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AI’s impact on business operations and competitiveness in SMEs

Top management insights

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Tiivistelmä:

Tämä tutkielma tarkastelee tekoälyn vaikutuksia pk-yritysten liiketoimintaprosesseihin sekä kilpailukykyyn, keskittyen yritysjohdon näkökulmiin sekä kokemuksiin. Tekoäly on nouseva teknologia jota kaikenlaiset yritykset ottavat vähitellen käyttöön enevissä määrin. Useat aiemmat tutkimukset keskittyvät isompien yritysten tekoälyn käyttöön, mutta verrattaen vähän on tutkittu pk-yritysten johtajien näkemyksiä ja kokemuksia asiasta. Tämän tutkimuksen tavoite on selvittää miten pk-yritykset ovat ottaneet tekoälyn käyttöön eri organisaation osissa, sekä miten se on vaikuttanut heidän toiminnan tehokkuuteen, palveluiden kehitykseen, sekä myös millaisia haasteita he ovat kohdanneet sen käyttöönotossa.

Tässä tutkimuksessa käytetään laadullisia tutkimusmenetelmiä, jossa tuloksia on kerätty puolistrukturoiduilla haastatteluilla pk-yritysten johtajilta IT-alalta. Analyysi perustuu laadulliseen sisällönanalyysiin ja sitä ohjaa teoreettinen viitekehys. Teoreettinen viitekehys koostuu akateemisista julkaisuista ja vertaisarvioiduista tekoälyyn liittyvistä tutkimuksista, sekä vakiintuneista kilpailustrategioiden teorioista. Tulokset osoittavat, että tekoäly parantaa tehokkuutta automatisoimalla rutiinitehtäviä, tukemalla päätöksentekoa sekä optimoimalla resursseja. Se auttaa myös uusien palveluiden kehittämisessä, varsinkin käytettynä ideointiin ja kokeiluun. Pk-yritysten luonteen vuoksi he ovat kuitenkin kokeneet haasteita rajallisten resurssien sekä ammattitaidon kanssa. Avainasia onnistuneeseen tekoälyn käyttöön on yrityskulttuurin sekä asenteiden muuttaminen tekoälyä kohtaan, esimerkiksi kannustamalla työntekijöitä enemmän sen käyttöön.

Tutkimuksen johtopäätös on se, että tekoälyn onnistunut käyttö ei riipu ainoastaan itse teknologian ymmärtämisestä, vaan myös yritysjohdon kyvystä tunnistaa sen strategiset hyödyt ja vaikutukset. Tutkimus yhdistää tekoälyn käytön dynaamisten kyvykkyyksien ja kilpailustrategioiden kehittämiseen, jotka vahvistavat yritysten asemaa markkinoilla. Tulokset antavat käytännön vinkkejä yritysten johtajille tekoälyn stretegiseen hyödyntämiseen yhdistämällä toiminnan tehostamista, organisaatiokulttuuria sekä datan hyödyntämistä.

Avainsanat: Artificial Intelligence, small and medium-sized enterprises, competitiveness, business process, dynamic capabilities, resources, management, tekoäly, pienet ja keskisuuret yritykset, kilpailukyky, dynaamiset kyvykkyydet, resurssit, yritysjohto

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ABSTRACT:

This thesis examines AI's impacts on SMEs business operations and competitiveness, with a focus on the views of top management. AI is an emerging technology that is being gradually adopted in companies. Most earlier studies focus on AI's use in larger companies, but there is little understanding on how SME managers see it. The goal is to find how SMEs have adopted AI and how it has impacted their operational efficiency, service innovation, and also what kind of challenges they face when adopting it.

This study uses qualitative research methods with semi-structured interviews with SME executives in Finnish IT-sector. The analysis is based on thematic content analysis and is guided by the theoretical framework, that consists of recent academic journals and peer-reviewed studies regarding AI, and established theories regarding competitive strategies. The findings show that AI automation and its ability to support decision making improve efficiency in SMEs. It also helps in creating new services with ideating and experimenting possibilities. However, SMEs type of nature often bring challenges with limited resources and expertise. The key factor in successful AI adoption comes from changing the cultural attitudes and encouraging employees for it.

The study concludes that successful AI use and adoption is not only about understanding the technology, but also on managers' understanding and ability to identify the strategic benefits of it. The research connects AI adoption to developing dynamic capabilities and competitive strategies that strengthen their position in markets. The results offer practical advice for the company managers on how to use AI strategically by combining operational improvements, organization culture, and the utilization of data.

KEYWORDS: Artificial Intelligence, small and medium-sized enterprises, competitiveness, business process, dynamic capabilities, resources, management, tekoäly, pienet ja keskisuuret yritykset, kilpailukyky, dynaamiset kyvykkyydet, resurssit, yritysjohto

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Abbreviations

AI = Artificial Intelligence

SME = Small and Mid-sized Enterprises

ML = Machine Learning

NLP = Natural Language Processing

GDPR = General Data Protection Regulation (European Union)

RBV = Resource-based view

1 Introduction

Artificial intelligence (AI) has become the most important technology in the 2000s and it continues to change industries and economies around the world. Today, AI covers many areas such as machine learning, natural language processing and other generative tools that try to replicate human thinking (Russel & Norvig, 2021). This development has made AI one of the most central forces in digital transformation (Brynjolfsson & McAfee 2017).

Companies have started to think AI more from a strategic standpoint (Ji et al., 2024). They are in a middle of technological revolution where new technologies make their processes better, but where they also need to make decisions what kind of technology they want to implement. Usually adopting new technology has been proven to affect competitiveness positively. That is the case with AI too, because AI helps to improve decision making and creating services (Naeem et al., 2024).

SMEs are important for every economy worldwide. They are naturally flexible, and they keep markets competitive. But because they are typically smaller in size, they also have less resources which can make their AI adoption harder (Oldemeyer et al., 2024). This can lead to a situation where they can't get the best benefits possible out of AI adoption. However, cloud-based AI systems have become more available and affordable for everyone, so SMEs too can start slowly start their implementation projects. AI systems that previously have required large and expensive investments are now available affordably through subscription services, which improves smaller companies' capabilities (Rehan, 2021).

At the same time, AI brings completely new organizational challenges. Concerns about data privacy and ethics of using AI are central topic with especially autonomous AI systems (Stahl, 2023). In addition, successful AI adoption requires companies to be culturally open and ready for it. Especially, commitment from management is crucial, because leadership directly shapes companies' direction and technology adoption

(Berube et al., 2021). In smaller companies the way that top management identifies AI's role and potential often determines if it becomes advantage or failed investment.

Ultimately every business operation influenced by AI, whether it's automation, customer service or product innovation, work towards the goal for every company, which is to stay competitive. Companies that can adopt and utilize AI's possibilities to operate more efficiently are in better position for succeeding. Despite AI is widely considered as an important part of today's businesses, there is relatively little information available on how SME leaders think and see its impact on their businesses. Therefore, it's important that this thesis examines the topic and aims to understand how AI reshape both processes and companies' strategic foundation.

1.1 Aim of the research

The aim of this master's thesis is to explore how AI impacts business operations and competitiveness in SMEs from the top management's perspective. This study aims to answer to the following research questions:

1. How AI shapes companies' operational efficiency?
2. How has AI been used to develop new business?
3. What challenges do business managers face with AI adoption?

Previous studies about AI have mainly focused on bigger companies. This thesis brings new kind of approach by studying SME leaders' perspectives on the topic. This thesis will focus on three main themes. The themes cover how SMEs have improved their operational efficiency with AI, how they have created new business with AI, and what kind of challenges they face with AI adoption. These themes together show how AI related changes in businesses can affect competitiveness.

The theoretical framework of this thesis consists of academic journals, widely accepted theories about competitiveness and resources, and also from recent research about AI

overall. The competitive side consists of Porter's generic competitive strategies and Five Forces models. It also includes dynamic capabilities aspect, which is important for SMEs. In addition, the theoretical framework includes recent peer-reviewed studies on AI and its role in business. These newer sources complement older theories and make sure that the framework aligns with the current state of AI use in SMEs.

The analysis part of this thesis is built around the three research questions. The research data was gathered through interviews and analyzed using qualitative content analysis, where the recurring themes identified from the transcribed interview data. These findings are presented thematically. The findings are then reflected to theoretical framework, showing which insights are supported by the theory, and vice versa. Finally, the managerial implications summarize the results emerged from the study, offering tips and recommendations to business leaders on how AI should be approached and adopted for gaining benefits. This type of structure of the thesis combines the data-analysis with theoretical proof and offers applications for real-world.

2 Theoretical background

2.1 Artificial Intelligence and it's evolution

Artificial intelligence or more commonly referred to as AI, is technology that is designed for machines and software to do tasks that typically require human intelligence, state Stryker and Kavlakoglu (2024). The term "Artificial Intelligence" came up in 1956 by McCarthy and he defined it as the science and technology of making intelligent machines. This early definition emphasizes two aspects, the scientific goal to understand intelligence and engineering to build those systems that can use that kind of intelligence. A bit later, Nilsson (1998) defined simply that AI is about making machines that can act intelligently. Today AI is usually defined by how it impacts society. For instance, Brynjolfsson and McAfee (2017) describe AI as a technology that changes industries and competitiveness.

Haenlein and Kaplan (2019) state that AI can be broadly categorized into three types depending on its stage of evolution: narrow AI, general AI and artificial superintelligence. Narrow AI mean simple and specific tasks like image recognition or translating languages. Most companies usually use narrow AI. General AI goes a bit deeper, because it can understand and learn from doing different tasks. Artificial superintelligence might be the next big breakthrough in AI, say Mucc and Stryker (2023).

AI is being used practically in every industry one way or another. Companies have started to wake on it and think it more as piece that can improve their decision making and strategies (Krakowski, Luger & Raisch, 2022). AI has also risen questions about its ethicality. Stahl (2023) says that because AI is evolving so quickly, it raises questions on how fair or responsible it is in reality. These are of course important issues that need to be taken in consideration.

AI is changing the way how companies create value. Ji et al. (2024) write that this change can be seen especially in industry 4.0, which is the fourth industrial revolution. They also

point out that if companies want to gain competitive edge, they must have AI based business models. For service companies this can mean new kind of customer service or boost their efficiency in production which all affect directly to competitiveness.

According to Naeem et al. (2024), AI can create new kind of value for traditional companies that offer products and services. These companies can use data more efficiently which allows them to offer better services and meet customers' demand. With AI, these companies can analyze large amounts of customer data and refine their services based on those results. Now, AI has evolved into cloud-based tools. AI-as-a-Service has made it possible for even smaller companies to access advanced analytics and automatization tools, that can be used without major costs. This differs from previous technologies, because usually only larger companies have had the first access to them (Lins et al., 2021).

More recently, generative models have been used in hyper-personalized customer interactions. For example, content made with AI, conversational agents and real-time recommendations have been used to help human employees, but sometimes also to replace human workforce by automating tasks (De Keyser et al., 2019). The paper also raises questions about optimal levels of anthropomorphism in conversational AI tools. Customer trust in algorithmic decision making and the proper balance between human and AI interactions need also more research.

2.2 AI adoption in SMEs

2.2.1 Nature and roles of SMEs

Small and medium-sized enterprises, more often referred to as SMEs, are crucial for global economy. These businesses are typically defined by their workforce size, annual revenue, or balance sheet total. European Union defines SMEs as companies that have less than 250 employees and whose annual revenue is less than 50 million euros, or a balance sheet less than 43 million euros. Approximately 99% of all the companies are SMEs in the EU (Bella et al., 2023). In the United States mid-size firms are defined a bit differently. They can have up to 500 employees and revenues that vary by industry (SBA, n.d). Examples of SMEs can be regional accounting firms, IT consultancies and construction companies.

SMEs provide about 66% of all jobs in the European Union (Bella et al., 2022). They have an important role in supporting local economies. Although SMEs are often considered as local companies, they have a big impact on global economy. Collaboration with foreign export and global supply chains strengthen both local and international markets. For example, in 2023, Finland exported about 43.2€ billion worth of goods to other EU countries, which makes export Finland's largest and most important market sector (Suomen ja EU-maiden välinen kauppa 2023, 2024).

In the 2000s, service companies in IT sector have become more important in global economy, and they have reshaped consumers' experiences and expectations (Brynjolfsson & McAfee, 2017). Service companies can be defined broadly as companies that offer intangible products or services rather than physical goods. Modern service companies use advanced technology, data-analytics and customer focused strategies to meet customers' changing needs. Modern service companies are focused on innovation and scaling their businesses. They often operate in digital environments. Examples of modern service companies that work in technology are software, E-commerce and education. Online paying and shopping has become a new normal. Also, educational

services that offer courses or even entire degrees, have become available fully online. This completely new way to do business has opened doors for many and lowered the barrier for people to start their own businesses. Although modern service companies have mostly positive impacts on the markets, they face criticism regarding data privacy, which has been a rising concern for years now. Brynjolfsson and McAfee (2017) note that some large IT companies have been accused of using user data for profit.

