

# Crisis Management for Small and Medium Enterprises (SMEs) in Sweden under COVID 19 Pandemic: Business Model Innovation, Crisis Leadership and Digital Technology Tools

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## **Abstract**

As we all know, the global crisis of the Covid 19 pandemic has brought about a disaster to the whole economy; it hits the SMEs heavily due to their fragility. However, they have their unique flexibility to adapt the strategies quickly in the three critical factors of business model innovation, crisis leadership and digital technology tools to cope with the crisis. This paper provides a mixed method of quantitative and qualitative analysis of the SMEs in Sweden. We collect data by questionnaire and interview five (5) local SMEs. The results show that SMEs were affected by Covid 19 significantly, while the strategies that they took were also efficient and useful to their survival and improvement. The SMEs' strategies or changes adopted can give some light to the other SMEs who are still struggling in the pandemic or similar crisis later on. Firstly, all participants adopted a new business model whatever in their customers or suppliers or distributions. Secondly, the leaders became used to the virtual work with their team members; they motivated their employees with efficient rewards and adjusted the labour cost. Thirdly, the companies also took advantage of efficient digital technology tools quickly to adapt their work to the virtual environment. Finally, this study also contributes to current literature, using the essential factors to analysis from a theoretical perspective.

**Keywords:** crisis; crisis management; SMEs; business model innovation; crisis leadership; digital technology tools; COVID 19

## **Introduction**

We live in a world full of uncertainty which usually brings about a crisis to individuals, organisation and nations. As we are still suffering, the global pandemic Covid 19 causes a big problem worldwide. Compared with previous crises, the Covid-19 is more complex (ALVES et al., 2020). It threatens us in health and travel and education, especially to the whole economy's growth. According to Donthu & Gustafsson (2020) and Tucker (2020), the breakout of pandemic Covid19 has probably caused bankruptcy for many famous brands in different industries due to consumers' staying at home and economies' shutting down. They also state that airlines cut their workforce by 90%, and tourism destinations mostly making non-profits in 2020. Significantly, the pandemic caused a massive impact on the small and medium-sized firms (SMEs); about 43% of small businesses had been temporarily closed (Bartik et al., 2020). However,

when we look closely at the economy in Sweden, it's exciting to find that some of the SMEs are surviving and thriving; they even make profits under such a challenging situation.

Observation of that particular phenomenon on the SMEs in Sweden is worthy of in-depth research as they are tightly connected to how a firm or an origination deals with the crisis. An organisational crisis is an event that "perceived by managers and stakeholders as highly salient, unexpected, and potentially disruptive—can threaten an organisation's goals and have profound implications for its relationships with stakeholders" Bundy et al. (2016, p.1662). A lot of researches have been conducted to study how and why crises happened (Bundy et al., 2016; Coombs & Holladay, 2002; Perrow, 1984; Weick, 1993) and how the firms can manage them to reduce the loss (Bundy et al., 2016; Bundy & Pfarrer, 2015; Coombs, 2007; Kahn, Barton, & Fellows, 2013), even how to

survive and thrive through the crisis (Donnelly & Fox, 2018). From the firm's perspective, we consider that the core crisis management is to have their business model innovated according to the external environment's changes, to develop a strong but flexible crisis leadership for the internal control and to adopt the most suitable digital technology through a crisis event. Many previous studies on crisis management are done with large firms, while particular rare work focuses on the small and medium-sized firms (SMEs)(Herbane, B.,2012). Due to SMEs' constraint resources and limited marketing, it is more challenging to manage and overcome a crisis event (Geroski et al., 2009; Mayr et al., 2016; Thornhill & Amit, 2003). However, global recognition views SMEs as an essential driver of economic growth and employment creation (Eniola, 2014).

