

EFFECTS OF THE COVID-19 PANDEMIC ON  
DIGITALIZATION OF SMALL AND MEDIUM-SIZED  
ENTERPRISES IN YLITORNIO

Kraatari Toni  
Kallankari Joel

Master's Thesis  
Digital Business Management  
Master of Business Administration

2023

Digitaalisen liiketoiminnan johtaminen  
Ylempi AMK-tutkinto

---

<b>Tekijät</b>	Toni Kraatari, Joel Kallankari	<b>Vuosi</b>	2023
<b>Ohjaaja</b>	Tanja Suomalainen		
<b>Toimeksiantaja</b>	Ylitornion kunta		
<b>Työn nimi</b>	Covid-19 pandemian vaikutukset pienten ja keskisuurten yritysten digitalisaatioon Ylitorniolla		
<b>Sivu- ja liitesivumäärä</b>	55 + 6		

---

Opinnäytetyön aiheena oli selvittää Covid-19 pandemian vaikutuksia Ylitorniolaisien yritysten digitalisaatioon. Lähtökohtana oli toimeksiantajan tarve selvittää millaisia muutoksia pandemia aiheutti alueella yritysten digitalisaation kehittymiseen, pienten ja keskisuurten yritysten digitaalisuusaste on noussut globaalisti viime vuosina. Haasteena tässä opinnäytetyössä oli se, että yritykset ovat alueella melko pieniä kooltaan ja aikaisempaa vastaavaa tutkimustietoa alueelta ei ole. Suunnittelun tukena toimi muutama aikaisempi tutkimus Etelä-Pohjanmaalta, muualta Euroopasta sekä maailmalta. Haasteena oli myös aiheen rajaaminen, sillä digitaalisuus on laaja käsite. Toimeksiantajalla ei ollut muita toiveita alkuperäisen idean lisäksi, joita suunnittelussa tulisi huomioida.

Opinnäytetyö eteni tutkimushankkeelle tyypillisten vaiheiden mukaisesti selvityksen kautta ratkaisuehdotuksiin. Osana suunnittelua haastateltiin alueen yrittäjiä kasvotusten. Datan keräyksessä apuna käytettiin tekoälyä hyödyntävää ZEF-kyselyjärjestelmää. Yhteenvedot ja analyysit toteutettiin perinteisesti haastattelujen sekä havaintojen pohjalta.

Tiedon keräämisessä käytettiin kyselyjärjestelmää, muistiinpanoja sekä nauhoituksia, joihin opinnäytetyössä syvennyttiin laajalti. Työssä käytiin läpi myös yritysten ennen pandemiaa käytössä olleita toimintatapoja, joilla oli merkittävä vaikutus analyysin tuloksiin. Opinnäytetyön tuloksena esittelemme yritysten nykytilanteen digitalisaatioon liittyen.

**Avainsanat**                      pienet ja keskisuuret yritykset, Covid-19, digitalisaatio, data, tutkimus

Digital Business Management  
Master of Business Administration

---

<b>Authors</b>	Toni Kraatari, Joel Kallankari	Year	2023
<b>Supervisor</b>	Tanja Suomalainen		
<b>Commissioned by</b>	Ylitornio municipality		
<b>Title of Thesis</b>	Effects of the Covid-19 pandemic on digitalization of small and medium-sized enterprises in Ylitornio		
<b>Number of pages</b>	55 + 6		

---

The objective of the thesis was to find out the effects of the Covid-19 pandemic on the digitalization of small and medium-sized enterprises companies from Ylitornio. The starting point was the commissioner's need to find out, what kinds of changes the pandemic caused in the digitalization of companies in the region. The digitization of SMEs has increased substantially worldwide in preceding ears. The challenge in the research project was that the companies in the area are quite small and there is no previous similar research data from the area. The design was supported by a few previous studies from South Ostrobothnia, other parts of Europe and the world. Narrowing the topic was also a challenge, digital is a broad concept. The commissioner had no other wishes besides the original idea, which should be considered in the design.

The thesis progressed in accordance with the typical stages of a research project, through the survey to solution proposals. As part of the planning, companies in the Ylitornio area were interviewed face to face. A questionnaire system using artificial intelligence, called ZEF, was used to collect the data. Summaries and analyzes were traditionally carried out based on interviews and observations.

A survey system, notes and recordings were used to gather information, which were extensively explored in the thesis. The thesis project also reviewed the operating methods of the companies before the pandemic, which significantly affected the analyses. As a result of the thesis, we share an understanding of the prevailing situation of the companies.

**Keywords** small and medium-sized enterprises, Covid-19, digitalization, data, survey

## CONTENTS

1	INTRODUCTION .....	7
1.1	Digitalization .....	7
1.2	Motivation and background .....	9
1.2.1	Partner presentation .....	12
1.2.2	Operating environment .....	12
1.2.3	Theoretical background .....	14
1.3	Purpose, objectives and thesis question framing .....	15
1.4	Methodological implementation .....	15
1.5	Ethical foundations and reliability .....	17
1.6	General structure of the thesis .....	18
2	KNOWLEDGE BASE .....	20
2.1	Customer experience management and strategic awareness .....	21
2.2	Five domains of digital transformation .....	23
2.3	Digitalization in South Ostrobothnia SMEs before Covid-19 .....	25
2.4	Utilization of social media channels in business .....	26
2.5	The impact of digitalization on the company's success .....	27
2.6	The benefits of digitalization .....	27
3	RESEARCH APPROACH AND DESIGN .....	28
3.1	Research methods .....	29
3.2	Case selection and description .....	30
3.3	Research process .....	30
3.4	Data analysis .....	31
3.5	Reliability and validity of the research .....	31
4	FINDINGS .....	34
4.1	Case report (A) .....	34
4.2	Case report (B) .....	35
4.3	Case report (C) .....	37
4.4	Case report (D) .....	38
4.5	Case report (E) .....	40
5	CROSS-CASE ANALYSIS .....	44
6	RESEARCH RESULTS AND DISCUSSIONS .....	46
6.1	The business model innovations took place in case companies .....	46

6.2	Companies developing their businesses different ways .....	47
6.3	Enhancements in end-products and the services offered .....	49
6.4	The presence of social media brings customer value .....	50
6.5	Successful results shown financial growth and new investments .....	51
6.6	Companies paying more attention to the digital customer experience .....	52
7	RECOMMENDATIONS .....	54
	REFERENCES .....	56
	APPENDIX.....	60

## ABBREVIATIONS

BBA	Bachelor of Business Administration
SME	Small and medium-sized enterprises
ERPS	Enterprise resource planning system
PLM systems	Product Lifecycle Management systems
TES	Collective labor agreement (Työehtosopimus)

## 1 INTRODUCTION

The Covid-19 pandemic hit both humanity and companies hard. The state limited or closed all or parts of the business of certain industries. State borders closed and even provinces within the country closed, the movement of citizens was restricted by many measures, including public transport. These had a negative impact on the business of several companies, foreign business operations became more difficult, and the domestic market was hard to reach. Globally, the term “lockdown” was used, face-to-face business stopped, factories closed, and restaurants shut down and planes stayed on the ground, companies had to find other ways to do business.

The goal of this thesis is to understand how the digitalization of small and medium sized enterprises (SME) changed in Ylitornio as a result of the Covid-19 pandemic. The research analyses five SMEs in the Ylitornio area. All the companies work in the international market and their turnover is more than one million euros per year and there are 10 or more employees, the main operation is industrial subcontracting. The data for the analyzes has been collected by interviewing subcontracting companies in the Ylitornio area, and the theory is based on three different topical areas relating to customer experience management and strategic awareness digital transformation, and benefits of digitalization.

### 1.1 Digitalization

Digitalization as a trend in modern business, according to studies and literature, is one worth noticing while considering strategic approaches in core operations. It is worth noting that in the approaching ears the greatest effect of digitalization on consuming is the change in the traditional concept of what should be offered and how. (Lindgren, Mokka, Neuvonen & Toponen, 2019, 101.)

In order to enhance and improve their competitiveness in a changing environment, companies are expected to initiate changes in their operational inputs and outputs. Unfortunately, companies tend to see this as a risk rather than as an opportunity, and thus miss the potential of following the digital

corporate giants to the new market sights they have stepped into (Gerdt & Eskelinen, 2018, 60).

The conservative and reserved attitude towards digitalization (Gerdt & Eskelinen, 2018, 60-61) is interesting as a phenomenon, as there are more and more studies and indications towards the exact opposite. Digitalization is also a process that has, according to studies such as Digital capabilities in manufacturing SME's by Hirvonen and Majuri, published in *Procedia Manufacturing's* volume 51 in 2020, increased performance for example in the manufacturing industry. Though it is taking early steps in several businesses, the arising use of artificial intelligence and similar innovations are working as a pushing force for development in digitalization processes (Hirvonen & Majuri, 2020, 2-4). Capability to deploy and efficiently exploit the digital systems is seen as a significant source of competitiveness, especially in the case of mature technologies. (Hirvonen & Majuri, 2020, 4).

The research by Brodny and Tutak discusses successful implementation of digital solutions in SMEs within the European Union. Their research showed differences between SMEs digitalization between SMEs in the EU countries. Their research states that the dynamic development of information and communication technology has already caused enormous changes in the world economy. The development of networks, the Internet and the proliferation of digital solutions have led to enormous changes in almost all areas of life and the pandemic caused by Covid-19 has accelerated these changes. (Brodny & Tutak 2022.)

One of the main objectives in our research project was to figure out what is the level of digital maturity of SMEs among the EU-27 countries. In comparison Finland was ranked on the expert level of digital maturity of SMEs together with Denmark, Finland, Malta, the Netherlands, and Belgium. (Brodny & Tutak 2022.) This confirmed our impression that the digitalization of Finnish SMEs is already at a high level and we found that the pandemic had even accelerated digitalization in companies.



Joensuu-Salo et al. (2017) researched the digitalization of SMEs in South Ostrobothnia, this report tells about the time before the Covid-19 pandemic (Joensuu-Salo et al. 2017). The research gave us good comparative information for our own research, and it is explored more in detail in the subsections of chapter 2.

## 1.2 Motivation and background

Digitalization is changing the world, it's the renewal of operating methods, the digitalization of internal processes and the electrification of services, user orientation is an essential part of digitalization. Digitalization is a social phenomenon – the fact that the services, functions and products that humanity has been used to receiving in physical form for centuries have been transformed into digital form. Digitalization covers all the different sectors of society. It includes the transformation of working life, entertainment, social life and everyday activities into a digital format at the hands of every person.

This research was done by two authors, Toni Kraatari and Joel Kallankari. Toni has been working in Ylitornio municipality as a business advisor since 2010. He has worked in development companies since 2005. He knows the area and companies well and he has selected five companies from the area, with whom he conducted a survey and save to the database. The companies are SMEs, export and operate in the subcontracting business.

