Digital maturity in Finnish family-owned SMEs -

Current state and impact

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Abstract: As digitalization continues to have a huge impact on businesses and competition, some companies gain competitive advantages whereas others are left behind. Previous research suggests that more digitally mature companies also perform better financially, and that family businesses might be lacking in digital awareness. This study aims to examine the impact of digital maturity on Finnish SME family businesses and examine the current awareness of digitalization possibilities.

The thesis was conducted using quantitative methods. Digital maturity was assessed with a closed-ended web survey, and regression analysis was used for assessing the correlation between digital maturity and financial profitability. Data was collected through a web survey which received 114 complete answers, out of which 97 were by Finnish SME family businesses. Respondents were mainly entrepreneurs, business owners, and C-level executives. Additionally, financial information was collected for 28 companies through Suomen Asiakastieto Oy's and Finnish Patent and Registry Office's databases.

A strong positive correlation between digital maturity and financial profitability could not be confirmed. The analysis and its reliability were affected by the small sample size of companies with publicly available financial data. Finnish SME family businesses seemed to be generally well aware of digitalization possibilities, except for having a distinct digitalization strategy and measuring its goals, which divided the respondents to some extent. Digital business was deemed important for the overall success of the businesses, with many companies planning on investing more in digital business initiatives within the next year.

Digital maturity's impact on Finnish family businesses has not been researched before to a great extent. This study serves as a notable addition to the topic with a more extensive sample of 97 surveyed respondents and helps to clarify the current status of digitalization in Finnish SME family businesses.

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Chapter 1: Introduction

1.1 Background

Family businesses form a crucial part of the economy and act as major employers throughout the world. They make up more than 60% of all companies in Europe (European Commission, n.d.). According to the Finnish Family Business Network, in 2014 of the approximately 274 000 companies in Finland, about 62 000 are family businesses employing over half a million employees. This accounts for some 40% of all employees in the corporate sector. Family businesses have some notable differences when compared to companies with different ownership structures. Tourunen (2009) and Leskinen (2018) propose that small and medium-sized family businesses are more solvent and self-sufficient than their non-family-owned counterparts. This necessitates research specifically on family businesses.

The definition of family business lacks consensus among researchers. According to Litz (1995), a research problem in undertaking family business research is what exactly is meant by the concept of the family business. The definition of family businesses is crucial to the research, both for achieving generalizable results, and for ensuring that some key insights are not overlooked. Definitions of family business do not just tackle the question of ownership, but also other factors that define the whole scope of the research field. In some studies, up to 79% of all companies were classed as family businesses (Chrisman, Chua, Litz, 2004), whereas in others the figure was merely 15%.

While a single definition is not accepted worldwide, international effort to standardize the term has been made. The European Commission (n.d.), defines family businesses as companies having the majority of decision-

making rights in the possession of either the business's establisher, the one(s) that has/have acquired the share capital of the business, or in the possession of their spouses, parents, child, or children's direct heirs. Also, at least one representative of the family or kin must be formally involved in the governance of the firm. Additionally, listed companies need to have the person who established or acquired the company, or their families or descendants possess 25 percent of the decision-making rights mandated by their share capital to be defined as a family enterprise. The same definition is also used by the Finnish Family Business Network, an organization that includes about 450 Finnish family businesses. Since the same or very similar definition is used on both a global and national scale, the definition by the European Commission will also be used in this thesis.

Digitalization as a phenomenon is an international megatrend, and Finnish companies cannot fall behind in the transformation of industries. While digitalization has significant implications for the business world, it also affects the rest of society, as it is a multi-dimensional phenomenon. The pressure to advance the use of digital solutions does not come just from inside the companies, but also due to the ever-tightening competition. Digitalization has even been described as a race (Scullion, 2022). Poorly understood or realized digital capabilities and opportunities can also lead to a higher turnover for key personnel. According to Kane, Palmer, Nguyen Phillips, Kiron, and Buckley (2017), the risk for vice president level leaders leaving within a year is over 15 times higher in companies where the opportunities to develop in a digital environment are not provided. For the sales staff, the risk was over sixfold. The competitiveness brought by digitalization is not limited to competition for consumers, but also for skilled employees.

According to Rogers, Pérez-Moiño, and Poncela. (2021), the COVID-19 pandemic affected the digital market evolution by compressing several years' worth of development into only a few months. Increasing concerns about privacy regarding third-party cookies have also impacted digital marketing as an industry.

Some research on the subject has been conducted both on an international and national scale. Cravotta and Grottke (2019) have explored the opportunities and challenges of digitalization specifically for German family firms. PWC's Global Family Business Survey (Bartels & Englisch, 2021) clarifies digitalization's effects on family businesses both in an international and Finnish context, while Elisa Oyj and Suomen Yrittäjät (2021) have commissioned Prior Konsultointi Oy to research digitalization's effects on the success of Finnish SMEs. Westerman, Bonnet, and McAfee (2012) conclude that more digitally mature companies were also performing better financially in their study of almost 400 large international companies. Rogers et al. (2021) claimed that companies effectively utilizing the opportunities brought by digital marketing, i.e., the more digitally mature companies, can be more than 30% more cost-effective than their counterparts. Additionally, the more digitally mature companies increased their income by an average of 20% more than others. The study also showed that digitally more mature companies had a considerably higher likelihood of market share growth.

In the study commissioned by Elisa Oyj and Suomen Yrittäjät, Kivikoski and Kauppinen (2021) claim that only one in ten companies has identified how digitalization could bring new business opportunities. This could present the lack of interest, confidence, or knowledge towards digitalization, even though the growth possibilities and the realized benefits seem vast. There might also be a gap between the perceived level of digital maturity and the actual level. According to Korkiakoski and Stenqvist (2021), digital capabilities are perceived to be especially high in Finland: fifty-eight per cent of family businesses in Finland believe that their digital capabilities are strong, while the number internationally is only 38%.

Kivikoski and Kauppinen (2021) indicate a significant link between digitalization and the success of SMEs. According to their study, besides the company's growth target, the next most important factor explaining the degree of digitalization of the company is the entrepreneur's attitude and interest in digitalization. According to Kivikoski and Kauppinen, the surveyed Finnish SMEs estimate that up to 17% of their growth comes through

digitalization, making it a major channel of growth. The reported growth through digitalization was even greater at 35% for companies with higher base growth (over 30%). Kivikoski and Kauppinen (2021) also show that by utilizing digitalization, 68% of Finnish SMEs have improved their customer experience, 67% have expedited receipt of payments, 67% have improved their products or services, and 66% have streamlined their processes. Kivinen and Kauppinen also highlight that the use of digital tools and services by SMEs has doubled in the last two to three years (up to 2020), with digital investments primarily focused on video conferencing tools. As these two studies do not differentiate between the companies' ownership structures, the results cannot be considered directly comparable to family businesses, but form a solid basis for this study, nonetheless.

Finland could be argued to be one of the world's most digitally advanced nations, which further increases both the value and the importance of digital capabilities as a competitive advantage. Digibarometer created by Mattila, Pajarinen, Seppälä, Mäkäräinen, and Neuvonen (2021) measures the utilization of digitalization, and in the latest version, Finland was ranked second highest, only below Denmark in the overall digital capability index. The digibarometer consists of 22 countries, and 36 variables. According to Mattila et al., Finland has been among the top three countries on the digibarometer for eight years in a row. Although this digibarometer does not give an overall picture of the world economy due to the small number of countries involved, it still gives a good picture of Finland's digital competitiveness compared to, for example, Sweden, Norway, and Denmark. While the top positions are dominated by the Nordic countries, the scores are very even, and Finland has a slim lead over the countries below it. Maintaining and investing in digital capabilities are ongoing processes without a determined end goal. To maintain the current position, a continuous effort must be put into realizing and identifying new possibilities, as well as improving the current weaknesses.

1.2 Problem formulation

While family businesses form an important part of the economy, their contribution to the digital economy still lacks research (Basly & Hammouda, 2020). Digitalization and digital maturity have not been researched enough among Finnish SME family businesses to give an accurate picture of the current situation. This can lead to a lack of understanding of the companies' current digitalization levels, which in turn might hinder the identification of opportunities for future investments and development. Basly and Hammouda propose that a reason for this might be that the primary characteristics of family businesses and the features of digital entrepreneurship might be conflicting. However, the identification of development targets might not be the problem, but rather the implementation of such developments.

Hong, Lee, and Tay (2017) show that while most family businesses name digitalization as their main concern, only around a half of them have a strategy to address this. Even more alarmingly, 13% of the surveyed family businesses do not even see the need to have a digitalization strategy. The need for digitization must first be identified to examine it further. Assessing the level of digitalization, or digital maturity, in turn, can help to identify potential strengths and areas for both future research and investments. According to Rossman (2019), there is a lack of measurement framework for digital maturity in scholarly work.

1.3 Objective and research questions

This study aims to explore the current state of digital maturity in Finnish SME family businesses and examine the impact it has on them through exploratory research. The impact will be investigated by surveying the current awareness of digitalization's possibilities, and by analyzing the correlation between digital maturity and financial viability in Finnish SME family businesses, as it has not been thoroughly researched before. Digitalization has revolutionized and transformed many industries, but various researchers still use different metrics and models in measuring the level of digitalization, the digital maturity. The extreme pace of development has made measuring digitalization in a generalizable way more and more complicated While this thesis may not provide any concrete and all-encompassing recommendations applicable on any single business's investment or actions, it will serve as a basis for future more in-depth research, and potentially highlight the importance of digitalization for family businesses.

Some related research areas, such as the returns on investments in digitalization have raised more interest, as has digital transformation in general, and some of the more concrete possibilities with it, such as SEO, social media marketing, and e-commerce. The research field lacks a holistic view of the impact of the level of digital maturity when considering SME family businesses. SMEs, in general, have also raised some interest, as have family businesses.

By examining the impact that different levels of digital maturity have on family businesses, this study will aim to help companies map the impact of digital maturity on their own business, and potentially develop their business based on it. Additionally, it will aim to provide a deeper understanding of what the term digital maturity means to family businesses. The objective of the thesis is to answer the following research questions:

1. What is the current state of digital maturity of Finnish SME family businesses?

2. Does higher digital maturity have a positive effect on the financial performance of Finnish family-owned SMEs?

3. Have the possibilities of digitalization been acknowledged in Finnish SME family businesses?

1.4 Focus and delimitations

The contextual setting for this thesis is limited to only small and medium-sized Finnish family businesses. This is to make the results of this study more applicable throughout the selected target group. In this study, I will use the European Commission's (2003) definition of small and medium-sized enterprises: up to 250 employees and an annual turnover of under 50 million euros, or a balance sheet of under 43 million euros. While the scope of this study will be limited to only Finnish family businesses, the challenges and opportunities presented might reflect beyond the Finnish scope and be useful in future research on the subject.

The reason for omitting the examination of large companies in this study is the fundamental differences between them and smaller companies concerning digital maturity and the existence of entire departments specialized in tackling specific issues with digitalization. It would therefore prove difficult, if not outright impossible, to draw meaningful conclusions between the results of a company consisting of only one employee and a conglomerate of thousands of employees. Concentrating on companies of limited scale, more precise benchmarks by for example industry can be created.

1.5 Methodology

Quantitative methods have been chosen for this research. Casula, Rangarajan, and Shields (2020) define quantitative methods as using deductive logic, as well as hypotheses and models to explain, predict and establish causation. Data will be collected mainly with a web survey sent to Finnish family businesses. The survey will assess family businesses' digital maturity, and it will be analyzed together with the companies' publicly available financial information. Previous research and models on digital maturity will be used as the basis for measuring digital maturity. As exploratory research, this study will aim to discover what is currently happening, as well as try to assess the phenomena in a new light (Saunders, Lewis, & Thornhill, 2009). The survey will have four different categories, as well as general questions towards the end. The digital maturity of companies will be given a value of 1 to 5 for each category based on the answers to the survey, and their average calculated to give a comprehensive view of digital maturity. The companies' digital maturity will be classified on four different levels, which are then used to calculate an average for the company.

To reach reliable and generalizable conclusions, responses from at least 80 companies are sought for this study. According to Bryman and Bell (2015), reliability and validity are the two most prominent criteria in the evaluation of business economics and management research. Reliability is about how reliable and repeatable the survey is, i.e., that the survey can be repeated in similar conditions so that it shows the same results. The more the reader can trust the repeatability of the result, the higher the reliability of the survey. Important for the scientific credibility of the survey is that the data used by the survey can be checked

According to the Finnish Patent and Registration Office (n.d.), limited companies must file their financial statements with the Finnish Trade

Register. The registered financial statements of companies are public information and can be accessed or bought directly from the Finnish Patent and Registration Office's *Virre* service. Suomen Asiakastieto Oy has also a database of most companies' financial information.

The survey will assess the level of digitalization in four different categories (Management and strategy, Digitalization and technology, Personnel and communication, and Economy) of the companies, to give a comprehensive view of digital maturity. For example, the digital maturity of the management, and digital maturity of the information systems are assessed separately, in different parts of the questionnaire.

1.6 Key definitions

Family business - For the purpose of this research, family business (and synonyms such as family firms, family-owned businesses, and family companies) will be addressed with the European Commission's definition - see 1.2 - Family Businesses

SME - Small and medium-sized enterprises. The main determining factors are staff headcount, and either turnover or total balance sheet. SMEs employ up to 250 employees and have an annual turnover of under 50 million euros, or a balance sheet of under 43 million euros (European Commission, 2003)

Digitalization - "The process of converting something to digital form." (Merriam-Webster, 2021).

Digital maturity - The level of digitalization, a measure of an organization's ability to create value through digital. Describes the process and current level of digitalization, and the bar for digital maturity continues to rise (Gill & VanBoskirk, 2016)

Profitability - Yritystutkimus ry (2017) defines profitability as the financial result of a business. Profitability can be measured in either absolute or relative terms. Absolute profitability is simply measured as the difference between operating income and expenses, whereas relative profitability describes the in relation to the capital invested in the company. In this study, KPIs ROI and EBIT% will be used.

1.7 Disposition

The varying definitions of the term *family business* can lead to the limited generalizability of the research across the board. The chosen method of research for this study has its own delimitations; The sample size is limited but should still provide a high enough confidence level to draw conclusions to meet the research questions. There can also arise differences in digital maturity between different industries and companies of different sizes. The theory that is built based on the results may not be generalizable and therefore applicable to individual industries or geographical areas.

Chapter 2: Literature review

In this chapter, the key features of family businesses and what sets them apart from companies with different ownership structures are presented. Family businesses have raised considerable interest for a longer time, leading to a somewhat saturated research field with lots of specific phenomena being covered. It is worth noting, however, that family business studies have overlapped with other disciplines, such as psychology, law and sociology (Zahra & Sharma, 2004).

I will also present various previous studies on digital maturity and examine some of the models and indexes used to measure digital maturity. The model used in this study is anchored on pre-existing studies and models, but it will also be customized to better fit the scope of this study. Finally, two research hypotheses are presented.