2.2.2 Challenges in AI adoption

Lately SMEs have started to adopt AI in their businesses. Adopting AI is a complicated process that is affected by many things. Organization culture, management's attitudes and other business environments affect the adoption process (Sanchez, Calderon & Herrera, 2025). This chapter covers the managerial challenges with AI adoption through Technology-Organization-Environment (TOE) framework. It can help to analyze the success of AI adoption based on humans, resources, and the specific situation of each company. This affects SMEs particularly because there are many different factors that can influence their operations. Oldemeyer et al. (2024) say that their challenges are usually about limited resources and organizational culture. Berube et al. (2021) add that it's particularly important for management to understand these challenges, because they are the ones who execute AI adoption in the end.

According to Technology-Organization-Environment framework, by Tornatzky and Fleischer (1990), adopting new technology includes three aspects: technological, organizational and environmental factor. The technological aspect addresses how useful, complicated or compatible the technology itself is. SMEs can see AI as a promising but expensive tool that is hard to integrate into existing systems. The organizational aspect addresses for example employees' skills, support for management and the size of the company. Many SMEs don't have data experts or AI specialists, which can make AI adoption harder for them. The environmental aspect covers market trends, competitiveness and regulations. Although digital development makes AI adoption

intriguing, unclear regulations or laws can make it harder. Thus, the TOE framework helps to recognize the reasons why SMEs AI implementation is slow, even though the potential of AI can be seen clearly.

One of the main challenges is related to managements strategic goals. Many SME aim for short-term goals rather than focusing and thinking about long-term development (Barragan & Becker, 2024). Adopting AI requires clear and long vision on how it's integrated to current business processes. Berube et al. (2021) emphasize that management's devotion and mutual strategic goals are the key for AI adoption. Without strong leadership AI projects can stay at an experimental level on fail completely. Akula (2021) estimates that as much as 85% of new AI implementation projects fail, which reflects to difficulties in many areas. Some leaders are still hesitant whether their company is ready for such change, or if their company can even benefit from AI. If they decide to start implementing AI, it can be hard for them to measure return of investment, which can discourage them even more, especially when many of the benefits from new technology show over time, not instantly.

Another challenge is about people and organizational challenges. Introducing AI in workplaces can create reluctance especially among those who are afraid to lose their jobs or are so used to more traditional ways of working. These uncertainties can show up as a resistance on unwillingness to be part of AI implementation (Oldemeyer et al., 2024). According to Kotter's (1996) change management theory, new digital transformation requires clear communication and everyone's participation to the project. In SMEs proper change management can be challenging, which can complicate creating positive attitudes towards AI. In addition, due to the small size of SMEs, many employees may have multiple roles and have responsibility on many different areas simultaneously. This can cause a situation where new AI tools disrupt work rather than help it.

Third category is about technical and data-related challenges. AI systems require a lot of quality data to work properly. In SMEs, data is often fragmented in several systems, and

they don’t have clear data management practices yet (Wamba, 2021). Integrating new AI system to fragmented infrastructure can become expensive and take a lot of time. In addition, SMEs often rely on external AI vendors systems which makes them more dependent on them. Most of the time they are cloud-based systems which raises questions about data privacy (Berube et al., 2021). Therefore, technical readiness is not the only factor in AI adoption. Data quality and managerial oversight are both as important.

Finally, SMEs face challenges regarding ethical and regulations related questions, which make managerial decision making more difficult. The topic has risen concerns, especially when AI’s role has been increasing in society and it’s capable in autonomous decision making, state Sullivan and Wamba (2022) in their study. Managers must make sure that they are following laws and regulations such as EU AI Act (2024) and GDPR. Managers must be careful on what kind of documents and information they allow to be fed into AI systems. If they are careless with it, they have higher risk on being exposed. Sanchez et al. (2025) remind, that although it’s a big process that can slow AI adoption, companies must openly discuss internally on their AI’s practices and rules.

In short, AI adoption in SMEs depends on many things, like strategy, culture, technology and ethics. SMEs often have many things going on at the same time, so these can be hard to handle with them being busy anyway. It’s still important that business leaders try to understand these challenges and try to focus on some areas at least. However, Mikalef and Gupta (2021) found that SMEs who have strong dynamic capabilities can overcome these challenges. These dynamic capabilities will be covered in the section 2.3.2.

2.3 AI and competitiveness in SMEs

AI is seen increasingly as a technology that changes the way how companies create value and stay competitive. SMEs competitiveness isn’t always only about their size, because

it depends on how well they can adapt to new things and use their resources better. Still, the final impact of AI for SMEs changes individually. This chapter examines AI's role in SMEs competitiveness with four different perspectives: Barney's (1991) Resource-based-view, Teece et al.'s (1997) dynamic capabilities and Porter's competitive strategies (1980) and Five Forces (1979). Together these theories can define accurately how AI can help in improving efficiency and develop new business opportunities.

2.3.1 Resource-based-view

Competitiveness in SMEs depends mostly on how well they can use their internal physical and intangible resources. Resource-based view (RBV) theory shows that competitive advantage consists of resources that are important, rare, hard to copy or well-integrated to the organization (Barney, 1991). For SMEs, these types of resources are data, technological skills and competent employees who support digital transformation (Mikalef & Gupta, 2021). AI can strengthen these areas by using data to produce useful insights, automating routine tasks and improving decision-making. All these help change intangible resources into strategic strengths.

Unlike larger companies, SMEs often lack having broad infrastructure. Therefore, the competitiveness comes more from on how well they can utilize their resources, rather than how much resources they have (Marques & Ferreira, 2020). AI helps in this by making smaller companies more agile and data driven. AI helps them to recognize opportunities faster and customize their services with limited resources (Brynjolfsson & McAfee, 2017). From Resource-based view, AI is seen as a resource that helps improving capabilities. It improves managers' thinking and the companies' overall efficiency, innovations and customer relations (Davenport, 2018; Verma, 2024).

However, RBV brings up certain challenges. AI doesn't guarantee competitive advantage simply by having the technology. SMEs must integrate it to their everyday operations and long-term strategies. This requires commitment form management, quality data and culture that fosters learning (Barragan & Becker, 2024). Companies who can't combine

these things, might struggle to achieve real benefits from AI. Therefore, RBV emphasizes that the amount of resources itself don't result in competitiveness, but it comes from the ability to combine and use those internal resources.

2.3.2 Dynamic capabilities

Dynamic capabilities mean how well companies can combine, build and adapt their internal and external skills when business environments change (Sjödin, Parida & Kohtamäki, 2023). They are central part of companies' strategy to stay competitive. Where Resource-based view focused on what resources companies can use for their advantage, dynamic capabilities focus on how those resources can be used to detect new opportunities and sustain competitiveness. These capabilities can often be seen in recognizable and repeatable processes, like in product development, strategic decisions and managing relationships (Teece, Pisano & Shuen, 1997). SMEs that usually have less resources but are more agile, rely more on dynamic capabilities to stay competitive. According to a study by Held, Heubeck and Mecklin (2025), companies that have the strongest dynamic capabilities, can achieve strong culture and performance in digital transformation.

Dynamic capabilities are usually divided in three capacities: adaptive, absorptive and innovative capacity. Together these shape how companies build competitiveness. Adaptive capacity means being flexible and able to react to changes. Absorptive capacity means taking in external information and using it in internal processes. Innovation capacity is a key for differentiation, because it gives companies the possibility to create new products and services (Fabrizio, et al., 2022).

AI enhances each capacity and ultimately can be thought as a separate AI capability (Sjödin et al., 2023). Building AI capability that combines data, technical skills, routines and projects have been proven to improve creativity and performance especially when they are part of data-driven culture. First, AI can improve adaptive capacities by

enhancing analyzing in SMEs better than before. AI can detect even small changes in markets and customer demand. It can also help to detect which business processes are inefficient. Forecasting that is based on machine-learning can provide managers real-time information which supports decision making (Mikalef & Gupta, 2021). When these kind of opportunities or insights emerge, AI can improve absorptive capacity by offering suggestions for resource allocation and strategic planning. Insights that support decision making let SMEs to evaluate investment options, pricing or refine marketing campaign (Li et al., 2022). Because AI offers better data and improves decision making, at the same time it strengthens companies' ability to detect new opportunities. Lastly, innovative capacities transform these insights and ideas into new products and services that differ from competitors. AI enhances these processes by automating and creating new business models. They make it possible for SMEs to scale their innovations without major costs. These dynamic capabilities form the foundation for many modern companies that are turning AI-related investments into competitive advantage (Gao, Liu & Yang, 2025; Sjödin et al., 2023).

Still, dynamic capabilities depend always on the history and current situation of the company. Traditional methods may be enough in stable markets, but in digital markets that change fast, it's important to learn through doing, testing and moving resources flexibly. As presented, empirical study confirms the link between AI and dynamic capabilities. Mikalef and Gupta (2021) showed that data-driven decision making improves adaptive and absorptive capabilities, while Gao et al. (2025) proved that AI improves innovation with reconfiguring workflows.

2.3.3 Competitive strategies and industry forces

SMEs operate in environments where competition is hard and customer expectations and technology are changing fast. In this type of environments, it's important to gain competitive advantage to survive. Michael Porter (1980) introduced a framework that has become a foundation for strategic management: Generic Competitive Strategies. Porter defined three primary strategies: cost leadership, differentiation and focus. These

strategies offer different ways for companies to beat their competitors. Porter (1979) also introduced Five Forces model which helps to understand how industry structures affect competition. These traditional theories are still widely accepted, but AI brings a new interesting view on them. It's especially interesting with SMEs, whose competitiveness is changing with the use of AI. This chapter covers how AI can support and enhance these theories.

The first competitive strategy is differentiation strategy. It means that companies try to make services or products that are different from their competitors. Differentiation can be seen as an expensive way to get competitive edge, because it usually requires big investments. However, SMEs can differentiate much cheaper and better today with AI. Studies show that they have been able to improve their customer experience and make unique products. Huang and Rust (2021) state that SMEs can use generative tools to improve their differentiation in marketing. Iansiti and Lekhani (2020) write that companies that build themselves around data and learning can get significant benefits with AI on how they differentiate in markets that change fast. This means that companies don't always have to have something new or unique, because they can differentiate by just learning faster than others. Kumar et al. (2024) explain that SMEs can offer personalized services with AI, which helps them to meet customers' needs better. These kind of personalized services make customers more loyal and allow higher prices. Sjödin et al. (2021) studied manufacturing SMEs and found out that AI helped them to create new business models with automation and assisting in ideation. The study concluded that SMEs could compete with AI better even with smaller budgets. However, the benefits that come with AI are highly dependent on companies' internal capabilities. As Wingate et al. (2025) explain, when many companies have access to similar AI tools, culture, leadership and creativity are the things that companies differentiate themselves with. This matches with RBV, where resources bring value only when they are utilized properly.

Porter (1980) also introduced cost leadership strategy. Cost leadership strategy means that companies aim to have the lowest production and operational costs in their industries. Companies can either lower their prices to gain more market share, or they can keep prices the same and increase profits that way. AI tools have helped companies to reduce costs. Jorzik et al. (2024) concluded that companies can automate repetitive tasks such as invoicing, contract drafting or even customer service with chatbots and that way significantly reduce costs. Another way to lower costs is to use AI's predictive analysis. A study by Kagalwala et al. (2025) showed that companies used AI to optimize resources and predict changes in demand. These predictions helped companies to match their production volumes with demand better. A study by Peretz-Andersson et al. (2024) support these arguments. They studied European manufacturing SMEs and discovered that AI improved their efficiency when they had strong data systems and committed employees and management. These observations can be linked to RBV and dynamic capabilities. RBV views AI as a strategic resource and it can give significant advantages when it's being used together with company's other strengths. Dynamic capabilities on the other hand emphasize that companies can keep costs low only if they continuously search for ways to work more efficiently.

The third competitive strategy is the focus strategy. According to Porter (1980), focus strategy means focusing on a specific segment or a niche, and offering services for the needs of those specific areas. SMEs naturally tend to adopt this strategy, since their small size makes them to focus on a specific niche and closer customer relationships. AI can help SMEs with this focus to understand better their customers and target their products and services to them specifically. According to Oldemeyer et al. (2024), companies can use AI to analyze data from different geographical areas and industries. Even though some smaller customer segments can have higher risks due to small amount of customers, a study by Haleem et al. (2022) showed that AI found niche customer groups from those segments, and that way companies offered personalized market campaigns for them. Also, according to Le Dinh et al. (2025), companies that offered customized AI agents for contract management and data-analysis gained competitive edge by offering

these services to the specific segment. AI helps with other challenges as well that come with small market segments. Usually, AI systems are scalable and cloud-based, which give SMEs the change to offer more services and products for the small segments without increasing per-unit costs significantly. RBV and dynamic capabilities support this focus strategy. Data and customer insights are valuable resources, and dynamic capabilities help companies to find new opportunities.

