees to "go the extra mile". The employees did not want to gather more responsibilities as most of them were already overloaded with work. Even though intrinsic factors support long-term development and performance, the link between extrinsic and intrinsic factors did not support learning and has led to decreased overall motivation levels of employees.

Learning methods and opportunities:

Without opportunities, employees could not utilize their skills and motivation to perform. In the case organization, opportunities to participate in intelligent automation activities were unevenly split between employees. The main reason was that some customers were extensively utilizing intelligent automation within their processes while others did not use them at all. Therefore, financial specialists and accountants working with customers who had been using IA, allowed the employees to utilize their current skills and learn new skills on the job. On the other hand, lack of intelligent automation usage in customers' processes restricted employees to

participate in IA related work. In these circumstances, team managers had considerable difficulties to assign employees IA related tasks if customers were not interested in automation or were restricted to use these technologies.

Informal learning, such as learning on the job, was considered as the most valuable method to learn new IA skills. Previous studies support the importance of informal learning regarding individual development and organizational performance (e.g., Bierema and Callahan, 2014; Törmänen et al., 2021). Therefore, fostering informal learning in knowledge-intensive work is recommended. To support learning, some teams had created knowledge sharing forums, where professionals could discuss and learn from each other. It was identified as an important event to socialize with colleagues and learn new skills. Thus, purposeful knowledge sharing forums should be created for people that work in IA related tasks also. As Bond and Seneque (2013) suggest, various forms of coaching and mentoring can help organizations balance their development needs on all levels – individual, team and organizational. Therefore, the company's IA professionals could provide mentoring for new IA oriented financial specialists, which was also a proposal made during the interviews.

Regarding formal learning events, live small group events where active participation was expected were preferred learning methods. This result is rather surprising, as new virtual learning methods have been established (e.g., Bennett and McWhorter, 2021). Zou et al. (2020) introduced four training and development methods, especially designed for post-covid pandemic era. These methods fall under four categories: *Virtual instructor-led training, Online courses, Flipped classrooms* and *immersive learning*. Based on the interviews, the employees preferred online courses to learn basics about a new subject. For more advanced trainings the interviewees described their inability to focus if the event was arranged online. However, the employees preferred live events, which mainly follow the concepts of flipped classroom learning in the organization. Support from an IA professional, colleague or supervisor was considered important and the communication between these groups could be enhanced by the company in the future.

Employees generally felt that they have significant possibilities to influence on their career, work contents and learning goals. Most importantly, these issues were openly discussed with the supervisors. Having autonomy at work and the possibility of affecting one's career are first steps to allow job crafting (see Bakker, 2011). Job crafting possibilities promote learning and work engagement in organizations. However, the decision-making process was considered slow, and the customer restrictions frustrated the interviewees.

Therefore, the company could discover alternative ways of engaging employees in IA activities – possibly through job rotation or mutual projects with technical team members. Another possibility is to provide a technical mentor for a non-technical person who could help especially in the beginning of the learning process. Most of the interviewees felt that they learn from colleagues and by getting help from the IA team which could be further facilitated by the HR department. Coaching and mentoring have proven to be effective ways of learning, which were currently not utilized by the organization (e.g., Bond and Seneque, 2013; Germain, 2020).

One of the main concerns for employees was the lack of structure and continuity in IA related activities. This could be a result of limited understanding regarding intelligent automation and its effects on financial management work. Based on the interviewees' current KSAs, tasks and learning ambitions related to intelligent automation, and drawing on the research of Kokina et al. (2020) I have developed a practical path for IA oriented financial specialists' and accountants' future roles in table 6. In total, there are six different IA oriented financial specialist roles with various focus points. First two roles of the group can be performed alongside one's regular work without notable experience and limited training. These roles and tasks are most likely to become incorporated with the role of future financial specialists. However, the next four roles are more deeply associated with IA related work and require more skills and competencies which can be developed through a purposeful upskilling process.