The main question of the thesis is how Covid-19 pandemic affected the SMEs in Ylitornio. In addition, we look at how the companies tackled the pandemic. The research problem is “How the SMEs’ digitalization practices have changed because of the Covid-19 in Ylitornio?” This is a qualitative research with multiple case studies. Methodology to collect data is interviews and questionnaires, observations and analysis of scientific publications and books.

In addition, we discussed the further expansion of the investigated company base to the Kemi-Tornio area, where Joel has connections with companies similar to those in Ylitornio. The struggle in balancing between quality and quantity drove

us to stay within the Ylitornio companies as we decided to seek, we'd prefer to seek actual phenomena results gathered and focus on getting most out of the data gathered, thus avoiding gathering a mass of data.

This might also conflict the results and create a clustering effect between separate areas of studied case companies. Joel also shares an interest in how local businesses operate, having been employed throughout his whole working life by companies in the Sea Lapland region. Joel's earlier BBA thesis was made for the city of Kemi, handling similar topics surrounding the base operations of companies operating in the area and how they conduct them.

The Covid-19 crisis has increased the importance of digitization for SMEs and acted as an accelerator. Companies have moved their operations online and adopted smart working solutions to stay operational during restrictions and overcome disruptions. Business surveys worldwide showed that up to 70 % of SMEs have increased their use of digital technology due to Covid-19. Most of these changes are sustainable because some of the investments are difficult to reverse and the effectiveness has been proven. Barriers to digital adoption for SMEs include, for example, system interoperability, internal skills, uncertainty, etc. (OECD 2023).

According to our experience and understanding, the digitalization of companies has grown rapidly at the time of this research. It will also be interesting to determine if the location of the market and the businesses themselves plays a role in digitalization efforts or the lack of it, and does it raise as a distinctive point that the case companies have identified as a factor.

SMEs usually digitalize general administration or marketing functions first. The digital gap between SMEs and large companies is relatively small, e.g., in electronic invoicing or using social media or online sales. However, the gap grows when technologies develop, such as data analytics or enterprise resource planning processes are integrated into business operations. There are also differences between companies in the use of cloud services. The differences between industries in digitalization are significant. In IT fields, companies use

many types of technologies, and some areas of digital transformation are almost completely ready. In other sectors, digitization is lower. (OECD 2023).

For example, in accommodation and restaurant services, fast broadband connections, websites and social media services, and cloud services are the most important technologies. The wholesale sector has electronic sales, cloud-based databases, and customer relationship management is already digital. When SMEs digitalize their business, they usually outsource the solutions, partly because the knowledge is weak, but also for cost reasons, like digital platforms, e.g., social networks, e-commerce marketplaces, etc. In addition, decision makers play a key role in adapting SMEs to the digital world. Policy actions cover a wide range of areas, including education and finance, online programs, regulatory reforms such as data protection, e-government, and centralized services. (OECD 2023).

According to the SME definition, the company employs fewer than 250 employees and has a turnover of no more than EUR 50 million or a balance sheet with a total of no more than EUR 43 million and which are independent companies. That is, 25 percent or more of the capital or voting shares are not owned by one company or jointly owned by companies to which the definition of either an SME or a small company cannot be applied, depending on the situation. (OECD 2005).

The local companies chosen for the thesis research all share some similarities, but due to their own initial processes and business models they all have their own characteristics where varying factors take place and co-effect the digitalization process. What these characteristics are and whether their relevant relation between them is evident is something we were looking to find out with this thesis.

As the companies join in our research, they are resented with an opportunity to go through their process piece by piece with an objective third party commenting and observing the process further away. The intention is to be able to underline phenomena and decisions that the companies themselves didn't necessarily see or recognize at the time of the initial process or hadn't thought of.

### 1.2.1 Partner presentation

The municipality's task is to promote the well-being of its residents and sustainable development in its area. The goal is to secure services of sufficient quality and to promote the development of business life and employment. The municipal government manages the municipality's administration. Its task is to prepare matters to be discussed in the municipal council and ensure that the council's decisions are implemented, the council exercises the municipality's highest decision-making power. Governing bodies also belong to the municipality's decision, their task is to take care of the development of the operation, economy, and organization of their industry, set performance goals and monitor the results of the operation, guide, and supervise the planning and implementation of their industry.

The task of the management team is to support and develop the overall management of the municipality in cooperation with the personnel and the trustee organization. It consists of the mayor, heads of departments and other office holders and employees appointed by the mayor. The municipality of Ylitornio employs a total of 170 people. Table 1 shows number of full-time personnel in the municipality. (Ylitornion kunta, 2023.)

Table 1. The number of full-time personnel in the municipality in 2023 (Ylitornion kunta, 2023)

Permanent	110
Temporary	49
Supported employment	11
<b>Total</b>	<b>170</b>

### 1.2.2 Operating environment

Ylitornion is located on the border of two countries, Finland and Sweden. The boundary river, called Tornionjoki, serves as the border. In 2021, the population of Ylitornio was 3830 inhabitants, the population is decreasing because about 40% of the municipality's residents are over 64 years old. In addition, there are no other educational institutions in the municipality other than upper secondary school. Young people move to cities after elementary school. In 2021, the birth

rate was negative, the absolute number was -70 (births compared to deaths). In the same year, around 13 % of the workforce was unemployed. (Tilastokeskus, 2023.)

Ylitornio's attractive factors in business activities are its location on the national border, the tourism and hobby areas of Aavasaksa and Tornionjoki. Ylitornio's location enables good export and import connections and movement: Highway 21 and the railway pass through the municipality; the border crossing to Sweden is close to the center, Kemi-Tornio airport is about an hour away and Rovaniemi airport an hour and a half. The region's strengths are, for example, in industry. The largest companies in Ylitornio include the concrete element manufacturer YBT Oy. The municipality supports renewable forms of energy and wind power projects are being developed in the area. In addition, mining operations are being mapped in the area. (House of Lapland, 2013.) Ylitornio had 365 companies in 2021. The combined turnover of the companies in 2021 was approximately EUR 01 million. (Tilastokeskus, 2023.) Distribution of companies' business by industry in Ylitornio presented Figure 1 and distribution of jobs according to the main sector presented Figure 2.

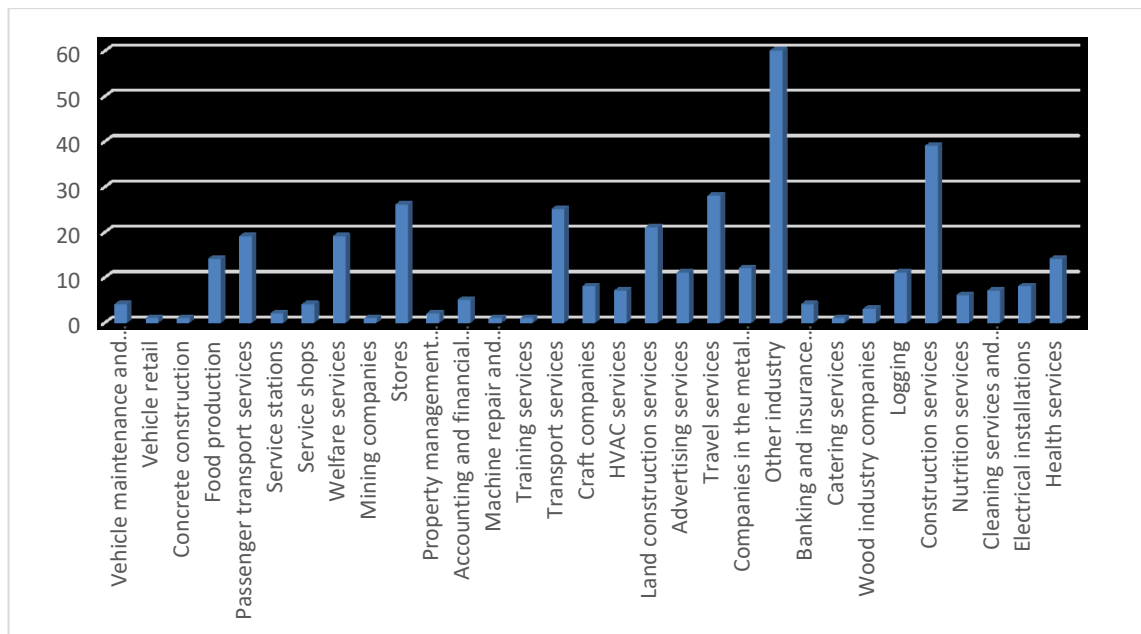


Figure 1. Year 2023, Distribution of companies' business by industry in Ylitornio (Accordingly Tilastokeskus, 2023)

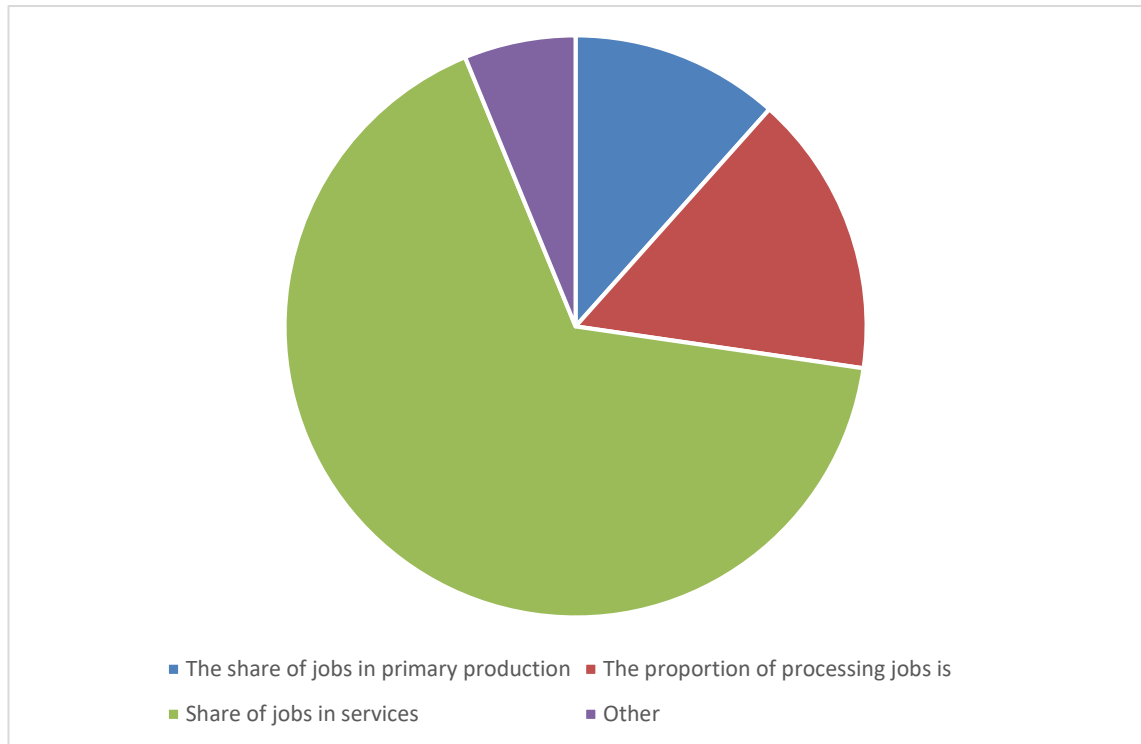


Figure 2. Year 2020, Distribution of jobs according to the main sector (Accordingly Tilastokeskus, 2023)

### 1.2.3 Theoretical background

For the purpose of this thesis work, we examined whether the companies were able to succeed in three following areas and how they managed to improve them: leading new business model innovations, developing a digital transformation strategy and developing the digital customer experience. We discuss their correlation to company strategies overall and how the effects are expected to affect on measured objectives the companies have set for their operations.