Cost leadership	Differentation
Cost focus	Differentation focus

Figure 1. Generic competitive strategies (Porter, 1980)

The Five Forces model (1979) traditionally tells how industry structures impact competition. However, AI is reshaping these structures. AI lowers the barriers to entry by offering affordable cloud-based tools that help startups and SMEs to adopt AI's benefits and compete with bigger companies (Al-Sharafi et al., 2023). At the same time, AI's fast evolvement has led to a situation where the biggest and most used tools are provided by few large companies, such as OpenAI, Microsoft and Google (van der Vlist et al., 2023). This creates a paradox, where AI helps entering the markets, but makes companies dependent on other AI providers.

From the buyers' point of view, AI improves customers bargaining power by making them more informed on what they should buy and where from. Consumers and business clients can use AI as a tool for searching and comparing options (Ofosu-Ampong et al., 2025). In addition, AI speeds up the development of substitute products, because

automation and generative tools make it easier and faster to experiment and copy successful ideas (Babine et al., 2024). This means that it can be harder to keep up differentiation because more companies can enter the market easier, which results in increased competition.

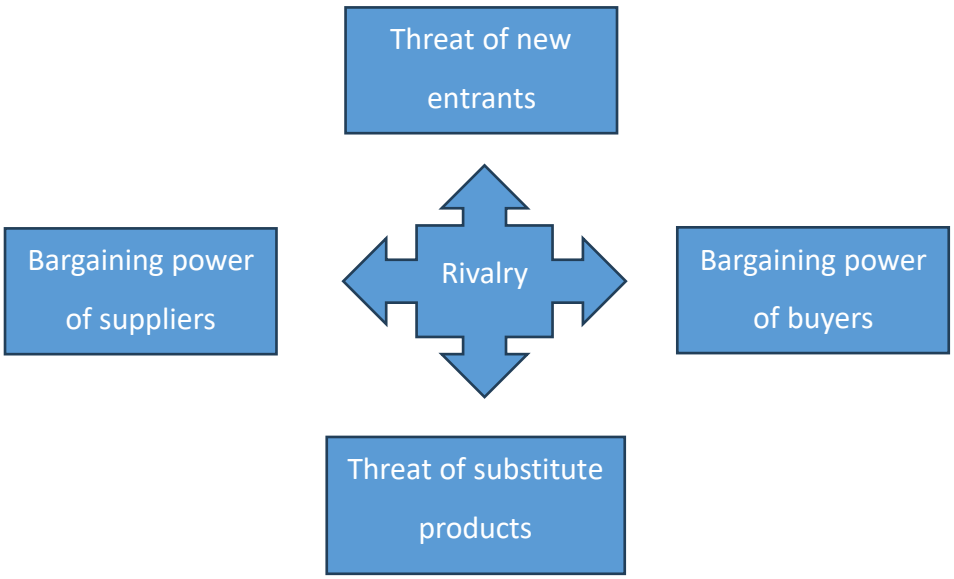

Figure 2. Five Forces (Porter, 1979)

2.4 Operational efficiency with AI

2.4.1 Data-analysis

AI can analyze data faster and better than other tools, and companies are starting to see that potential. Data is particularly important for SMEs, but the way they handle data is not always on point. Companies that are efficient with data-analysis, collect data from multiple different systems, such as from CRM and ERP systems where they keep important customer and project data. Resource-based view proves that companies can get advantages if they have resources that other companies don't have, and quality data is an example of this kind of resource. AI can gather a lot of different data and make sure it is being analyzed properly. This data can be turned into sales pipelines for example, which can have big impact on companies' decision making (Davenport, 2018). This kind of analytical approach can boost SMEs dynamic capabilities because it helps them to detect trends and make decisions (Teece et al., 1997).

AI can produce descriptive analyses as well. Companies can use descriptive analysis for analyzing sales and production data. Verma (2024) writes that AI can find trends and models from the data and turn them into simple dashboards, where managers can easily see the situation. There can be hidden correlations that wouldn't have been possible to notice with more traditional methods. Verma (2024) adds that AI can for example find information about sales spikes and marketing campaigns, and whether they have correlation. Dhesi and Kaspar (2020) wrote an article about case study at DoorDash. The article revealed that DoorDash created a machine-learning based model that automatically managed marketing budgets. It used sales and marketing campaign data to see which campaigns led to more sales, and after that adjusted spending from those results.

Machine-learning models can use companies' historical data to forecast changes in businesses. Recent studies show that companies can benefit from these predictions. The predictions can be about equipment or turnover for example (Davenport, 2018). A case

study by Bach et al. (2023) revealed that SMEs benefited from predictive AI tools that analyzed IoT sensor data to forecast equipment failures. The analysis showed the condition of the equipment, and the company could prepare for when they needed to start repairing. This leads to cost and time savings which are extremely important for SMEs. AI can also produce prescriptive analyses. It means AI can recommend actions directly based on the predictions it has made previously. Stryker (2024) writes that AI can simulate realistic business scenarios where managers can see what kind of decisions they could make. This can be effective in risk management especially. However, Mucci (2024) reminds "*Predictive AI uses big data analytics and deep learning to examine historical data, patterns and trends; the more data provided to the machine learning algorithms, the better the predictions are.*" This means that for the predictions being accurate, they require large amount of quality data over the years.

Because AI's role in analyzing data is increasing, it's important that SMEs take ethical and security concerns into account. Companies must pay attention on how they handle data and make sure that the AI systems they use follow different regulations, such as GDPR in EU (Sartor & Lagioia, 2020). Since AI uses a lot if big data, it also increases the risk for being exposed to data breaches. This is emphasized by the fact how AI can autonomously gather and treat information. Data breaches can expose a lot of peoples and companies' personal information that can lead to severe damages. Sartor and Lagioia (2020) add that AI's possible biases also raises concerns. Previous analyses or even job applications that resulted in getting the job, can unconsciously lead to biased AI decision making. Therefore, proper data management and following regulations have become important part of companies' trust and credibility.

2.4.2 Process automation and optimizing

Process automation means that different technological tools can handle repetitive tasks without human help. It's one of the most beneficial ways to improve efficiency in SMEs. It helps employees and management to focus on more important issues that improve

their operations (Moreira et al., 2024). Al-Amin et al. (2024) add that AI helps with collecting important data from separate systems and removing so called data silos. After this, AI can analyze the data and detect bottlenecks that need to be fixed. Traditional systems have not been able to bring up these types of clear insights. The systems use predictive analysis and machine learning for forecasting and giving suggestion in resourcing. RPA on the other hand takes care of routine tasks, such as invoicing or fulfilling orders (Al-Amin et al., 2024). Automation can be applied to Teece et al.'s (1997) dynamic capabilities, because it lets companies to find ways to improve and change their workflows. This leads to increased productivity and saves costs, when boring and manual tasks are automated and human errors decrease.

AI, natural language processing and robotic process automation have shaped automation by allowing systems to learn and adapt over time to different contexts. NLP allows systems to learn and replicate human language. This is necessary in chatbots for example, that are responsible for many companies' firsthand customer service. These systems that use NLP can simultaneously collect important data from customers and use it in the future (Supriyono et al., 2024). Recent studies show that AI has been helpful in optimizing workflows and that way improving efficiency. Andayani et al. (2024) studied SMEs and how they used AI-powered automation. The results showed that AI-powered automation had significant impact on their operations. The findings revealed that AI adoption reduced operational costs by 15%, increased productivity by 20% and 75% of SMEs reported improvements in customer engagement.

2.4.3 Everyday help

In addition to process automation, companies use especially generative AI tools for helping with their everyday tasks (Somers, 2024). Generative AI improves efficiency differently than automation. It helps with thinking and creative related tasks, which makes employees more productive and able to learn faster. Often these types of tools are integrated in the existing major systems or browsers. Still, they can be separate tools

from different vendors that require active licenses for use. Generative AI tools are commonly used for creating text for communication or marketing purposes, or for example summarizing online meetings automatically.

A study by Brynjolfsson, Li and Raymond (2023) showed that generative AI tools have improved problem solving by 14% on average. The highest benefits were seen with less experienced employees. This balances skill gaps within the company. The so-called AI-agents have become a big part of companies' AI use. Employees can build their own AI-agents themselves for their specific needs, without having to know how to code. There are multiple platforms that let people build their own agents for lightweight tasks such as analyzing documents.

AI's role has significantly increased in programming. Programmers use AI for tips or generating complete lines of code (Somers, 2024). A study made by Peng et al. (2023) shows that programmers who used AI-powered GitHub Copilot tool for coding, completed their tasks 56% faster on average than those who didn't use it. They highlight that these tools can increase efficiency significantly especially when the tasks and goals are clearly defined. The deep learning models that offer programmers suggestions and lines of codes reduce the need for manual coding and lets programmers to focus on more high-level decision making. Walsh (2024) reminds that still, at this point these tools have their limits. Especially complex programming projects that have multiple databases and dependencies, can be too hard for AI to handle, and therefore needs human supervision and manual correction. Also in coding, junior-level programmers benefitted the most from AI-powered programming tools compared to more experienced programmers.

These tools link directly to dynamic capabilities by helping companies to learn faster and share knowledge with each other, which helps especially less experienced workers. However, Rick et al. (2024) remind that companies need to be careful with generative AI. It should be seen as an assistant that enhance human thinking and judgement, rather than replacing it.

2.5 Product and service development

2.5.1 Innovation in products and services

Companies who have a technological approach to their business can benefit the most from AI in their research and development processes. Traditionally companies have seen AI as just a tool that helps in specific tasks, but the most successful companies implement AI as a part of their overall strategy. AI will change the way how companies create value and produce products and services in the future. It's has particularly big role in digital servitization (Naeem et. al, 2024).

AI driven innovation is linked to companies' dynamic capabilities. It helps them to experiment and turn ideas into offerings. AI allows SMEs to innovate faster with lower costs and risks, and thereby compete with larger firms that traditionally have dominated R&D. According to Colback (2024), AI helps R&D processes by lowering costs and improving innovation capabilities with machine learning and data-analyses. In the end, every company is a technology company in one way or another, so adopting AI in some form is not only a trend, but a strategic decision. One of the biggest benefits come from its possibility to fasten product development. For example, in pharmaceutical industry AI has been proven to fasten developing new drugs by up to four years. These types of advancements have direct impact on the economy. Although Sjödin et al. (2021) showed that manufacturing SMEs could use AI to create new products and services, a study by Cooper (2024) showed a contradiction to this. The study agreed that AI helps with ideation and testing, but concluded that even if SMEs adopt AI, the benefits can be limited if their data, skills and leadership are not good enough. This emphasizes the importance for SMEs to use resources efficiently, linking back to dynamic capabilities and RBV.

As Cooper (2024) confirmed, AI has been used more and more in brainstorming and ideation. Especially generative AI is changing innovation processes by helping to design products and refine ideas. Generative AI can be used in product development by creating new variations of new products based on customer feedback for example (Huang & Rust, 2024). Rick et al. (2023) remind that generative AI shouldn't completely replace human creativity or thinking but rather complement it by giving alternative options or even wild ideas. From these results, humans can then pick the best options and start to develop them further. Traditional methods in innovating, such as brainstorming and ideation are often based on human intuition, assumptions and opinions from others. These can even be unconsciously biased view or ideas. AI helps with this by offering a space where humans can freely throw out even bold ideas without having to fear of facing instant critique. Bouschery, Blazevic and Piller (2024) studied AI-augmented brainstorming and found out that hybrid groups (humans + AI) outperformed in creativity and productivity those groups that didn't use AI.

From a strategic point of view, AI can improve SMEs innovation capability by transforming resources into dynamic capabilities. However, if companies want to benefit from AI in R&D, they need commitment from management and form a culture that encourages experimentation.

2.5.2 Personalization and customer-centric development

Companies that want to develop their customer experience can benefit from AI significantly. Hyper personalization is the most advanced way of personalization. AI can be used in hyper personalization by automatically analyzing real-time data and offer individually recommended services to customers (Jaffrey, n.d). SMEs can use ML and NLP for analyzing customers' behavior, feedback and market trends to get more customer-oriented approach. They can be combined as a whole, that wouldn't necessarily have been possible with traditional analyzing methods (Finn & Downie, n.d). This kind of personalization follows customer behavior in real-time in different contexts, which helps in creating very accurate recommendations and strengthen dynamic capabilities.

At the same time, customers' expectations have naturally increased. According to Temasek (2021), 91% of customers prefer brands and their products that are recommended specifically for them, whereas 72% of customers only react to some type of personalized messaging. For example, Netflix can recommend every customer individually shows or movies to watch based on their previous watching history or what they have searched for. SMEs can also benefit from hyper personalization and use it for scaling their businesses. Case studies by Marianantoni (2025) showed that AI-powered customer personalization increased customer engagement in 87% of the companies and repeat purchased increased by 40%. These results prove significant improvements in competitiveness.