Especially in the last four roles, problem-solving, logical reasoning and technical skills are utilized to support and develop intelligent automation solutions in collaboration with technical experts. These roles can be used as the basis for upskilling programs aimed towards financial specialists and accountants who have an interest in intelligent automation technologies. As low-code tools have become more available and affordable, *Citizen developers* may also rise among financial specialists and accountants. These tools provide easy access to IA technologies, which employees can utilize to automate their own processes and see the results of their work instantly. Organizations can utilize citizen development as a key process to both upskill personnel and benefit financially for allowing continuous development and innovation (e.g., Thacker et al., 2020; Hoogsteen and Borgman, 2022). To support continuous development and governance of intelligent automation the last two roles *Solution owner/Process owner* and *Super user/Trainer* were formed (see table 6). By presenting various roles for financial specialists and accountants, and supporting them during the learning process, employees can be engaged in IA related work. These roles provide employees with desired learning opportunities in genuine work contexts. Moreover, a planned path consisting of various roles can be an opportunity to increase

work engagement and motivation of the employees. By clarifying possible future roles, responsibilities and requirements of employees also helps in mitigating the risks of the increasing use of intelligent automation.

In the long run, a learning culture should be the basis of learning in an organization to succeed in any upskilling programs. A strong learning culture enables learning and the transfer of knowledge in organizations. In addition, it can lead to a sustainable competitive edge and increased work-engagement levels (see Marsick and Watkins, 2003; Odor, 2018). In the case company, IA and accounting related skills could be transferred between employees. This could strengthen the transfer of knowledge in the company as well as provide sustainable competitive advantage over the competitors. As discussed, learning culture consists of various processes and practices developed by the HR and monitored by personnel management. Diversity and inclusion are among the most important topics to enable all potential of the staff (e.g., Farndale et al., 2015). These practices promote, for example, well-being and work engagement among personnel, while the goal is to develop sustainable competitive advantage (see Claudia, 2015; Guest, 2017). When initiating new upskilling programs, these factors should be the basis for all work in the case organization to reach individual level growth and development as well as company-level financial benefits.

To conclude, in addition to the upskilling needs of financial specialists and accountants, the changing nature of work has created various challenges for HR personnel and personnel managers. Firstly, the shift of responsibilities from HR to line managers has required them to learn various leadership skills. In addition, they should understand enough about the industry and the work that their employees do, to support and guide them towards their career ambitions. Moreover, personnel management plays an important role in talent retention and employee motivation. Increasing requirements of personnel managers have led to upskilling needs as, for example, their social and leadership skills should be developed (see Cortellazzo et al., 2019). In this study, the importance and role of personnel managers was brought up in almost every interview. Arguably, personnel managers are the most important people regarding the career, work engagement and performance of a financial specialist or an accountant. Therefore, companies that are willing to reach desired benefits of training and development programs should also focus on the upskilling needs of HR departments and managers.

Table 6: Future roles of IA oriented financial specialists

Role	Requirements and tasks	Role (Kokina et al., 2020)
Financial specialist, Accountant	Can explain end-to-end process(es), such as Procure-to-Pay or Source-to-Pay.	(Basic requirement)
Financial specialist, Accountant	Understands process and solution design documents. Can work as the main user of IA and monitor the automation(s). Can evaluate processes that are suitable for automation.	Identifier
Citizen designer	Can draw a flowchart and create process design documents. Communicates clearly of the automation idea and processes to technical experts. Has basic understanding of business case evaluation.	Explainer
Citizen developer	Can program or configure and deploy a software robot or an app by utilizing low-code technical tools. Can help IA developers or IA support to fix error cases from the process' perspective. Understands the basics of few other technological alternatives.	Trainer
Solution owner, process owner	Is the "owner" of a group of automations, for example, based on a customer or an end-to-end process. Understands reporting tools and can utilize them to provide insights of IA work. Utilizes data and process knowledge to improve on IA performance.	Analyzer, Sustainer
Super user, Trainer	Has extensive experience from working with IA solutions. Takes responsibility of a significant share of business unit's automation services, performance and functioning. Can teach and train IA related topics to other employees.	Trainer, Analyzer, Sustainer (Depends on orientation)

6 Conclusions

This study explored the effects of intelligent automation in a financial management outsourcing service unit. The aim of the research was to discover the current skill levels, motivation, and feelings of employees related to intelligent automation technologies. In addition, opportunities to participate in IA activities and learning methods were discussed. After the assessment, the aim was to study how people management practices, especially training and development, can help organizations overcome issues related to the use of intelligent automation. The second objective of this research was to discover future outlooks of finance and accounting as a profession, and how training and development activities can help companies address growing skill gaps and shortage of tech-related talent in organizations by upskilling current employees.