Previous scholars have conducted researches on perceptions and experiences of SMEs' managing directors concerning crisis management planning (Herbane, 2012) or from a perspective of resources system (Lim et al., 2020), while less extensively research is done with empirical evidence prevails in relating this to the SMEs' specific context. Hence, whether there is any conclusive evidence that the SMEs' operating in Sweden has benefited more or adversely affected by the emergence of COVID-19 is still unknown. According to (Çakar & Ertürk, 2010), SMEs are becoming more aware of the importance of their skills and knowledge; they are trying to improve their practical innovations; moreover, they can quickly shift their decisions on the labour cost and other expenses control (Thorgren & Williams, 2020), and understanding the motivations and perceptions of managers relating to crisis management (Ashmos et al., 2011; Herbane, 2012; Pauchant & Mitroff, 1992; Penrose, 2000) is more essential when the leaders are working with a virtual team due to the special requirement of keeping distance under the pandemic. Furthermore, they are flexible in adopting the digital tools in terms of technology, for example, Zoom, Meet and updating their system etc. Strategic decisions on digital transformation do not automatically improve performance because they require SMEs to rethink and change their business model (Bouwman et al., 2019). Teece (2010) also points out that the business models are usually involved in technological innovation; the technology often brings market margins and gaps to meet the customers' necessities.

Therefore, we believe that business model innovation, crisis leadership and digital technology tools do not interact alone with SMEs. They are three essential factors that interact closely when SMEs try to overcome the crisis and survive under this pandemic. In such a situation, they need to investigate the firm's internal and external challenges, to find and grasp the small opportunities to stimulate their economic growth and

create a mechanism of redistribution (Fitriasari, 2020); they will try to implement new strategies in these three influential aspects to strengthen their competences. The purpose of this paper is to study how SMEs in Sweden performs crisis management in business model innovation, crisis leadership and digital technology to survive and thrive under Covid 19. The main research questions (RQ) we will examine are: Under this pandemic, (1) How do SMEs innovate their business model to adapt to Covid 19 situation and compete in the market? (2) What practical actions or strategies are useful to lead the organisation in a new normal? (3) What digital technology tools do SMEs use to maintain business operation? We focused on five small and medium sized firms covering industries like, bank, technology, health, game and second-hand retail store.

This paper contributes to the existing literature in crisis management. By examining closely business model innovation, crisis leadership and digital technology tools across the field of crisis management, it identifies the significant impact that these three factors have on the SMEs in Sweden and how the SMEs take practical and useful actions to survive and thrive under such a severe crisis. It also contributes to the outlook of the critical elements that interact closely and bring tremendous effect on the SMEs. Furthermore, this paper brings about an operational transformation and some practical methods for SMEs to perform better for survival and thrive in the market when an unpredicted crisis happens. Finally, we provide practical recommendations to SMEs which are still fighting or struggling in a similar situation.

The remainder of this paper is organised as follows. We begin by reviewing relevant literature and the following, which will be our method part. In the method part, based on the SMEs' crisis management performed in the three elements of business model innovation, crisis leadership and digital technology under the pandemic, the empirical evidence is combined with conceptual theories. We will present our research empirically with our data, sample, variable, showing our results or findings through analysis. Finally, we conclude with theoretical and practical implications, state the research limitations and bring up some further study suggestions.

## **Background and Literature Review**

The literature review is divided into four (4) main sections: crisis and crisis management, business model innovation, digital technology adoption, and crisis leadership. Each section illustrates definitions of important key terms, theory or model developed from the previous research and implication of those sub-topics on crisis management for SMEs during the Covid 19 crisis. Last, we will conclude a literature review on the research topic.

### **1. Crisis and Crisis Management**

#### **1.1. Research on Crisis Management**

In a broader term, a crisis refers to any threats that interrupt normal day-to-day business operations, and such threats can take many forms and are caused by various factors. For example, crises from the internal factors such as physical crisis (work accidents, utility cut off, communication breakdown, production problem), personnel crises (staff sickness or resignation) and crises from external factors such as criminal crisis (terrorism, robbery), information crisis (information stolen or cyber attack), natural disaster crisis (volcano, flood), economic crisis (economic depression) and reputation crisis (scandal) (Preparing for Evil, 2014). In a more specific term, a crisis can be characterized as threats that occur abruptly and

unexpectedly unforeseen by managers or business owners, cause severe and disastrous consequences on the business survival, and put high pressure to make decisions in a short time under uncertain situations (Pearson & Clair, 1998).