All the fundamental areas were thoroughly studied and perceived vital and evidential similarities to support the research conducted in this thesis. To build a sustainable development for all business operations, the business model should maintain its performance levels, despite the timespan – relying heavily on strategic awareness. The theoretical frame and knowledge base of the thesis is discussed thoroughly in chapter 2.

### 1.3 Purpose, objectives and thesis question framing

The purpose for the thesis research was initially to answer the question “How the SMEs’ digitalization practices have changed because of the Covid-19 pandemic in Ylitornio”. The objective was to find, point out and hand out tools for management personnel to handle process-management issues and forging the way forward in a crisis scenario – like a global pandemic, along with its barriers and challenges that it raises.

All the theoretical frames discussed in sub-chapter 1.2- share a strategic approach, structure and point of view that meets in terms and nature of the research is conducted in this thesis, we included the three areas in the analysis processed and discussed the findings through them. The frames were chosen after a literature review – there is a significant amount to “choose from”. Virtually every model and theoretical frame are either direct results of a research conducted and “field tested”, and it took time and care to determine what would make ends meet with our research without violating the validity of the analysis and its results. Hypothetically, it would be the shortest route to go on ~~with~~-by choosing the most obvious theoretical frames, but we strongly believe that we were able to determine the ones that serve the academical purpose of our research work the most.

### 1.4 Methodological implementation

In the research, the data is collected through questionnaires and interviews. The main knowledge base source for the thesis project were the company case studies with the SMEs and the cross-analysis based on the case study questionnaire results during the interview stage. The interview stage consists of filling the questionnaires with the company representatives taking part in the research process. The questionnaires are presented and answered in Finnish. The application collects the answers into an online database as an automated function for safe and reliable online storage. The cross-analysis stage starts after the interview stage questions are ready and the data collected to the storage

database. The end-product of the cross-analysis stage is the individually written reports on each case company.

The information gathered for the research through questionnaires filled by our participating case companies through an online questionnaire tool and through interviews based on the questionnaire format with the case companies themselves – essentially, we use a qualitative research approach accompanied with a triangular method and cross-analysis between the case companies and their respective results.

As the survey question frame indicates, the first questions are solely based on gathering the basic information and numeral operational statistics based on the last documented and reported fiscal year. Once the base operational frame is determined in questions 1–8, the questions delved deeper into details in business model changes during the pandemic, their nature and lifespan.

We collect information thoroughly to understand the nature and format of all the digitalization processes each separate case company has initiated to determine similarities and differences presented through the analysis of said data. As we imply analysis to our thesis process, we look to identify phenomena and indications on three areas, such as new business model innovations, digital transformation strategy and digital customer experience. We look to identify the initial business model our case companies have used before the pandemic and whether the companies had to innovate their model to meet up with the challenges presented before them in a changing situation.

As the pandemic enforced the needs for businesses to further digitalize their functions and implications, we look to identify strategies built and taken upon to meet with the changes made with the business model used during the pandemic times and after that. We gather information on how the customers of these said case companies have perceived the new functions the companies have set to serve their customers in a changing situation and whether the companies have given thought to the changing environment from the customer experience perspective.



### 1.5 Ethical foundations and reliability

All the companies are discussed anonymously through lettered coding from A-E. By doing this, we are able to cross-analyze phenomena and present results without underlining and narrowing the context through naming the companies acting as sources for said data and removing possible research errors and opinion-based biases. We have also considered this by using the triangular methodology to support the reliability basis and ensuring that by following through our procedures used in this thesis project, another researcher would come up with the same results and conclude them accordingly with ours.

The goal of reliability is to minimize research errors and biases. We documented the procedures followed in the study. Without documentation, we cannot even repeat our own work. In the past, the research procedures of case studies were poorly documented, which led to external evaluators to doubt the reliability of the case study method. To overcome these doubts and beyond mere documentation, we approach the reliability problem from as many angles as possible, as if someone is looking over your shoulder. If someone were to perform a reliability check, they should be able to produce the same results if the same procedures are followed. (Yin 2018, 59– 62).

Table 2. Four criteria research design to assess quality (Yin, 2018)

<b>Construct validity</b> , here the task is to identify the correct measures of research concepts.
<b>Internal validity</b> which informs only for explanatory or cause-and-effect studies, cannot be used for descriptive or exploratory studies. Strives to find out the causal connection, when the conditions are believed to lead to getting rid of false relationships.
<b>External validity</b> shows that the results can be generalized and how to do it.
<b>Reliability</b> shows that the research data collection can be repeated with the same results.

The validity of the construct can be seen in our research by using several sources and asking companies to review the draft of the case study analysis. Internal validity is considered as follows, we match patterns, we build explanations, we examine competing explanations, and we use logical thought models. For external validity, we repeat the same logic in each case. For reliability, we create our own knowledge base from each case and chain the material. The data used and gathered during the research process does not contain information that would lead to the identification of any representative of the personnel in any of the case companies – directly or indirectly.

Both the authors do not share an interest in the participating companies nor have personal relations with the staff and management of said the companies that would question our reliability – subjectively nor objectively. A risk for using the research work or its data to gain or pursue competitive advantage for an outside third party is also non-existent.

All the gathered data are stored in an online cloud storage to ensure the secured storage and appropriate handling of confidential information related to our research and the case companies taking part in it. The thesis is to be published online, with open availability for public viewing and for future research reference. According to our own understanding, official request for research is not required in relation to our research for the thesis and pre-made evaluation process for the research is accordingly irrelevant for this thesis.

## 1.6 General structure of the thesis

In the first chapter, introduction to the research is provided and the general principles and structural basis for the future chapters are created. The second chapter consists of the theory base compiled to support the thesis. The third chapter tells about the research method, the selection of cases and the research process and data collection. Shortly, the reliability of the data. In Chapter four, information is reported case by case, it consists of interviews and questionnaires - collecting data for writing individual case reports. And in Chapter five, these company data are cross-analyzed. In the cross-analysis phase, an identification

and data-based value for the thesis is created for the research and the results of the data processing are decided. Chapter six deals with the results and chapter seven presents recommendations for the future, the findings are concluded and written as a concluding chapter.

## 2 KNOWLEDGE BASE

While discussing and portraying the topics of the thesis, the theoretical frame on three separate foundations has fundamental connections to programme and studies during the master's degree. These three fundamentals are new business model innovations, digital transformation strategy and digital customer experience. These three fundamentals have their own initial theories, theoretical frames and implementations that we are looking to include in our thesis while analyzing the case companies and analyzing the data we have gathered from the questionnaires and interviews with the case company representatives. The motivation for the thesis builds up from our mutual professional backgrounds and interests shared through our respective working lives. There is a definite shared interest in learning how local businesses, being SME's or larger, operate and develop their initial processes.

Furthermore, our end-product aim was not just to underline these three topics and their importance to the companies themselves. We're looking to give a thoroughly studied, theory-based detailed overview on these three topics and how the companies have succeeded with them and what potential development actions can be taken to push the positives forward and tackle the possible issues they've faced thus far.

Strategy and the strategic approach are elements that are determined and enforced operationally by the company management. The strategic approach chosen determines the functions that ensure reaching the objectives set by the company owners. (Saarijärvi & Puustinen, 2020, 45). Strategy as a corporate concept is an element, which the company uses to control the inbound and outbound factors and their correlations in a way, that ensures reaching the objectives in all operational fronts – financial sustainability, perpetuity and development (Kamensky, 2014, 28).

## 2.1 Customer experience management and strategic awareness

Customer experience strategy is usually updated, once the companies identify issues in their competitiveness in customer experience metrics. This is a strong indication of the company's value and how the importance of customer experience is perceived. In a strategic management perspective, reaching the utmost best possible result and the best version of reflected company values towards the customers are elements that the company management must buy in and emphasize in their own work. In order to renew and update these elements successfully, the company management and board must see the need for change. (Mitronen & Raikaslehto, 2019, 17.)

According to Meyer Heggege, Caroline Gauthier and Charles-Clemens Ruling (2017) in their article "Business model performance: five key drivers", strategic awareness can be identified as a fundamental driver once securing a high level of business model performance over time, as discussed in the publication *Business Model Innovation*. The key drivers, being rethinking customer engagement, reconfiguring external linkages, optimizing internal processes, cultivating strategic awareness and developing reconfiguration capacity (Heggege, Gauthier & Ruling, 2017, 6–8), are the ones we were looking for in our analysis stage in our selected companies.

The customer experience management factors are identified as essentials to integrate to customer strategies, according to Don Peppers, Martha Rogers and Philip Kotler (2016) as discussed in *Managing Customer Experience and Relationships: A Strategic Framework*. The crucial factors are identified as financial custodianship of the customer base, production, logistics and service delivery, marketing communications, customer service and interaction, sales distribution and channel management and organizational management strategy.

While discussing financial custodianship of the customer base, Peppers, Rogers and Kotler (2016) view this as something that a customer-strategy emphasizing enterprise treats as its primary asset and the assets made are managed carefully.

The value is balanced on both short-term and long-term evaluation of the company success (Peppers, Rogers & Kotler, 2016, 38).

Production, logistics and service delivery, according to Peppers, Rogers and Kotler (2016), count as capabilities of companies in customizing their offerings to the needs and preferences of their customers individually. The method in use here, named as The Learning Relationship, is viewed as useful only to the extent that interaction from the customer is initially incorporated in ways that the company ensues to ways of behavior towards the customer (Peppers, Rogers & Kotler, 2016, 38).

Marketing communications, customer service and interaction build the basis of all customer dialogue the company ensues. According to Peppers, Rogers and Kotler they are to be combined into a unified function with a purpose of ensuring that the dialogue is seamless and individualized customer per customer (Peppers, Rogers & Kotler, 2016, 39).

Sales distribution and channel management is often met with an entangled dilemma of transforming a distribution system created to disseminate standardized products at uniform prices and pricing into a system that delivers customized products with individual prices. Peppers, Rogers and Kotler present an idea of disintermediation of the distribution network – by initially “leaping over the middlemen” in the sales distribution channel, as a possible solution for this (Peppers, Rogers & Kotler, 2016, 39).