One big improvement nowadays in customer service are chatbots. They are AI based programs that use NLP to produce human-like conversations to answer customers' inquiries (Anh Le and Rajah, 2022). AI-powered chatbots are different from personalization but still collect important data from repeated questions and answers. The customer data improve companies' resources and dynamic capabilities. A study by Anh Le and Rajah (2022) shows that most customers want answers immediately for their questions. Chatbots can help with this, because they are programmed to answer instantly without human help. Chatbots are particularly good ways to handle routine questions, because they can handle as many inquiries at the same time as possible. This frees human resources to something more productive and saves costs. Kagan (2023) says that AI chatbots costs are minimal compared to what humans work costs are for the same task. Chatbots' benefits can be seen also in situations where human customer support isn't available. For example, during power outages when humans are offline, chatbots can function in the background and answer customers' questions normally. Kagan (2023) adds that the savings from chatbots can be as much as 8 billion dollars in a year.

Although chatbots bring a lot of benefits, they have their challenges too. Anh Le and Rajah (2022) write that chatbots can't fully imitate human emotions. Chatbots are programmed and built from predefined scripts and algorithms. Some customers prefer to handle their inquiries with human support, because their questions can be too hard for chatbots to handle (Kagan 2023). Therefore, it's important that companies keep that option available too for customers.

2.5.3 Transformation of market dynamics

AI is changing the way how companies sell and price their products and services. Naeem et al. (2024) introduce digital servitization, which means that companies start to sell more data-driven services and less physical products. Sjödin et al. (2021) explain that AI-powered business models are changing. Business models determine what brings value to the customer and how companies get paid. Common ways to get paid with digital services are subscription fees and one-time purchases. Previously only bigger companies have had the chance to select the best option for them, but now SMEs have more options to choose from as well. A study by Kumar, Ashraf and Naeem (2024) showed that SMEs found new customer segments from places that would have been hard to find otherwise. They used machine-learning to analyze large amounts of data and found segments that had specific needs. After that companies started to target those segments and create new offerings for them as well. This means that companies don't only have to settle for their current customers and refine their services just for them.

With AI, companies can start to change the way how they price their products and services, because they can promise better results with the help of AI. Companies can finish their projects much faster, and AI can detect mistakes in early stages which improves quality. Usually, big digital projects have taken a lot of time with coding and designing, but this work can be done much faster with AI now. This has led to a situation where it's not wise for companies to price their services based on how many hours they have worked in the project. Instead, they should start pricing more on the finished

product or outcome (Dharani et al., 2025). Therefore, in addition to AI improving efficiency, it changes the way how and what customers pay for, which is the final outcome rather than the process.

Companies have analyzed data for a long time, but they haven't gotten similar results before as they can get now with AI. Ikbal (2025) writes that with the help of AI, companies can turn boring data into interesting insights, that can be further refined into products. Regular data from projects and processes can now be built into dashboards that present important information about objectives and warnings. These are valuable information that customers are willing to pay from. Also, AI modules can be embedded in the digital products that companies are offering anyway. They can include document handling assistance or translation models for their products and gain revenue or royalties through these features. Shinner and Perrett (2025) add that the same applies for companies who can sell separate AI add-ons to existing software. This benefits both parties. The service provider doesn't have to try and sell the whole AI solution, and customers can pick and choose which tools they want to only use and pay for. This way customers can only focus on the tools they need and reduce unnecessary costs.

These types of services that are based on data, usually improve the more they are used and fed data over time. Because these systems learn from data, they can offer significant advantages to companies. As Ikbal (2025) explains, essentially data itself becomes the product. This proves a change also in competitiveness, when companies develop new strategic resource base.

2.6 Human-AI collaboration & workforce transformation

It's important that SMEs see the collaboration between humans and AI as a capability rather than just as a toolbox. From RBV standpoint, human-AI collaboration is seen as a valuable hybrid resource that is hard to copy. Similarly, from dynamic capabilities point of view, this kind of collaboration improves companies' ability to adapt, absorb and

innovate. Cantrell et al. (2025) highlight that it's important to understand different AI tools and models, but the central thing for succeeding is to determine who does what (humans or systems). This kind of approach has direct impact on competitiveness. Senorer et al. (2024) found out that companies that have adopted AI, have been able to train new employees faster to their jobs. This has freed human resources significantly. One way how human responsibility can be shared with AI is a way where AI systems collect data and make drafts. After that humans verify and make necessary changes and decisions for future. This type of arrangement changes AI's role from just a tool to a real capability. These capabilities are also important to SMEs, because they often compete with fewer resources, such as employees or with less experience. In these types of environments every improvement or loss in learning and efficiency is crucial (Senorer et al., 2024). These link directly back to RBV and dynamic capabilities.

Research show, that dividing tasks and responsibility between humans and AI wisely helps building trust and prevent traps where automation's too big role could hurt learning and taking responsibility (Raisch & Krakowski, 2021). According to research made by Senoner et al. (2024), those who mix carelessly the roles between humans and AI without a proper plan, often perform worse than if they had worked completely alone. Broadly speaking, there are three ways to approach these roles. First way, AI creates drafts that humans then verify or discard. Second way, AI systems work autonomously but humans supervise them and intervene if necessary. And the third way, AI works completely alone, but often with tasks that simple and have low risks. Choosing the right way for a certain task requires recognizing which strengths and weaknesses AI and humans have for that specific role, and what kind of risks both include. This can be concluded with a study by Strukelj and Dankova (2025), who state that those SMEs who can let AI handle pattern recognition and simple tasks and let humans manage more complex judgement, will lead to continuous learning and thereby strengthening dynamic capabilities.

Regulations support this way of organizing work. For example, the EU AI Act (2024) says that in high-risk tasks that involve AI, humans must be behind it supervising. It emphasizes that humans must know when systems can possibly cross the line and stepping in is necessary. Being cautious is important part of every company that use AI. Especially SMEs when they form their own internal instructions and regulations. Supervising and following ethicalness don't only mean management complying with laws, but it creates trust with customers and partners. Companies that are transparent with their AI use can improve their reputation (Stahl, 2023). This can function as an important competitive advantage and capability to SMEs especially.

Working styles change with the way how AI and people are setting together. Humans can give some of their stressful thinking tasks to AI which helps them to focus on more important things. Afroogh and D'Cruz (2025) found out in their study that junior employees' roles have changed. They don't have long introduction periods anymore, because with the help of AI they can start to handle more complex tasks much earlier than before. At the same time senior employees can free their time from those tasks and focus on more important things. Even though AI has helped employees to learn faster, it doesn't mean that their skills improve automatically. They need to understand how AI tools work and what kind of prompts they should write in order to get the best results. Also, everyone should learn that in which situations AI can fail. A study by Brynjolfsson et al. (2023) showed that generative AI tools increased problem solving by 14%. The biggest benefits were seen with less experienced employees. It's important that companies start to use AI tools more, because they clearly have positive effect on productivity. They also help to fix gaps in human resources. This new way of collaborating with AI changes companies' dynamic capabilities too when the roles are changing.

These theories don't automatically make sense for SMEs, therefore it's important to know what kind of limits there are. Hussain and Rizwan (2025) explain that many smaller companies don't invest enough in AI training. In addition, many aren't confident in changing their way of work, or they might go straight into too complex tools. These

explain why some of their progress is slow even if they have a lot of tools available. These caps are result of insufficient training and lack of managerial confidence, which both weaken companies' ability to adopt, absorb and innovate. That's why AI training and adoption in workplaces can reduce these problems. Training can include short guides or prompt libraries for example. It's important to remember not to jump straight into the most complex tools. At first, it might be good idea to put only simple tools to use, such as document assistants or generative AI tools. This keeps costs and risks low at first as well and gives SMEs the opportunity to build their own ways of utilizing AI. Al-Amin et al. (2024) support this by stating that architecture of each system matter. Companies should scale their use of AI in stages. The adoption should start from mapping out their needs and then continuing to pilot stage. Only after when the basics are carefully handled, full implementation can be started with the specific needs of each company. This kind of approach grows companies' technical understanding naturally and creates positive attitudes slowly towards AI.

3 Methodology

3.1 Research approach

Research means a structured process that aims to create knowledge by systematically analyzing complex topics. Qualitative and quantitative methods are usually used in business research. This study uses a qualitative research approach that prioritizes depth. When the topic or phenomenon is not yet well known, usually qualitative research is the best approach. It aims to understand the phenomenon and answer questions like “How?” or “What is this about?” Unlike quantitative research aims to generalize statistics, qualitative research focuses on understanding the meaning and context (Kananen, 2017). Because of this, quantitative methods are not suitable for examining how AI is impacting business operations and competitiveness in SMEs in a real business setting. Instead, qualitative methods allow the interpretation of managerial decisions and insights (Tracy, 2020). A qualitative approach has therefore been chosen due to the nature and context of the study.

Interview methods are considered the most important and common qualitative data collection methods. From the interview methods, the semi-structured interview is the most commonly used form of qualitative research and can be used to interview both individuals and groups (DiCicco-Bloom & Crabtree 2006). In a semi-structured interview, people are asked to be interviewed who are believed to have knowledge or experience or who are known to have been part of the activity or process being studied (Galletta et al., 2013). According to Qu and Dumay (2011), it is important to carefully consider who and how many people are interviewed. For example, management's view of the phenomenon is different from the view of the employees of the subject under study, which is the exact case in this study. The advantage of interview methods is that people with experience and knowledge of the phenomenon can be selected for the interview. The main strength of an interview as a research method is that it can reveal hidden and sometimes personal experiences of the interviewee and gain insight into different assumptions and views (Qu & Dumay, 2011). Another advantage of the interview

method is its flexibility. If necessary, the interviewer can repeat the question, clarify or change the wording of the questions, or discuss with the interviewee. Therefore, interesting points that emerge during the interviews should be followed up with additional questions (Sarajärvi & Tuomi, 2018).

Most of the times interviews are conducted in one session, lasting from 30 minutes to a few hours. Semi-structured interviews are often the only source of information in a qualitative research project (DiCicco-Bloom & Crabtree 2006), as in this study. Since the research problem is a relatively new phenomenon and may require clarifying questions and free discussion, semi-structured interviews were the most appropriate method for solving the research problem. In addition, the collected research data is formed from people's experiences and information, which suits well semi-structured interviews. Interviewing is a "complex and participatory method", so there is no single correct way to conduct an effective interview. In addition, designing appropriate and insightful questions can be challenging. When asking questions, it is good to avoid asking questions that have a one-word answer (e.g. yes or no), which will stop the flow of the interview (Qu & Dumay 2011). Because the study focuses on AI's impact on competitiveness, one of the key challenges is the evolving nature of AI applications in different industries. Like said, AI adoption is not a one-size-fits-all process, and the outcomes can vary highly even between similar companies. Companies implement it differently in various levels. Therefore, the need for a flexible research design that takes differences in to account is necessary.

3.2 Data collection

The research data was collected using a semi-structured interview method. All the interviews were done one on one between the interviewer and the interviewee. In total there were 5 interviews, and the durations varied from 40 minutes to 1 hour and 13 minutes. The conducted interviews are listed in a table below (Table 1.). The interviews were conducted with interviewing top management executives, who know their core

business well, and who have concrete insights on AI in their business operations. The benefit of narrowing the topic around SMEs gave the opportunity to get a deep understanding and perspective on how decisions are made in managerial level regarding the topic. The type of open questions asked in the interviews gave interviewees opportunity to think, and often new questions and insights rose on how their operations look at the moment, making their answers interesting and valuable (Sarajärvi & Tuomi, 2018).

The interviews were held via Microsoft Teams and recorded with the consent of each participant. The interviews were done during June-July 2025. The interviewees were based across Finland, therefore the choice of using Microsoft Teams was reasonable. It also gave the ability to directly record the interviews ready to be later transcripted. The transcriptions hold together 49 pages of documentation.

It was also made clear for each interviewee that the collected data will be addressed anonymously. The intention of this approach was to protect the privacy of the interviewees and encourage them to speak more freely during the interviews, but also to minimize potential biases in the answers.

Interview	Industry	Role of the interviewee	Number of employees in the company	Length of the interview
Interviewee A	Software development / IT consulting	Chief Executive Officer (CEO)	~50	47min
Interviewee B	Digital learning platforms	Chief Operating Officer (COO)	~40	40min

Interviewee C	ERP services	Co-founder, partner	~50	52min
Interviewee D	IT services / cyber security	Executive Vice President (EVP)	~30	1h 13min
Interviewee E	IT services / consulting	Country manager	~70	50min

Table 1. Interviews

3.3 Data analysis

The interview data of the five executives were analyzed using qualitative content analysis. This method is a good choice when the goal is to gather a clear description of people's experiences. Qualitative content analysis allows to start from more specific insights and more towards more general concepts. At the same time the interviewees' own way of telling stays on the background for the interpretation (Sarajärvi & Tuomi, 2018).

Since the research was focused on managerial insights, it was important to pay attention not only to what they said, but also to how they described their experiences. Therefore, the analysis is not limited to individual words or concepts but also to the repeated emphases and ways of telling.