Crisis management is a structured process taken by internal and external stakeholders to identify crisis signs, prevent and plan for potential losses, and recover and learn from the crisis for both negative and positive impacts. The crisis management model involves four (4) stages, which require the firms to take appropriate actions to achieve effective crisis management. In the detection stage, the manager shall anticipate and examine any potential warning signs that can disrupt regular operation in an organization and thus he or she can discuss the problems with key personnel to allocate resources and take action to prevent the crisis. In the occurrence stage, when the crisis happens, the manager shall take actions to establish order and stabilize the situation, minimize negative impacts and maximize any opportunities and resources to resolve the crisis. In the recovery stage, the manager shall construct working protocols to get back to regular operation and rebuild core functional capacities. In the resolution stage, managers shall reflect on experiences and lessons learned and activities taken to resolve the crisis and create a new crisis management plan to mitigate and prevent the repetitive occurrence of crisis (Hong et al., 2012). Crisis management can also be viewed based on how firms adjust their activities in response to the crisis. In the short-term, the goal is to survive in the crisis, and thus firms need to make emergency responses to minimize negative impacts and maximize immediate positive results by cutting down unnecessary expenses, restoring production and strengthening work effectiveness. In the long term, the goal is to prevent a crisis and improve the firm's capabilities to cope with a future crisis. Hence, firms create strategic responses for long-term development and work with relevant stakeholders to better prevent and prepare for the next crisis (Guo et al., 2020).

Due to the high speed, extensive scope and unexpected changes a crisis can bring to an organization, study on crisis management have caught attention from many researchers whereby various topics such as crisis impacts, strategic version and leadership, contingency plan and technical capabilities have been discussed (Hong et al., 2012). The study of crisis management can be categorized and integrated previous research on crisis and crisis management into three stages – pre-crisis prevention, crisis management and post-crisis outcome and from two perspectives (Bundy et al., 2016). An internal perspective focuses on organization's risk mitigation dynamics, crisis complication and technology and external perspectives focuses on interactivity and coordination between the organization and external stakeholders as follow:

- In the pre-crisis prevention stage, research focuses on the inevitability of crisis due to the complexity of rapidly changing world and how the organization should prepare its organizational structure, governance and culture to deal with the crisis (internal perspective) and negative and positive relationship that organization should develop with its stakeholders for crisis preparation (external perspective).
- In the crisis management stage, research focuses on crisis leadership involving how leaders perceive the crisis and how they play a role in leading the team during the crisis (internal perspective) and stakeholder's perception and their crisis response strategies (external perspective).

- In the post-crisis stage, the research focuses on organizational ability to learn from the crisis (internal perspective) and social assessment and responsibility as an outcome of crisis on organization (external perspective).

## 1.2. Crisis Management for SMEs

According to OECD Statistics Directorate (2019), Small and Medium-sized Enterprises (SMEs) are 'independent and non-subsidiary' firms categorized based on the number of employees and financial status. A micro-enterprise is a firm with less than 10 employees and total revenue not more than EUR 2 million. A small-sized enterprise is a firm with 10 to 49 employees and total revenue not more than EUR 10 million. A medium-sized enterprise is a firm with 50 to 249 employees and total revenue under EUR 50 million. SMEs play a significant role in creating and

distributing wealth, contributing to economic development and circulation worldwide. In European Union, SMEs account for 56.4% for value-added and 66.6% of employment, and in Sweden alone, SMEs account for 61.2% and 65.2% respectively. The outlook of SMEs' growth is very positive at an expected rate of 6.4% in the value-added and 2.4% in employment from 2018- 2020. The SMEs in Sweden outperform the above EU average in five (5) areas such as 'responsive administration, access to finance, single market, skills and innovation and environment' (Internal market, industry, entrepreneurship and SMEs Key points Past & future SME performance, n.d.).