Organizational management strategy essentially aims to organizing the enterprise management internally with management role placement in taking charge of named customers and customer relationships, with the differentiation of the more traditional approach of management managing preset products, production lines and production programs (Peppers, Rogers & Kotler, 2016, 39).

In order to figure out how the case companies are handling this on-going process that requires support of all the company functions (Peppers, Rogers & Kotler, 2016, 37–39), we interpreted them as key factors to be studied with our case companies. The findings are discussed in detail in chapter 5.

## 2.2 Five domains of digital transformation

Once the case company findings were studied and the digital transformation strategies were identified, we approached the case companies through identification and perception of five domains of digital transformation by David L. Rogers, as presented in *The Digital Transformation Playbook: Rethink Your Business for the Digital Age* (2016).

The five domains, being customers, competition, data, innovation and value are all traditional fundamentals in business operations but as Rogers points out, the digital forces are reshaping them and the traditional thinking of business strategy (Rogers, 2016, 5–6).

According to Rogers, customers have been previously viewed in traditional theory as aggregating actors to face marketing functions and buying persuasion towards. Mass marketing functions were forced upon customers with the strategic production preface of manufacturing a single product to cover the needs of as much customers as possible at the time. During the digital age, Rogers views customers as actors inside of a network, where communication and actions are taken between customers and companies. Customers are also communicating and influencing other customers more and more and taking further action and initiative to change and shape company brands and images – more than often through usage of digital tools (Rogers, 2016, 6).

Competition's role has also changed from its traditional form, where competition and co-operation were seen as separate binary opposing functions. Companies tend to see competitors solely in their own respective market and field, co-operation was based tightly on production prefaces. In today's market, according to Rogers, the boundaries are getting more and more fluid and flexible.

Competing businesses may not look, sound or seem like nothing like the company itself, but competes for the same customer base on a value basis. Rogers also underlines the meaning of digital technologies increasing the uprise of platform business models that allow an enormous value creation and capture for a single company through facilitation of the interactions between other businesses and customers (Rogers, 2016, 8).

Data, along with data processing and farming presents a modern dilemma where the access to an enormous set of data keeps growing and growing – as does the tools to control it. Traditionally, businesses have been processing data produced from customer surveys and inventories – more so in physical form of paper-based data collection formats (Rogers, 2016, 10). The challenges of modern data utilization lie in mass and the ability to pick up the essential of that mass and discover the tools usable to farm and assist the company to make decisions based on the data.

Innovation in a traditional shape and form has usually been enforced upon a single, finished product and adjusting suit the needs of the customers better. As field testing was usually seen as a costly undertaking, the testing was usually conducted by management level personnel and ideas and adjustments were made after the results were reviewed. In a modern setting, innovation ideas are gathered through technical tool capabilities throughout the entire life cycle of a product. Customer initiation is significantly easier and more cost efficient than before and design decisions can be made and initiated along the way as the product develops. Continuous learning through innovation has been heavily popularized by the modern start-up businesses (Rogers, 2016, 11).

Value, more so and tightly knit closed to the concept of value proposition, has traditionally been seen as something the company sets on early on and maintains its perception towards the respective customers purchasing their products. A successful company was traditionally a company that had clear and distinctive value proposition, it had discovered a clear spot on the market and kept focusing on producing the best version of its value proposition and product one year after another. Rogers underlines that such a static approach works as an invitation to



challenge and disruption by competitors in a modern digital era setting. Rogers sees that the only way to maintain value proposition is to face the constant evolution and development and to stay on track of the technical innovations to further build up on top of what is working and what new could be introduced towards the customers – through early adaptation and seizing opportunities as they arise (Rogers 2016, 11-12).

We analyzed the digital transformation strategy the case companies have interpreted; we were able to identify how the five domains settle into the given strategy – these findings are discussed thoroughly in the case company context in chapter 5.

### 2.3 Digitalization in South Ostrobothnia SMEs before Covid-19

Group of students made the research, in 2017, i.e. before the Covid-19 pandemic, the subject of the digitalization of SMEs in South Ostrobothnia. It was a report or a study and the main result of which they stated that digitalization was rather low level in SMEs at that time. Only a few companies had developed their operations to be digital. Digitalization was not utilized in the sale of products and services either. (Joensuu-Salo et al. 2017, 96-102.) This report is therefore dated to the time before the Covid-19 pandemic, and it must be noted that time and the development it brings are also on the side of digitalization.

With regard to the production of SMEs in the industrial sector of Southern Ostrobothnia, it can be said that digitalization was moderately poorly reflected in the sector's companies. Only production control devices were used somewhat more than other functions. By this they meant devices that can be used to measure, monitor or control the company's production or operations. Robotics was used by 33 percent of the respondents. (Joensuu-Salo et al. 2017, 96-98.)

3D CAD design systems are used more and more in all industrial companies that do product design themselves. On the other hand, PLM systems (Product Lifecycle Management) used for product life cycle management were used only in few SMEs. About half of the companies in South Ostrobothnia use the internet

for social media and electronic marketing. All companies in the industrial sector in Southern Ostrobothnia had their own websites, but up to 30 percent of companies in the trade and service sector did not have these. More than half of the companies did not use any electronic sales channels. In terms of social media, the most popular service was Facebook, which was used by 60 percent of responding companies and 10 percent were planning to use it. The next most used was WhatsApp. (Joensuu-Salo et al. 2017, 96-97.) We also noticed the same phenomenon in our own survey, PLM systems have become more common and were already in use by all the companies in this study. Websites and Facebook channels were also used by all companies. WhatsApp was used by all entrepreneurs in the Ylitornio area.

#### 2.4 Utilization of social media channels in business

LinkedIn and YouTube were used by more than a fifth of the companies in South Ostrobothnia (Joensuu-Salo et al. 2017, 97). The use of LinkedIn and YouTube in the Ylitornio area was comparatively at the same level as in South Ostrobothnia.

In South Ostrobothnia companies, social media was mostly used for marketing products and services, information and advice, as well as managing customer relations to some extent. A little more than half of the companies used cloud services. The operational control system was used by 31 percent. The utilization of large data masses and the industrial internet were used by only a few companies. Since ERPS were in use in every third, it showed that the level of digitization was low in most companies. (Joensuu-Salo et al. 2017, 97.) In the Ylitornio area, the enterprise resource planning system was used in 4 to 5 of the five companies. Otherwise, the use of other digital media was similar in Ylitornio's SMEs.

Those who interviewed companies in Southern Ostrobothnia found clear levels in terms of digitalization. The level of digitality was assessed based on how much the company has said it uses digital tools in business development. (Joensuu-Salo et al. 2017, 98.) We also noticed the same type of levels or level differences

in our own research. It could be briefly described that the larger the company in question, the more attention was paid to digitalization, also the level of education of the owners or responsible persons was reflected in digitalization or its readiness to use digitalization tools and develop it.

## 2.5 The impact of digitalization on the company's success

From the point of view of economic and business development, the introduction of Digitalization has had an impact on the success of companies. It has a special effect on business development. Digitization of processes correlates very significantly with the business development of the company. Digitization therefore has both an impact on business development and thus on financial success, as well as on perceived benefits. (Joensuu-Salo et al. 2017, 98-99.) We also came to the same conclusion in our own research. All the companies in the interviews had the view that digitalization has helped the company move forward. The business had grown and the profit margin had improved along with the growth.

## 2.6 The benefits of digitalization

Companies in Southern Ostrobothnia were asked to evaluate what impact the implementation of digitalization has had on their business. The most benefit from digitization was the strengthening of the company image and reaching new customers. Customer service was also perceived to have improved thanks to digitization, as well as competitiveness. For a third of the companies, digitization had a great impact on the creation of new business opportunities, closer cooperation with partners, and more efficient business processes. (Joensuu-Salo et al. 2017, 100-101.) We also identified with this in our own research. The companies felt at Ylitornio that digitalization has had a positive impact on their image and on reaching customers, both new and old. At the same time, the company's competitiveness has strengthened. All in all, the entrepreneurs felt that digitalization has strengthened the company's various business processes.

### 3 RESEARCH APPROACH AND DESIGN

Research design is a foundation for the analysis in the future (Yin 2018, 53). The chosen research method for this thesis project was multiple case studies in qualitative research. Methodology to collect data were interviews and questionnaires, observations and analysis of scientific publications and books. We analyzed each case separately, cross-analysed those and finally drew conclusions based on the outcomes of the process and identified phenomena.

The research problem can be drawn as follows: “How the SME companies' digitalization practices have changed because of the Covid-19 pandemic in Ylitornio?” We selected five SME companies from the Ylitornio area. All companies work in international markets and their turnover is more than one million euros annually and they have 10 or more employees, their main industry being industrial subcontracting.

This research was conducted through multiple case studies, as the main research questions are “How” and “Why” - based questions. In addition, there were five case companies involved in this research. The advantages of multiple case studies are that the author can analyze data in each situation and in different situations. The author examines several cases to understand the similarities and differences between the cases and can therefore present impressions of its differences and similarities.

Other advantages are that the evidence obtained from multiple case studies is strong and reliable and the researcher can clarify whether the findings of the results are valuable or not. When the representations are based on different kinds of empirical evidence, this type of case study then creates a more convincing theory. (Gustafsson 2017).

The aim of this thesis was to gain an understanding of the effects of Covid-19 on the business and digitalization of SMEs during and after the crisis. The research investigates did the crisis have an impact on the companies' new business model. Likewise, the research reveals what kind of effects the crisis had, both

quantitatively and qualitatively, which tools the companies adopted and how they changed their business operations. Were the changes permanent or were they abandoned once the market and the situation normalized?

### 3.1 Research methods

Research method dictates how the data is produced for the research. Case study evidence is collected from many sources; evidence can be gathered from at least six sources, being documents, archives, interviews, direct observations, participant observation, and physical objects. (Yin 2018, 107).

This research data was collected through interviews and questionnaires, observations and analysis of scientific publications and books. The interview with the company's management took place using a questionnaire, so that the researcher collects the information in the database. The database stores the questions and the answers for later summarization.

The research process first step was to build a good foundation and build a research framework carefully. After this, the theoretical frame was defined and how and what information would be collected was planned. The research questions were implemented in a database-based application, from which the information was available for easy processing, and which also archives both the questions and the answers (depth interviews). All companies were asked the same questions face to face. With the combination of survey and in-depth interviews the research team were be able to examine varying phenomena and look for answers for arising problems (Tuomi & Sarajärvi, 2018, 115).

The answers were saved in the database for later use (survey results). When all the companies had been interviewed, the answers were translated into English and each company's answers were analysed to separate reports. When the reports were ready, the information was compared with previous similar studies, other general information, such as newspapers, news, literature, articles, and publications (observations).