The analysis proceeded in several stages. First, all the transcribed material was translated from Finnish to English and read through several times to form an overall picture of the executives' speech and tone. After this, points were identified from the text that answered research questions or described key experiences regarding AI, competitiveness, business operations etc. These points were single statements or thoughts of several sentences for example. After that, codes were formed from these gathered points, which were summarized insights from the interviewees' statements. At the beginning, there were many codes, and they were diverse, but as the process

progressed, the codes began to be combined based on their similarities or differences. This requires continuous rereading and evaluating the data since the goal was to deeply understand the meanings of the expressions (Elo et al., 2024).

In the end, the codes formed entities that described recurring features from the interviews. Since the data is anonymized, it allowed using straight quotations from the transcribed data. The formed entities and their themes were also categorized to match with the theoretical framework of this thesis.

3.4 The quality of the data and ethics

There are no completely unambiguous guidelines for the reliability of qualitative research and its evaluation. However, the research is evaluated as a whole, where coherence and the relationship between the results must be realized. The researcher must provide the reader with enough information about how the research was conducted so that the readers can also evaluate the results themselves. The reliability of qualitative research can be assessed through the researcher's commitment, data collection, research informants, analysis and reporting. Commitment refers to why the researcher feels the phenomenon and topic under study are important or essential to him or her. For example, does the researcher have prior experience or assumptions related to the topic? (Sarajärvi & Tuomi 2018).

Based on the collection of data, it can be determined whether, for example, the interview or its special features were chosen on the right grounds. Were the informants interviewed alone or separately, or whether problems arose during the interviews. In this case, the informants of the research refer to the interviewees. In qualitative research, it is important to highlight the basis on which the interviewees were selected, how many of them there were, and how they were contacted. It is therefore essential that the research subjects provide relevant information for the research. The analysis of the data must reveal how the data was analyzed and how the conclusions were reached. The way the research data was collected and analyzed, and the report as a whole, affects

reliability (Sarajärvi & Tuomi 2018). Based on the principles of reliability of qualitative research discussed in this chapter and the background given to this research, it can be stated that the research in this thesis is reliable.

The ethical perspective of the research can be viewed from the perspective of what the aim of this research was and what it was intended to achieve, and how ethics was implemented in each different stage of the work. When choosing the research topic, the goal was not, for example, to look for failures in companies related to AI. The basis for studying challenges, for example, was the idea that every growing company has its own challenges and that we can learn from them. When writing the theoretical framework and using sources, it was relied on academic sources and non-commercial articles, which brings objectivity and truthfulness to the theory.

In the interview situations, the representatives were allowed to talk freely about the situations they experienced, and they were not strictly required to do so. There would have been no need to demand information, as each interviewee openly talked about their experiences. In any case, the interviewees' professionalism and expertise in the subject had to be respected, as they had a broader understanding of the topic in question than the researcher. If the researcher had questioned the expertise of the subjects, it would have turned against the research results by reducing their willingness to present their own views on the research topic. When analyzing the research results, there was no preconceptions of forcibly finding certain themes, for example based on what the theoretical framework contained. However, through analyzing the research results, it was noticed that the themes that naturally emerged from the data, matched the theoretical framework well. This indicates that the relationship between the analysis itself and the theoretical framework was successful.

4 Findings

4.1 Operational efficiency

This section aims to answer to the first research question regarding how AI has affected the efficiency of companies' operations. The content under this section consists of insights regarding everyday help with technical work, agents, time savings and also views on data-analysis and forecasting, leading to change and improvements in SMEs' operations.

4.1.1 Process optimization and customer service

The first results show that AI's primary benefits don't necessarily come from huge changes, but from small helping improvements in everyday tasks. Instead of fear of AI taking anyone's job, it supports in coding for example, and that way gives specialists the opportunity to focus on more important things. Most interviewees brought up that at the moment, the efficiency improvements start from the employee level, where they start to use and experiment with AI tools before company even has its own AI practices. This tells that the initial improvements in efficiency and productivity come from employees' own way of testing and learning, rather than from above. So, the results reveal that AI adoption in SMEs develop naturally, when employees find the best ways for them to get the most out of AI tools.

> *"You can see it especially on the programming side. Our developers already use AI in everyday work and version-control environments have AI integrations and tools that help spot areas that need improvement, suggest better solutions, and comment the code which effectively highlights the parts that need a second look. So AI is part of our toolbox, but we still don't have company-wide standards for using it."*
> *(Interviewee C)*

> *"If you look at our specialists' software development work, AI is already used very widely, and AI-assisted tools are part of everyday life for coding, specification and testing. And the biggest productivity leaps happen in the field with the specialists' work." (Interviewee A)*

> *"Programming is one clear area where we've used AI for quite some time already. Our development team uses AI as part of its daily work. AI is well suited to handle basic routine tasks. It especially helps with steps that previously took a lot of time, such as scaffolding the basic structure of code or doing language conversions." (Interviewee B).*

A statement by one executive reveal that the way thinking related tasks split with humans and AI, develops gradually. Managers don't see AI anymore only as a technical help, but as a partner that handles routine processes. The bottleneck mentioned proves, that the biggest challenge isn't about the technology itself, but the organization's policies and routines. It can be concluded that the improvements in efficiency can be achieved by redesigning processes and offering the right kind of support from management, rather than just increasing tools:

> *"The discussion in shifting towards doing more of what needs to be done while AI handles the 'how'. Even though we already use a lot of different tools, the bottleneck is starting to be people's processes rather the actual production work or coding." (Interviewee A)*

The examples show a clear improvement between AI and customer service capacity. AI has helped automate customer inquiries, which has freed time for more important tasks. The benefits of these tools come from how they help to balance workload and speed up answering, not so much from how complex the technology is. Every executive described this change the way as well, that AI doesn't replace fully anyone's job, but supports

humans. This emphasizes the important approach for SMEs, where they want to improve efficiency, but keep the personal relationship with their customers:

> "*Our whole support team uses AI fairly systematically especially with customers' issues that aren't immediately clear. We have learned to phrase the questions so that the tools return genuinely useful answers that help us move the case forward." (Interviewee C).*

> *"Another example is our AI-assisted support service based on our help content. The goal was to reduce the number of simple questions that reach our support team. It has worked quite well, but in more complex support situations AI is not enough yet." (Interviewee B)*

> *"Those customers who have been using our AI assistant for 4-6 months have benefitted from its ability to answer questions regarding licenses. The AI assistant can gather customer-specific data and give answers instantly. This has allowed us to reallocate resources to new customer acquisition and other important work." (Interviewee E)*

The following examples show how automation has helped to bring concrete operational improvements. Legal reviews and invoice confirmations prove that AI adoption improves when experts can plan themselves where to use AI tools and agents so that they meet their needs. Both examples saved time but also reduced mistakes. These small innovations show that the biggest benefits are seen when the experts' knowledge and AI automation is combined, rather than getting strict instructions from above:

> *"Our corporate lawyer built an AI agent for himself. This helps enormously when companies send contract drafts, because those agents can quickly check if there is*

anything to flag. That has improved efficiency in legal processes definitely." (Interviewee D)

"One significant case is about our cloud service portal, where we use an AI assistant. The AI assistant has sped up the process of invoice checking. This has saved us hours of manual work, approximately 12 hours per week. Corrections can now be made before invoicing the customer, which means that we don't have to send credit notes later as often anymore." (Interviewee E)

4.1.2 Data-driven management and forecasting

Interviews revealed that SMEs are still in early stages with how they make data-based decisions. Executives recognized the potential with AI-powered analysis but decides to still rely more on more traditional ways and tools, such as Excel, because they want to keep the control to themselves. Their hesitation wasn't really about not wanting to adopt new technology, but about how they want to see data and results clearly. This means that before SMEs can benefit from, they need to slowly shift to habits where decision, even small, are made based on data:

"We have done AI-driven management or forecasting very little actually, to be honest. There's definitely room to improve. One challenge is that I already have a good perception on metrics that I want to handle in Excel and prefer to understand precisely which figures affect what. I haven't yet had a situation where I would want to give raw data to AI and ask it questions for advice for decisions." (Interviewee A)

"Regarding forecasting, I think we have already as good model as possible that can be done manually. I don't think it's worth automating yet. I still believe there is potential in it, and I have few ideas where data-analytics and AI could be used together." (Interviewee A)

Another theme that emerged from the interviews the data-related issues. The executives understood that AI tools work as hoped only when they can use quality data. However, many smaller companies don't have such systems that can collect and organize data that well. This creates a cycle where qualityless data prevents proper AI adoption, and the little use of AI prevents collecting data and analyzing them. These insights prove, that due to the nature of SMEs, their data-management is limited. It doesn't mean they would want it to be so. In order to more forward, they have to develop proper data-management practices:

> *"AI needs a lot of reliable historical data to produce even somewhat accurate predictions. Many companies don't have enough data that could be used for that. I still think these are future possibilities for sure. We use AI to gather information but in the end, people make the decisions and steer the process." (Interviewee B)*

> *"Currently analyzing the business is quite hard and need a lot of manual work. That's why I see using data-analysis with AI as a clear next step that we want to invest in. This hasn't been implemented, partly for information security reasons". (Interviewee E)*

The results show that previous failures with AI have still impact on today's attitudes. Executives connected previous failures to the lack of quality data, which has made them more skeptical on if they can benefit from forecasting with AI. This shows that they need to start building trust little by little through clear and simple experimentations:

> *"In 2017 we tested machine-learning approach for forecasting. We did a simulation on which deals we'd win and which we wouldn't. The estimates didn't hold up. In order to have accurate forecasting, there must be large amount of quality data. We still use human judgement on decision making rather than AI." (Interviewee D)*

All in all, the results conclude that companies are slowly preparing for data-driven decision making. Although SMEs can't yet use AI properly in decision making, most executives were open to it when the time is right. Their comments point out clear priorities. First, they want to focus on automating tasks and after that move to AI data-analysis. This type of approach indicates wise risk management, especially when resources are limited:

> *"We haven't really used AI in business analytics or data-driven management. We are relatively small company, about 40 employees, and our business is pretty straightforward. This is the reason why we haven't felt strong urge to build AI solutions for these areas so far. But we'll see in the future" (Interviewee B)*

> *"We haven't yet use AI for data-analysis and management. At our size we haven't felt it necessary to use at this point. Some tools are integrated in our systems, so maybe they could be used more." (Interviewee C)*

4.1.3 Everyday help

The interview results showed that AI has been widely absorbed as an assistant that works in the background and helps with editing messages, ideation and translating documents from language to another for instance. This everyday use of AI is important part of overall adoption. This way AI becomes part of companies' infrastructure. The use of it doesn't necessarily spread because of managerial pressure, but it grows naturally when employees share their learning and experiences. This emphasizes that the big part of AI's benefits are created in teams rather than changing the whole digital strategy:

> *"We use AI everyday as a support. For example, we use AI for shaping messages such as "what should I answer to a customer", where AI can polish wording and give ideas. We also use it in content creation, especially in building online courses. It doesn't build all the content but helps with the structure and drafting which speeds up the process." (Interviewee B)*

"ChatGPT has become part of our everyday work. We use it to get wider perspectives. In our support services we use it if we don't know the answer immediately. People are free to use them, and actually time to time we share experiences in our teams." (Interviewee C)

"In marketing and content creation we use AI daily for writing and translations. Previously translations took a lot of time but now it has gotten much faster, and the quality is much better with the help of AI. Often only proofreading is enough, so communication with customers and partners has developed a lot." (Interviewee E)

The next insight from one executive show that SMEs share knowledge and develop their skills in new ways. Traditionally new hires learn from senior employees. Now, AI is used as a tool for self-teaching, so companies don't have to rely so much on others teaching small and obvious things, which frees resources. This offers companies new way of learning and gaining competence, when prompts and working examples are shared within the company:

"We hired new employees. Even though the product and programming language we use were completely new for them, it only took few weeks for them to being able to offer solutions for customers with the help of AI. AI is essentially the tool that trains them. They have learned to solve problems without previous experience by using AI tools as help." (Interviewee C)

Most executives told that in addition to ChatGPT, which is seen as the most common AI tool, the use of AI is used and spread through existing software that have integrated AI tools in them. These integrations that Microsoft and Adobe offer for instance make it possible that AI is merged naturally as everyday help from the systems employees use anyway. It's important to notice, that AI adoption can also happen passively when

employees start using them because they are easily available. Because of this productivity can improve from even small and effortless tasks.