In the context of Covid 19, small and medium enterprises, a crisis has three dimensions indicated by the inability to control the situation and slow done acceleration of crisis impact, limited cash and liquidity and time pressure to take emergency action to deal with crisis. Although there has been extensive research on crisis management, they cater for and provide "best-practice" to the large enterprises with abundant resources and high technology, which implications might not be applied to small and medium enterprises with scarce resources (Herbane, 2010). The crisis management model for SMEs has been developed by including more practical implications and actions to be taken in each four stage. In detection stage, SMEs' manager is required to (1) examine micro and macro environment for any crisis signs and make use of leadership and management skills to gather and communicate information to other members (2) proactively explore innovative new products or services or technology to improve firm's capability and apply for insurance or government support for any critical loss. In the occurrence stage, the manager's main tasks are (1) to reduce the cost by closing down business operations in some areas or shortening operation hours and reducing the number of staff and inventory (2) to implement new products or services or target new customers to generate immediate profits. In the recovery stage, the main actions are to rebuild resources by recruiting employees or purchasing inventory, strengthening relationships with external parties and restructuring procedures to better cope with the crisis. In the resolution stage, the firm shall investigate the root cause of the crisis and conduct a crisis management program to build its crisis learning and responding capacity (Hong et al., 2010). Although crisis management models for SMEs are in place, admittedly, no firm could anticipate the Covid 19 global pandemic's arrival and its unfamiliar devastating social and economic impacts. Hence, more research should be done to provide a more affordable and effective crisis management model for SMEs to be prepared for the current and future pandemic.



## **2. Business Model Innovation**

### **2.1. Business Model Innovation as New Competitive Advantage**

A business model is a holistic road map of how a company creates and captures values. It consists of four dimensions such as (1) target customer: whom the company wants to serve or offer values (2) value proposition: what is offered to customers (3) value chain: how a company produces the offer (supply chain, logistic system, production) and (4) profit mechanism: why it generate profit (cost structure). Business model innovation requires a company to modify at least two of those four dimensions of a business model (Gassmann et al., 2014). Netflix is an example of a business model innovation that has reinvented the video rental industry by offering streaming video services without owning single DVDs or CDs (value proposition) and allowing customers to pay by monthly subscription rather than a one-time purchase of DVDs or CDs (profit mechanism). Compared to the video rental industry's existing business model, Netflix can reach a wide range of customers in dispersed geographical areas with fewer resources since they do not need to spend

money on renting or owning a single store for business operation and make more profit than any other competitors. Business model innovation can give firms a competitive advantage for business success more than product or process innovation due to challenging business competition and rapid change in the business world. As Chesbrough (2010) states that firms can no longer depend on existing business models as they are under external pressure to continuously re-innovate their business model with digital technology to remain competitive and thriving in the market.

Nonetheless, a firm's leaders and managers face many significant barriers to innovating business models such as thinking out of dominant industry logic, creating a business model rather than new technology or product and the absence of creative and systematic tools. Osterwalder's 9 points decomposition is one of the practical tools help leaders and manager to map the critical relationship of nine (9) elements such as key activities, partner network, essential resources, cost structure, value proposition, client relationship, client segment, distribution channels and revenue flow to identify how these components relate to each other and determine which combination of process among those nine components are to be modified (Gassmann et al., 2014). Regardless of how helpful or practical the mapping tools are in constructing business model innovation, they will be useless if the manager and organization are not open and ready to adopt a trial and error approach, enabling the managers or leaders to initiate and implement the new business model. The experimentation approach can help leaders and managers to test out alternative business models. This approach aims to examine how accurate conditions and results of experimentation can represent the real larger market and gain cumulative experiences to be ready for implementing new business model innovation on a big scale. Hence, the experimentation of new business models must be conducted on actual customers with actual resources and in actual economic situations and managers are required to calculate direct and indirect cost including loss resulting from experimentation's failure, the time limit to get the result and information to be obtained from the experimentation (Thomke, 2003).

### **2.2. The Role of Business Model Innovation**

Under normal circumstances where everything happens as a regular day-to-day routine, it will be very challenging for a manager or a firm to innovate their business model, not to mention doing experimentation on business model innovation. However, during crises when things are uncertain and not under control, it

will force leaders to think out of the box and try to do new things as experimentation. For example, when it costs so many resources, time and pressure on the R & D department to prove the effectiveness of the new drug and get approval from government authorities on the new drug to be sold in the market, Johnson and Jonhson's take a risk and experiment to innovate their business model. The company supply Velcade - a new drug for bone cancer to European health ministries to be used for treatment, and they do not need to pay if the drug is not proved to be 90% effective in disease treatment. Although it cannot be guaranteed that the new business model is a success, it is clear that the company cannot afford to follow the old business model. Therefore, experimentation on a new business model is encouraged and necessary (Chesbrough, 2010).