Based on this information, a cross-analysis was carried out, based on which the participating companies would be presented with the company's own summary report and the result of the cross-analysis. Finally, everything was packaged in the form of the conclusion, so that the final work is ready without finishing touches.

### 3.2 Case selection and description

As mentioned earlier, we selected for the study five SME companies from the Ylitornio area. All companies work in international markets and their annual turnover is more than one million euros and they have 10 or more employees, their main industry is industrial subcontracting. The companies involved in the study are listed on table 2, company names are coded from A to E, thus handled anonymously.

Table 3. A summary of the case companies (The survey questions 2023)

	Turnover	Employees	Industry	Operating country
<b>Case A</b>	6,3 million €	10	Manufacture of machinery and equipment n.e.c.	Europe, Asia, America
<b>Case B</b>	6,3 million €	40	Manufacture of concrete products for construction purposes	Nordic countries
<b>Case C</b>	3,4 million €	23	Management of real estate on a fee or contract basis	Nordic countries
<b>Case D</b>	3,1 million €	14	Drilling and boring	Nordic countries
<b>Case E</b>	3,3 million €	10	Freight transport by road	Europe

### 3.3 Research process

Research process introduces the concept of multiple case study research in a qualitative approach. Yin, R. 2018 describes the process as a theoretical framework. This research investigated the same phenomena. Five SMEs from the Ylitornio area had been selected for the study. Data was collected through interviews or questionnaires, observations and analysis of scientific publications and books. The interview with the company's management took place using a questionnaire, so that the researcher collects the information in the database.

The database stored the questions and the answers for later summarization. The research process is described on figure 3.

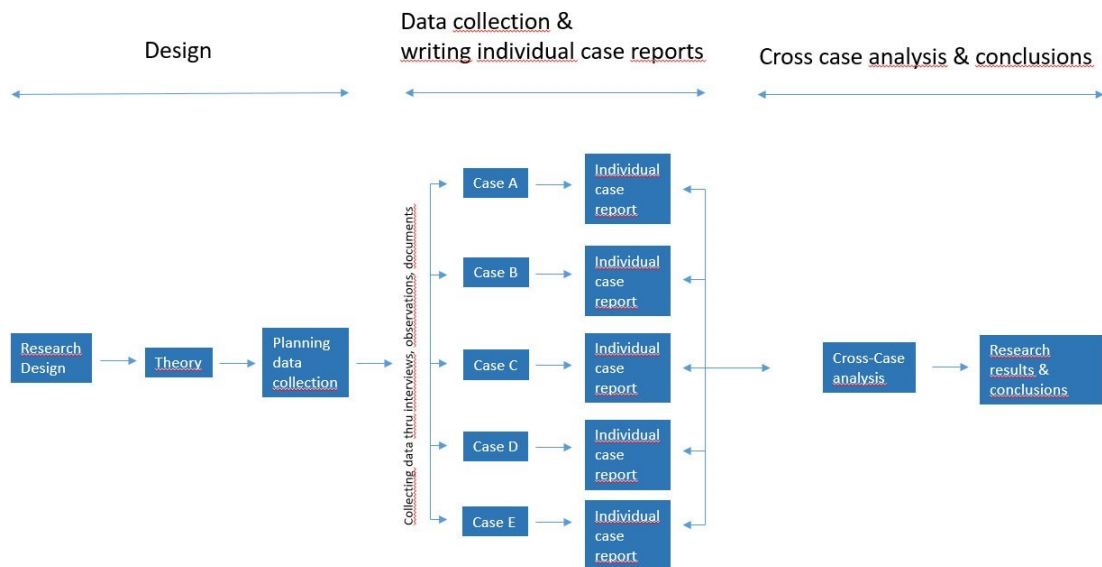


Figure 3. The research process

### 3.4 Data analysis

Data analysis was carried out fairly and transparently. The analysis was based on the answers to the survey, the answers were found in the database and the interviews as audio files, for each company separately. In addition, the goal was to achieve an unequivocal result to limit or eliminate possible biases. Naturally, information was to be collected from several sources. (Yin 2018, 29).

Each case was analysed separately, and all separate analyses were cross analysed between each other. The companies that participated in the study received an analysis of their company and a final cross-analysis. Later, it is possible for the companies to compare their own company with the conclusion of the thesis research for similarities and distinctively interesting findings.

### 3.5 Reliability and validity of the research

The goal of reliability is to minimize research errors and biases. A guideline could be that the research inspector could repeat the procedures and reach the same results. (Yin 2018, 62). In the initial research, all survey materials (questions and

answers) were stored in the database with the names of the companies. In addition, findings, such as other external sources were copied and stored into an online cloud storage. The sources of scientific publications and books was made available in the reference list.

As mentioned earlier, the research used the triangular methodology to increase reliability and support the discovery of the utmost wide variance of findings in the initial research process. In this research we had multiple sources of evidence, so evidence from two or more sources, but converging on the same set of facts or findings for the purpose of triangulation. And a case study database, a formal assembly of evidence distinct from the final case study report which helped the researchers to understand how to handle or manage data. And a chain of evidence, means explicit links between the questions asked, the data collected, and the conclusions drawn which helps follow the derivation of any evidence, ranging from initial research questions to ultimate case study conclusions. (Yin, 2002, 83). The triangular methodology process is described on figure 4.

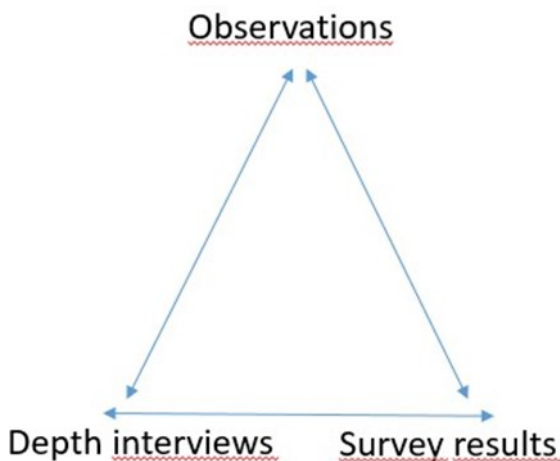


Figure 4. The triangular methodology

The researched data was collected through surveys and interviews during March 2023. All of the pre-selected participants along with their representatives took part in the research as agreed. The survey followed the same structure and format throughout the process. The technical application used in this stage, ZEF, was also used throughout the process.



The primary data collection source was the ZEF built survey – supported with an interview conducted right after. The interviews maintained the same structure that was used in the survey thematically but delved deeper into the discussed topics to create even wider and open points of view and a possibility for the case company representatives to bring more depth to their initial answers handed in the survey. The survey questions were presented in the end.

## 4 FINDINGS

The case company findings are discussed through the theoretical structure thematically; starting with the key operational monetary figures, followed by describing the key processes and possible changes on the case company's business model, describing the digital transformation process and current state of it and lastly describing the key elements of customer satisfaction and customer experience management in the case company.

### 4.1 Case report (A)

Case company A operates through subcontracting, focusing on equipment and machinery construction and maintenance. They employed 10 people during the previous reported fiscal year (2022) with the accumulated annual turnover of 8,8 million euros during said year. Operational profit reached the estimated amount of 1,3 million euros during the fiscal year with a balance sheet total of 4,5 million euros. Their estimated amount of foreign market operation is significant in their annual turnover with 85 %.

Once the pandemic started to effect their operations, they were forced to take action and initiate operational changes. Example the manufacturing of important pieces of equipment made in Hong Kong pre-pandemic and even though there was a planned initiative laying ahead of moving the manufacturing process to Finland, they forced to initiate the process immediately once the pandemic challenges rose ahead.

The pandemic also initiated key process changes in their business model. From their initial key processes, they kept product development, assembly and documentation to themselves – all the other functions were shifted to be bought from partners outside. The changes, according to company A's representative, found and reported successful, as they have benefited both quality and profitability and supply chain efficiency. Digital transformation steps taken pre-pandemic through operational adaptation of enterprise resource planning system (ERPS) - their current system developed even further during the pandemic and

results have been thoroughly positive. Significant leaps were taken in marketing enhancements through social media; LinkedIn was highlighted as a key role perceiving tool by the interviewed representative.

Meeting and negotiation frames were digitalized during the pandemic due to circumstances and they are still used on a daily basis. The instructional education materials handed to the end-users of their products, being the manufactured and structured machinery, were also digitalized to video and audio format.

Customer satisfaction and customer experience management developed through “natural progression”, as their traditional sales process structure basis relies heavily on a long lifespan of following orders once the first pieces of equipment have been structured and delivered.

According to the representative, the company has been monitoring their social media activity more thoroughly than before, but they still rely heavily on their initial products and services perceiving having such a high level of quality that it speaks volumes in customer satisfaction overall. The case company representative perceives their customer experience being traditionally high and thoroughly satisfied and reflected on the company relying heavily on its strengths to serve their customers with the standard they have and are known for to this day.

#### 4.2 Case report (B)

Case company B operates in the concrete construction industry, solely through subcontracting. They employed 40 people in 2022 and the annual turnover was 10,5 million euros. They accumulated 1,5 million euros worth of profit, with a balance sheet total of 12,5 million euros during the fiscal year of 2022. Their share of foreign trade operations varies annually, the company representative states. Example, in the year 2020 it covered 80 % of their operations, during the pandemic year it was 5 %.

During the pandemic year, the changes in the business model-initiated investments on key process areas such as production equipment, work safety,

energy efficiency, recycling processes, data handling and data storage and internal service development. Their factory plant has been developed annually – the most significant investment being the build-up of a new concrete station site. The station uses the latest technology available in the industry, which supports the recycled usage and optimization of material assets, guarantees quality control processes and enhances energy efficiency throughout the material processing cycle.

They have also invested heavily in solar energy through a solar energy plant for internal usage and have invested in acquisition of new machinery to assist in internal operations – such as trucks and lorries, that run solely on electric power. They also acquired a new warehouse resource system that focused on making the warehouse operations safer to operate for their staff.

ERPS has also been used in all daily operations, but during the pandemic year of 2022 further investments and development was initiated to support internal operations and functions. For example, the new ERPS version supports mobile use, which makes the system nimbler and more efficient to operate. They also expanded their ERPS to support a web portal for internal usage – there is a plan to expand this to an external portal for supplier use in the future. One of the main objectives here is the total digitalization of supply chain documentation and logs.

The company is also applying for the ISO 14001-standard, the certificate is well on the way and the acquisition process expected to be finalized in May 2023. All the core operation enhancements were planned to be carried out on a minor scale and through a longer cycle than they did, but the company has found all the changes as successful undertakes that have benefitted the company significantly.

The digitalization of daily negotiations, such as meetings and other social protocols also found successful and beneficial. The representative stated that meetings and overall communications have increased compared to pre-pandemic times – thanks to more nimble and efficient functions that lower the barriers to initiate contact in both inbound and outbound communications.