To reach the research objectives set for this thesis and answer the research questions, a case study was conducted. The case company is a medium-sized Finnish company that employs over 300 people. Around 80 of the people work in the *Digital Financial Management Service unit* which was the focus of this study. Primary data of the research was obtained by conducting open and semi-structured interviews. In addition, HR related documents found from the case company's intranet were utilized as a secondary data source. Notably, this research was conducted as commissioned work. Moreover, I work at the company as a consultant. My dual role as a researcher and an employee provided me with valuable access to information, simplified interviewee recruitment and helped me to understand the connection between the employees and intelligent automation technologies in the first place. However, dual roles typically create challenges for the researchers, which I tried to overcome by staying separated from regular work during the research process and maintaining subjectivity towards the research topics. In addition, the interviewees were chosen at random from the pool of employees with whom I don't work with.

The interviews were transcribed, and a tabulation of the data was created based on the key codes that were raised during the interviews (see appendix 2). Key findings suggest that financial specialists and accountants have mostly positive thoughts, feelings, and perceptions towards increasing use of intelligent automation. The technologies were welcomed, as they help employees in their daily work by reducing boring and repetitive tasks. Motivation towards learning new IA skills and engaging in IA related activities varied. Some people were more subject-focused, which means that they aimed for a deeper knowledge in a certain field, for example, law or accounting. However, most of the interviewees described their interest towards IA activities that was increased by internal trainings, on the job

learning and the support of colleagues and personnel managers. Some of the main factors that decreased motivation of employees were the available time to use for these activities and the lack of continuous learning paths and challenging IA related work. Opportunities to participate in IA activities was distributed unevenly among employees, mainly because of the customers' unwillingness to invest in intelligent automation services, or restrictions that prevent the use of these technologies. Team managers and service managers struggle with the situation of fulfilling employees learning wishes when no suitable work for customers is available.

Currently, most of the employees understand what process design documents are for and how flowcharts are drawn. The work of software robots and AI have become more familiar mainly since their use in different customer teams. Currently, financial specialists and accountants can work as the main users of automations. The role includes monitoring the automations and reporting of issues. Some employees expressed their willingness to learn more about intelligent automation by participating in learning paths and knowledge sharing forums. Some technical experience was described among the interviewees. The roles and tasks that IA oriented financial specialists and accountants could be responsible for doing in the future were presented in table 6 on page 74.

To discover what kinds of upskilling activities employees value, learning methods and opportunities were discussed during the interviews. Key findings suggest that employees are willing to participate in learning events that are organized in small groups and live environments. In addition, knowledge sharing forums were one of the most important ways to share knowledge, ask questions, and discuss about various timely topics. Basic knowledge of IA subjects could be learned through e-learning methods, such as pre-recorded courses. However, continuity was a concern for the employees, as many of the respondents had no opportunities to utilize the learnings of the training sessions. Thus, planned and documented learning programs and paths were hoped for. The future roles presented in table 6 could work as the basis of developing a company-specific learning path. The key to increasing motivation, work engagement and sustainable development is to engage employees in learning programs and appoint them practical work where they can utilize existing skills and develop new abilities.

The challenge for the HR department and managers is to enable enough opportunities for the employees to engage in IA activities and perform upskilling. Upskilling also calls for managers, as they should be able to understand the wishes of employees, appoint them suitable projects and track their learning process. In addition, personnel managers should be willing to motivate and develop individual employees within a team.

Extensive communication is required between technical and non-technical people in the organization to develop a learning culture that nurtures diversity, inclusion, and sustainable HRM practices.

6.1 Managerial implications

This thesis supports companies that are planning to use or are already utilizing intelligent automation. Based on the research context, the case company benefits from this research through results and suggestions that can be used as a starting point for future upskilling projects. Moreover, the methods, interview guide, and categorization of results can be utilized when researching similar issues in other organizations as well.