2.2 Family businesses

Family businesses have several unique aspects compared to companies with other ownership structures. Some of these may impact the business positively, but there are also some challenges caused by the intertwining of ownership and management. According to, Zahra and Sharma (2004) family business research has become an integral part of entrepreneurship research. Litz (1995) proposes the following as defining features of family businesses: the ownership and or management being concentrated within a family unit, and that the family members seek to achieve, "maintain, and/or increase intraorganizational family-based relatedness". Next, family businesses' opportunities and challenges, power transfer, and how interpersonal conflicts in family businesses can affect the business are discussed.

2.2.1 Opportunities for family businesses

According to Stewart (2003), relatives can provide not only the initial capital for a family business but also help with living expenses during startup. Stewart claims that relatives can also pool their resources to generate enough capital. According to Schulze, Lubatkin, and Dino (2003), altruism among family members can encourage both loyalty and commitment toward the family and the business.

Family businesses may have increased organizational flexibility due to higher employee autonomy and lower formalization (Batt, Cleary, Hiebl, Quinn, & Rikhardsson, 2020). Owner-managers often prevalent in family businesses do not have to utilize as lengthy or extensive approval processes when compared to non-family businesses. Batt el al. claim that even though family businesses have lower research and development budgets, they still generate more new products and patents than non-family businesses, which could mean that family businesses are more efficient innovators.

2.2.2 Challenges for family businesses

Schulze et al. (2003) and Schulze, Lubatkin, Dino, and Buchholtz (2001) propose that family businesses may suffer from a unique kind of problem caused by altruism: certain kinds of business conflicts may be more difficult to resolve due to relationships between family members. According to Schulze et al. (2003, 2001), tackling and eradicating unwanted behavior can also be problematic, but can still be addressed, for example, by pay incentives.

The success of a business could be negatively affected by hiring management from a smaller, more limited pool of family members and others from closed circles. According to Wong and Kleiner (1994), nepotism can expose a business to family fights and sibling rivalries. They also argue that

this can cause a business to not only lose valuable executives but also to fail to attract new ones.

Innovativeness in family businesses differs from other types of companies. According to Batt et al. (2020), innovation is more likely to happen incrementally rather than radically in family businesses. This could lead to slower reactive capabilities to rapidly changing market conditions or customer needs.

2.2.3 Transferring power in family businesses

Zahra and Sharma (2004) claim that leadership succession is one of the most challenging organizational tasks. While Litz (1995) mentions the availability of family members for generational transfer in defining family businesses, this is not always the case. According to Ward (1997), between one-third and one-half of all family businesses do not currently have available successors. Ward also mentions that there are many pressures and doubts next-generation leaders must cope with. Additionally, Ward argues that the potential successors do not just need motivation, but also a skill set that fits the requirements of the current business environment.

According to Barnes and Hershon (1976), the transfer of power from the first to second generation seldom takes place while the founder is on the scene and alive. They argue that giving up the company to the next generation can feel extremely difficult for the founders, leading to grasping the reins of the family business even tighter. A reason for this, as proposed by Barnes and Hershon, is that the different generations have fundamentally differing opinions on how to run the business, further limiting the possibilities for cooperation and co-management.

Barnes and Hershon (1976) argue that there are several pressures and interests in family businesses, both inside and outside of the family and the

business. Not all family members are necessarily inside the business, whereas not every family business employee is a part of the family.

2.2.4 Differences caused by ownership structures

According to Chrisman et al. (2004), most scholars agree that the separation of management and ownership creates costs that perhaps would not exist if they were combined; these costs are called agency costs. They further clarify this by explaining agency theory "that managers who are not owners will not watch over the affairs of a firm as diligently as owner-managers." While altruism might mitigate some of these costs, it might create others such as free-riding family members or entrenchment of ineffective or even predatory managers (Chrisman et al.)

As Chrisman et al. (2004) explain, family businesses pursue not just economic, but also non-economic goals. This might result in some actions being considered as agency problems in companies with other ownership structures but not being considered as problematic in family businesses. They conclude that family involvement may decrease overall agency problems.

2.2.5 Interpersonal conflicts

Family businesses differ from companies with other ownership structures by their deeply interwoven social structure, which includes not just professional and personal relationships but also inter-family relations. Barnes and Hershon (1976) claim that the coexistence of younger and older generations in top management often leads to years of conflict and tension. Ward (1997) mentions management's sibling relationships as a possible challenge, that could even prove fatal to the existing ownership structure were there to occur some serious discord. Siblings' partnership split-ups can even cause a

serious decline in capital and growth potential (Ward). Olson et al. (2003) also claim that built-up tensions within the family can lead to a business suffering.

To counter this, Ward proposes that the family business teammates must continually invest in their relationship by discussing issues, compromising, and trying to reach a mutual understanding. One could argue, however, that this would also be the case in companies where the management does not consist solely of family members. According to Olson et al. (2003), it is notable that the number of family employees had a net positive effect and a much greater effect on revenue than other variables. They further clarify that there exists a mismatch between perception and reality with employing the owner's relative, as each additional family member employed brought more than a hundred times more annual revenue (0.20%) than an additional unrelated employee.

Different goals and values may create friction between family members, especially as both the family and the family business grow older (Ward, 1997). Ownership in non-family-owned businesses is both liquid and comparatively short-term for the shareholders. However, an important factor raised by Ward is that the ownership of a family business carries not just a major portion of its owners' wealth, but also emotional significance. Murdoch and Murdoch (1991) explain this by proposing that selling out a family business might both feel disloyal towards one's heritage and cause worry about receiving full value for one's shares. They also claim that staying with one's investment might result in one feeling entitled to special rewards and acknowledgment.

2.3 SMEs and digitalization

A challenge faced by many SMEs is that they have limited time and resources to rethink and innovate their business models (Bouwman, Nikou & de Reuver, 2019). Kergroach (2020) explains that SMEs may be lacking the communication, the management, or digital knowledge required for innovation and technology adaptation. Further, data protection and cybersecurity may also be lacking, as the smaller scale and lack of greater volumes of data necessitates less overall data infrastructure. However, according to previous research on Finnish SME family businesses, they seem to be more profitable and self-sufficient than otherwise owned enterprises of a similar size. According to Tourunen (2009), small enterprises were clearly more profitable than companies with other ownership structures, whereas family-owned medium-sized enterprises were slightly more profitable. Leskinen (2018) noted that Finnish SME family businesses were significantly more profitable and more self-sufficient than other types of businesses.

The benefits brought by digitalization can be even greater for smaller companies, as according to Kergroach (2020), they might suffer from limited negotiation and market power, as well as having a limited capability to internally deal with complex business environments. Cost, resource, and time savings gained through digital technologies can therefore play an important role for SMEs.

Nguyen, Newby, and Macaulay (2013) highlight the importance of an "adoption environment" for IT implementations success in SMEs. This environment consists of flexible organizational culture, the owner's commitment to digital technologies, and the employees' knowledge of and commitment to IT, among others.

2.4 Assessing digital maturity

Digital maturity could be described simply as a measure of digital development, or as the current state or level of digitalization in a company. Westerman et al. (2012) define digital maturity as the combination of the level of investments in technology-enabled initiatives, and the level of investment in the leadership capabilities needed to create digital transformation. According to Kane et al. (2017), digital maturity tackles the issue of adapting an organization to compete in an increasingly digital market. This includes for example the implementation of new technologies and strategies. Achieving a complete or final digital maturity, however, is not possible even with vast investments of capital and effort, rather, digital maturity describes an ongoing process. The scale of digital maturity keeps shifting together with the competition, and according to Kane et al., the differences in digital investments can cause the gap in digitalization between organizations to widen further. Developing digital maturity does not happen overnight, either. According to Westerman et al., building digital maturity can take several years.

As Gill and VanBoskirk (2016) present, there are significant sectoral differences in digital maturity across different branches. For example, the sector "business services" is shown to be considerably more digitally mature than "financial services and insurance", with 27% of the former and only 9% of the latter belonging to the most digitally mature level of *Differentiators*.

Westerman et al. (2012) argue that a company's higher level of digital maturity correlates to higher financial performance. They assert that the companies with the highest digital performance far outperform less-mature firms on several financial measures. Achieving digital maturity is not a uniform journey for all companies; according to Westerman et al. (2012), companies can have different routes to digital maturity.

2.4.1 Digital maturity models

To assess digital maturity, several different models and indexes have been made by different researchers and organizations. The lack of conceptual clarity and prior research may explain the significant differences between the different models. Mettler (2010) proposes that the diffusion of innovations theory may explain the need for these digital maturity models. Many of these models have been published by consultancies, such as Deloitte or Forrester, and as such serve a practical purpose of both assessing the current level of digital maturity and providing the company with concrete steps and strategies to improve it. The model that will be used in this study will be based on several different pre-existing models. The purpose of this study will be to only measure the current level, and not provide a comprehensive guide or path to digital maturity. The evaluation criteria of the model will be used to form a comprehensive model of the current status of digital transformation at the companies.

Following are various existing models of digital maturity, which are presented shortly. The digital maturity models' characteristics and what makes them especially useful will be discussed.

According to Proff, Ahrens, von Ostrowski, and Neuroth (n.d.), **Deloitte's Digital Maturity Index** was developed to offer a standardized approach to identifying differences in digital potential. The companies were ranked into the following six different categories - or Digital archetypes - in the index with percentual distribution in parentheses: Laggards (7%), Followers (33%), Operators (8%), Innovators (8%), Potentials (40%), and Champions (5%). The percentual distribution roughly corresponds to the Rogers' (1957) Innovation Adaption Curve (Figure 1), which represents how some companies adapt and innovate quicker than others. Depending on the weighting of the question, the distribution of respondents can reflect the standard normal distribution.
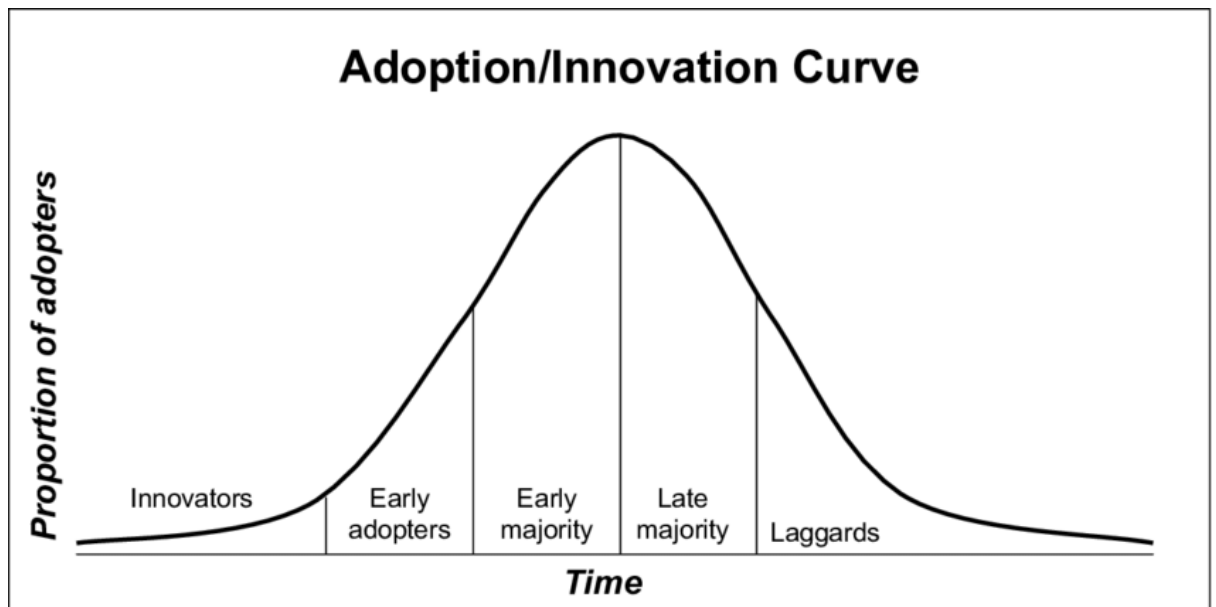
Figure 1, Rogers' innovation curve. Rogers, (2003).

However, Proff et al. found some notable differences in digital maturity when comparing various branches and sectors. Some industries, such as "Industrial Products" were considerably more top-heavy, with 46% of the companies belonging to the two most digitally mature archetypes. On the other hand, 40% of the companies in the automotive industry were assigned to the two least digitally advanced archetypes. It could therefore be assumed that the required and beneficial levels of digital maturity vary across branches, with the same level of digital maturity providing different benefits and possibilities for companies across different sectors. This could be explained by marginal utility. Whereas investing in digital maturity is required in one industry due to tightened and digitally advanced competition, it might provide relatively lower benefits in less digitally saturated industries.

Based on Deloitte's survey (Proff et al., n.d.), digital maturity has a clear positive correlation with a company's financial performance. This is clearly

visualized in Figure 2 below. When comparing the highest-ranked digital archetype Champions to the lowest-performing Laggards, both the average growth in revenue and EBIT are decisively higher among the Champions. The correlation is seen throughout the different archetypes. According to Proff et al., the more digitally mature companies can "optimize both the operational and strategic indices through digitalization" (p. 11).

	AVERAGE REVENUE UPLIFT	AVERAGE EBIT UPLIFT
CHAMPIONS	38.5%	16.2%
POTENTIALS	25.7%	13.6%
INNOVATORS	20.0%	7.8%
OPERATORS	15.6%	12.5%
FOLLOWERS	9.7%	5.6%
LAGGARDS	1.2%	1.3%
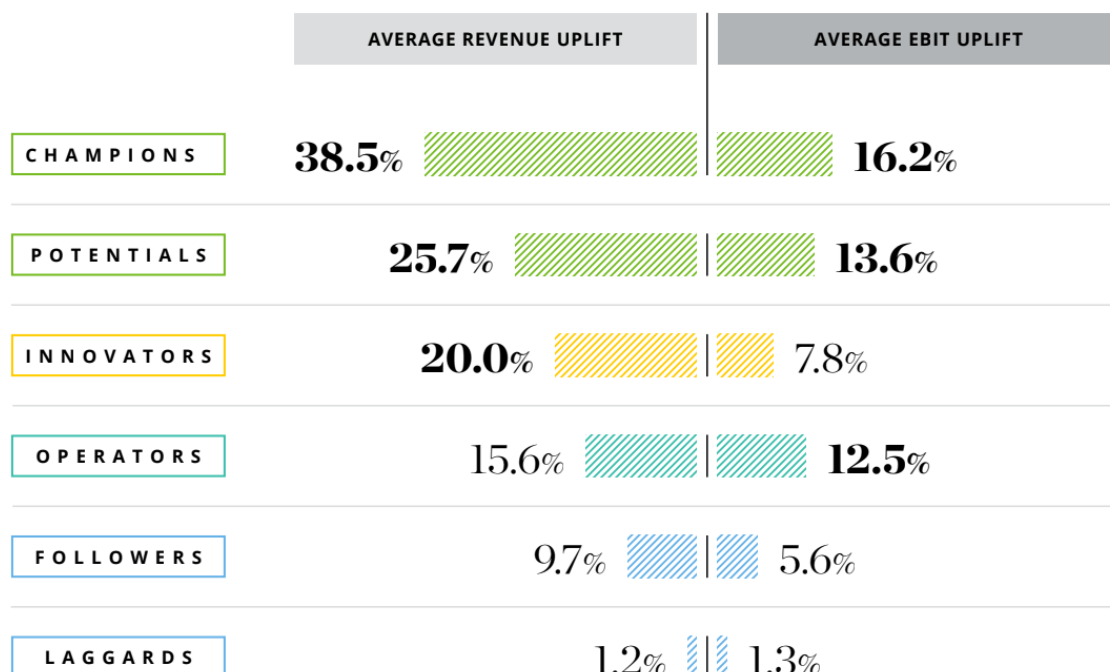
Figure 2. The business impact of digital archetypes. Proff et al. (n.d., p. 11).