In a disrupting business environment, big firms with many years of operations and a strong market position will find themselves struggling to make a trade-off decision between utilizing an existing business model which generates enormous profit or exploring a new business model which might help firms to adjust with the changes. One of the main challenges preventing long-established

companies from altering their business model is because they already create a strong organizational culture with fixed operational routines resistant to changes to maintain order and stability, which serves as firm's advantage during normal time and firm's hurdle during crisis time (Priyono et al., 2020). In contrast to large firms, SMEs embrace open innovation that is embedded in organizational culture. Importantly, they have crucial advantages over large enterprises regarding flexibility, innovation, and learning capability to change their business model to adjust to the crisis (Alves et al., 2020). In the case of the prolonged Covid 19 crisis, which totally disrupts normal business operation in various form of social and economic problems, including country lockdown, unemployment, social distancing and irregular supply chain and logistic system, SMEs are forced to innovate their business model not only for survival but also for obtaining competitive advantage in the market.

### **3. Digital Technology Adaptation**

#### **3.1. Digital Technology as Dynamic Capability**

Digital technology is a set of electronic tools, systems, devices that generate, store and process data and information. Examples of digital technology tools are social media, mobile applications, big data, cloud computing, Internet of Things (IoT), online development, and Artificial- Intelligence-related technologies. In the context of crisis, digital technology can help a firm to build dynamic capabilities illustrating in three dimensions (1) 'sensing' environmental changes and crisis signal by gathering and analyzing data or information in a high volume and extensive coverage (2) 'seizing' new opportunities in the crisis by innovating and improving firm's products, services and business model (3) 'reconfiguring' resources and capacities for crisis response by facilitating restructuring organization's work process, productivity and effectiveness and maintaining the relationship with internal and external stakeholders (Guo et al., 2020).

The level of digital technology adoption by SMEs varies from basic, intermediate, high and advanced levels depending on how sophisticated and scale of digital technology tools each firm employs. For example, while some SMEs at a basic level can use essential digital tools such as email, website, social media, some firms are at an advanced level capable of using advanced data analysis, search engine optimization, e-commerce platform. However, the Covid 19 impact has accelerated digital technology

adoption for SMEs on a large and wide scale. In response to Covid 19 crisis, Small and Medium Enterprises have utilized digital technology tools in various ways, which fall under six (6) categories (1) exposing business presences to the public through the website, email, blogs and mobile application to (2) fostering customer interaction and loyalty on products/services on social media such as Facebook, Instagram, Twitter (3) analyzing customer insights for well-informed and accurate business decision through digital analytic tools (4) facilitating online customer's purchases of products and services on own or third-party e-commerce platform (5) promote products and services on social media advertising, search engine marketing and online banner (6) supporting internal business process through cloud-based software, video conferencing, corporate social network (Deloitteeditor, 2017) .

### **3.2. Digital Technology and Business Model Innovation**

There is a close relationship between business model innovation and digital technology as digital technology offers SMEs the agility and capabilities to alter their business model in a short time, large scale and innovative ways in response to disruptive changes of a business environment (Warner & Wäger, 2018). Digital technology enables firms to reach mass target customers faster in dispersed geographical areas, diversify products and services significantly, and shorten processing time and improve the work process to be more effective and efficient. In the context of Covid 19, SMEs have innovated their business model with the adoption of digital technology tools through three different digital transformation paths as follows: (1) Digitized firm path: advancing existing high-maturity digital technology tools and resources to create a digital business model such as online shop on its own e-commerce website or mobile application where both internal and external business operation are digitized (2) Digitized sale channels path: transforming only sale channel from face-to-face to online platform such as online booking, door-to-door delivery services by making use of social media (3) Digital partner path: collaborating with third-party agents or business partners to outsource business operation or sale channels on online platform to reach the target market. It should be noted that the adoption of digital technology to respond to the crisis or innovate business models varies from one firm to another depending on the firm's perception of technology, resources and capacity and business strategies (Priyono et al., 2020).