> *"Also, previously I had to listen all meeting recording during evenings, but now I can get an automated summary on each Teams meeting right away with AI. It frees a lot of time for other stuff." (Interviewee E)*

> *"We have Copilot with version-control tools, because they are Microsoft products. That's why Copilot is strongly used there. For this interview I actually checked other tools, and I noticed that in those version-control tools there are 20-30 AI tools integrated only into those already." (Interviewee C)*

> *"For content creation we use Storyline for our online courses. It has already built-in AI features that support content creation and editing. On the graphics side, we use Adobe's tools, that also have plenty of integrated AI tools already." (Interviewee B)*

4.1.4 Evaluating the changes and improvements

Executives collectively agreed that AI has already had a positive impact in everyone's work, from regular employees to higher level managers. The changes don't necessarily mean radical change in management practices, but rather in efficiency, time saving and support in every day decision making. Results indicate that AI is seen as a tool that lets both management and employees to focus more on strategic questions by reducing manual work and offering new ways to structure thinking. Simply, AI's impact grows when companies reinvest saved time into more important activities:

> *"I genuinely believe that work has become significantly more effective. In some areas AI has partly replaced some tasks, in programming for example. On the leadership side I know that everyone uses AI in their everyday work." (Interviewee B)*

"AI has freed us a lot of time. Many everyday tools have made our work more efficient and gave us the opportunity to focus on more productive things. How far are we in total, still varies. The big part is the use of our data, which is still a bit fragmented. However I believe that once we get all the pieces in place, AI will become even more significant benefit for us." (Interviewee E)

These insights highlight that AI's job in SMEs is to support human judgement rather than make its own decisions. Executives continuously described AI as a helper for thinking, that gives alternative options, opinions and can define problems. Still, humans make the final decisions. The interviewees' comments also show that managers have started to check and verify AI's suggestions, which strengthens their own expertise while learning to utilize AI better:

"I can't name a decision where we had relied fully on AI's recommendations. It's more of a tool that we use when we are starting to solve a problem or look for solutions. However, AI supports my own thinking. It helps to think what would be wise to do, but the final word comes from our own brains." (Interviewee C)

"I believe we don't yet use AI for decision making, or at least the final decisions are still made by humans. Of course, AI has given us some perspectives regarding different decisions, but we need to check those carefully too." (Interviewee D)

One executive pointed out that to succeed in business, AI is in key position right from the beginning. It changes the way how "experience" means. Traditionally those managers and senior level employees who have had the most experience, had succeeded the best. Now, those who can use AI tools efficiently can work at a similar level with experts. This means that in future in SMEs, AI related know-how can be as important as traditional experience. As a result, companies' internal skill gaps can be equalized and the role of fast learning increases:

"I used to think that in order to succeed in IT industry, you need years of experience but in reality, if you know how to use AI tools smartly, it's not necessary. The experience helps still to evaluate what matters the most, but in problem solving it's no longer decisive." (Interviewee C)

4.2 New business & opportunities

This chapter examines on how SMEs have utilized AI to support new business development, aiming to answer to the second research question. This means creating completely new AI-based products services and/or using AI purely as a tool for ideation and innovation for new business. While the section 4.1 focused on AI's impact on operational efficiency and internal processes, this chapter focuses on AI's contribution to renewal, strategy and new offerings.

4.2.1 AI's impact on business development

The examples show that AI is being used mostly in developing and extending existing services, rather than building something completely new. Executives see AI as a tool that makes services more personal, faster and easier to use for customers. This means that SMEs are developing step by step when they increase the use of new technology to improve what they're already good at. This way they can limit risks but still get the benefits form AI :

"At the moment we have a large development project going on where we build an AI-assisted teacher. We have proceeded far into the pedagogical design phase where we consider how AI could work in different contexts, such as in schools and companies. The idea is that the student chooses a topic that they want to learn more about, and the AI teacher significantly helps and improves their learning." (Interviewee B)

"We have a new product and service for cloud service portal that for example helps customers to evaluate maturity of their customer base, make offers and to benefit from manufacturers' ongoing campaigns. The service offers ready-made suggestions and maps automatically ideas what can be offered to customers. This is the most important target for us with utilizing AI right now." (Interviewee E)

The results show that the barrier for trying new things has lowered with AI, reducing the fear of failure. This is supported by the fact that in several cases, AI was not necessarily key feature of the final product, but it had significant role in ideating and creating prototypes, which is key part for creating new business. These examples show that AI works as a tool that enhances human creativity and technical work rather than creating new business ideas alone. In both cases AI speeds up their current processes, turning ideas into prototypes and automating some parts of the production. However, it still hasn't led to completely new strategies yet:

"We built an integration code for a Shopify-platform and used AI heavily in the production. That way we indeed created an integration solution that was built with the help of AI. However, we still haven't come up with fully new products or business ideas that include AI. We haven't had the 'aha' moment yet where AI's possibilities would open completely on the business side." (Interviewee C)

"We have also used AI in designing pedagogical models. We have utilized many different AI tools for gathering ideas. Usually, we first start with a theoretical framework and try to split it into smaller pieces, in "atoms" so to speak, and then turn them into visual models. AI has helped in this process." (Interviewee B)

Executives had a common view, where AI works as a thinking partner in creative work. It helps by offering new ideas, better phrasing and different views, which all help in brainstorming. Executives emphasize AI as a tool for collaboration, not only as an automation. This means that the biggest value from AI comes when it helps humans being more creative by thinking broader in different areas and directions. The goal of AI is not to replace human thinking:

> *"We have used AI in ideation and help with designing in the early stages. It works great when we outline ideas or summarize things. Overall it helps with structuring new ideas." (Interviewee A)*

> *"We often use AI for validation and generating ideas, but new solutions come up only when we start to utilize our own data with help of AI and that way ideate what kind of entities we can create." (Interviewee E)*

> *"AI helps us to experiment more easily. You can prototype ideas or content very fast. Previously it would have taken multiple iterations. It makes you to actually want and try more different things because the cost of failure is so much lower." (Interviewee B)*

4.2.2 Customers and markets

The interviews show that AI hasn't directly yet created entirely new markets or business models for the participating companies. However, it's being used for improving market reach and customer understanding. The clearest benefits so far with AI in customer service are how it supports sales, helps to identify opportunities and personalizes content for customers. Using AI for creating sales materials and other content gives smaller companies the opportunity to deliver more personalized messages even with more limited resources. Only few mentioned steps towards AI-based services that has opened or will open new revenue streams in the future:

"We use AI in sales for example researching the background of a customer, drafting buyer profiles and ideating materials for proposals and sales. We have also started using AI for creating and tailoring our consultants' CVs for specific customer need, with short explanation why this person fits the specific role. We basically use AI for these every day, and it's mostly about content creation, reshaping ideas and help with different language models." (Interviewee A)

Few executives highlighted that the next notable step in leveraging AI comes in deepening customer understanding. The true potential for customer understanding with AI comes when it can systematically analyze customer data and reveal patterns that lead to more informed decision making. The comments prove that SMEs are slowly shifting to data-based customer relationship management. Executives understand that AI can change how they use customer data, but still, most of their processes are manual and fragmented. This proves that the biggest challenge is the proper use of data, not motivation or willingness to use AI. At a deeper level, the comments prove that business leaders have started to see customer data as a strategic resource. This means that as soon as companies can organize their data better, that's when AI becomes important in customer management:

"It's not structurally integrated yet to our processes, but the goal is to use AI to customer understanding and for preparing better proposals. Right now it's more manual, but we can see clear potential in automating this in the near future." (Interviewee A)

"At the moment analyzing business is quite hard and requires a lot of manual work. There's a lot of information on customers' areas where they operate and who are their most important resellers. Now it's largely based on gut feeling, which is why I feel that utilizing data with AI is clearly the next big thing we want to invest in the future." (Interviewee E)

"We have actually sat down couple of times with AI companies to think this through, because the potential is real. We possess customers' business data in our systems. We understand that with AI we should be using business data better by poking into it and bringing it into more readable form." (Interviewee C)

One observation shows that although AI hasn't yet brought new customers, it has increased sales with current customers. The benefits come from small improvements, such as better content and personalized services. This trend came up across all interviews. AI works as a tool that strengthens and grows current customer relations, rather than functioning for searching entirely new markets. For SMEs this kind of approach makes sense. For them, growing and developing customer loyalty and satisfaction is more manageable rather than trying to search for new customers with untested AI services:

"AI hasn't yet brought us completely new customers, but we have got more sales from our existing customers. For example, our learning formats and courses that AI has created, have added value for us. It's a small benefit but a valuable one." (Interviewee B)

4.2.3 Strategic impacts

The interviews reveal that SMEs are starting to think more strategically. Executives collectively see AI as an essential, not optional. They view that their competitiveness depends more on speed and learning than their companies' size. Common theme that emerged was that the executives see AI adoption as a race where those who can implement early, may secure long-term advantages. However, even they are aware of this, most of them still don't have formal AI strategies. Instead, they start adopting AI gradually in daily work instead of having detailed plans. This shows that companies take action and move forward with clear goals even before they have full strategies in place:

"We have discussed about making this really a strategic competitive advantage, because we work in IT sector and AI will change the way IT work is done. Those who learn to use AI tools efficiently will get ahead, because the quality of their work goes up. There is a big opportunity to gain an edge here. We don't have separate AI strategy but it will become part of everything we do." (Interviewee C)

"I believe that companies that can leverage AI in these themes, will gain an edge and outperform competitors. It's like a race on how fast the world and competition change, and we of course try to keep up with it. (Interviewee D)

The interviews show that companies are starting to change the way they create value and price their services. One interviewee said that they have started to sell more ongoing services rather than just one-time solutions. The other interviewee said that they are slowly changing the way how they price their services, because AI automation can speed up the processes so much. The pricing models shift from being based on worked hours to being based on outcomes. This change will push companies to build long-term collaborations instead of just making one-time sales:

"Traditionally we have been an IT company that offers full solutions. But now our goal is to offer a service for the customers where we take care of their learning in a holistic way. We try to operate so efficiently, that it's wiser for the customer to outsource more services to us. AI will be absolutely part of our strategy." (Interviewee B)

"Also, we will probably have to rethink our offering especially when AI becomes core part of it. It most likely will change the way we package and price our services. Now the pricing is often heavily based on the amount of work done, but what

happens when AI does the same work in a fraction of a time? Is the price defined by the final product, not the number of hours worked?" (Interviewee D)

AI's is changing how companies are run and structured. One interviewee points out that human-AI collaboration will become more important. This means that employees and management must start using AI more effectively so that they can create real value. Another interviewee added that AI can help them to use their resources better. AI helps companies to plan their capital and workforce more efficiently because it can give clearer visibility regarding investments and market choices. Overall, these views show that AI strategy is about creating organizations that can combine people, data and resources to stay competitive:

"AI makes us rethink our own structure again. It changes what kind of roles we need and how we produce value. It's both technological and a leadership question." (Interviewee B)

"*I believe that AI will change things for us definitely. It will show how the world is evolving and what kind of resources different business lines require. For example, we can track our market share and how much we can grow it. This will make work in Europe easier especially by helping to decide where it's worth investing the money and where not." (Interviewee E)*

4.3 Managerial challenges

This section aims to answer to the third research question regarding what challenges do business managers face when adopting and using AI? The section is divided into cultural attitudes where human and organizational attitudes towards AI is examined, technical and financial difficulties where the decision-making towards AI adoption from these

perspectives, and finally insights about data privacy and protection, that raised executives' concerns as well.

4.3.1 Cultural attitudes

Discussions related to the challenges of adopting AI led to a conclusion that the most significant challenges weren't about financial or technical issues, although they were also mentioned and covered in this section. The biggest challenges were regarding human and organizational issues. Although the AI tools and technology overall was seen accessible, the real challenges were about changing the established routines, attitudes and structures within the companies.

One executive described that in their workplace, employees aim to finish their tasks as soon as possible, rather than taking extra time to try out and experiment with new ways of working. This reflects well the issues with SMEs. Although there are different tools available that helps with the job, employees' mental capacity and the view on what is their responsibility affects a lot how well they can utilize these tools. Based on the comments it can be stated that AI adoption need more than just training. It requires that employees' mindset must be shaped so that they see developing processes as one of their tasks, not as a distraction. Therefore, cultural challenges don't necessarily have anything to do with opposing the technology, but more on finding time and enthusiasm for utilizing it:

> *"Culture, attitudes and competence are very interesting topics here. I don't have objective facts here, but I would still stay that people may not have enough time or even capability to think outside the box on how to automate something for example. You can call it time pressure or the feeling that 'this isn't my job to do'. We need a cultural change in this. In ideal situation everyone would feel that they own their work and are responsible for improving it." (Interviewee D)*

"People are in hurry, so you really can't tell them to not to be in a hurry. Therefore you can't necessarily make them stop and think about how things could be done differently. Everyone has their own priorities and tasks to do, so finding the time and proper mindset for trying out new things isn't always easy." (Interviewee D)

Another executive shared his views on how different practices create tension with AI use. He warned that even though open culture encourages to experiment, without common rules or open discussion teams can start to separate. Freedom without an actual structure can improve creativity, but it might lead into uneven development inside the company. In addition, AI's quick development compared to SMEs' slow cultural changes makes it difficult to make it consistent. Therefore, one of the biggest challenges is to find proper balance between developing creativity by employees, but also that everyone's skills develop with it:

"We haven't had top to bottom guidance on how AI should be used. We let our professionals to try out new things freely and find the best practices with different tools. There haven't really been financial barriers, but the challenge is to create an organizational culture where AI is being used more systematically in certain situations. The question is, when do we start to require everyone to use AI or steer people towards it. It won't be easy because there will always be people who are against it. We must really focus on how we change the culture here.(Interviewee C)

"We have started to share our experiences in sessions. Of course we could have more those, but the progress has been so fast in our company. I think our last session was in November, so we really should have these more." (Interviewee C)

The last insight shows how important it is that management have supportive attitude towards AI. Since the age structure is usually a bit higher in management, they often represent traditional way of thinking that proven solutions come before experimenting. If senior level managers are uncomfortable with digital tools, it can lead to a culture

where innovation is allowed but not encouraged. This kind of mindset can be bad for growing companies. Overall, this proves that managements' attitudes are in key position with shaping organizational culture. They lead with example towards change:

> *"In our management the people are mostly over 55-year-old, so it can be hard to justify investments to AI, when the concrete benefits might seem limited." (Interviewee E)*

4.3.2 Technical and financial difficulties

Although none of the executives described financial issues as a barrier, they pointed out that there are practical and investment related issues that make it harder to adopt AI. The most difficulties regarding technology were about licenses and integrations between systems, also the uncertainty of long-term investments in rapidly changing environment was seen as a barrier.