The Government of South Australia uses a five-level Digital Maturity Assessment Tool, with the levels being Minimal, Informal, and reactive, Transitional, Customer-driven, and Transformed. This model also assesses digital maturity on five distinct levels to determine an overall digital maturity rating. The five levels (Governance and leadership, People and culture, Capacity and capability, Innovation, and Technology) all contribute equally to the final rating - 20% each. In Figure 3 below, the Technology category of the Digital Maturity Assessment Tool is presented.

This model and its different levels consist of a considerable number of individual characteristics and statements. Although the meticulousness of the individual statements distinguishes the model somewhat from other models, filling and using the tool is not the most user-friendly. First, it is slower than other models, as it requires more reading. Second, the calculation of the result is left to the end-user, enabling errors. Also, there are different numbers of characteristics at different levels (two at the least, six at the most), so they may not be always fully comparable.

	Level 1 Minimal	Level 2 Informal and reactive	Level 3 Transitional	Level 4 Customer-driven	Level 5 Transformed
Technology	☐ no or very low dedicated IT commitment to the digital channel and solutions ☐ no or ill-defined IT strategy ☐ no integration of the digital channels with business processes or systems ☐ no integration with communications strategy	☐ basic IT support for the digital strategy ☐ focus is on IT solutions for the department not the digital channels and the customers' needs ☐ some integration of the digital channels with business processes, systems and communications strategy	☐ IT strategy and systems are aligned to the digital strategy ☐ IT is focussed on digital channel delivery and delivering the benefits articulated in the digital strategy ☐ greater integration of multiple IT systems that assists development of joined–up services and a single-customer view ☐ IT systems and solutions comply with best practice in security and business continuity	☐ IT enhances the delivery of digital services and speed and ease of developing new digital services ☐ IT team input ensures digital services are responsive to the customers' chosen devices and comply with accessibility standards ☐ the IT team provides proactive input into digitisation projects and business re-engineering ☐ the IT team is skilful in training and supporting other staff in their use of digital solutions, tools and devices	☐ IT strategy and performance are entirely aligned to the organisational vision and strategy ☐ IT constantly optimises the benefits of digital service delivery ☐ business processes and IT systems are driven by the digital channels and customers' needs ☐ on-going feedback and optimisation of IT processes and digital tools encouraged and applied

Your maturity level rating (tick the box): ☐ 1 ☐ 1.5 ☐ 2 ☐ 2.5 ☐ 3 ☐ 3.5 ☐ 4 ☐ 4.5 ☐ 5

Figure 3, Digital Maturity Assessment Tool. South Australian Government & KPMG Australia (n.d.).

Gill and VanBoskirk (2016) have divided their model for digital maturity into four dimensions, and four digital maturity levels. The dimensions describe four key areas of an organization where digital solutions can be utilized: culture, technology, organization, and insights. Based on the answers to the statements, the dimension is classified into one of the four following digital maturity levels: Differentiators, Collaborators, Adopters, and lastly Skeptics. Based on the current maturity level, which represents the current stage of the digital transformation, Gill and VanBoskirk also present some concrete strategies and recommendations.

The statements used for this model are shorter and more concise than the ones in The Government of South Australia's model, which makes it both more readable and tidier. Also, there are only seven statements for each four levels, which makes the entire digital maturity assessment tool fit onto a single page. The response alternatives for the statements leave risk for response bias. Respondents are provided no alternative for "Don't know", or "Neither agree nor disagree". Every response alternative provided forces the respondent to either agree or disagree to some extent, which could affect the results.

Kane et al. (2017) conducted a study in 2016 measuring digital maturity, surveying over "3,500 business executives, managers, and analysts from organizations around the world." A scale of 1 to 10 was used when rating the companies, and this was then further divided into three: Early (1-3), Developing (4-6), and Maturing (7-10). The respondents were asked to rate their companies against "an ideal organization transformed by digital technologies and capabilities that improve processes, engage talent across the organization, and drive new value-generating business models" (Kane et al., p. 4).

The survey that was used as the basis for Kane et al.'s study is comprehensible, with a total of 52 questions. The question types were varied, from statements with a Likert scale to arranging the top three alternatives to a question. It is notable, that an ideal organization is a highly subjective concept. This could have affected the respondents' answers and the results of the study, as well. Figure 4 below highlights the study's results on the distribution of digital maturity. However, the results of the study could vary depending on how many levels of digital maturity are defined. The ten sub-levels are divided into three levels of digital maturity, but if for example five levels would have been used, the conclusions on digital maturity could have been different.
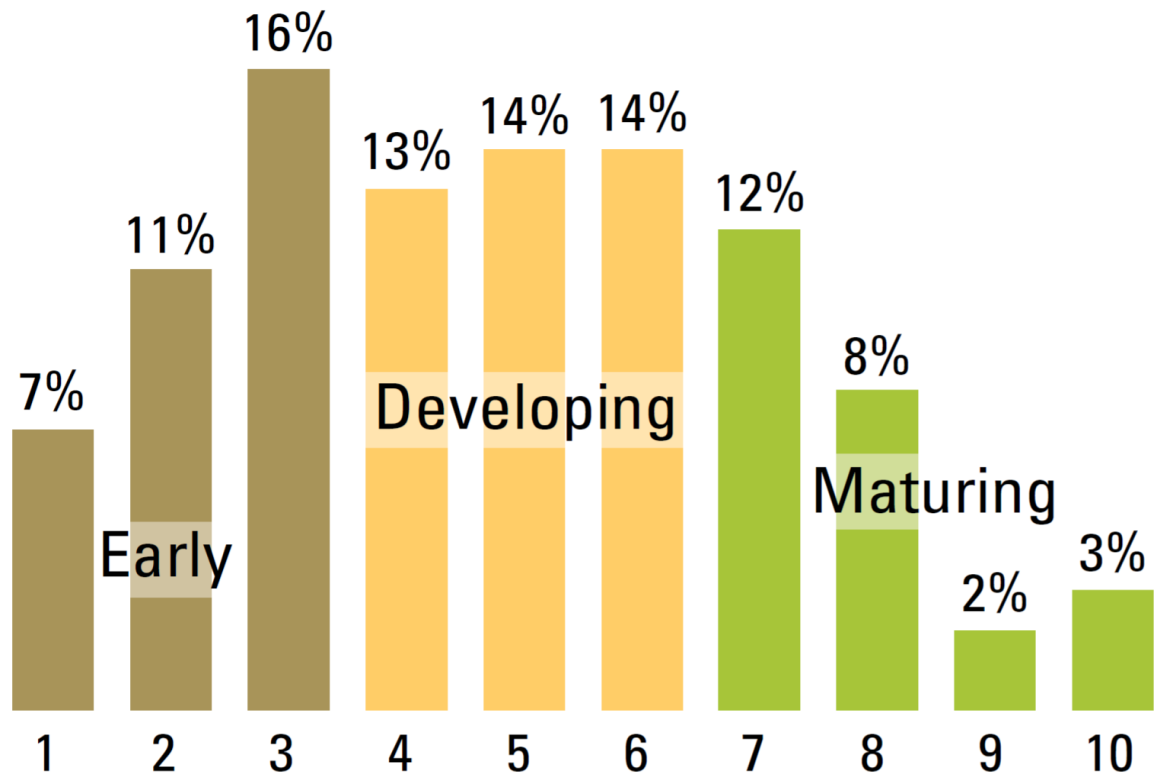
Figure 4, Organization's digital maturity level. Kane et al. (2017).

2.4.2 Challenges with digitalization

According to Henriette, Feki, and Boughzala (2016), customers are increasingly demanding with regards to the quality of digital products and services. Companies are expected to adapt quickly to changing needs and market conditions, which according to Henriette et al. is especially true for the younger generations. Addressing these increasingly demanding market conditions necessitates the adoption of Customer Relationship Management tools.

Merely allocating resources into some digital projects and making an investment here and there is not always enough. Westerman et al. (2012) argue that in many companies, digital investments are often uncoordinated

and sometimes duplicative. By coordinating these investments on a higher level, or by focusing them on key areas, issues such as this may be avoided.

Assessing one's company's current digital capabilities objectively can prove difficult. Some companies might have an optimistic view of their status, which in turn impacts further investments and operations. External consultancies might give some new insight and bring detailed know-how to a specific issue, and according to Delany (1995), strategic consulting can have many kinds of objectives, such as the collection of competitor data. By assessing the current status of the competition, it might be easier to identify one's own position, too, but the problem is that the data required to draw this kind of conclusion might be easily or at all available.

According to Delany (1995), a key determinant of an organization's performance is its strategic positioning. Henriette et al. (2016) also highlight that the digitalization of business processes does not just have implementations on the strategic level, but also at the organization's cultural level. For example, pushing for optimization and automation of entire processes, that leads to the disappearance of jobs can cause great resistance to change. On the other hand, new practices such as remote working necessitate managers coming up with new ways of remote team leadership and management. Digitalization presents a lot of opportunities with the help of new technology, from new innovations to specialization to a new niche.

2.4.3 Digitalization strategy

Gobble (2018) differentiates IT strategy, product and service innovations, and research and development functions from being the sole defining functions of the digitalization strategy. Digitalization is a company way phenomenon, requiring a corporate strategy. Gobble clarifies that the digitalization strategy does not isolate technologies as separate components of the business's operations, rather it deals with enterprise-wide digital reshaping of functions.

Gobble further defines the phenomenon by claiming that digital transformation is driven forward not by technology, but by strategy.

Whereas businesses have before formulated their digitalization strategies yearly or even more seldom, as technological advancements and competition continue to hasten, companies now must rethink their digitalization strategies in a much shorter time frame, even in a matter of days or weeks (Blackburn, LaBerge, O'Toole & Schneider, 2020). Contrastingly, Kane et al. (2017) propose that more digitally mature companies have a longer time frame for their digitalization strategy, being twice as likely to develop digitalization strategies with time horizons of five years or even more.

Having a clear and coherent digitalization strategy is one of the most notable differentiators of different levels of digital maturity, according to Kane et al. According to their study, 80% of digitally maturing companies had a clear and coherent digitalization strategy, while this was only true for 19% of the companies in early stages of digital maturity. Hong et al. (2017) found out in their survey that only around a half of family businesses have a distinct digitization strategy, while some family businesses do not even see a need for it.

2.5 Digital maturity dimensions

Digitalization and digital transformation are complex phenomena, facing challenges on multiple levels at the same time. Digital maturity also manifests in diverse ways in different corporate dimensions. This necessitates measuring digital maturity on various levels to reach any meaningful conclusions about the companies. By concentrating or limiting to only a single aspect of digitalization - say, digital marketing, the results would not give the desired information about the current status of digital maturity in a company, but rather a limited view. Each dimension with its sub-dimensions faces unique challenges and possibilities. As Salume, Barbosa, Pinto, and

Sousa (2021) propose, it is therefore important to first identify which dimensions are related to the establishment of higher levels of digital maturity.

Digital solutions are used in personnel solutions, for example in communication technologies. Production can be measured, planned, and optimized with technology. Information systems are very reliant on digital solutions, utilizing new technologies not just as supportive systems. Digital marketing plays a crucial role in most modern marketing departments as the circulation and popularity of traditional print media declines. Management can use new AI-powered tools to help and improve their decision-making. All these will need to be assessed to give a comprehensive view of the current digital maturity.

Rossman's (2019) model for measuring digital maturity included the following eight dimensions designated as capabilities: Strategic, Leadership, Market, Operational, People and Expertise, Cultural, Governance, and Technology. These dimensions encompass most of an organization's operations and as such together with some adjustments form a solid basis for this study. To condense these dimensions further, they will be grouped into only five broader categories in the survey. Rossman's dimensions Strategic, Leadership, and Governance will be addressed in *Management and Strategy*, People and Expertise, and Cultural capabilities will be inspected in *Personnel and communications*,

The dimensions of digital maturity used for this study are presented below in Table 1, modeled after Rossman's (2019, p. 6) model of Digital Maturity, which includes digital maturity dimensions, and items. The items included in the table are assessed with the questions of the survey for this study.

Table 1. Digital maturity dimensions and items

#	Dimension(s)	Items
1	Management and strategy	Digitalization strategy Digital tools assist in decision making Quantifiable goals Clear roles and responsibilities
2	Digitalization and technology	Digital procedures and policies Social media Adapting to market change Process automation and optimization
3	Personnel and communications	Digital skills Utilizing existing digital knowledge Employee enablement Cross-functional collaboration
4	Economy	Investments in digitalization Digital budget The scale of digital business initiatives Digital channels' prioritization

2.5 Financial performance

According to Yritystutkimus ry (2017), profitability describes the financial performance of a business, and is a prerequisite for continuous business. Profitability can be measured in either absolute or relative terms. Yritystutkimus ry clarifies that absolute profitability is measured simply as the difference between operating income and expenses, i.e., profit whereas relative profitability describes the profit in relation to the capital invested in the company.

2.5.1 ROI

Yritystutkimus ry (2017) defines return on investment (ROI) as an investment measure of relative profitability, i.e., the return on capital invested in a company that requires interest or other returns. The percent for return on investment is calculated through the following formula (Yritystutkimus ry):

$$\frac{\text{Net result} + \text{financial expenses} + \text{taxes (12 months)}}{\text{Average capital invested during the financial year}} * 100$$

Shawqi (1987) claims that ROI has a statistically greater association with stock return than some other commonly used alternative measures of financial profitability, such as operating income growth or profit margin. Further, Shawqi proposes that ROI can be used to provide insights into the profit performance.

2.5.2 EBIT

Earnings before interest and taxes, or EBIT is a key figure that shows how much revenue is left from the actual business before accounting to financial items and taxes (Yritystutkimus ry, 2017). EBIT can be used, for example, for comparisons within an industry or even for comparisons between different industries.

The following guideline values can be used to estimate the EBIT%:

More than 10% - good
5 - 10% - satisfactory
less than 5% - weak

EBIT percentage can be calculated with the following formula:

$$\frac{(\text{Net income } + \text{ interest expense } + \text{ taxes})}{\text{Revenue}} * 100$$

Nissim (2019) proposes EBIT as a more complete measure of operating income than EBITDA, due to it also considering the cost of fixed operational assets. Additionally, EBIT can give more accurate view of sustainable profitability when compared to some other measures and yield a relatively unbiased measure of profitability.

2.6 Research hypotheses

A higher level of digital maturity leads to a higher level of financial performance among Finnish family-owned SMEs. As Westerman et al. (2012) demonstrated with their study, digital maturity correlates positively with financial profitability within large international companies. Rogers et al. (2021) confirm this by claiming that more digitally mature brands benefit from increased revenues and gain cost savings and are two times more likely to grow their market share. Additionally, Proff et al. (n.d.) claim that the average growth in revenue and EBIT are considerably higher for the digitally most mature companies. With this study, I aim to confirm or disprove this in the scope of Finnish SME family businesses.