The further developed web portal system also builds on the positives of digitalization, as the customers and suppliers are able to follow through the production process step by step and take more accurate actions on their end of the operational process.

Similarly, to case company A, case company B also took up social media marketing and laid emphasis on digitalized marketing material and channels – mainly on LinkedIn and Instagram. The corporate and professional setting of LinkedIn was highlighted, yet again, as positive as it lessens the barrier to reach out new clients and to contact professionals working in the same operational surroundings and markets. The new tools along with their functions are still used and will be used in the future.

Customer experience management, according to the company representative, has also benefitted from the digitalization process they have taken through the pandemic year. Monitoring customer satisfaction is not anything new in the company – according to the representative, they have used a satisfaction survey starting as long as from the 90's that has transformed and developed from a fax letter to an e-mail questionnaire form. The company has always valued customer experience and feedback and it has also been a key element of their internal development strategy.

#### 4.3 Case report (C)

Case company C operates in land drilling, by pursuing subcontracting and through independent contracts. They employed 12 people during 2022, with an annual turnover of 1,9 million euros. Profit wise the company representative does not specify any reported figures, but estimates it being on “the upside of the metric scale”. Balance sheet total sum was not estimated either. The percentage of foreign market trade actions was 10 % of all operations in 2022.

Company C also made changes in their business model, as they shifted to offer a complete drilling service from start to finish, offering all the essential functions and machinery through sole operator. They also invested in new compressor

machinery, which is more environment-friendly with its omissions and more energy-efficient to operate.

Despite taking up the changes in their core business model, they came to conclusion that the new service model was too large for a sole operator of their size to handle. The development process it required was a significant expense, which was later compensated through Business Finland-funding support they applied and acquired.

The new compressor was found to be an essential and beneficial investment, despite the fact it was delivered four months later than scheduled due to pandemic-based challenges on component availability. According to the company representative, the reported effects are visible in their entirety during the spring and summer of 2023.

The digitalization process did not have as structured and multi-dimensional process to be described in this particular case – Teams-meetings were initiated similarly to previous two case companies, but other than that there was not a whole lot to be reported in digitalization.

According to the representative statements, they did not lay any significant effort or emphasis to monitoring customer experience during the pandemic and describe their customer satisfaction measurement functions as “empirical studies”, without going more further into details on what this actually means and covers.

#### 4.4 Case report (D)

Case company D operates in the field of land transport logistics, focusing on special transport like windmills and heavy machines. Assignments are often so-called subcontracting work for other companies. They employed 11 people in the previous fiscal year (2022) and the accumulated turnover was 3.2 million euros. The operating profit was 360 000 euros, and the balance sheet total was 2.3

million euros. The amount of the company's exports to foreign countries was 30% of the turnover. The company is looking for growth abroad.

Covid-19 affected the company in such a way that the company innovated and started developing a quality system for the company and built an ISO 9001 quality system for the company, which is the most internationally known and most used quality management standard. As such, no new product or service or other innovative business was created for them. With the help of the standard, companies serve customers better and ensure that products and services always meet the requirements of customers and authorities. The importance of the system increases when the customer comes from outside the borders of Finland.

The entire company's management was involved in developing the system, and an external consultant was also hired for the work. The system includes document archiving, year clocks, deviation reporting, etc. The company uses EasyOpp to automate the manual work steps of operations management, saving resources. It coordinates and digitizes invoicing, waybills and working time tracking, among other things. As so-called basic tools, the company uses WhatsApp, e-mail, and the Teams communication and collaboration platform. Social media channels are used e.g., Facebook, Instagram and LinkedIn, in addition to traditional websites.

According to the owner of the company, the introduction and development of the quality system was successful, and they are still in use and are being further developed. The quality system is certified annually. They have strengthened customers' trust and brought in new customers, e.g., from the European region. Therefore, we can expect an increase in exports and, through this, an increase in turnover and profitability for the year 2024. The company's efficiency has increased, by using monitoring, the company can plan better for the future, in addition, the reduction in paperwork leaves time for management.

One of the owners is currently studying company management at the CEO school. The creation of the company's strategy is in progress, and the company is also updating the business plan. The company is in the middle of a digital

transition and has made good progress. So far, the strategies have only been management discussions, and because of this, the issue has now been put into practice and the goal is to get the plans "on paper" (vision), what to focus on in the future, what kind of machines to acquire, where to get new customers, where to find the future goals and steps how to achieve them let's go.

The business owner believed that the strategic choices their company made helped them stay competitive, bring efficiency to processes, improve customer experiences, even give them a competitive advantage over other players in the industry, and bring them new programs and tools.

The completion of the strategy is still a bit in progress, it is being updated and the final effects are visible with new customers, an increase in exports and turnover, and an increase in profitability. Attention was paid to the digital customer experience and its development work began during the pandemic. Marketing tools were introduced more efficiently, such as LinkedIn, weekly contact with customers was held via Teams connections, email and phone.

The company is in the know and monitors customer satisfaction, e.g. in Facebook and LinkedIn applications. However, this process needs to be developed and the entrepreneur believes that it could even bring new customers. Satisfied customers could share their experiences with a video and the publication would take place on Facebook and on the website. Customer experiences and reviews should be made visible.

#### 4.5 Case report (E)

Case company E specializes in land construction and infrastructure maintenance, a large part of the contracts is subcontracted. Assignments are often so-called subcontracting work for other companies. The company also does general contracting. In the previous fiscal year (2022), the company employed 16 people. The company's turnover was 4.3 million euros. The company made a profit of 70,000 euros, and the balance sheet total was 1.6 million euros. In 2022, the



company exported about 15 % of its turnover, there is potential for growth in exports.

The company innovates new business models during the Covid-19 pandemic. The company received Business Finland development support, which was used to search for new markets and carry out development work. Personnel were also trained, they received e.g., operation and maintenance training for the new machine.

The development work focused on the development of machines, equipment and work quality as well as new methods. New markets were traditionally acquired by phone and e-mail, negotiations with customers took place in Teams meetings. In the end, work meetings and contract negotiations were also moved to remote video conferences. In addition, even the calculation of contracts had to be transferred to the Teams environment between staff and management.

The company uses the online kellokortti.fi service for working time tracking. The application offers innovative solutions for working time monitoring, TES interpretation and vacation planning.

The Autori application is used to control the company's operations, it works in a cloud service, and it is a secure platform integrated with other information systems and data collection terminals for more efficient infrastructure maintenance. It offers effective tools for both authorities and service providers, contractors and consultants. The application data is transferred to the customer's cloud service, for example timestamps, location and weather information will be added to the images.

The company also uses electronic invoicing, electronic transfer of documents, receipts and purchase invoices. The machines use a 3D measuring device, which is suitable for land construction and house construction.

The company also uses other new technology, such as remote-controlled unmanned aerial vehicles (drones) to measure and map soil piles and land cuts, it is also used to delimit areas. Management and staff also already have traditional WhatsApp groups, and they are also used between different clients. The application is used to quickly distribute images and text as well as voice messages. The company's external communication is handled e.g., via Instagram, Facebook and their homepage. These were already in use before the Covid-19 pandemic.

The innovation experiments were successful. Business Finland's support played a significant role in the development work. Another similar machine has already been acquired. Team meetings remained for the company's permanent use.

The company does not have a separate digital transformation strategy. But the strategy and operating methods took shape during the pandemic, remote working days are still in use, digital tools have taken a leap during and after the pandemic. New homepages are in the works, the company uses targeted social media visibility. According to the entrepreneur, the new generation brings more new ways of working, operations are becoming more and more digital.

Digitalization has affected the company's current business in such a way that it has remained competitive and brought efficiency to the processes. The entrepreneur believes that the customers have also been more satisfied, and it has even brought a competitive advantage. New tools and applications have been introduced, and digitalization has made information more open, interactive and real-time.

The introduction of digital tools has had a positive effect on the company's operations, the company's profitability, efficiency and documentation have become easier and improved. The company paid attention to the digital customer experience and acquired the necessary hardware and software and trained the staff. The company maintains and develops current applications, hardware and programs.

The customer's behavior is monitored, and information is collected through social media applications, and various reviews are also monitored. Some of the programs collect the data themselves, by examining the data, operations can be managed better. According to the entrepreneur, this should be used even more effectively.

## 5 CROSS-CASE ANALYSIS

The cross-case analysis phase of the research was conducted through reflecting the case company data, given through questionnaires and interviews and through findings stated in chapter 4, through the theoretical frames selected for the research. As the questionnaire questions indicate, the three themes, being business model innovation, digital transformation strategy and customer experience management, were heavily emphasized in the pre-selected questions of choice and were thematically present throughout.

Distinctive phenomena and findings emerged during the analysis – for example not all the companies had just made changes in their core business model but had taken similar directions and functions. Despite situated in the same region, working around the same client and market base in some cases and sharing the same connections, all the similarities seem to have occurred hypothetically without the case companies being aware of each other's actions.

The triangular method also proved itself to be a beneficial method for the sake of the research work and analysis. Narrowing down the methodology to a singular method study could have been the way to go if we would have been in a look for a certain distinct phenomenon or discussing the case company findings through a sole theory frame consisting of lesser elements in amount.

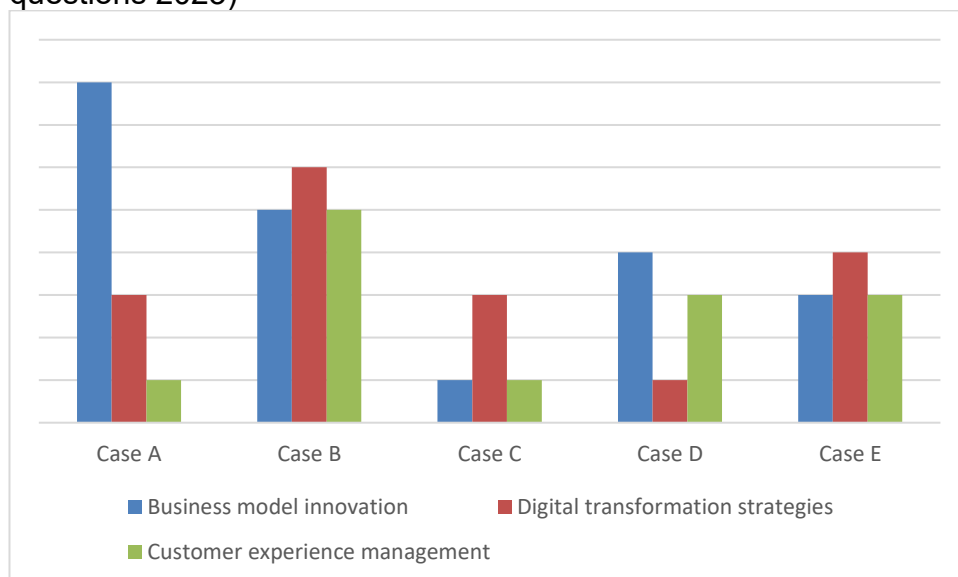
As we are looking to go further into details and characteristics of three themes with five case companies, a singular method would have narrowed our research down significantly and most likely would have turned the thesis to research that would not have satisfied our objectives, nor the beneficiaries of our research. Through the triangulation of survey results, depth interviews and observations, we were able to indicate business model performance drivers and mechanisms, the five domains of digital transformation and five principal business functions to integrate in overall customer strategies in all of our case company participants in the research. The initiated changes made during the pandemic time were not entirely positive, which was also a distinctive and an interesting finding that emerged. There was also distinctive variance in depth of actions the companies

had taken on business model innovation, digital transformation strategies and customer experience management. This was something that we did not initially discover through the surveys necessarily, but rather from the in-depth interviews.