For HR professionals, this thesis offers insights into the thoughts of employees. For example, these include the use of various learning methods, high levels of trust for managers, and feelings towards intelligent automation. In addition, the assessment of current skill levels and motivation can be used to design suitable learning and career opportunities for financial specialists and accountants. This study highlighted the importance of relationship and trust between employees and managers. To successfully support employees, managers need to understand the change of work and how it affects leadership.

This thesis aims to draw the attention of decision makers to better understand the changing requirements of knowledge work. Investments in sustainable human resource management are key to maintain and develop talent in organizations and gain competitiveness. Simultaneously, organizations can increase work engagement, motivation, and well-being of individuals. Training and development practices provide significant possibilities to engage employees to reach personal goals while contributing to the success of organizational goals simultaneously.

6.2 Limitations and further research avenues

One of the major limitations of this study is the exceptional research context. In the case company, employees have typically learned the basics of RPA during their onboarding process, and skills have improved the most in teams where RPA and AI have been used for a long time already. Therefore, the generalizability of the study cannot be easily evaluated as companies are far apart from each other regarding the use of intelligent automation. In addition, the researcher has considerable amount of experience of the topics discussed in this study, which allowed deep conversations with the

employees and the possibility to generate firm-based results and suggestions. Overall, this study was one of the first to research the effects of intelligent automation in a research context, where employees have experience from working with the technologies, which is a good starting point for further empirical studies.

Further research is needed in various areas that connects management research and intelligent automation. Firstly, more empirical research is needed to better understand the effectiveness of intelligent automation in the field of finance and accounting. It would be important to address the feelings and emotions of employees more closely regarding the use of these technologies. Human-machine interaction is not a new subject in organizations, however, intelligent automation has significantly reshaped work in organizations, which has led to the rise of new roles and skill requirements of employees, HR personnel and managers. In addition, IA has provided numerous opportunities to upskill employees by providing various opportunities to engage in IA related work, such as, designing and developing automations by utilizing low-code tools which could be further investigated.

In addition, a longitudinal study could be considered to track the changes in KSAs, motivation, and feelings over a long period of time when IA related continuous learning or upskilling programs are implemented. By conducting this type of research, people could better understand the effectiveness of HR practices and line management in a more controlled environment. The effectiveness could be measured in various ways, such as employee well-being, retention rates, employee attraction and financial performance. One possibility to create generalizable studies would be to use questionnaire such as DLOQ, but focusing on the effects of IA. Thus, there are various approaches that can be incorporated in a longitudinal study. A longitudinal study would also help understand the best practices of organizations with IA experience and how HR and line management can support the organizations in creating sustainable competitive advantage by increasing knowledge of intelligent automation.

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Appendices

Appendix 1: Interview guide for semi-structured interviews. Translation in English and original in Finnish.

Background questions

- Who are you? Tell me your name and age if you wish.
- What is your current work position? What type of work does it involve?
- How long have you worked in your current position?
    - Any other relevant work experience before current role?

Questions about IA skills (in this context IA = RPA + AI)

- Do you work with IA tools? If so, how?
    - Describe an example or tell a story about how you were involved with IA.
- How would you describe your intelligent automation skills?
    - For example, related to participating in training, designing processes, or developing
- Do you have IA as a part of your personal goals set by your supervisor?
- Estimate how much time you spend monthly on
    - 1. Tasks that involve IA
    - 2. Learning new IA related skills
- Has the time been sufficient to learn new skills and meet learning and development goals?
    - Would you need more/less time to meet the current goals set by the department?
- How would you describe your other learning goals and ambitions?
    - Have you been given enough time to fulfill them?

Questions about financial administration work and IA

- What type of IA solutions does your customer have in use?
- What is your responsibility for the customer's IA solutions?
    - Do you have enough IA skills to fulfill your IA related responsibilities?
    - Would you think that any stakeholder (customer, team, company) benefits if you did or learned more regarding IA? How?