I also argue that Finnish SME family businesses lack digital awareness. According to Hong et al (2017), up to 75% of family businesses may not understand the significance or possible benefits of digitalization. They also propose that the lack of digitalization expertise and skills may form a barrier to developing and implementing a digitalization strategy. Also, innovation does not occur throughout the entire organization at family businesses, rather it occurs primarily at the management level (Hong et al.). Kergroach (2020) explains SMEs underutilized their digital potential by their lack of information and awareness of new digital possibilities. Further, Kergroach claims that too few SMEs engage their employees in ICT training.

2.7 Summary of the literature overview

In this chapter, notable differences between family businesses and companies of other ownership structures that need to be taken into consideration in research on the subject were introduced. Family businesses strengths and weaknesses were discussed, as well as transferring power in family businesses. Some of the SMEs' limitations and possibilities when it comes to digitalization were also presented.

The theoretic background of digital maturity was discussed. Previously developed and utilized digital maturity models and dimensions were introduced, and different levels of digital maturity were discussed. Based on the previously utilized models, the digital maturity dimensions used in the survey for this study were motivated.

Financial performance was defined, and the financial profitability measured used in this study were introduced. The challenges of digitalization were discussed at a general level, and the significance of the digitalization strategy was discussed. Finally, based on the previous studies and literature, two research hypotheses are proposed.

Chapter 3: Method

The purpose of this thesis is to examine the current state of digital maturity within Finnish SME family businesses, and what impact digital maturity has on them. Quantitative research methods in the form of a web survey and regression analysis have been chosen to answer the thesis' research questions. As the digital maturity of Finnish family businesses has not been researched, the nature of this study is exploratory research, which Doyle (2011, p. 162) describes as "The preliminary research to clarify the exact nature of the problem solved."

The chapter begins by introducing the research design, after which the chosen research methods are discussed. Next, the survey is presented in detail. The chapter concludes with an account of how the quantitative content analysis is performed, and how reliability and validity are achieved in quantitative research.

3.1 Research design and alternative methods

A research design, according to Bryman and Bell (2015), provides the framework for data collection and analysis. Additionally, it reflects the priority decisions regarding the dimensions of the research project. These research projects' dimensions include for example how causal connections between variables are reflected. The research design could also be described as the motivation for the chosen methods of data collection, measurement, and analysis.

The data needed to address the research questions and test the hypotheses needs to be collected both directly from Finnish SME family businesses, to be able to draw conclusions on the level of digital maturity, as well as from official sources to allow the collection of reliable and comparable financial

data. The web survey was chosen as the main measure of data collection, because of its ease of dissemination to the target group. The survey consists mainly of closed-ended questions, as they are quicker and easier to complete, collect and analyze.

3.1.1 Alternative methods

Another viable method of collecting quantitative data needed to answer the research questions, that was ultimately omitted from this study, is the structured interview, also known as the standardized interview. As digital maturity is still a fairly new concept, attitudes and views on it may vary considerably. A structured interview could have brought new perspectives to the topic and provided more comprehensive answers on the state of digital maturity than closed-ended questions. Bryman and Bell list some of the common sources of error that resulted in rejecting structured interviews as the research method for this survey. In particular, two-way human errors may affect the outcome of the structured survey. The wording of the question and the way it is asked by the interviewer can cause errors, as well as the interviewee misunderstanding the question. Additionally, the interview process is more time-consuming than creating and distributing a web survey. To achieve a sufficiently comprehensive sample, a web survey was chosen as the main method of the survey instead of structured interviews.

Additionally, content analysis was weighed as an alternative method of assessing digital maturity in Finnish SME family businesses. Previous research on the state of digital maturity could have been analyzed more in-depth, utilizing for example the results of PwC's Family Business Survey of 2021 for Finland (Korkiakoski, Stenqvist & Oksa 2021), and the yearly digital barometer by Mattila et al. (2021). However, the previous research in the context of Finnish SME family businesses was limited to non-existent. PwC's survey consisted only of 60 answers, which could also include answers from large family businesses outside the scope of this study. The digital barometer by Mattila et al. included answers from companies with other ownership structures, as well as large-scale enterprises.

3.2 Web survey

According to Couper (2008), terms such as internet survey, web survey, and online survey have been used interchangeably, but for this study, the term web survey will be used. The survey this study is based on will be done as a web survey. According to Bryman and Bell (2015), web surveys function by inviting respondents to visit a website and complete a questionnaire online. Bryman and Bell argue that web surveys have an important advantage over email surveys, as they can offer a greater variety in terms of appearance and structure. For example, the usage of colors and different formats offer many possibilities, as do different features such as pull-down menus and filter questions. Other advantages that online surveys have over postal questionnaires or email surveys include low cost, fast response times, and fewer unanswered questions, leading to less missing data (Bryman & Bell).

To examine the target group's digitalization awareness and their utilization of digitalization opportunities, specific questions about the digitization strategy, the adequacy of the digital budget, and other specific issues will be inspected. After the collection of data through the survey, first, the univariate analysis will be used to reveal insights into one variable at a time (Bryman & Bell, 2015).

For displaying the quantitative data, various charts and diagrams will be used. For example, respondent statistics will be presented with a pie chart, the distribution of digital maturity in different categories with a radar chart, the regression analysis with line charts, and the distribution of digital maturity with a histogram.

3.2.1 Closed-ended questions

Bryman and Bell (2015) note that choosing between the closed and open formats for the survey's question is one of the most significant considerations for researchers, each with its own strengths and weaknesses.

Open-ended questions, according to Bryman and Bell, enable the respondents to reply however they wish, whereas closed questions have to choose from a fixed set of alternatives. As one of the main disadvantages of these questions, Bryman and Bell mention that they are very time-consuming. This applies both to the respondents and the researcher. First, it takes more time and effort for the respondents to respond to open-ended surveys, which may decrease the overall response rate. Secondly, the answers must be coded so that they are comparable and easier to examine. The creation of the coding system is already a time-consuming process, as is also classifying and going through the answers manually.

Answers to closed-ended questions are considerably easier to process, according to Bryman and Bell. The answers also enjoy the benefit of being much easier to compare, making it easier to show relationships between the different variables, as well as making it easier to compare answers between different types of respondents. Additionally, Bryman and Bell explain that the limited possibilities of answer alternatives might also clarify the meaning of the question for the respondents if they are unsure what the question itself is trying to ascertain. Compared to open-ended questions, closed questions are easier and faster to complete, as instead of having to write down extensive answers, they can answer by placings ticks or dragging a slide scale. Bryman and Bell also mention that the closed questions reduce the possibility of variability due to the researcher's bias when collecting the answers. Closed-ended questions have some disadvantages, too. Bryman and Bell explain that they suffer from a lack of spontaneity in the respondents' answers, as well as possibly making it difficult to make a choice between overlapping answer alternatives. To counter this, an effort will be put into making the

questions of the survey easy to comprehend and avoiding overlapping answer alternatives.

Closed-ended questions were chosen for this survey due to both the advantages inherent in closed format beneficial for the thesis' research purpose, as well as the disadvantages of the open-ended questions. Closed-ended questions are a good way of collecting vast amounts of quantitative data that is in a format easy to analyze.

3.2.2 Response rate

As Bryman and Bell (2015) clarify, most surveys attract a certain number of non-responses. To reach the aimed sample, non-responses must be kept in mind when conducting research. Bryman and Bell present several ways of increasing the response rate of questionnaires. Firstly, the reason for the research and the motivation of its importance needs to be clarified to the recipient. Also, the confidentiality of the research must be guaranteed. Bryman and Bell emphasize the importance of following up with individuals who initially fail to reply, as reminders do work in increasing the response rate. The overall attractiveness of the questionnaire as well as clear instructions improves the response rate. If it cannot be proven that those who do not participate do not differ from those that do, a risk of bias appears (Bryman & Bell).

Bryman and Bell (2015) also claim that shorter questionnaires tend to achieve higher response rates than longer ones. They explain that long questionnaires can cause respondent fatigue, which may result in a greater tendency to not answer the questionnaire at all. Also, open-ended questions should be generally used sparingly or altogether avoided, as respondents are often deterred by having to write a lot themselves. Bryman and Bell also encourage placing potentially more compelling questions at the beginning of

the survey. Finally, they also mention the use of providing monetary incentives to the respondents as an effective way of increasing the response rate.

3.2.3 Design for the web survey

According to Couper (2008), there are several design possibilities with surveys longer than a single screen. For example, a scrolling design, in which the entire questionnaire is presented on a single page through the scrolling function, to a paging design with each question appearing on its own page (see Figure 5 below).
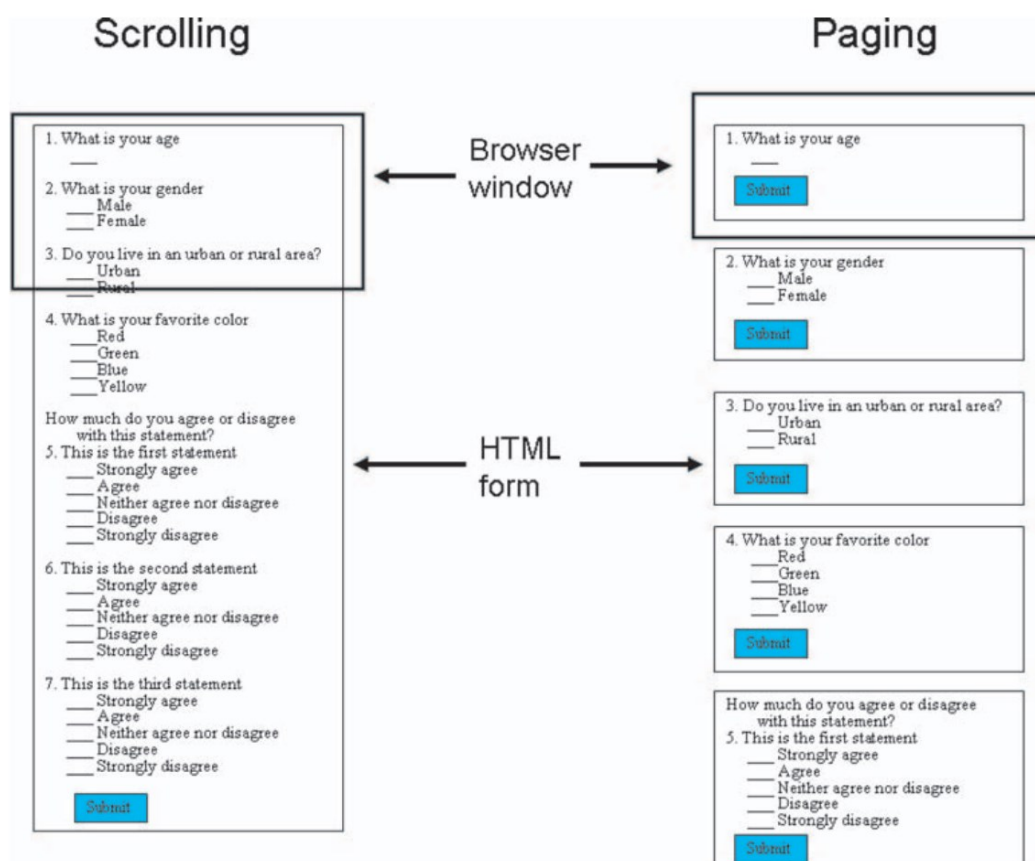

Figure 5. Scrolling versus Paging Designs. Couper (2008).

Both the **scrolling page layout** (several questions per page) and the paging layout (a single question per page) have their benefits and disadvantages. The advantages of scrolling page design for web surveys, according to Couper (2008), include the ease of determining the length of the survey for the respondents, the ability to review forthcoming questions, the ability to move back and forth through the questionnaire enables any order of answering the questions, and returning to answer earlier questions. Couper lists the following as disadvantages of this design approach: partial completion of the survey is not possible, as closing the browser, a sudden loss of internet access, or forgetting to press the submit button after completing the survey may lead to losing all of the responses, seeing all the questions at once may lead to the respondents choosing the shortest path through the survey, and that the order of responding cannot be controlled even when it would be desirable.

According to Couper (2008), **paging survey design**'s advantages reflect the disadvantages of the scrolling page layout: little to no necessary scrolling, the data from partially answered surveys is retainers, meaning that the respondents can complete the questionnaire in several sessions, continuing where they were left. Couper also mentions more complex skip and routing options and patterns, (dis)allowing certain questions to be left unanswered.

As for the potential disadvantages of the paging approach, Couper (2008) presents a greater chance of transmission failures due to the greater required interaction with the server, less control of the order of completion for respondents, and potential navigation issues leading to the respondents not necessarily knowing where they are in the instrument.

With the advantages and disadvantages in mind, for this survey, a combination of both models will be used. The respondents will be presented with all of the questions of a specific category at once, having to advance to the next page and next section when ready. This solves the issue of respondents answering questions in an erratic order while allowing some

freedom in the order of answering the questions. Avoiding a single-page survey will also limit respondents' survey fatigue.

According to Bryman and Bell (2015), a vertical arrangement of the fixed answers is often desirable because of the possibility of respondents feeling disoriented when a horizontal arrangement is employed. As shown in Figure 6 below, a clear layout used in Rogers et al. (2021) survey assessing digital maturity makes it unlikely for the respondent to make a mistaken choice between two answers.

Figure 6. Example of a vertical arrangement of answers. Rogers et al., Google & BCC, 2021.

The Likert scale enables assigning numerical values to the respondents' attitudes in a questionnaire. The scale consists of a series of statements to which the respondents indicate their degree of agreement or disagreement using the following options: *strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree* (Gerald, 1997). According to Gerald, the scale measures both direction (agree/disagree) and intensity of the attitude. The scale's benefits include the ease of administration and response.

3.3 Survey for the study

Based on the previously introduced digital maturity models and assessment tools, the 40 questions for the survey will be divided into the following five categories: *General*, *Management and Strategy*, *Digitalization and marketing*, *Personnel and communications*, and *Economy*. The survey used for this study is an in-depth assessment tool consisting of 32 closed-ended questions, covering the proposed four different dimensions of digital maturity. It can be completed by any individual with a good overview of the organization's operations. Additionally, eight questions in the category *General* do not contribute to the digital maturity ranking, but rather serve as reference points and explanatory variables. Out of the eight questions in the category *General*, the ones asking for the organization name, the organization's primary industry, the respondent's role at the organization, and the voluntary response field for receiving a summary of the study will be open-ended questions to not limit the answer alternatives. These will be manually coded to enable the comparison between different industries' answers, for example. The questionnaire along with the sources it is based on is presented as Appendix 1.

3.3.1 Scoring of the survey

Certain questions of the survey will be used to give the companies a numerical value of 1 to 5 on their digital maturity for each category, the average of which determines the result. These questions are highlighted above but were indistinguishable for the respondents of the survey. The formulas for scoring the responses to the survey are presented below in Table 2.