## **4. Crisis leadership**

### **4.1. Roles of Leadership in Crisis**

The importance and roles of leadership in crisis are underestimated and overlooked by firms and research because crisis management is seen as technical rather than tactical issues and is reactive rather than proactive in nature (Pauchant & Mitroff, 1992). While in fact, leaders perform five (5) crucial tasks in crisis management such as sensing the crisis, framing and explaining the meaning of crisis and its impact to relevant parties, making decisions to deal with the consequences, overcoming crisis to resume regular operation, and directing the company to learn from the crisis (Boin et al., 2005). In the time of crisis where things are uncertain, causing stressful and problematic tension, leaders play various roles to stabilize the situation and eventually lead the team out of crisis such as (1) promoting a proactive crisis culture to prepare a contingency or crisis management plan (2) set and strengthen standard and process to cope with crisis (3) set priority and inform relevant parties about necessary step-by-step actions (4) analyze risks in full ranges to determine its impact (5) encourage open communication (6) build and strengthen the internal and external relationship to ensure a smooth flow of information and cooperation (7) be prepared and



trained to respond with media to control the situation and avoid any false rumors (8) promote a learning environment and culture of experience sharing (Jaques, 2012).

#### **4.2. Crisis Leadership in Virtual Environment**

In the context of covid 19, leaders face many more challenging leadership issues and play even more crucial roles in leading a team as people have to work in a virtual working environment where work arrangements are dispersed geographically and the interaction within and outside the company are done through online platform due to lockdown and safety measurement. Changing from a physical to a virtual working environment requires leaders to take on various roles and adopt new innovative strategies to motivate employees and maintain work productivity. A comprehensive literature review of previous research on crisis leadership found that most of the literature is conducted in a non-virtual and non-crisis situation and the process and behavior connected with leading a virtual team were barely investigated. Most studies are conducted about work satisfaction, antecedents and consequences of team efficacy, and various leadership forms (Bartsch et al., 2020; Liao (2017).

According to Liao (2017), two leadership behaviors are used in virtual work environments which are task-oriented or managing leadership behavior which focuses on achieving organization's goals by clarifying task's goal and monitoring work process and relation-oriented or enabling leadership behavior which focuses on broadening collaborative interaction among members and creating a supportive culture. The findings from an in-depth study on these two leadership behaviors in a virtual working environment and under crisis suggest that both instead of one leadership behaviors can yield maximum and effective results in a crisis-induced virtual work environment. Task- oriented leadership behavior will provide clear guidelines and direction to help improve teamwork in rapidly emerging virtual work. Relation-oriented leadership behavior will enable employees to have the necessary autonomy and support and adapt to individual and organizational changes or difficult circumstances resulting from the crisis. Hence, it is crucial and necessary that leaders balance those two approaches when leading a virtual team in a crisis (Bartsch et al., 2020).

#### **5. Conclusion of Literature Review**

Based on literature review on four (4) main topics such as crisis management, business model innovation, digital technology adoption and crisis leadership, we can summarize that most of the research focuses on long-established enterprises whose resources, nature of business and capabilities are quite different from small and medium-sized enterprises. Thus, the crisis management model might not be applicable and practical for SMEs' implementation, especially under the long and disrupted Covid 19 crisis. Although there is some research conducted on crisis management for SMEs during covid 19, those research focuses only on one specific angle of the crisis. It is evident that there is a strong correlation among the three dimensions of crisis management: business model innovation, digital technology, and crisis leadership. Hence, our research aims to shorten the gap of fragmented research on crisis management, focusing on crisis management, business model innovation, crisis leadership, and digital technology tools to explain and create a crisis management model that SMEs can adopt during current and future pandemics.

## Method

This research is one shot study, data collected is sufficient in one point of the time and also called cross-sectional study. In order to gain better perspectives of the research problem, more methods are undertaken to get a handle in the context to see the phenomenon. In this case, qualitative and quantitative methods will be adopted. Since more emphasis will be put on analyzing the data to address the research problem, and the research questions require the combination of qualitative and quantitative study mutually, a mixed method will be used.