Questions about feelings and motivation

- How do you feel about IA as a field of technologies?
    - Do you feel it, for example, as an opportunity or as a threat to your work?
- How do you feel about the goals and expectations set of the company related to IA?
    - Do you feel, for example, motivated, intrigued, stressed, or pressured?
- How would you describe your motivation to learn more IA related skills?
    - Does it influence you? For example, related to your job description, salary, benefits, or bonuses.
    - Do you feel that you are pushed to learn skills you don't necessarily enjoy learning?
- How does the company support you with your decisions related to learning?
    - Who supports you in your learning process?
        - What kind of support do you (not) get?
    - How could the company support your learning (or not learning) more?
    - Do you have enough opportunities to affect your goals, learning and role?
- Do you have any other ideas or comments related to the company's expansion plans related to IA, its IA learning programs or motivation at a broader level?

Taustakysymykset

- Kuka olet? Kertoisitko nimesi sekä ikäsi, jos haluat.
- Mikä on nykyinen työnimikkeesi? Millaista työtä tehtäväsi pitää sisällään?
- Kuinka kauan olet työskennellyt nykyisessä roolissasi?
    - Onko sinulla muuta kokemusta vastaavista tehtävistä?

Kysymyksiä älykkäästä automaatiosta

- Työskenteletkö älykkään automaation työkalujen kanssa tai parissa? Jos kyllä, niin miten?
    - Kertoisitko esimerkin tai tarinan, jossa työskentelit älykkään automaation parissa.
- Miten kuvailisit älykkään automaation taitojasi?
    - Esimerkiksi osallistuminen koulutuksiin, prosessien suunnitteluun tai kehittämiseen
- Onko älykäs automaatio osana sinulle asetettuja henkilökohtaisia tavoitteita?
- Arvioi, kuinka paljon suunnilleen käytät aikaa:
    - 1. Kun teet tehtäviä, jotka sisältävät älykästä automaatiota.
    - 2. Opiskelet ja opettelet uusia älykkään automaation taitoja.
- Onko aika ollut riittävää oppiaksesi uusia asioita ja saavuttamaan asetetut oppimistavoitteet?
    - Tarvitsisitko enemmän/vähemmän aikaa saavuttaaksesi yrityksen asettamat tavoitteet?
- Miten kuvaisit sinun muita oppimiseen liittyviä tavoitteita ja mielenkiinnon kohteita?
    - Onko sinulla ollut riittävästi aikaa ja mahdollisuuksia saavuttaa nämä?

Kysymyksiä taloushallinnon ja älykkään automaation sisältävästä työstä

- Minkälaisia älykkään automaation ratkaisuja asiakkaallasi on käytössä?
- Mitkä ovat sinun vastuusi asiakkaan älykkään automaation ratkaisuissa?
    - Onko sinulla riittävät älykkään automaation taidot täyttämään nämä vaatimukset?
    - Uskotko, että sidosryhmäsi (asiakas, tiimi, yritys) hyötyisi, jos tekisit tai oppisit lisää liittyen älykkään automaation tehtäviin? Miten?

Kysymyksiä motivaatiosta, tunteista ja mahdollisuuksista

- Miltä sinusta tuntuu älykäs automaatio eräänä teknologioiden joukkona?
    - Tuntuuko se esimerkiksi mahdollisuudelta tai uhalta työllesi?
- Miltä sinusta tuntuu yrityksen asettamat älykkään automaation tavoitteet ja odotukset?
    - Esimerkiksi motivoiko, kiehtooko, stressaako tai aiheuttaako ne paineita?
- Miten kuvailisit omaa motivaatiotasi oppia uusia älykkään automaation taitoja?
    - Vaikuttavatko ne sinuun työelämässä? Esimerkiksi palkkaan, etuihin tai bonuksiin.
    - Tunnetko, että sinua kehotetaan opiskelemaan uusia taitoja, joista et nauti ja motivoidu?
- Miten yritys tukee sinun valintojasi ja päätöksiä liittyen oman osaamisen kehittymiseen?
    - Kuka tukee sinua tässä?
        - Minkälaista tukea saat / et saa yritykseltä?
    - Miten yritys voisi tukea sinun oppimistasi vielä enemmän?
    - Onko sinulla mielestäsi riittävästi mahdollisuuksia vaikuttaa omiin tavoitteisiin ja rooliisi liittyen uusiin taitoihin?
- Tuleeko sinulle mieleen muita ideoita tai kommentteja liittyen yrityksen älykkään automaation liiketoiminnan kehittämiseen, oppimisprosesseihin, motivaatioon tai muuhun vastaavaan?