Table 2. Scoring of the survey

Category	Digital maturity rating (1-5)
Management and strategy	(8 - 40) / 8 = 1 to 5
Digitalization and technology	(8 - 40) / 8 = 1 to 5
Personnel and communications	(8 - 40) / 8 = 1 to 5
Economy	(8 - 40) / 8 = 1 to 5
Overall digital maturity rating (the average of the four categories)	Average of the above = 1 to 5

The following four levels of digital maturity will be used when grading the companies: Beginning, Transitioning, Maturing, and Advanced. The numeric values corresponding to the level of digital maturity will be 1 - 1.99, 2 - 2.99, 3 - 3.99, and 4+, respectively.

To increase the trustworthiness of the survey, it will be indicated to the respondents that the replies will be confidential, and not shared in any publications (Bryman & Bell, 2015). Any contact information provided by the respondents will be deleted within two months of the data collection.

3.4 Key figures analysis

Key figures or KPI analysis is used to analyze a company's finances as it provides a comprehensive understanding of the company's financial condition. Depending on the data, it may give insights into the company's strengths and weaknesses. According to Friedlob and Schleifer (2003), the

profitability analysis of a company is dependent on the information reported by the company itself. They explain that the profitability of companies can be assessed by various analytical techniques, such as ROI, ROE, and the P/E ratio. To examine the correlation between digital maturity and financial profitability, ROI, and EBIT% will be used to define the companies' financial profitability. While this thesis will not go in-depth in analyzing key figures, it is still important to understand what they are useful and to choose the correct indicators.

3.5 Regression analysis

Regression analysis is a statistical method for analyzing a relationship between two or more variables in such a manner that one variable can be predicted or explained by using the information on the others.
According to Freund and Wilson (2003), is a statistical method for analyzing a relationship between two or more variables in such a manner that one variable can be predicted or explained by using the information on the others. Regression analysis is used to observe sample measurements taken on different variables, called factors or independent variables. Regression analysis can be used to examine relationships between these variables and a dependent variable, which can then in turn be expressed as a statistical model, the regression model.

Freund and Wilson argue that while the relationship between variables is not often completely straight, a straight line can still be used to approximate the relationship. This is especially true in a limited or restricted range of values of the variables. Freund and Wilson state that the slope of the regression line can be estimated to a greater precision when the variation in the population is small, or when the sample size is large.

For this study, regression analysis will be performed with one regression model to test the interdependence of the variables. EBIT% and ROI will be

used as dependent variables and digital maturity as the independent variable.

3.5.1 Regression model

As the number of variables is limited, simple linear regression is a suitable regression model, and will therefore be used for this test the first hypothesis of digital maturity's correlation with financial profitability. In simple linear regression, the relationship is specified to have only one-factor variables. This relationship is described by a straight line (Freund and Wilson, 2003). The sample for this model consists of observations on a pair of variables, x, and y. The form for the simple linear regression model is

$$y = \beta 0 + \beta 1x + \varepsilon,$$

X and y represent the independent and dependent variables, respectively. $\beta 0$ + $\beta 1x$ represents the equation of the regression line of the two variables x and y, with $\beta 0$ and $\beta 1$ being the regression coefficients. The last part, ε, represents the random error. Regression analysis was performed with Microsoft Excel. Statistics provided by the regression analysis can be seen below in Table 3.

Table 3. Regression analysis statistics

Dependent variable	R^2	Adjusted R^2	P-value	*F*	Intercept	Coefficient
EBIT%	0.00392	-0.03439	0.75153	0.1024	3.2479	0.25902
ROI	0.07913	0.04229	0.15521	2.14815	3.12039	0.73013

3.5.2 Independent and dependent variables

Bryman and Bell (2015) define an independent variable as the variable that has a causal impact on another variable, the dependent variable. In this study, digital maturity is the independent variable, and its impact on dependent variables is examined. The dependent variables are ROI and EBIT%. Suomen Asiakastieto Oy and Finnish Patent and Registration Office provide these figures among other financial statistics as a percentage yearly.

3.5.3 Explanatory variables

Higher levels of financial profitability might also be explained by other variables than digital maturity. Potential explanatory variables that could explain higher profitability are presented in Table 4 below.

Table 4. Potential explanatory variables

Explanatory variable	Definition	Expected impact on financial performance
Family generation	Which family generation runs the business	Negative
Age of the company	The years of operation of the firm	Positive
Branch	The main industry a company operates in	Varied

Revenue	Total amount of income generated by the sales of goods or services	Negative
Sufficiency of digital budget	Sufficiency based on the questionnaire replies	Positive

3.6 Data collection

To gather the empirical data for the research purpose, data were collected by two methods: firstly, by companies answering the provided survey, and by reviewing publicly available financial data from the Finnish Trade Register and Suomen Asiakastieto Oy, a Finnish information service company specialized in management, financial administration, risk management, and sales and marketing.

The survey was delivered through LinkedIn, and by directly contacting SME companies and entrepreneurs. Ultimately, the survey received 114 complete answers after removing test answers and mischievous responders from the sample. As Bryman and Bell (2015) argue, a greater sample size makes it more representative. The companies represented a wide variety of different branches, and the respondents had various tasks, most being either owners or entrepreneurs. The achieved response rate was quite satisfactory, and even above average for online surveys: out of 191 respondents opening the survey, 114 completed the survey, yielding a response rate of 59.7%. However, only 97 of these respondents were family businesses, so the true response rate for the survey was 50.8%. According to previous research on response rates to online surveys (Nulty, 2008), the average online response rate is approximately 33%. The relatively high response rate could be explained by the research issue being relevant to the respondents, making a high response rate feasible (Bryman and Bell).

The financial data about the companies that filled the survey were collected from the Finnish Trade Register, a public register that contains official details and information on traders and businesses, as well as from Suomen Asiakastieto Oy's business information service. These were chosen as the main sources for financial data, as they are more reliable and standardized in format than self-reported financial statistics. Not resorting to self-reported financial information also limits the possibility of confusion between for example gross and net profit, or the fiscal year in question. 2020 was chosen as the financial year, as financial data for 2021 were not yet available from all companies.

As many companies which answered the survey were either small, limited liability companies or private traders, financial data were not publicly available for every company. According to the Finnish Patent and Registration Office, public limited companies and limited partnerships are required to file financial statements with the Trade Register only if the company's business exceeds a certain scale. Many of those surveyed for this study fell below this threshold, so no financial information was available. Also, some companies refused to disclose their company name, which made the collection of financial data about them impossible. Out of the 97 respondents, financial information was available for only 28 companies. The sample size for financial information is therefore considerably smaller than for the assessment of digital maturity, which may reduce its reliability and generalizability. Additionally, this poses a risk of sampling error. Bryman and Bell define sampling error as the difference between a sample and the population from which it is selected. Limited companies were over-represented in the smaller sample compared to other types of companies, such as general partnerships and limited partnerships.

As the premise for this study was to inspect specifically SME family businesses, further answers were filtered out and divided into two distinct data sets. The first one consists of 28 companies' answers supplemented with publicly available financial data. The second data set consists of all the

answers of the 97 family businesses, and it will be used the assess the current state of digital maturity in SME family businesses.

3.7 Reliability and validity in quantitative research

Bryman and Bell (2015) define reliability as the consistency of measures, and validity as the issue of whether the indicators meant to gauge a concept really measure that concept. They are used as criteria for assessing the quality of business research. Reliability, according to Bryman and Bell, is very closely related to replicability.

One of the prominent factors of a measure's reliability is its internal reliability. Bryman and Bell define internal reliability as the issue of whether the scale or index's indicators are consistent, that is "whether or not respondents' scores on any one indicator tend to be related to their scores on the other indicators" (Bryman and Bell, 2015, p. 158). According to Bryman and Bell, Cronbach's alpha is commonly used to test internal reliability. The computed alpha coefficient varies between 0 and 1, denoting no internal reliability to perfect internal reliability, respectively. Bryman and Bell add that the alpha value of 0.8 is usually employed as an acceptable level of internal reliability. Cronbach's (1951) alpha can be calculated with the following formula:

$$\alpha = \frac{k}{k-1}\left(1 - \frac{\Sigma\, s_i^2}{s_T^2}\right)$$

Here, k represents the number of items (or questions, in this case), s_i^2 the variance of the number i item, and s_T^2 the variance of the sum of all items, or the total score. Calculated with the formula above, the survey's intern reliability was excellent, with Cronbach's alpha value of 0.983, which vastly exceeds the acceptable limit of 0.80.

Validity, according to Bryman and Bell, is one of the most important research quality criteria in many ways. The two most important types of validity for this type of research are internal and external validity. Internal validity describes the extent to which evidence supports the conclusion by incorporating a causal relationship between two or more variables. Bryman and Bell clarify internal validity further by asking if one can be sure that it is x that is responsible for variation in y, and not something else that is producing an apparent causal relationship when a correlation between x and y is proposed. In other words, internal validity addresses the problem of if the independent variable is actually at least partially responsible for the variation in the dependent variable.

External validity, according to Bryman and Bell, is concerned with whether the study's results can be generalized beyond the specific research context. Achieving a representative sample, meaning that the sample is generalizable to the rest of the population is especially important in quantitative research. While repeating the study in the same target population would be the only certain means of establishing external validity, it is a somewhat impractical way for the scope of one study. Bryman and Bell note, however, that a randomly selected sample, as in the case of this study, increases external validity. They clarify further that non-random sampling methods, in turn, lower the external validity.

3.8 Summary of the method chapter

In this chapter, the fundamentals of research design, and some alternate research methods have been discussed, and the research methods for collecting and analyzing data used for this thesis have been presented. In this thesis, quantitative research methods in the form of web survey and regression analysis were chosen to examine the current status of digital maturity in Finnish SME family businesses, and what impact it has on them. The web survey used as the main form of data collection was introduced, as

was the scoring of the survey. Next, the key figure analysis was briefly presented.

Regression analysis and the regression model used in this analysis were introduced and discussed. The independent and dependent variables were defined, and additional potential explanatory variables were identified. The division of the collected data was divided into two data sets to answer the research questions and to test the research hypotheses. Finally, two measures used to ensure the quality of the research were introduced. Reliability and validity in quantitative research were discussed, as well as how their impact shows in this particular study.

Chapter 4: Results

In this chapter, the results of the survey measuring digital maturity will be presented and analyzed. The descriptive analysis will include a description of the surveyed companies by the frequency of different levels of digital maturity, the respondents' titles, distribution between different industries, as well as the presentation of key differences between different digital maturity levels. The survey's answers are used to inspect whether SME family businesses lack awareness of digitalization possibilities, as proposed in the research hypothesis. The main differences in responses between different levels of digital maturity are presented. After this, the data collection process and the difficulties thereof were presented.

4.1 Descriptive analysis

The data were collected through the web survey and publicly available financial data registries. To address the two research hypotheses, the data collected was divided into two distinct data sets. The survey received 114 complete answers, out of which 97 answers were from Finnish SME family businesses, which formed the first data set. The second data set consists of the 28 companies' answers together with the publicly available financial statistics. As the survey was targeted at SMEs, some of which likely only have a single employee, a lot of answers were received directly from the companies' owners or leaders. As shown in the graph (Figure 7) below, 44.4% of the respondents were either owners, founders, or entrepreneurs, with an additional 32.1% of the respondents working as some type of manager. Other positions included for example marketing duties and service delivery.
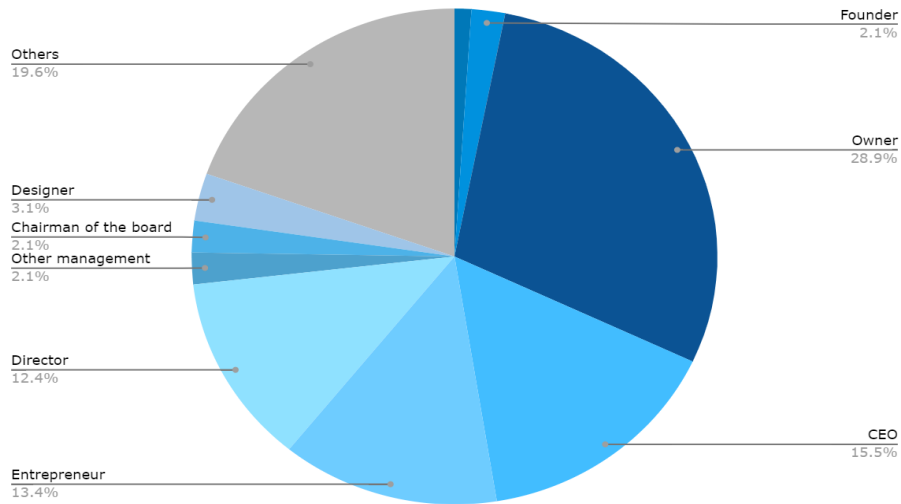
Figure 7. Respondent Titles.

Overall, digital maturity was somewhat evenly distributed throughout the digital maturity scale. However, the distribution did not show a clean normal distribution, but a slightly left-skewed distribution (Figure 8): For the 97 respondents shown on the histogram below, the median value for digital maturity was 3.34, and the average value 3.25. The distribution was unimodal, with one clear peak between the values 3.22 and 3.67. The internal reliability of the survey was excellent, with Cronbach's alpha of 0.983.

Figure 8. The distribution of digital maturity of Finnish SME family businesses.

When examining the distribution of digital maturity based on the survey's responses, a similarity with the distribution presented by Rogers et al. (2021) can be observed (Table 5 and Table 6). In both studies, the vast majority of companies belong to the middle two levels of digital maturity, with only a small minority in the least digitally mature level.
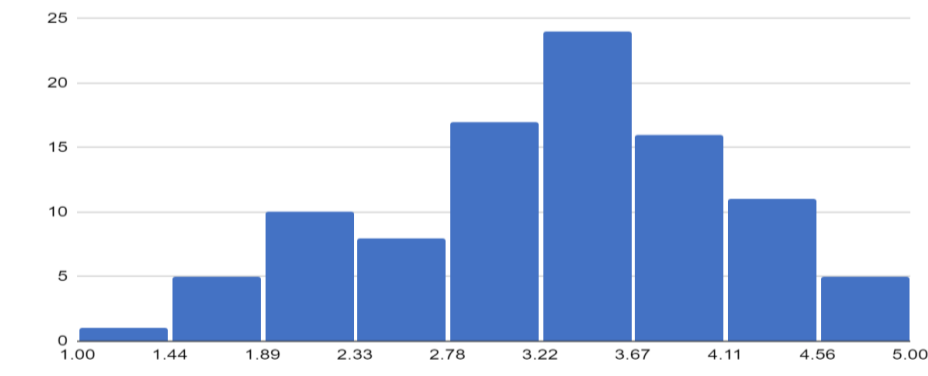
Table 5. Digital maturity levels of Finnish SME family businesses 2022

Digital maturity level	Score	Absolute frequency	Relative frequency
Beginning	1.0 to 1.99	7	7.2%
Transitioning	2.0 to 2.99	28	28.9%
Maturing	3.0 to 3.99	44	45.4%
Advanced	4.0 to 5.00	18	18.6%

Table 6. Digital Maturity levels based on a survey by Rogers et al. (2021, p. 7)

Digital maturity level	Relative frequency (2021)
Nascent	7%
Emerging	36%
Connected	48%
Multimoment	9%

As shown in previous research, there was some variance in digital maturity based on the sector or the branch. IT and finance industries, for example, were ranked as some of the most digitally mature industries. This was also confirmed in Westerman et al.'s (2012) study. The most notable outliers were the Renting / Leasing industry at the low-end, and the IT industry at the

higher end of the digital maturity scale. Other industries, while showing some variation, were quite close to the average value of 3.25, as can be seen below in Figure 9. The colors red, orange, yellow and green represent the digital maturity levels Beginning, Transitioning, Maturing, and Advanced, respectively.
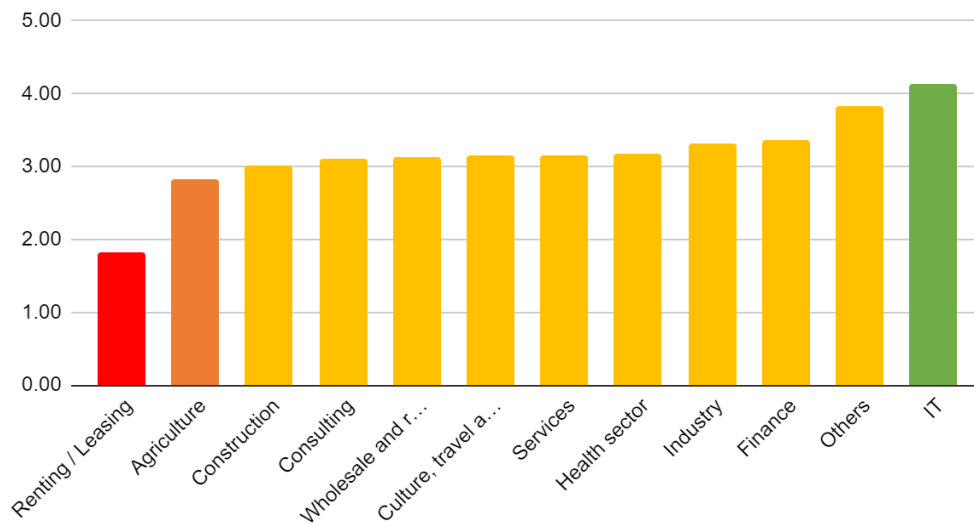
Figure 9. Digital maturity by industry.