Some changes in the business model were found too large to handle. It changed the core operations so significantly that the change costs were covered with government funding. Digital transformation strategies were either in use before the pandemic, enhanced significantly during the pandemic or somewhat discarded. This was seen as something that the company focused more on its core practices and laid asset emphasis on them rather than digitalizing processes. Customer experience management was also something that had distinctive variance in depths of functions and actions, and we even observed some negligence in handling this field in some cases – something we would like to highlight and share the knowledge and underline its importance for our research beneficiaries through findings and case examples in the conclusions of this research.

Changes in companies is described in figure 5. The table shows how strongly questionnaire answers reflect the main three themes and how strongly themes influenced the changes in the company's business. Company names are coded from A to E, thus handled anonymously.

Figure 5. The visibility of the three main themes in companies (The survey questions 2023)



## 6 RESEARCH RESULTS AND DISCUSSIONS

Once the research process started and the theoretic framework was discovered and selected through the literature review that was made and required to even begin to conceptualize the topic and task at hand, we determined that one of the most interesting findings would be the discovery of a specific business model. This business model, in case we discover it, would emerge from immediate change in a challenging situation and to build up new innovations from these challenges. The business model change has a strong ideological and functional basis on process-based thinking and records the process accordingly.

Studies have identified the crucially of accounting the changes made in both external and internal factors and neglecting this part of the process can have possible dramatic consequences for example in investor and investment support, decline or absolute determination of activities altogether (Heggege, Gauthier & Ruling, 2017, 7–8).

### 6.1 The business model innovations took place in case companies

The business model innovative changes took place in all of the case companies, five out of five, in some form or shape. From the collected data we were able to determine that, according to the respective operative field-specific characteristics, the selected case companies changed their core activity functions by investing to new equipment and machinery with the aim of operating in a broadened operational frame – with all case companies, five out of five.

In most cases, this could be connected straight towards the acquisition of new competitive edge and new market sights; these elements mentioned by three out of five case companies (B, D and E). These three companies had realized, according to their statements and our own observations, the essence and meaning of enhanced customer engagement, both in their new business model and in the emerging core operations. In his interview, the representative of case company D summed their business model innovation results, and the process aftermath as follows:

“We were able to acquire new customers from Europe, that naturally brought in growth in both turnover and foreign market trade – which showed as increased financial stability and reliance, there is evident, significant growth to be expected in 2024. Our efficiency is increasing in all operational functions.”

Here, we are discussing static drivers, as identified by Heggege, Gauthier and Ruling. It is noted that functions such as shifting costs towards customer thinking, increasing customer loyalty and attachment and reaping benefits of user-driven innovation can be seen as the three distinctive performance mechanisms that become able for activation through new emerged forms of customer engagement – being the static drivers in business model performance drivers (Heggege, Gauthier & Ruling, 2017, 7–8).

## 6.2 Companies developing their businesses different ways

Two out of five case companies (B & D) went on towards the acquisition and applying of industrial standards in ISO-certificates. Case company B applied for the ISO14001-certificate, covering environmental system standard, while case company D applied for ISO9001-certificate that covers the quality management system standard. Both processes aim to enhance operational qualities and ensure development processes as on-going operations in the future – something which both case company representatives stated and highlighted while discussing their business model innovation approach and future objectives.

The funding of the business model innovative changes in core operations was also an interesting field in the research process, as the gathered data indicated that two out of five companies (C and E) applied and acquired government funding specially aimed towards company support during the pandemic – Business Finland-funding being the sole represented outbound-funding initiative. Both companies used the funds to support the acquisition of new market sights, which was also highlighted as the key reason, despite the funds used initially in technical functions development.

Case company C, as stated in the in-depth interview and survey results, believed fondly in their approach in expanding their core operations to cover more functions and facets in a wider customer base and market. The initial use of the support funds were used, according to their representative, to cover the losses they took in development once they came to the realization of taking a step too far for the company of their size. Once discussing the effects of the imminent scenario, the case company C stated that:

*“After the initial reports came in and we took a closer look at the figures we had, we came to the realization that the newly broadened service core was too large to handle for a company of our size. The development process brought in costs that we were forced to compensate with our Business Finland-support funds – the effects will be evident later during the upcoming spring and summer (in 2023).”*

An observation can be made, that even though case company C management took this step towards a new market sight with a calculated and planned approach, they likely failed in their cultivation of strategic awareness – more so in their development of opportunity sensing. It is evident, that they sensed there is a window open for them and the steps were clear enough to take through a development process and investments relevant and required – though it remains questionable that weather they initially failed, still, to understand the boundaries of their own operational capacity, asset base, or both.

Developing opportunity sensing is one of the two dynamic drivers in the five key drivers of business model performance, and though the companies struggling with this inherently limit their competitive reaction with the lack of adaptation in their traditional business model to match better with the new market potential (Heggege, Cauthier & Ruling, 2017, 11–12), it would seem that in case company C’s case they simply lacked the awareness towards their own initial core function limits – thus struggling with a more fundamental, basic issue of corporate operations.



Overall, the companies participating in the research saw their initiated changes in business model and core operations as a successful undertaking. Four out of five, according to their statements, saw only positives (A, B, D, E) and even though case company C faced a costly setback, they saw definite positives in their machinery and equipment investments that broadened their operational functions and enhanced their ability to serve their customers better in the future and ensuring enhancement in overall quality in their end-product and service offered.

### 6.3 Enhancements in end-products and the services offered

Enhancements in end-products and the services offered have a strong observed, evident linkage towards business model innovations but also inherit themselves to digital transformation strategies. The digitalization processes in these particular cases had many prefaces, the most substantial ones being operational resources and marketing functions. For example, the usage and development of the ERPS, whether bought as an outbound-produced service tailored towards the company needs or the ground-up built independent system, were discussed with all of the companies.

Yet again, the idea of serving the customer needs and enhancing the operational function tailoring and development with the customers in mind rose as an indicative factor – especially with companies that had a longer user history with an ERPS interface and functions. For example, case company B had already started to run the first version of their new ERPS portal that brought in customer-issued functions to support the production and supply chain management processes – something which they already had discovered value on and are going to continue to develop in the future. This, according to our own observations and indicated by the literature reviewed for this research, leans towards customer network-based thinking, which enforces the rethinking of traditional customer functions and models based around them (Rogers, 2016, 6–7).

The ERPS development processes had either been planned before the pandemic or particularly been sped up during the pandemic. Whether the challenges

enforced these changes in the planned schedule were not highlighted per se, but we certainly were able to become to lean towards this conclusion during the interviews conducted with the case company representatives.

Some of the participating company's distinctive realization that digital transformation strategy in use is either dated or completely missing and structured more thoroughly in detail in the future. Example case company D representative mentioned that the need for updating the digital transformation strategy had rose from both internal conversations within the management, but also supported by management-level education the management staff had received.

All the case companies had also enhanced their inbound and outbound communications. Negotiations and meetings digitalized to application supported meeting sessions, mostly through Teams-meetings, and found as a beneficial and resourceful way of handling communications. All the company representatives found upsides in organizing the workflow and maximizing time-consumption efficiency in communicational activities. They all found new methods something that had become the new norm of handling the aforementioned elements in communications, both inside and outside the company premises.

#### 6.4 The presence of social media brings customer value

Social media and website maintenance and development were also decisive themes that rose from the data, with four out of five companies stating these as one of the most significant key elements enhanced during the digitalization process initiated during the pandemic (A, B, C, E). They all had determined definite customer value in their increased social media presence and reported about it in detail in their surveys and interviews.

All the companies have idea of what they fundamentally reflecting outside to their customers, which itself is an important, but in the case of determining a successful business, the ones who having clear value propositions of

differentiation, focusing production, and delivering year after year, these are the most successful companies in their respective markets. (Rogers, 2016, 10.)

#### 6.5 Successful results shown financial growth and new investments

The companies that reported the most successful results, both in financial growth and perceived return on investments in this area, rise above the others in our observed overall results. The statements also highlight the inherited tradition of clear points of value proposition, they are included as key elements in both their business model innovation process and in the digital transformation strategy.

Jill Griffin has studied customer loyalty in her book "Customer Loyalty". He thinks about how to acquire a customer and how to keep it. His point is that after getting a customer, the most important thing is after-marketing. (Griffin 2002.) Once I met a long-time entrepreneur, he owned a company in the service industry, he agreed with Griffin. In his opinion, the customer's complaint should be treated in such a way that the customer is well served until the end, then it is an "eternal customer". After this, you can walk to your own office and bang your head against the wall and vent his aggression there. This is not shown to the customer.

Shaun Smith states in his publication Profiting from the Customer Experience Economy, that when you create a distinctive and valuable customer service experience, customers become long-term customers who return again and buy more (Smith, 2001). This is easy to accept because my own experiences tell me this. For example, when I visit various online stores, the companies that have invested in product marketing, easy finding and comparison quickly stand out. Buying and paying must also be easy and straightforward. The best companies send confirmation by email immediately and then tell you when the product has been collected and when it will be shipped. In addition, they provide a tracking code and soon ask how satisfied I am with the product and service.

We also asked the companies interviewed about this topic. So how did they consider the digital customer experience during the Covid-19 pandemic. We wanted to expand the question a bit and we also found out how the company

collects, measures and utilizes information about the customer's behavior? But let's first figure out what customer experience is?

Customer experience usually takes place in connection with purchase, use and maintenance and is usually initiated by the customer. This can be called the direct connection of the customer to the company. Indirect contact is most often related to an unplanned meeting with a representative of the company's products, services or brands. It often takes the form of word-of-mouth recommendations or criticism, advertising, news, etc. (Meyer & Schwager, 2007).

#### 6.6 Companies paying more attention to the digital customer experience

The data collected pointed out that only one company had paid special attention to customer experience and collected and developed customer touch points for decades. Other companies began to pay more attention to the digital customer experience during the Covid-19 pandemic, and only one company admitted that it has not consciously paid attention to this at all.