Few interviewees brought up a challenge how they have ambitions to use AI but still must understand what is possible to do in reality. Even though they might have enough resources, managements must balance with what can be realistically done. The question is not about money but deciding which projects they should invest in when the future is still uncertain. These bring challenges to evaluating returns of investment, when the development of AI tools is so fast. For SMEs this mean that when technology develops faster than companies' ability to plan, they should be careful with managing risks. Are they aiming for long-term or short-term benefits:

> *"Well there are technical and financial challenges. On the technical side, things don't work for everyone, some are missing licenses and that kind of stuff. On the financial side, we have a lot of ideas but we have to balance with the fact that we can't develop everything in-house. So the question is if it's worth pursuing?" (Interviewee D)*

"AI development is so fast that it's hard to know what tools will survive and still be relevant in few years. I think the common challenge is to decide where we should invest in, because what if we start investing in AI technology and it expires fast?." (Interviewee B)

One executive brought up an example where the money isn't the issue either. The main issue there seems to be weak internal communication. There are AI tools available, but people don't necessarily know who is responsible for what. This shows that companies that have several business units, should have clear communication with each other. Otherwise, it can affect AI adoption negatively:

"Our employees don't all have access to every tool because they cost money. We are a big Microsoft distributor, but our IT department is separate from us, so they don't even know that we can't have all tools and features. This has led to confusing situations where nobody knows what's happening." (Interviewee E)

The last comment agrees that the money isn't the biggest problem. The executive says that the biggest challenge is the strategy on how they should use the AI tools. Even though the tools are cheap or even free, it doesn't matter if companies don't have clear goals. The important note here is that managers have to start think more about how they can turn the technology into real capability:

"AI tools are fairly cheap to use and many of them are even free, so I would see there are very little financial barriers for us. We just need to figure out how we can use the tools effectively." (Interviewee A)

4.3.3 Data protection

The interviewees rose concerns about how they see protecting data as a part of their AI use. They all highlighted that because they use AI tools every day, they must stay cautious about what kind of information they give AI. It's important that companies follow laws and regulations, and companies should have their own internal guides on AI use. The people are still the biggest risk when it comes to using AI tools.

One interviewee brought up how data use has impacted their AI adoption. He explained that they have to use different rules and security levels, which has slowed down their AI adoption. Companies must follow the rules and laws, but these extra steps can naturally create a situation where people aren't sure if they can experiment or not. This shows that balancing between many important things can be challenging especially for SMEs:

> *"We have had challenges especially with protecting data with AI. Maybe the biggest challenge is that we don't leak anything sensitive data. We have really strict data security measures here, such as ELPN. But of course, these have slowed down our AI adoption." (Interviewee E)*

Two interviewees concluded that people's daily habits affect safety the most. Companies should offer training and communication help regularly. Especially when technology can evolve faster than current laws can change. One interviewee described humans as the weakest link, which means that people are continuously learning more about protecting data:

> *"We have guidelines for our employees on what kind of data they can feed into the systems. For example, it's clear that our financial figures or competitors' sensitive information can't be shared. We also have security training that everyone goes through when they start working here. I would still stay that we are cautious in a way, that if something suspicious happens, we can react to it quickly ." (Interviewee E)*

"Yes, we have rules on what AI can be used for here, and what kind of information can be shared with it. Obviously, you can't put sensitive company data into any AI system. That's strictly prohibited. This whole sector is moving so fast that we need to stay alerted with our security. The big challenge here is that the people themselves are the weakest link in the end. It doesn't matter if we have good safeguards, mistakes can still happen, and we need to keep reminding employees about this." (Interviewee D)

One interviewee stated that certain laws, such as GDPR and the EU AI Act can cause confusion in the companies. The comment emphasizes that all they can do is to try and follow the laws and regulations as well as possible. If the laws change, companies must react to them. This brings a challenge, because laws change slower than technology. Therefore companies must be careful all the time:

"Of course we have to keep up with government and other regulations, such as GDPR and EU's AI-act as well. It's not always clear how they apply to AI tools and what kind of data can be used safely. That's something we're all still learning and following closely." (Interviewee E)

4.4 Findings summarized

Main theme	Subtheme	Core findings
4.1 Operational efficiency	4.1.1 Process optimization & Customer service	Improvements in efficiency start from employees' experimentation rather than top-down strategies. AI supports coding, customer service and routine processes which free specialists to focus on higher-value work. Human-AI collaboration is not replacement but boosts productivity.
	4.1.2 Data-driven management & forecasting	SMEs are hesitant towards automating analytics, and they prefer to rely on more traditional tools for control and clarity. Data quality and system maturity limit progress. Earlier experiences can keep managers hesitant. AI-driven decision making will grow gradually when trust and data infrastructure improve.
	4.1.3 Everyday help	AI has become everyday assistant which has been integrated to employees' workflows with tools like ChatGPT, Copilot and Adobe AI. Adoption spreads naturally through peer learning and existing software that already include AI. AI speeds up writing, translation and learning related tasks and equalizes skill gaps.
	4.1.4 Evaluating changes & improvements	AI is seen as a tool that supports thinking rather than a decision maker. Time savings allow focus more on strategy and creativity. Improvements in efficiency come from

		many small changes, and AI competence is starting to form into modern experience which complements traditional experience in businesses.

4.2 New business & opportunities	4.2.1 AI's impact on business development	AI is mainly used to enhance existing services rather than to create entirely new products. It lowers barriers to experimentation, speeds up prototyping and strengthens ideation. AI works as a thinking partner which increases productivity and innovation capacity, although strategic transformation stays limited.
	4.2.2 Customers & markets	AI helps sales and marketing by improving personalization, profiling and content creation. SMEs see the potential in using customer data more effectively but struggle with current systems. For now, AI mainly strengthens existing customer relationships instead of creating completely new markets.
	4.2.3 Strategic impacts	Executives see AI as a strategic necessity that will be soon integrated to every business operation. It changes pricing logic, business models and value creation, where they shift from labor-based to outcome-based services. AI also starts organizational redesign which requires new roles, skills and leadership capabilities.

4.3 Managerial challenges	4.3.1 Cultural attitudes	The biggest challenges are human and cultural. Employees don't have enough time and ownership to experiment which lead to uneven adoption. Open but unstructured experimentation causes fragmentation. Skepticism from management and generational gaps slow cultural change.
	4.3.2 Technical & financial difficulties	Financial constraints are minor compared to strategic and coordination related challenges. Fast technological change creates uncertainty about investments. Success depends on how leaders can find purpose for the AI tools.
	4.3.3 Data protection	Concerns about data privacy slows AI adoption. SMEs follow strict data practices and laws, but human behavior can still cause problems. GDPR and EU AI Act can be confusing and forces SMEs to stay cautious. It affects their willingness to innovate while complying with the laws.

Table 2. Research findings summarized

5 Conclusions

5.1 Theoretical contributions

The empirical findings support the argument from Davenport (2018) and Stryker (2024), that AI primarily improves the operational efficiency by automating repetitive tasks and optimizing customer service processes. In the cases, AI streamlined administrative routines and customer communication, which verifies the theoretical implication that AI works as an enabling feature for productivity. A big theme that emerged regarding the use of AI as an assistant for coding, confirms Peng et al. (2023) study showing that it increases the productivity in coding related tasks significantly. These findings complement Barney's (1991) Resource-based view by proving that the improved efficiency with AI in SMEs comes less from the technology itself and more from employees' skills and experience using it. The ability to experiment and fit AI into daily work is valuable strength that can give advantage.

However, the results show that the process optimization in SMEs happens mainly with the employees' experimentations rather than it being strategically organized from the top. This differs slightly from Davenport's (2018) description of AI implementation being usually initiated by the management, while the study showed evidence in it being more employee driven. This type of employee driven experimentation reflects the micro foundations of Teece et al.'s (1997) dynamic capabilities. Learning processes that emerge individually show how adopting and absorbing opportunities can happen informally in SMEs, which expands the theory by how new skills and improvements can come from regular employees and not just from managers.

In addition, the improvements noticed in customer service with AI tools reflects well with Huang and Rust's (2022) thinking of AI used in service personalization and increasing ability to react to inquiries better. However, unlike their view where AI creates autonomous and self-learning systems, the findings show that human surveillance is still necessary especially regarding the tone when answering, context and empathy. This

shows a slight contradiction that in SMEs, automation must be adjusted to them and complemented with human control. Therefore, the findings do support Strukelj and Dankova's (2025) views on how successful AI use in SMEs is based on dividing thinking related tasks with AI and humans, where AI handles pattern recognition and humans handle more complex judgements. The interview results prove that this type of balance develops slowly through daily experimentation rather than well considered planning, therefore emphasizing that capabilities are built by adapting.

The study partially supports Verman's (2024) and Mucci's (2024) arguments where AI improves managements predictive capabilities and data-centric decision making. All executives recognized the potential in data-driven management and forecasting possibilities. However, the findings question the assumption from theory that data-centric forecasting leads automatically to better decision making. Findings show that most companies didn't have enough quality data or knowledge to reliably being able to trust AI's interpretation. Rather than relying on AI's interpretation, the results should act as supporting information. While the theory emphasizes the possibilities of AI's predictive capabilities, this research showed that executives are still reluctant to trust AI in important decision making. This contradiction is a result from the importance of human intuition and control. The findings show that companies need the ability to understand and use new knowledge. In SMEs weak data skills limit this ability which means that developing strong AI skills depend as much on learning culture as on having good data.

The findings support Naeem et al.'s (2024) claims that AI enables the creation of new services or products. Many companies used AI tools to design and produce new services and conceptualization. However, the results show that the innovation in SMEs is rather evolutionary than disruptive. AI was used to develop and improve existing services, rather than creating completely new business. This matches with innovative capacity of the dynamic capabilities, where companies focus on improving and reusing what they already have. From Resource-Based view, AI helps small companies to use their

resources better while slowly finding new opportunities. Therefore this has a slight contradict with Sjödin et al.'s (2021) description on AI as a transformative, since findings suggest that in SMEs, the transformation comes gradually from step-by-step improvements rather than from radical changes.

Cantrell et al. (2025) and Senoner et al. (2024) introduced AI as a sparring partner that improves the creativity and reflection, rather than replacing human thinking and reasoning. This was highly supported by the findings from the interviews. Most executives use AI tools for ideation, drafting and problem solving. Results show that the cost of ideation, even if the results are not used, is so low that it's worth experimenting. This leads to a contrary on the traditional assumption that new technology requires large financial investment, as Davenport (2018) implied. AI tools are often affordable and easily accessible. Most of the interviewees didn't see the cost of AI tools or systems as a barrier of adopting AI.

However, the findings indicate that although AI tools are relatively cheap, allocating resources can be challenging, especially for smaller companies and SMEs. Executives described resource related challenges as difficulty to dedicate enough time for strategic changes and briefing employees for AI, since there are a lot of other important operational issues in those type of growing companies. This agrees with Fabrizio et al.'s (2022) views. They stated that if companies want to develop their dynamic capabilities, they must carefully consider where they invest in. From Resource-based view, this mean that it is difficult for companies to use their resources effectively to improve their skills, especially for SMEs who have limited resources. However, even small investments in training can bring big benefits. These challenges also match with the TOE framework. The framework indicates that companies can overcome these challenges if they have open culture and motivation.

The interview results support Oldemeyer et al. (2024) and Sanchez et al. (2025). They both highlighted that it's important to have open minded leadership, and that

companies should build a positive organizational culture towards AI. They also stated that some employees can fear that AI steals their jobs, but that wasn't the case in the interview results here. However, the executives' results still proved that they need supportive atmosphere. Therefore, the results challenge the theoretical views on new technology bringing automatically cultural readiness and excitement. From the Technology-Organization-Environment framework, this shows that the organizational and cultural readiness are more important for AI adoption than technology itself or outside factors. The study adds to the framework by showing that in SMEs, an open and flexible culture is the most important thing with technological change even when resources are limited.