The variance between different maturity levels and different categories was not too prominent. Based on the responses, digital maturity was distributed fairly evenly between different areas. Digitally advanced companies stood out in terms of a proportionally higher score in the *Personnel and communications* category, whereas their digital maturity in the category *Economy* was somewhat lower as shown in Table 7 and further visualized in Figure 10 below. The digitally least mature companies scored notably the lowest in *Personnel and communications* category, while the differences were not as prominent in the *Digitalization and technolog*y category.

Table 7. Averages of digital maturity levels and dimensions

	Management and strategy	Digitalization and technology	Personnel and communication	Economy
Beginning	1.68	1.89	1.61	1.64
Transitioning	2.57	2.65	2.58	2.40
Maturing	3.53	3.58	3.66	3.22
Advanced	4.52	4.32	4.66	4.06

Figure 10. Averages of digital maturity levels and dimensions.

4.2 Awareness of digitalization's possibilities

Almost half (49%) of the respondents believed digital business to be important to the success of their organization. On the other side, a little over a third (34.3%) felt th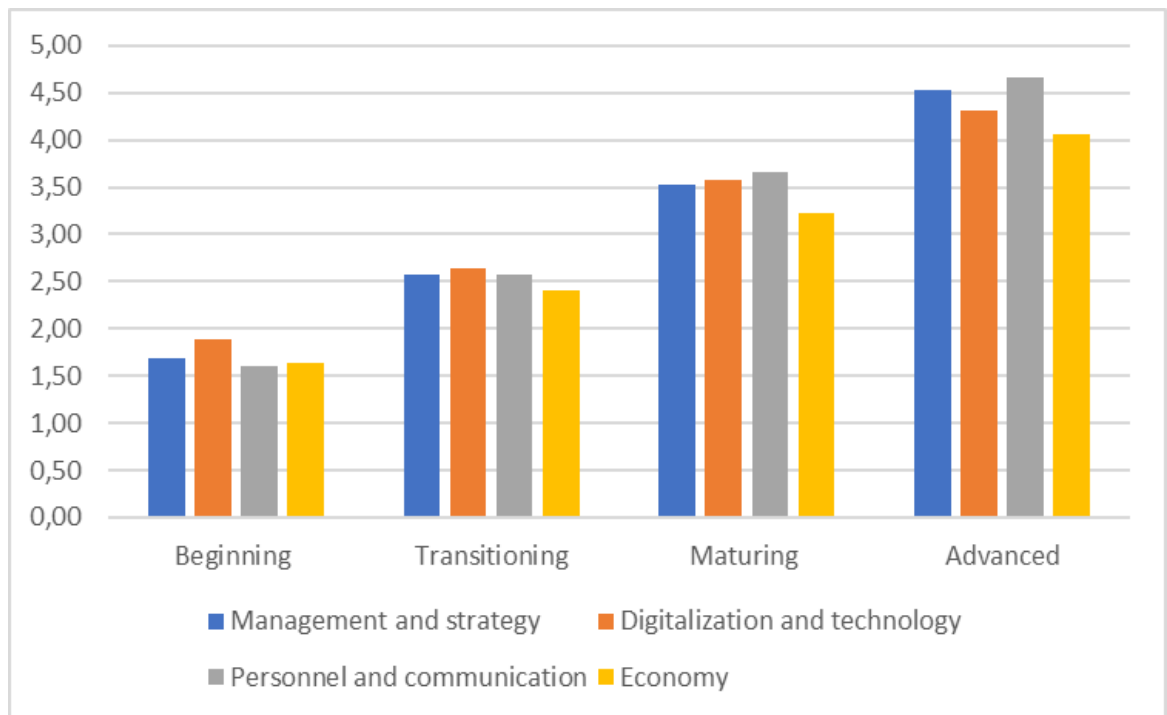at digital business was not that important. Digital budgets were mostly seen as sufficient for the current needs. 53.9% felt that

the budget was sufficient, whereas only 15.4% felt that their budget was lacking. 36.7% of the respondents said they plan to increase their investments in digital initiatives over the next 12 months, with a little over a half planning to keep their investments at the same level.

Finnish SME family businesses were fairly divided in risk aversion when it comes to digitalization. 30.4% of companies described themselves as more risk-averse, 33.7% as more risk-tolerant, and 35.9% as something in between. Social media were not associated with as many risks, as only 10.1% reported considering social media as more of a risk than an opportunity. In contrast, the opposite was true for 62.9% of the companies.

56.5% of the respondents felt that their employees were provided with sufficient resources and opportunities to thrive in digital business, whereas only 19.6% felt they were lacking. Roughly half (49.5%) of the companies felt that they currently have sufficient talent to support their digital business, whereas 27.4% felt they were lacking in talent.

29.7% of the respondent companies were either completely or to some extent lacking a distinct digitalization strategy, while 34.1% of the companies reported having a distinct digitalization strategy. 38.4% did not have clear and quantifiable goals measuring the digitalization strategy's success, while only 31.8% had clearly defined goals for the strategy. The differences were much more prominent when comparing different levels of digital maturity. Out of the least digitally mature level, *Beginning*, no one reported having a digitalization strategy or defined goals for it. As many as 89 percent of the most digitally advanced group reported having a digitization strategy, and 72 percent also had clear goals for it. This is also supported by previous research, where Kane et al. (2017) noted that having a digitalization strategy is one of the most significant differentiators of different digital maturity levels.

Digitalization seemed to be supported by management practices. 54.3% of the companies reported having their management embrace digital channels and lead by example. In over a half of the respondents' companies,

management structures and practices were not seen as interfering with the companies' ability to engage in digital business successfully. Only in approximately 12% of the companies, management structure and practices were seen as a hindrance to digital business. Additionally, most companies (58.3%) reported using digital decision-making assisting tools regularly.

4.3 Financial profitability and digital maturity

Digital maturity was compared with EBIT and ROI for companies for which public finance data were available. The following correlations were observed: an R-squared value of 0.0791 for digital maturity's correlation with ROI (Figure 11), and an R-squared value of 0.0039 for digital maturity's correlation with EBIT (Figure 12), meaning that 7.91% and 0.39% of the variation within the data can be explained with digital maturity. While the correlation is positive and as such in line with previous studies, the correlation is negligible, and therefore cannot confirm or disprove the research hypothesis. Also, due to the limited sample size for this dataset, some outliers in both ends of the scale have a notable effect on the regression line. According to Bryman and Bell (2015), outliers, variables with either very high or low values, can have a distortive effect.

According to Bryman and Bell, the significance level is denoted by $p < X$, p meaning probability. The p-values for digital maturity's correlation with EBIT% and ROI were 0.752 and 0.155, respectively. Drawing 100 samples with these p-values, as many as 75.2 and 15.5 of them could show a relationship even though one did not exist in the population. Bryman and Bell set out 5 out of 100 as the acceptable risk level for business and managerial research. Both dependent variables show a distinct lack of statistical significance, which according to Bryman and Bell may limit the findings' generalizability to the population from which the sample was selected.
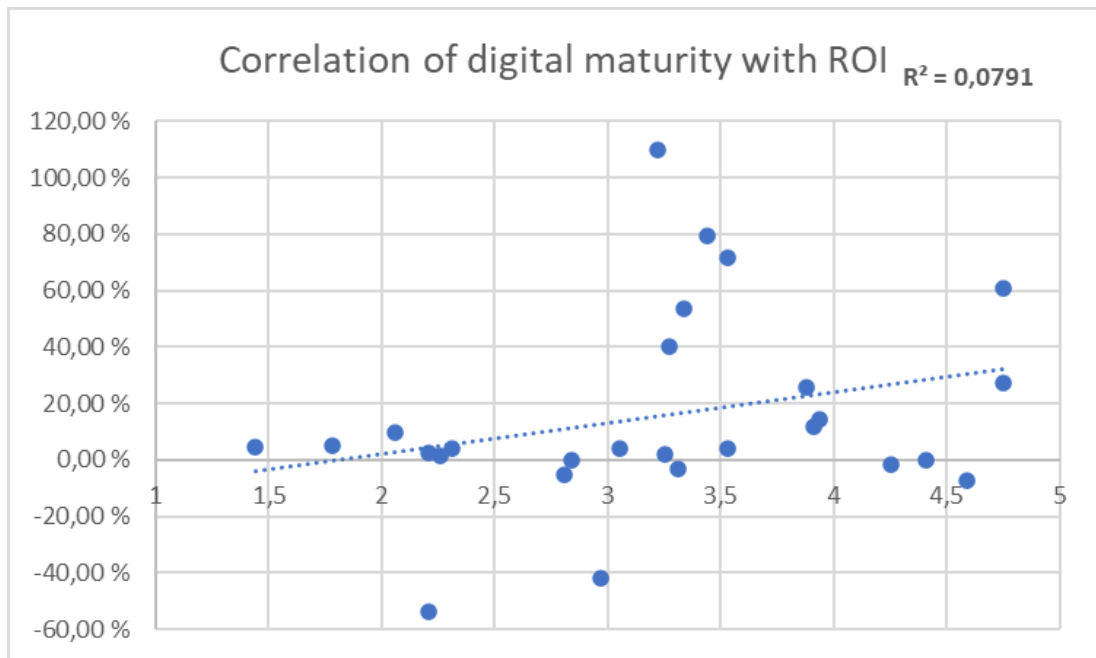
Figure 11. Correlation of digital maturity with ROI, y = 0,1084x - 0,1953.
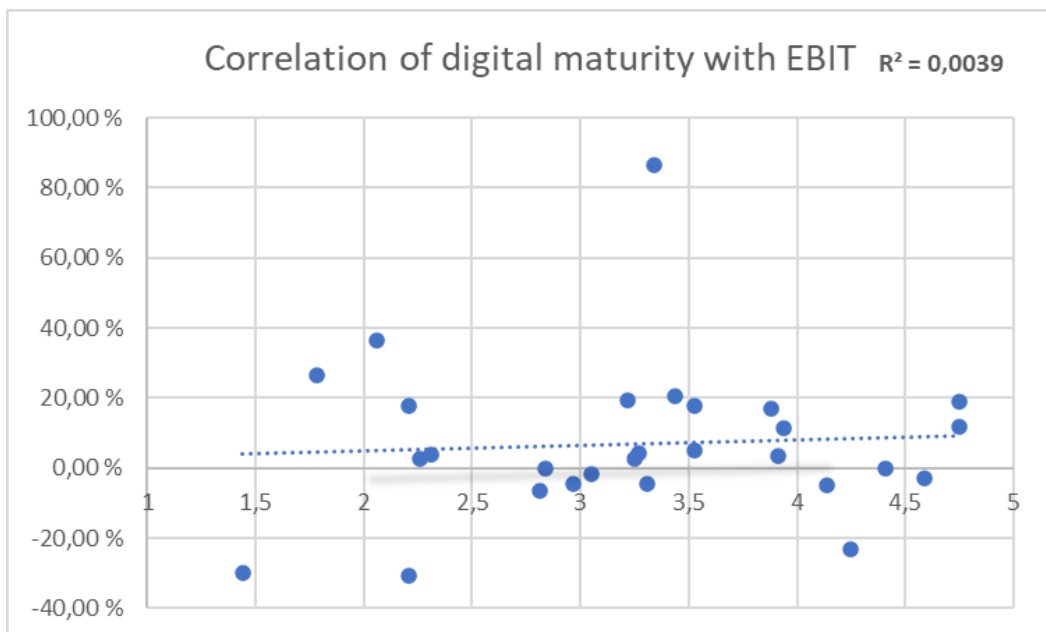
Figure 12. Correlation of digital maturity with EBIT, y = 0,0151x + 0,0207.

Examining financial profitability's correlation with other explanatory values, revenue, family generation, and the sufficiency of the digital budget all had negligible effects on the profitability as can be seen below in Table 8. In other words, explanatory variables could not explain financial performance better than digital maturity. Admittedly, it must be borne in mind that the same reliability problems due to the small sample size and large variance also affect this conclusion. The correlations between financial profitability and explanatory variables are presented below in Table 6. For example, revenue's correlations with EBIT and ROI had R-squared values of 0.007 and 0.011, respectively, whereas the age of the company had close to no impact on the financial performance. Family generation also had little to no negative impact on the financial profitability.