Companies introduced new applications and tools to better communicate with customers. They trained personnel and also maintained and developed current functions, hardware and software. The Teams environment, LinkedIn, WhatsApp groups and the importance of e-mail came up in the discussions. This happened in all companies, although one company did not consciously do this. However, all companies had basic digital tools in use, such as e-mail, internet pages and the necessary tools and programs.

Customer satisfaction was monitored in every company, at least at the level of whether the customer returned, as the company in case (A) did. The number, quality and comments of social media followers were also monitored. Company (B) had put a lot of effort into the topic and carried out coordinated customer satisfaction measurement since the 1990s. So, they do a separate survey from time to time, which has become digital over the years. The customer's experience is therefore part of the company's strategy, with which they develop their

operations. The company case (C) only listened to the customer's weak signals and used the so-called observation-based empirical research.

Company case (D) was on the same lines as C but was of the opinion that this is exactly what their company needs and needs to be developed further. Company (D) was also of the opinion that some of their activities and programs do so-called automatically, but it was a bit unclear to them how to use it.

## 7 RECOMMENDATIONS

In summary, it could be said that the Covid-19 pandemic caught the whole world by total surprise. The pandemic came quickly, but companies and the Finnish government started reacting just as quickly. Some actions of the state were not positive for the companies, such as the closure of companies and sectors and borders, but on the other hand, the state supported the companies and in the end the companies got off the hook with minimal damage.

The companies involved in the research project were not the biggest sufferers, the tourism and restaurant industry in Finland was perhaps hit the hardest. However, the pandemic woke up companies and showed how resourceful they are. Based on this research, a few points could be summarized.

Once outlining the companies' innovations, it's evident that they were quick solutions made under great pressure, with a high risk of failure. However, some of them succeeded and survived even after the pandemic. They have even improved their operations and continue to develop. This is a good thing.

Second, summarize research related to digital strategy change. All the companies in the research project had to change their operating methods in a digital direction – some more than others. Small companies do not necessarily have or have a written strategy, but every entrepreneur must think about it on the company's board or with key personnel. These strategic changes are also still in use by companies, and they feel that the changes have even improved profitability, and they make the current work easier and more efficient.

The third point of view summarizes the key issues related to the digital customer experience. Every company took this into account in some way even before the pandemic, some made it more effective during the pandemic. If we talk about the very basics, all the companies had email addresses, the homepages were multilingual and responsive, so they worked on smartphones as well as computers and handheld devices. This is the so-called normal development and

keeping up with the times. Social media channels were also in use and efforts were made to take advantage of them for the companies.

Overall, the companies have learned and prepared themselves quite well for future crises, for what they may be. The companies have had good years behind them, and a financial buffer has accumulated. The companies' entrepreneurs' knowledge has grown, and they have noticed that everything can be solved, the activity can change its shape, but it can even be profitable.

As a recommendation, we could say that the companies must stay involved in digitization in one way or another. You just need to acquire more skills by training the management, current and future employees and customers. You have to be brave and take the lead by developing digital functions, which can be various production control systems and software related to the economy. Robotics and automation will conquer the industry and new innovations will show the way to come. You cannot give up, but you have to believe in doing it. It may seem difficult, but you quickly notice that the changes make things easier. In conclusion, it could be said that the study showed that the Covid-19 pandemic caused the so-called digital leap.

## REFERENCES

Brodny, J. & Tutak, M. 2022. Digitalization of Small and Medium-Sized Enterprises and Economic Growth: Evidence for the EU-27 Countries. *Journal of Open Innovation: Technology, Market, and Complexity*. Accessed 6th of October <https://doi.org/10.3390/joitmc8020067>.

Business model innovation. (2017). Emerald Publishing Limited.

Gerdt, B. & Eskelinen, S. 2018. Digiajan asiakaskokemus, oppia kansainvälisiltä huipuilta. Helsinki: Alma Talent.

Griffin, J. 2002. *Customer Loyalty: How to Earn It, How to Keep It*. Publisher Jossey-Bass.

Gustafsson, J. 2017. Single case studies vs. multiple case studies: A comparative study. Sweden Halmstad: Halmstad University. Accessed 23.1.2023 <https://www.diva-portal.org/smash/get/diva2:1064378/FULLTEXT01.pdf>.

House of Lapland 2023. Ylitornio – Hyvä paikka elää, asua ja yrittää. Accessed 23.4.2023 <https://www.lapland.fi/fi/business/ylitornio-kunnat/>.

Hirvonen, J., Majuri, M. 2020. Digital capabilities in manufacturing SME's. *Procedia Manufacturing* <https://www.sciencedirect.com/science/article/pii/S2351978920320369>.

Joensuu-Salo, S., Hakola, J., Katajavirta, M., Nieminen, T., Liukkonen, J., Pakkanen, J. & Nummela, J. 2017. Pk-yritysten digitalisaatio Etelä-Pohjanmaalla. Seinäjoen ammattikorkeakoulun julkaisusarja. Accessed 24.9.2023 <https://www.theseus.fi/bitstream/handle/10024/129131/B125.pdf?sequence=1&isAllowed=y>.



Kamensky, M. 2014. Strateginen johtaminen - Menestyksen timantti. Helsinki: Talentum.

Kataja, E. 2023. Digitaalisen liiketoiminnan konsepti. Opinnäytetyö.

Tietojenkäsittelyn koulutusohjelma 2019. Accessed 24.4.2023

[https://www.theseus.fi/bitstream/handle/10024/165852/opinnaytetyo\\_erik.kataja.pdf?sequence=2](https://www.theseus.fi/bitstream/handle/10024/165852/opinnaytetyo_erik.kataja.pdf?sequence=2).

Lindgren, J. Mokka, R., Neuvonen, A. & Toponen, A. 2019. Digitalisaatio - murroksen koko kuva. Helsinki: Tammi.

Meyer, C., Schwager, A. 2007. Understanding customer experience. Harvard Business Review. Accessed 29.4.2023 <https://hbr.org/2007/02/understanding-customer-experience>.

Mitronen, L. & Raikaslehto, T. 2019. Voittajan strategia lyhytjäteisyydestä kestävään menestykseen. Helsinki: Alma Talent.

OECD 2005. Glossary of statistical terms. Small and medium-sized enterprises. Accessed 23.1.2023 <https://stats.oecd.org/glossary/detail.asp?ID=3123>.

OECD 2023. The Digital Transformation of SMEs. Executive summary. Accessed 23.1.2023 <https://www.oecd-ilibrary.org/sites/bdb9256a-en/index.html?itemId=/content/publication/bdb9256a-en>.

Peppers, D. 2016. Managing customer experience and relationships: A strategic framework. John Wiley & Sons, Incorporated.

Rogers, D. 2016. The digital transformation playbook: Rethink your business for the digital age. Columbia University Press.

Saarijärvi, H. & Puustinen, P. 2020. Strategiana asiakaskokemus - Miksi, mitä ja miten? Jyväskylä: Docendo.

Smith, S. 2001. Profiting From the Customer Experience Economy. The Forum Corporation. Accessed 29.4.2023

[https://moodle.eoppimispalvelut.fi/pluginfile.php/1267881/mod\\_folder/content/0/customer%20experience.pdf?forcedownload=1](https://moodle.eoppimispalvelut.fi/pluginfile.php/1267881/mod_folder/content/0/customer%20experience.pdf?forcedownload=1).

Tilastokeskus 2020, Distribution of jobs according to main sectors. Accessed 23.4.2023

<https://www.stat.fi/tup/alue/kuntienavainluvut.html#?active1=976&year=2021>.

Tilastokeskus 2023. Distribution of companies' business by industry in Ylitornio.

Tilastokeskus 2023. Yritysten toimipaikat kunnittain muuttujina Vuosi, Kunta ja Tiedot. Accessed 23.4.2023

[https://statfin.stat.fi/PxWeb/pxweb/fi/StatFin\\_Passiivi/StatFin\\_Passiivi\\_alyr/statfinpas\\_alyr\\_pxt\\_11dc\\_2021.px/table/tableViewLayout1/](https://statfin.stat.fi/PxWeb/pxweb/fi/StatFin_Passiivi/StatFin_Passiivi_alyr/statfinpas_alyr_pxt_11dc_2021.px/table/tableViewLayout1/).

Tilastokeskus 2023, Kuntien avainluvut. Accessed 23.4.2023

<https://www.stat.fi/tup/alue/kuntienavainluvut.html#?year=2021&active1=SSS>.

Tuomi, J. & Sarajärvi, A. 2018. Laadullinen tutkimus ja sisällönanalyysi.

Helsinki: Tammi.

Työ- ja elinkeinoministeriö, Alasoini T. Työpoliittinen Aikakauskirja 2/2015:

Digitalisaatio muuttaa työtä – millaista työelämää uudistavaa

innovaatiopolitiikkaa tarvitaan? Accessed 24.4.2023

<https://docplayer.fi/10166166-Digitalisaatio-muuttaa-tyota-millaista-tyoelamaa-uudistavaa-innovaatiopolitiikkaa-tarvitaan.html>.

Ylitornion kunta 2023. Accessed 23.4.2023

<https://ylitornio.fi/yrittaminen/yrityshaku/>.

Ylitornion kunta 2023, Yleistietoa. Accessed 23.4.2023 <https://ylitornio.fi/kunta-info/yleistietoa/>.

Ylitornion kunta 2023, Ylitornion kunnan hallinto. Accessed 23.4.2023.

<https://ylitornio.fi/kunta-info/ylitornion-kunnan-hallinto/>.

Yin, R. 2002. Case Study Research: Design and Methods. Sage Publications.

Yin, R. 2018. Case Study Research and Applications, Design and Methods.  
United States of America: Library of Congress Cataloging-in-Publication Data.

## APPENDIX

## Appendix 1 The survey questions

- 1) Name of the company
- 2) The name of the defendant
- 3) Industry
- 4) The number of employees (previous accounting period)
- 5) Turnover (previous accounting period)
- 6) Profit (previous accounting period)
- 7) Balance sheet total (previous accounting period)
- 8) Amount of foreign trade as a percentage of turnover (e.g. accounting period)
- 9) Did the company's management make new business model innovations during Covid-19? What kind of innovations?
- 10) Was those innovations succeed? Will your company use those innovations still after Covid-19? What kind of influences those made for your business?
- 11) Did your organisation changed the digital transformation strategy during Covid-19?
- 12) Could you please tell me more about your digital transformation strategy?  
Does it mainly effect:
  - remain the business competitive
  - bring efficiency in processes
  - increase customer satisfaction
  - give more competitive advantage
  - new applications or tools

- smth. else, what?

13) Is this strategy still valid after Covid-19? What kind of impact digital strategy made your business? How does it shown?

14) How did your company management took note for Digital Customer Experience during Covid-19?

15) How did the company collect, measure, and utilize data on customer behaviour?