Appendix 2: Interview data tabulation

Current knowledge, skills and abilities related to IA

Current KSAs	Interviewee ID, n = 12												Mentioned # interviews
	1	2	3	6	9	10	11	13	14	16	17	18	
RPA Essentials web-course completed	1	1	1	1	1	1	1	1	1	1	1		11
RPA is somehow part of work		1	1		1	1	1	1	1	1	1	1	10
Understands IA documentation, flowcharts	1	1	1	1	1	1	1	1		1		1	10
AI is somehow part of work		1	1		1	1		1	1	1	1	1	9
Other process automation part of work	1	1		1	1	1	1	1		1			8
End-to-end process understanding	1	1		1	1	1		1	1	1			8
Identifies processes for automation during work	1	1		1	1			1	1	1		1	8
Can partake in IA development or support		1			1	1		1	1	1			6
Can draw flowcharts or create PDD's	1			1	1	1		1		1			6
Attends other internal or external IA courses		1				1		1	1	1			5
RPA main user responsibilities (monitors robot)		1	1			1		1		1			5
Handles error cases of IA manually		1	1		1	1		1					5
AI main user responsibilities (monitors AI)			1			1		1		1			4
Understands other technological choices						1			1	1			3
Can evaluate business case of automation idea									1	1			2
Development (Citizen development tools)		1				1							2
Participation in IA sales activities									1	1			2
Development (With pro development tools)						1							1

Feelings, motivation, and opportunities related to IA

Feelings, motivation, opportunities	Interviewee ID, n = 12												Mentioned # interviews
	1	2	3	6	9	10	11	13	14	16	17	18	
Positive													
"Inspiring", positive feelings towards tech	1	1	1	1	1	1		1	1	1	1	1	11
IA reduced "boring" manual work		1	1	1	1		1	1	1	1		1	9
Work is now more efficient		1	1	1	1	1			1	1	1	1	9
Work is now more meaningful				1	1	1		1		1		1	6
Own wishes effect work and career	1	1		1	1			1		1			6
IA helps balance work load in team	1	1				1			1	1			5
New skills can be used at work		1		1				1	1	1			5
IA increased quality of work		1		1		1			1				4
IA enabled more time for timely tasks				1						1		1	3
IA enabled development responsibilities		1							1	1			3
Negative													
Not enough time to learn	1		1	1	1	1	1			1	1	1	9
Customers' reluctancy or processes frustrate	1	1		1	1		1			1	1		7
Learning requires extra work, affects well-being	1		1	1		1	1	1			1		7
No continuity in learning (demotivating)			1	1	1	1	1	1				1	7
Requires too much personal effort to engage	1		1		1	1	1	1					6
IA is not in personal or customers' goals	1		1	1		1						1	5
Internal processes frustrate	1	1			1			1					4
Skills don't affect role or pay	1	1				1							3
Too high requirements to start learning	1	1					1						3
Not full trust in technology					1		1						2
Unstructured, unefficient, unfair systems	1							1					2
Threat for job loss or radical change of jobs							1						1

Identified learning methods and enablers of IA

Learning methods and enablers	Interviewee ID, n = 12												Mentioned # interviews
	1	2	3	6	9	10	11	13	14	16	17	18	
Live training (small group, active participation)	1	1	1	1	1	1		1	1	1	1	1	11
Support from team manager	1	1	1	1	1	1	1	1		1		1	10
On-the-job learning	1	1	1		1	1	1	1	1	1	1		10
E-learning (web-courses)		1	1	1		1		1	1	1	1	1	9
Focus on subject-based skills	1		1	1	1	1	1	1			1	1	9
Wants to understand IA ideation/design		1		1	1	1			1	1	1		7
Sparring sessions / learning with co-workers	1			1	1	1		1	1	1			7
Structured paths, communication	1			1	1	1		1		1			6
Colleague support and help				1		1	1		1	1		1	6
Access to real customer projects		1			1	1	1	1		1			6
Support from IA practice		1			1	1		1		1			5
Service manager support	1	1	1							1			4
External learning					1	1		1	1				4
Customer project allocation		1			1			1		1			4
Live training (lectures, mass events)	1												1
HR support									1				1