Table 8. Financial profitability's correlation with explanatory variables

Explanatory variable	Correlation with EBIT	Correlation with ROI
Family generation	$R^2 = 0.0652$ (negative correlation)	$R^2 = 0.0002$
Age of the company	$R^2 = 0.0005$	$R^2 = 0.0054$
Branch	Varied	Varied
Revenue	$R^2 = 0.007$	$R^2 = 0.0105$
Sufficiency of digital budget	$R^2 = 3E\text{-}05$ (negative correlation)	$R^2 = 0.0461$

As predicted, financial profitability varied considerably across different industries, as can be seen below in Figure 13. It is notable, however, that analysis of all the explanatory variables suffers from the same reliability issues caused by low sample size and considerable variation within the sample. Additionally, the responses were unequally divided into industries. Out of the 28 companies in this sample, seven belonged to the service industry, whereas only one company represented the finance industry. This results in a high risk of one company having a major impact on the industry's average profitability.
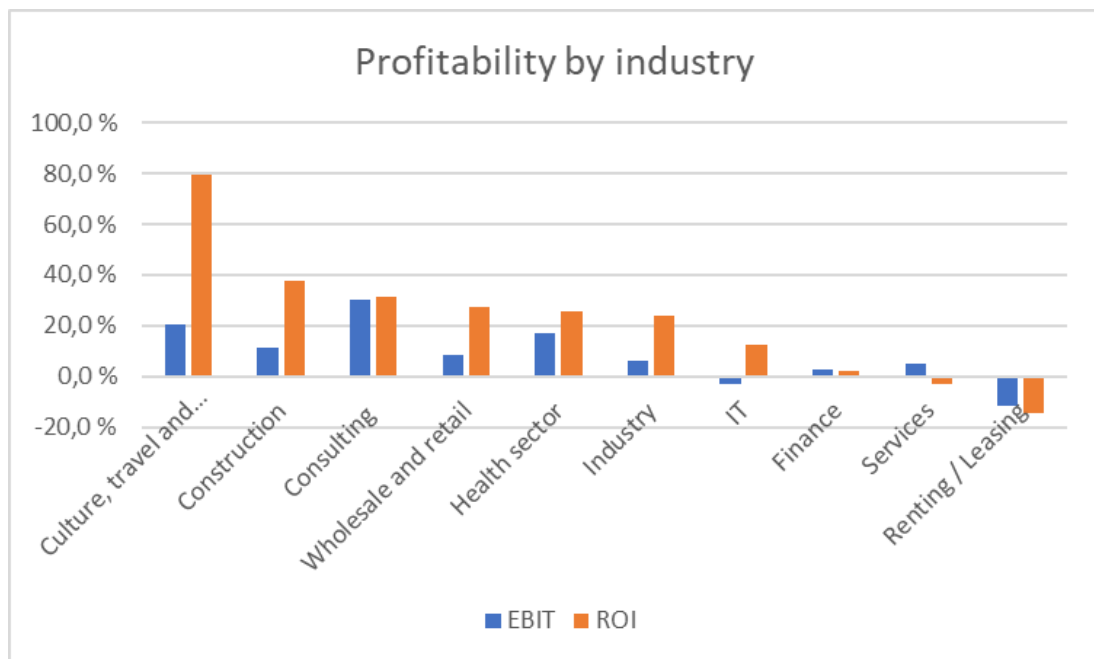
Figure 13. Average profitability by industry.

4.4 Summary of the results

The results show that Finnish SME family businesses generally have a good understanding and awareness of digitalization and the possibilities thereof. Most of the respondents also believe that digitalization is important to their businesses' success. The distribution of digital maturity among Finnish SME

family businesses was slightly left-skewed, with the average value of digital maturity being 3.25. Nearly half of the surveyed family businesses belonged to the second most digitally mature level, *Maturing*. A notable minority was planning on increasing their investments in digital business initiatives in the next 12 months, whereas a little over half planned to keep their investments on the same level.

The results of the comparison between the digitally mature and the less digitally mature companies showed the most notable differences in the attitudes towards the digitalization strategy and its measurement. The more digitally mature companies also seemed to score especially high in the Personnel and communications category.

A strong or statistically notable correlation between digital maturity and financial performance of Finnish SME family businesses could not be observed. The p-values describing the significance of the regression analysis indicated a higher than acceptable risk level, as defined by Bryman and Bell (2015). The identified potential explanatory variables could not explain financial performance better than digital maturity, showing little to no correlation.

Chapter 5: Discussion and analysis

5.1 Discussion on the current state of digital maturity

The findings of the survey on digital maturity were mostly in line with previous research. The distribution of digital maturity across Finish SME family businesses was similar to the distribution of digital maturity among international companies as recently studied by Rogers et al. (2021). Differences in digital maturity between industries were perceived, as was the case with Gill and VanBoskirk's (2016) study. A major part of family businesses lacked a digitalization strategy, which was also noted by a study by Hong et al. (2017). This might have several reasons, as although most of the respondent family businesses saw digital business as important to their organization's success and have previously identified digitalization as their main concern (Hong et al.), they might be lacking in capacity or motivation. Most family businesses felt that their digital budget was currently sufficient.

Management seemed to be committed to digitalization across the board. Nguyen et al. (2013) highlight this as one of the key contributing factors to the success of IT implementations. Based on the respondents' answers, management structures were not in the way of engaging in digital business successfully. Digital tools were regularly used in decision-making, and management led digital initiatives by their example. It is important to note that as most of the respondents consisted of management and ownership, they might be unable to criticize themselves objectively. Kivikoski and Kauppinen (2021) proposed that the entrepreneur's attitude toward and interest in digitalization is one of the most important factors explaining the company's degree of digitalization. Some of the most notable differences in answers between different digital maturity levels were those considering management's impact. However, if management's commitment and

willingness to digitize were assessed by surveying the employees instead of the management, responses about the management's attitudes could have been notably different.

Most of the respondents also felt that they had sufficient digital talent embedded in their organization. Additionally, most family businesses provided their employees with sufficient resources and opportunities to thrive in digital business, even though Kergroach (2020) claims that too few SMEs engage their employees in ICT training. However, the frequency of employee training was not assessed with the survey, so conclusions on this had to be made based on "sufficient resources and opportunities" provided to the employees. The issue with lacking digital strategies seems therefore unlike to be caused by a lack of capacity, resources, or human capital.

Perhaps a lack of awareness of the potential benefits of a digitization strategy reduces its perceived need or timeliness. However, a significant number of respondents could not clearly answer the question of the digitization strategy, which does not automatically rule out its existence. The digitization strategy may be integrated with other strategies or practices and may not be a separate entity. It must also be borne in mind that the lack of a digitalization strategy does not mean that a company will not be able to plan its digital business and react agilely to rapidly changing circumstances.

The positive correlation of digital maturity with financial profitability, as proposed by Rogers et al. (2021) and Westerman et al. (2012) could not be confirmed. The perceived slightly positive correlation was statistically insignificant, and the limited sample size and high variation limited the reliability of the regression analysis. The correlation between digital maturity was not disproved, either, making previous research on the subject still valuable and trustworthy in its own right.

The chosen research method, the web survey, enabled considerable amounts of quantitative data to be collected in the span of only a few weeks.

The achieved sample size exceeded expectations and the target. The answers were in an easy-to-analyze format and could be easily processed with different models and graphs. The main problem with the defined limitations and chosen methods was the unavailability of public financial data for certain general partnerships and limited partnerships. While not crucial for examining digital maturity in Finnish SME family businesses, examining the digital maturity's correlation with financial performance would have greatly benefitted from a larger sample.

As it stands, the current status of digital maturity in Finnish SME family businesses based on this study can be considered somewhat generalizable due to high internal and external validity. It is worth noting, however, that no absolute conclusions can be drawn from the approximately 100 responses to the tens of thousands of family businesses in Finland. Patterns and phenomena can be identified by the sample this study obtained, but with an even larger sample, the results could vary as the population is represented more accurately.

This research has some limitations, both due to the quantitative nature of the study and the diversity of the branches, operations, and sizes of the respondent companies. Additionally, the study concerned Finnish family businesses, and national differences in the characteristics of SMEs or family businesses cannot be ruled out. While the methods chosen for this study were fit for purpose, the lack of publicly available financial data made the analysis of digital maturity's correlation with financial profitability less reliable. As the scope of this study was to study SMEs, financial data could have been more accessible if it were acquired directly from the respondents by self-reporting through the survey. It is notable, however, that official financial statistics through the Finnish Patent and Registration Office is probably a more reliable source of information than self-reporting, which enables more error due to the respondents possibly answering with different financial periods' statistics, the use of different financial performance indicators, and even due to lack of understanding and awareness of the company's financial performance.

5.2 Addressing the research hypotheses

Two research hypotheses were tested and explored in this study.

1. A higher level of digital maturity leads to a higher level of financial performance among Finnish family-owned SMEs.

The first research hypothesis could not be confirmed or refuted, as the correlations obtained through regression analysis were only very slightly positive with R^2 for ROI and EBIT% were 0.07913 and 0.00392, respectively. Further, the results were statistically insignificant with the P-values of 0.155 and 0.752 for the dependent variables ROI and EBIT, meaning that 15.5% and 75.2% of the observed differences can be attributed to chance.

Based on previous studies, it is still reasonable to assume that there might be a positive correlation between digital maturity and financial also in Finnish SME family businesses. If the study and regression analysis were performed with a larger sample size, with less variation and outliers in the sample, different results with higher reliability could be obtained.

2. I also argue that Finnish SME family businesses lack digital awareness.

In general, Finnish family-owned SMEs seemed to have a good awareness of the possibilities of digitalization. Although there was variation based on different industries, it still seemed that family businesses believed in the potential of digitalization, and many companies planned to invest more in it in the future. Answers on digitalization strategies were more divided, as was the risk-aversion when it comes to digitalization.

As proposed by Hong et al (2017, the lack of digitalization expertise may form a barrier to implementing a digitalization strategy. A lack of digitalization strategies was also noted in the study with almost a third of the respondents lacking a digitalization strategy. The exact cause for the lack of digital strategy could not be identified, however, as most of the companies felt that they already possess sufficient digital talent. While Hong et al. proposed that innovation in family businesses mainly occurs on the management level, the lack of digital awareness was not perceived there, either.

6 Conclusion and future research

In this chapter, the research questions of the study are answered, after which the thesis' conclusions are presented. Finally, suggestions for future research on digital maturity in Finnish family businesses are given, noting this study's limitations and how these could have been avoided.

6.1 Answering the research questions

Research question 1: What is the current state of digital maturity of Finnish SME family businesses?

The average current level of digital maturity of Finnish SME family businesses was *Maturing*, according to the survey and the answers of 97 companies. The average numeric value for digital maturity on a scale of 1.0 to 5.0 was 3.34, with 3.25 as the median value. The level of digital maturity seems to be in line with the level suggested in previous studies, namely that Finnish family businesses may be more digitally aware than their international counterparts.

Research question 2: Does higher digital maturity have a positive effect on the financial performance of Finnish family-owned SMEs?

While previous research suggests that there is a positive correlation between digital maturity and financial performance, this could not be confirmed or disproved with this study. The observed positive correlation was too faint to be statistically significant. The limited sample size and large variation within it notably affected the correlation.

Research question 3: Have the possibilities of digitalization been acknowledged in Finnish SME family businesses?

Finnish SME family businesses seem to be fairly well aware of digitalization possibilities, and most companies felt that digital business is important to their organization's success. According to the survey, most companies provide their employees with resources and opportunities to thrive in digital business. A large portion of the respondents felt that they have currently sufficient digital talent in their organization, and the importance of social media was widely understood. Also, management appeared to be committed to digital channels, and lead digitalization initiatives by their own example. However, having a distinct digitalization strategy divided the respondents to some extent. Many were lacking clear and quantifiable goals for the digitalization strategy, as well.

6.2 Conclusion

The study aimed to examine the current state and effects of digital maturity among Finnish family SMEs. Another goal was to answer whether digital maturity correlates with financial performance. Three research questions and two research hypotheses were formulated based on previous research and literature on the subject. These hypotheses were tested with descriptive analysis and regression analysis. Financial performance was measured with ROI and EBIT.

A satisfactory number of answers from varied SME family businesses across different industries were collected. Both digital mature and less advanced companies completed the survey. On average, companies were a bit more digitally mature than initially expected. The results of the correlation analysis

may suffer from a lack of reliability. If the study was repeated, different results could be expected with a greater sample. The possibility of a sampling error cannot be ruled out. While the larger sample and data set included varied types of SMEs, the limitation of available financial data probably increased the risk of sampling error.

Data on Finnish SME family businesses' digital maturity were collected by a custom-made survey sent out to Finnish family businesses and entrepreneurs, and the financial data through the Finnish Trade Register and Suomen Asiakastieto Oy. Out of 114 complete answers to the survey, 97 were by family businesses. Financial information was available for 28 of these companies. Two data sets were formed: the first one consisting of the 28 companies' answers and the financial information, and the second consisting of the 97 companies' answers. These were used to address the first and second research hypotheses, respectively.

The survey's answers were assessed to examine the current awareness of digitalization's possibilities among Finnish SME family businesses. Generally, Finnish SME family businesses seemed to be relatively well aware of digitalization's possibilities. The importance of digitalization is acknowledged, and the majority of management seemed to both embrace digital channels, and lead by example. Also, most companies used digital tools to assist in decision-making, as well as had positive attitudes toward social media. However, a notable proportion of respondents noted that their company lacks a distinct digitalization strategy altogether. An even greater number of companies are missing clear goals for a digitization strategy. Assessing the current level of digital maturity of Finnish SME family businesses, there was notable variation across different industries, as well as variation in categories within the different levels of digital maturity.

To test the first research hypothesis, regression analysis was performed. Simple linear regression was chosen as the linear regression model. Digital maturity's correlation with increases in ROI and EBIT% was slight, but not

statistically significant. The small sample size and large variation in the sample made reduced the reliability of the analysis. Using the regression model, it was found that there was no significant relationship between digital correlation and the financial profitability of SME family businesses, possibly due to the limited sample size. While the overall relationship between digital maturity and ROI and EBIT% appeared to be slightly positive, the strong correlation previous studies suggested could not be demonstrated. Other explanatory values did not explain higher levels of financial profitability, either, as there was next to no correlation between the variables.

Compared to the previous research on the digitalization of Finnish family businesses with a sample size of 60 companies (Korkiakoski et al., 2021), this study serves as a notable addition to the topic with more than half more extensive sample of 97 survey respondents. The results of the study, while somewhat similar to and in line with previous research, were not able to confirm a notable correlation between digital maturity and financial profitability. This means that the first research hypothesis could not be confirmed or disproved. Additional research on the subject is still needed to determine whether the previous international studies regarding larger scale companies still apply in a Finnish SME family business context. As the pace of technological change is still accelerating, gaining competitive advantages through digitalization is paramount for also to Finnish SME family businesses. Preparing for change trough a digitalization strategy could provide important insights to potential benefits and challenges brought by digitalization.

6.3 Future research

Increasing the sample size would enable more accurate and comprehensive results on digital maturity's correlation with financial profitability in Finnish SME family businesses.

Choosing a different data collection method for financial statistics would enable comparison between more varied SMEs, and not just between limited companies. Gaining access to more companies' financial data would make analyzing digital maturity's correlation with financial profitability more reliable. Financial data for other than SME limited companies could have been acquired through self-reporting with the survey.

7 Summary in Swedish – Svensk sammanfattning

Digital mognad i små och medelstora finska familjeföretag -

Nuvarande tillstånd och påverkan

7.1 Inledning

Familjeföretag utgör en avgörande del av den finska ekonomin och fungerar som viktiga arbetsgivare i samhället. De utgör mer än 60% av alla företag i Europa (Europeiska kommissionen, inget datum). Enligt Perheyritysten liitto (2014) var cirka 62 000 av de cirka 274 000 företagen i Finland familjeföretag med över en halv miljon anställda. Detta står för cirka 40% av alla anställda i privata sektorn. Det finns några observerbara nyckelskillnader mellan familjeföretag och företag med olika ägarstrukturer, som att de små och medelstora familjeföretagen är mer solventa och självförsörjande (Tourunen, 2009 & Leskinen, 2018). Detta orsakar kravet för forskning specifikt om familjeföretag.