The findings directly form a foundation for evaluating the AI's effects on competitiveness in SMEs. This section will reflect empirical findings to Porter's competitive strategies and Five Forces, as well as dynamic capabilities by Teece, Pisano and Shuen. Although these theories provide views that complement each other, Porter's themes focus on external positioning and Teece et al.'s more on internal adaptability.

The interviewees described AI as a tool that increases quality, speed and service personalization, but they didn't consider it as a source of cost leadership yet. Interviewees A and C highlighted that AI has improved responsiveness and communication toward customers and that AI tools offer a customized content and documentation for customers. Interviewees D and E also highlighted AI's role in improving efficiency and services, which allow companies to produce better results with same or fewer resources. There results align with Porter's (1980) and Schwaeke et al.'s (2024) views on how differentiation is the most working strategy for knowledge intensive companies, rather than price reduction.

However, the findings seem to expand Porter's (1980) model by showing that AI-driven differentiation is not only based on products but also based on processes and reliability. Interviewees C and B both stated that the responsible handling of customer data is

important, and customers appreciate the transparency on it, which strengthens the customers' trust, which also support the views from Sullivan and Wamba (2022). This means that ethical transparency and data-use could become a form of differentiation, that could be named as ethical competitiveness for example. The idea of ethical competitiveness updates Porter's (1980) differentiation strategy to digital age by showing that using data responsibly and transparency can give new kind of competitive advantage. From the Resource-based view, ethical practices become a resource that is based on trust, which help companies to stand out.

At the same time, findings question Porter's (1980) concerns about having to choose only one strategy, otherwise the results not necessarily being optimal. Findings conclude that SMEs combined focus and differentiation strategies, even unconsciously. Interviewee A, B and E's companies applied this in their fields, in software, consulting and education where niche expertise was complemented by AI. These companies didn't have to choose their specialization, because AI seemed to enable them to pursue both simultaneously. This supports Le Dinh et al.'s view that AI allows smaller firms to keep their specialization while differentiating digitally. For example, Interviewee B's case show that focus-based differentiation has been proven to work. His company operate in digital learning field where they use AI for personalized teaching, training material and content creation. Nonetheless, it shows that operating in niche field and offering targeted solutions align with Porter's (1980) focus strategy, where competitive edge comes from specialization in a small market.

On the other hand, cost leadership with AI didn't receive that much of an empirical support. Although interviewees D and E mentioned clear improvements for efficiency, they were concluded as secondary outcomes rather than strategic goals that decrease costs. This differs from Porter's (1980) idea that competitiveness can primarily come from cost advantages. The findings show that instead, there could be a shift toward value efficiency, where companies can produce higher value without having to increase operational costs.

Empirical findings and Porter's (1979) Five Forces framework demonstrate how AI slowly changes the industry structure and competitive pressure. Firstly, the theoretical framework show that buyers gain power when there are a lot of options that can be easily compared together. AI can make the comparison more intense but also push companies to personalization in order to defend their value. The results show support to both effects. Interviewee B brought up that without AI their services would look outdated, which reflects to rising buyer expectations. At the same time interviewee E's AI powered assistant improved the responsiveness for customers. The results are mixed but matches Porter's (1979) views on customer expectations. At the same time, both of these results support Porter's (1979) views on threat of substitutes and existing rivalry, since it's essential to differentiate or otherwise the services would seem outdated. It's good to note, that in order to keep the threat of substitutes low and rivalry in control, companies need to adopt technological renewal continuously. AI also affects the power of suppliers. Interviewee C mentioned that AI tools and integrations are often dependent on third parties, which lead to new supplier dependencies and can lead to data security risks. This reflects also to Sullivan and Wamba's (2022) view that digital systems create new power positions.

The findings didn't completely agree with Porter's (1979) views on threat of new entrants. While AI tools improve competitiveness, they also lower the barrier for new entrants, because AI tools are easily accessible for everyone. Interviewee B explained that this is the case exactly, when competitors have the same technology available. Interviewee stated that in small markets, bigger advantages form slowly. Therefore, the results challenge Porter's (1979) views that new technology works as a competitive advantage and barrier to competition. In AI's context it seems like the advantage forms slowly when companies learn and adapt to it.

Porter's framework shows how AI changes the competition between companies, but dynamic capabilities show how companies can adapt and grow. The interview results

showed interesting results regarding dynamic capabilities. The results proved that AI adoption happens gradually. This supports Fabrizio et al. (2022) who stated that companies need to stay adaptable and learn all the time, if they want to get advantages. Interviewees E and D emphasized that if companies want to adopt AI properly, they need to change their way of working and start experimenting more with how AI and humans can be combined. This shows that adaptive capacity is important when companies start to change existing processes with new technology.

Interviews also brought up that employees have learned to use AI tools themselves by experimenting and sharing their experiences with each other. None of the interviewed companies have had formal training in AI yet. This kind of self-learning differs from Mikalef and Gupta's (2021) model, which highlighted structural learning. The findings therefore suggest that SMEs can improve their absorptive capacity when they have open culture and support curiosity.

In terms of innovative capacity, the results show that AI helped with new service concepts and improved problem-solving, but didn't really create new completely innovations. Interviewees A and E described that AI has helped them to create new ideas, design content or improve testing processes. This confirms Naeem et al.'s (2024) views on those processes, but don't support their claim on AI-driven transformation in that extent. Results conclude that innovations in SMEs are more incremental and developing over time rather than completely reconfiguring.

Overall, the findings show that AI works both as a strategic resource and strengthens learning, adaptability and innovation. In small businesses new capabilities grow through daily work and experimenting rather than from formal strategies, which add details to dynamic capabilities by showing importance of informal learning. Combining Resource-based view and dynamic capabilities gives clearer understanding on how AI helps SMEs to stay competitive even with their more limited resources.

5.2 Managerial implications

Business leaders should view AI as a strategic capability, not just as a tool. The results showed that the biggest benefits come from small and well-defined doing that support everyday work, rather than doing broad digital transformation projects instantly. Companies should adopt AI step by step, because it supports learning and reduces cost and resistance related risks. Every implementation should be tied to clear business objectives and measurable performance indicators that proves that AI creates real value rather than being a technological experiment. Over time these will improve their capabilities step by step and improve competitiveness.

One of the biggest managerial challenges was how companies couldn't fully use quality data. AI tools can't work and produce wanted results properly if they can't use quality data that is structured well. Therefore, companies should invest more in proper data management practices before they move to advanced tools. Practical ways to do this is to start gather information from existing systems, such as ERP and CRM systems and make sure that the data there is good quality. If companies can see data as a real asset, they can improve their analytical capabilities and make better data-based decisions. Companies should focus on ethical use of data and comply with current regulations. This build trust among other stakeholders, which can work as a competitive differentiation. This leads to one of the clearest potentials for competition, that comes from improving customer understanding and personalization. Managers should use and implement AI tools to analyze customer behavior and tailor services or products, because that's the direction AI is heavily moving towards. Different chatbots, recommendation engines or AI-assisted support systems can improve responsiveness and free employees' time for more productive tasks. Data skills are valuable resources that can help companies to keep competitive advantage.

Companies' management should communicate clearly that AI's purpose is to assist human work, not replace it. Many SMEs still face hesitation or fear related to the usefulness of AI, therefore employees' trust and attitudes for AI are in decisive role whether AI adoption is successful or not. Especially important is to encourage employees for experimenting with AI and to provide training opportunities for efficient use of AI in different situations. This allows employees to gain confidence and understand AI's value in their own work and roles. Management should lead by example and show openness on using AI in their decision-making and everyday work. This openness can significantly reduce resistance and improve motivation especially in smaller companies where leaders' behavior has impact on companies' culture. This kind of leadership is key in creating open organization culture.

Finally, thing that managers should consider and design, are workflows that clearly defines what work tasks belongs to humans and what AI can handle. This doesn't only clarify responsibilities but also supports learning when employees get more confidence when they integrate AI into their routines. This is where communication inside the company is key factor, when training employees on how to use AI, which information can be used, and how human judgement still is kept essential.

5.3 Limitations and suggestions for future research

Even though this thesis offers valuable information on how AI affects SMEs operations and competitiveness, there are still some limitations. First off, the study is based on qualitative research that consist from interviews with five executives that represent Finnish SMEs and operate in IT and digital sector. Even though the participants offered in-depth and detailed views and insights, the relatively small sample size limits the generalizability of the findings. The findings represent experiences from the specific industries and managerial positions. Naturally, these might differ from other industries' companies. In addition, the qualitative approach on this study focuses on the subjective experiences and interpretations. Although this kind of approach is widely used and gives the opportunity for rich understanding, it still relies heavily on the researcher's way of

analyzing the results. For future research, studies could expand the sample size and include other industries as well. That kind of approach would give interesting results on the maturity of AI adoption in different industries. Also quantitative research approach could be used in some research, that purely follow companies' situation before AI adoption, and follow the change of KPI's during the use of AI.

Also, geographically the study was limited to Finland and Finnish companies only. This can have an effect on the results depending on the economic conditions and overall attitudes towards AI. Broader research that includes other countries could have revealed interesting insights on how different environments affect AI's use in companies at the moment in different regions. Therefore, for future research purposes, a valuable direction could be to include multinational companies, where results can be compared regionally on how far AI adoption is and what circumstances effect those.

In addition, the rapidly evolving nature of AI causes some limitations. AI technologies and businesses develop quickly, and the overall state of Finnish economy is uncertain, which means that some results that emerged from the interviews might outdate when new tools and regulations come up. So, the results describe the situation of AI adoption in 2025 rather than permanently. Because of the quick evolvement of AI, future studies could be conducted over time, where companies are followed for several years. That would make it possible to follow how AI strategies evolve and what kind of new challenges come up over time, and how those are overcome and turned in to benefits.

Finally, the data was collected from managerial viewpoints, which has its own limitations. Although this matches the original purpose of the study, which focuses on top management insights, it doesn't take other employees' perspectives who use AI daily into consideration. Therefore, it offers an opportunity for future research that could offer more comprehensive understanding on human-AI collaboration.

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Appendices

Appendix 1. Interview structure

Background information:

- Could you briefly introduce your company and your role in that company?
- How would you briefly describe the current use and maturity of AI in your company?

RQ1 related questions. How has AI affected your company's processes and operations?

- Has AI been used to automate and optimize processes? If yes, what?
    - What concrete benefits or changes have you notices in operational efficiency?
- How do you utilize data-driven management or business intelligence analysis?
    - Has AI been used, for example, for data-analysis, forecasting, reporting, or as other support for decision-making?
    - What functional improvements have you noticed as a result of adopting AI?
- Has AI been used as "everyday assistant"?
    - Has AI been implemented in content creation, ideation, or communication for example? In what ways?
    - Can you name one or more AI tools you or your company are using?
- Does AI support customer understanding or the development of customer experience?
    - Do you use chatbots for example? Do you use AI to analyze customer data?
- Have you had AI influenced decision making in your company? If so, what kind of AI-based decisions have been made, and have they been successful?
- How would you evaluate the changes or improvements from AI in your own work and of other company management?

RQ2 related questions. How has AI been used in developing new business?

- Has AI been successfully used to create new products or services? That is:
    - For example, a new product/solution/service in which AI is an essential component?

      OR
    - Has AI been used purely for the development or ideation of new business?
- Has AI enabled new markets, customer segments, or revenue streams? That is,
    - Have new business opportunities emerged from offering AI-based products, solutions, or services?

      OR
    - Has AI been used purely as a tool for finding new customers or markets?
- Do you feel that the use of AI or the business opportunities it brings will shape your company's strategy or business model in the future? In what way?

RQ3 related questions: RQ3: What are the management's experiences regarding the most significant challenges on using and adopting AI?

- What kinds of challenges or obstacles has your company faced in adopting AI?
    - For example: financial, technical, organizational culture (attitude-related) challenges, lack of skills, etc.
- Have there been concerns related to data protection, ethics, or the governance of AI?
- What are employees' attitudes toward and competencies in learning and using AI?
    - Is AI perceived more as a helpful tool or as a threat, for example something that "takes away jobs"?
    - In your opinion, what kinds of actions could influence employees' attitudes and skills regarding AI?
- What are the management's main thoughts or concerns about the adoption or expansion of AI in your company in the future?
- Is AI part of your company's long-term plan?

    - Which organizational levels or areas do you believe it will affect in the future?

Summary:

- Based on your experience, what advice would you give to other SMEs that are planning to adopt AI?
- Have you identified situations where AI has clearly influenced your company's competitiveness?
- In which areas of AI do you believe there will be the biggest impact on improving your company's competitiveness in the future?
- Is there anything related to AI or competitiveness that we haven't discussed and that you would like to add or talk more about?