Definitionen av familjeföretag saknar konsensus bland forskare. Enligt Litz (1995) är ett forskningsproblem vid forskning om familjeföretag vad som menas med begreppet familjeföretag. Definitionen av familjeföretag är avgörande för forskningen, både för att resultera i generaliserbara resultat och för att säkerställa att vissa viktiga insikter inte förbises. Definitioner av familjeföretag tar inte bara upp frågan om ägande, utan också andra faktorer som definierar hela forskningsområdets omfattning. I vissa studier klassades upp till 79% av alla företag som familjeföretag (Chrisman et al., 2004), medan

det i andra bara var 15%. Europeiska kommissionens definition av familjeföretag används på både global och nationell skala, och ska därmed användas även i denna avhandling. Europeiska kommissionen definierar familjeföretag med följande fyra kriterier:

1. Majoriteten av beslutsrätten är i besittning av den person som grundat eller har förvärvat företaget, eller i besittning av deras makar, föräldrar, barn eller barns direkta arvingar.
2. Majoriteten av beslutsrätten är indirekt eller direkt.
3. Minst en företrädare för familjen eller släkten är formellt involverad i förvaltningen av företaget.
4. Börsnoterade företag uppfyller definitionen av familjeföretag om den som grundat eller förvärvat företaget eller deras familjer eller ättlingar innehar 25 procent av den beslutanderätt som deras aktier ger.

Digitalisering som fenomen är en internationell megatrend, och även finska familjeföretag måste hänga med i omvandlingen av industrier. Digitaliseringen påverkar inte bara näringslivet, utan alla delar av samhället. Digitaliseringen har revolutionerat och förändrat många branscher, men olika forskare använder fortfarande olika mätetal och modeller för att mäta nivån på digitala mognaden. Den extrema utvecklingstakten har gjort att mäta digitalisering på ett generaliserbart sätt allt mer komplicerat. Även om denna avhandling kanske inte ger några konkreta förslag som är tillämpbara på de flesta företags investeringar eller åtgärder, kan den att fungera som en grund för framtida mer djupgående forskning och potentiellt belysa vikten av digitalisering för familjeföretag.

Viss forskning i ämnet har bedrivits både på internationell och nationell skala. Cravotta och Grottke (2019) har utforskat digitaliseringens möjligheter och utmaningar specifikt för tyska familjeföretag. PwC:s Global Family Business

Survey från 2021 klargör digitaliseringens effekter på familjeföretag både i ett internationellt (Bartels & Englisch, 2021) och finskt sammanhang (Korkiakoski et al.,

2021), medan Elisa Oyj och Suomen Yrittäjät har gett Prior Konsultointi Oy i uppdrag att undersöka digitaliseringens effekter på finländska små och medelstora företags framgång. Westerman et al. (2012) påstår att mer digitalt mogna företag presterar bättre ekonomiskt i sin studie av nästan 400 stora internationella företag. Rogers et al. (2021) hävdade att mer digitalt mogna företag som effektivt utnyttjar möjligheterna med digital marknadsföring, kan vara mer än 30% mer kostnadseffektiva än sina konkurrenter, och samtidigt öka sin inkomst med i genomsnitt 20% mer än de andra. Studien visade också att digitalt mer mogna företag hade en avsevärt högre sannolikhet för marknadsandelstillväxt.

På grund av digitaliseringens breda omfattning, avgränsas denna avhandling till små och medelstora finska familjeföretag. Detta görs för att göra resultaten av denna studie mer applicerbara för hela målgruppen. Skälet till att granskningen av stora företag utelämnas i denna studie är de grundläggande skillnaderna mellan dem och mindre företag när det gäller digital mognad och företagsverksamhet i allmänheten. Vissa relaterade forskningsområden, såsom avkastningen på investeringar i digitalisering, har väckt mer intresse, liksom digital transformation i allmänhet, och några av de mer konkreta möjligheterna med det, som SEO, marknadsföring i sociala medier och e-handel. Forskningsfältet saknar en holistisk syn på effekterna av nivån på digital mognad när man överväger små och medelstora familjeföretag. Små och medelstora företag i allmänhet har också väckt ett visst intresse, liksom familjeföretag.

7.2 Syfte och forskningsfrågor

Syftet med denna avhandling är att undersöka det nuvarande tillståndet av digital mognad i finländska små och medelstora familjeföretag och undersöka vilken inverkan det har på dem genom explorativ forskning. Påverkan undersöks genom att kartlägga den nuvarande medvetenheten om digitaliseringens möjligheter, och genom att analysera sambandet mellan digital mognad och ekonomisk lönsamhet i finländska små och medelstora familjeföretag, eftersom det inte har undersökts noggrant tidigare. Dessutom syftar denna avhandling till att ge en djupare förståelse för vad termen digital mognad betyder för finska familjeföretag.

Tre forskningsfrågor har identifierats för att stödja syftet med denna studie:

1. Hur ser den digitala mognaden ut för finländska små och medelstora familjeföretag?

2. Har högre digital mognad en positiv effekt på de finländska familjeägda små och medelstora företagens ekonomiska lönsamhet?

3. Har digitaliseringens möjligheter uppmärksammats i finländska små och medelstora familjeföretag?

7.3 Presentation av metod och datainsamling

Eftersom digital mognad inte är ett standardiserat begrepp, för att kunna bedöma digital mognad bland finländska familjeföretag, behöver svaren samlas in direkt från företagen. För att uppnå detta valdes kvantitativa undersökningsmetoder i form av en webbenkät och beskrivande analys för undersökningen.

Webbenkäten bestod mest av slutna frågor, med ett par öppna frågor för att bedöma till exempel respondentens titel, och företagets bransch. Webbenkäten baserades på tidigare forskning och modeller för digital mognad och den bestod av fem kategorier med åtta frågor vardera. Kategorierna var Ledning och strategi, Digitalisering och marknadsföring, Personal och kommunikation, Ekonomi och slutligen Allmänt. Ett numeriskt värde för digital mognad bildades av de första fyra kategorierna och 32 frågorna, medan de 8 sista frågorna användes för att samla in bakgrundsinformation som företagsnamn, branscher och vilken familjegeneration företaget drevs av. Enkäten skickades till finländska familjeföretag och entreprenörer via LinkedIn och genom att direkt kontakta små och medelstora företag och entreprenörer. Enkäten öppnades av 191 respondenter och fick 114 fullständiga svar. Av dessa var endast 97 av dessa svarande familjeföretag, så den verkliga svarsfrekvensen för undersökningen var 50.8%. Enkätens reliabilitet bedömdes med Cronbachs alfa. Enligt Bryman och Bell (2015), bör Cronbachs alfa ha ett värde på minst 0.80 för att ha en acceptabel nivå av intern reliabilitet. Enkätens interna reliabilitet var utmärkt, med Cronbachs alfavärde på 0,983.

Finansiell statistik samlades in genom Suomen Asiakastieto Oy:s och Patent- och Registerstyrelsens dataregister. Dessa statistiker var offentligt tillgängliga endast för aktiebolag, vilket begränsade urvalet användbart för regressionsanalys. Av de 97 svarande med fullständiga svar kunde den finansiella statistiken endast hittas för 28 små och medelstora familjeföretag. Dessa 28 företags svar tillsammans med den finansiella statistiken användes för att göra en regressionsanalys. Ett numeriskt värde för digital mognad användes som den oberoende variabeln, med EBIT% och ROI som de beroende variablerna.

7.4 Resultat

Resultaten av undersökningen om digital mognad var till största delen i linje med tidigare forskning. Fördelningen av digital mognad mellan finska små och medelstora familjeföretag liknade fördelningen av digital mognad bland internationella företag som nyligen studerats av Rogers et al. (2021). Resultaten visar att finländska små och medelstora familjeföretag generellt sett har god förståelse och medvetenhet om digitalisering och dess möjligheter. Digital mognad delades in i fyra olika nivåer: Digital mognad på Börjande, Övergående, Mognande och Avancerad. Fördelningen av svarande på dessa nivåer var 7.2 %, 28.9 %, 45.4 % respektive 18.6 %, vilket också speglar tidigare forskning i ämnet. Resultaten av jämförelsen mellan de digitalt mogna och de mindre digitalt mogna företagen visade att de mest anmärkningsvärda skillnaderna var i attityden till digitaliseringsstrategin och dess mätning. Nästan en tredjedel av respondenterna saknade helt en tydlig digitaliseringsstrategi. De mer digitalt mogna företagen verkade också få extra höga poäng i kategorin Personal och kommunikation. Variationen i både digital mognad och ekonomisk lönsamhet var anmärkningsvärd inom de olika branscherna. IT-branschen var föga förvånande den mest digitalt mogna branschen, medan hyresbranschen var både den minst lönsamma och minst digitalt mogna.

En stark korrelation mellan digital mognad och ekonomisk lönsamhet kunde inte observeras bland finländska små och medelstora familjeföretag. Medan regressionsanalysen visade en svag positiv korrelation med digital mognad och ROI (R_2 på 0.0791), var urvalsstorleken begränsad och variationen i den var stor, vilket minskar resultatets reliabilitet. Korrelationen mellan digital mognad och EBIT% var omärklig. De föreslagna förklarande variablerna (familjegeneration, företagets ålder, bransch, omsättning, den digitala budgetens tillräcklighet) förklarade inte heller skillnader i ekonomisk lönsamhet.

7.5 Diskussion och avslutning

Syftet med studien var att ta reda på det aktuella tillståndet och effekterna av digital mognad bland små och medelstora finska familjeföretag. Ett annat mål var att svara på om digital mognad korrelerar med ekonomisk lönsamhet. Tre forskningsfrågor och två forskningshypoteser formulerades utifrån tidigare forskning och litteratur i ämnet. Dessa hypoteser testades med deskriptiv analys och regressionsanalys. Digital mognad mättes med en skräddarsydd webbenkät som fick 97 svar av små och medelstora finska familjeföretag, medan ekonomiska resultat mättes med ROI och EBIT som hämtades via Patent- och registerstyrelsens och Suomen Asiakastieto Oys databas. Den finansiella informationen var dock endast tillgänglig för 28 företag.

Enkätens svar utvärderades för att undersöka den nuvarande medvetenheten om digitaliseringens möjligheter bland finländska små och medelstora familjeföretag. Generellt verkade finländska små och medelstora familjeföretag vara relativt väl medvetna om digitaliseringens möjligheter. Vikten av digitalisering erkänns och majoriteten av ledningen verkade både anamma digitala kanaler och föregå med gott exempel. De flesta företag använde också digitala verktyg för att hjälpa till i beslutsfattande, samt hade positiva attityder till sociala medier. En anmärkningsvärd andel av de tillfrågade noterade dock att deras företag saknar en distinkt digitaliseringsstrategi helt och hållet. Ännu fler företag saknar tydliga mål och mål för en digitaliseringsstrategi. När man bedömer den nuvarande nivån på digital mognad för finska familjeföretag för små och medelstora företag, fanns det betydande variationer mellan olika branscher, såväl som variationer i kategorier inom de olika nivåerna av digital mognad.

Resultaten av studien, även om de delvis liknar tidigare forskning, kunde inte bekräfta en anmärkningsvärd korrelation mellan digital mognad och ekonomisk lönsamhet. Detta innebär att den andra forskningsfrågan inte kunde besvaras definitivt. Korrelationen mellan digital mognad och ekonomisk lönsamhet var för statistiskt obetydlig, och det fanns en hel del

variation inom urvalet. Ytterligare forskning i ämnet behövs fortfarande för att avgöra om de tidigare internationella studierna om digitala mognadens korrelation med ekonomisk lönsamhet i större företag stämmer även i finska små och medelstora familjeföretag. Ett större urval och potentiellt en annan datainsamlingsmetod för finansiell information skulle kunna förbättra forskningens tillförlitlighet.

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Appendix A. The questions for the survey about digital maturity, with references.

Category / question number	Question	Reference
Management and strategy		
1.	Our organization regularly uses digital tools to assist decision-making	
2.	Our organization has implemented a distinct digitalization strategy.	
3.	Our organization has clear and quantifiable goals for measuring the success of the digital strategy.	VanBoskirk (2017)
4.	Our organization's management structure and practices (e.g., reporting relationships and decision-making processes) do not interfere with its ability to engage in digital business successfully.	Kane et al. (2017)
5.	Our organization values and encourages experiments and testing as a means of continuous organizational learning.	VanBoskirk (2017)
6.	The roles and responsibilities for delivering the digital	Government of South Australia

	strategy are clear and understood	
7.	Our organization's management embraces digital channels and leads by example	Government of South Australia
8.	My organization primarily drives digital business adoption and engagement internally through	Kane et al. (2017)
Digitalization and marketing		
9.	Would you consider your organization more risk-averse or risk-tolerant when it comes to digitalization?	
10.	Our organization is actively implementing initiatives to increase agility in its response to rapidly changing markets.	Kane et al. (2017)
11.	Digital business is important to the success of my organization.	Kane et al. (2017)
12.	Our organization develops and documents new digital procedures and policies.	Government of South Australia
13.	In your organization, is social media is seen more as a risk than an opportunity?	Government of South Australia
14.	Our organization monitors new technologies and adapts to changing market requirements.	Proff et al. (n.d.)
15.	We optimize our processes with the help of digital technologies.	Kane et al. (2017)
16.	How would you characterize the outcome of digital business initiatives in your organization to date?	
Personnel and communications		

17.	Our organization has sufficient talent today to support our organization's digital business strategy.	Kane et al. (2017)
18.	Our organization effectively utilizes the digital knowledge, skills, interest, and experience held by employees.	Kane et al. (2017)
19.	Our staff understand the benefits and opportunities to them and customers of the digital strategy.	
20.	Our staff proactively generates and explores ways to improve digital service delivery and internal productivity via digital solutions.	
21.	We have digital skills embedded throughout our organization.	VanBoskirk (2017)
22.	We promote collaboration across departments regarding digital projects and services.	
23.	Our organization model encourages cross-functional collaboration.	VanBoskirk (2017)
24.	My organization provides its employees with the resources and/or opportunities to thrive in a digital business.	Kane et al. (2017)
Economy		
25.	Is your organization planning to invest a higher or lower amount in digital business initiatives in the next 12 months?	
26.	Roughly how much of your total investments do you allocate in digital investments?	
27.	When my organization implements digital business	Kane et al. (2017)

	initiatives, they tend to start as	
28.	Our organization's digital budget is appropriate to current needs	
29.	We gain cost savings through digitalization and digital investments	
30.	Our organization prioritizes digital channels over other business practices and processes	
31.	Our organization regularly explores and experiments with different digital methods and solutions	
32.	Our organization spends the appropriate amounts of time, energy, and resources on implementing digital business initiatives	Kane et al. (2017)
General		
33.	What organization do you work for? (will not be published)	
34.	Is your company owned or managed by a family?	
35.	How old is your organization? (years)	
36.	Which family generation owns / runs your business?	
37.	Which best describes your organization's primary industry?	
38.	What is your role at your organization?	
39.	Given business trends, I expect to work for my organization for:	
40.	If you wish to receive a summary of the results,	

	please leave your email address on the form below. You will not be contacted with anything else, and the email address will be deleted after 2 months.	