The data, which will be used in the study is primary data and secondary data. Secondary data are obtained from the researches related to the study, and contributes to our literature reviews. The questionnaire of the survey and interviews for case study forms primary data, according to Joop (2005), primary data are the one collected for the newly specific problem at moment, which is highly purposive and collected by in-depth interview or surveys makes the study more persuasive.

There are two stages for collecting the primary: First a survey questionnaire will offer a holistic view and the second stage is according to the result of the survey questionnaire, an interview will be designed and the SMEs in Sweden who survive and thrive during the pandemic will be asked to join the interview. And then the result will give a fruitful information to be a case study, which will explore the phenomena of the research as well as bring the pictures of problems in real-life situations and can be used to produce hypotheses or conclusions based on both empirical and academic, qualitative and quantitative data (Willey, 2016).

## The Quantitative Study Method: Data and Sample

To conduct this research, a certain amount of data is required and to obtain accurate data, a few methods have been considered. First, a survey is designed to gain a preliminary perception of how SMEs deal with three factors which are the key elements of the study: business model innovation, leadership and digital technology tools. The particular reason for using a survey is that it offers a chance to raise the various type of questions for getting both quantitative and qualitative data (Wiley, 2016), but mostly, the quantitative data was collected especially in this research, the questionnaires of this survey were made for investigating how significant this 3 factors play roles in the SMEs surviving and thriving in the world pandemic covid-19 situation.

In this case, after several discussions the final survey questionnaire was determined, to put the questionnaire in an application, much effort was made to look for a suitable one with no prepaying and without constraints, and finally, a google document for the questionnaire was adopted.

In order to send the questionnaire to target SMEs, many channels are used, for example, using the website LinkedIn, since it allows search companies within an area and select the size of the employee: from 1 to 50, from 51 to 200 and from 201 to 500, which is helpful for conducting the survey to SMEs which is defined in this research. Simultaneously, we search for companies on Facebook by putting keywords: “the name of the city in Sweden and AB”. organization of SMEs Unfortunately, more than 120 companies are contacted by email, there are only 20 valid responses to the survey, which is far from the expectation

In conclusion, as a way of data collection, the survey was carried out one time in one round consisting of a questionnaire over a physical visit followed by mail or just e-mail or message on their official website. The target respondents are employees in or upon the middle level of the company, yielding a response rate of 17.5%, there are less than 8% of respondents agreed to accept an interview.

(Insert figure 1,2,3, and 4 here).

### **Analysis:** Results of the Quantitative Study

According to Juergensen, J., Guimón, J. & Narula, (2020), covid -19 makes huge influence over SMEs which is in line with the result of the survey that more than 35% approved it. According to figure 2: 35.3% of the participants of the survey express the willingness of innovation of the products. 29.4% want to improve the delivery ways. Searching new customers and other aspects are at a minor place. The definition of business model can perfectly explain the reason why innovating the business model: the right combination of resources and associated transactions (Dasilva, 2013), the certain reason of SMEs to make change is that the associated transactions are no more available in various procedures when conducting business due to Covid-19, the context as a key factor changes thus the relations with stakeholders can no more promise a well cooperation of business activities. According to Genti (2014), whatever the crisis, without innovating the business model, the result can only decline.. According to figure 1 The answers to the open question about the specific business model the company adopted, there is a popular answer, which is E- commerce, According to Sanjay (2013), the trend of moving business on internet is not only about the marketing, advertisement, and promotional activities, but also the brand awareness to win the target customers and gain competitive advantage.

The second key factor of the research is the leadership. There are strong voices that leaders play important roles during Covid-19 for SMEs to survive and thrive. However from different perspectives, there are different attitudes toward leaders. According to figure1: from employees, they require a stable salary to feel comfort since mental health and support is essential to them, it also suggests good leadership should include more knowledge on human resource management and business model innovation.

And finally the last factor, the digital technology tools under pandemic. According to Figure 3: participants are strongly in favor of the usage of digital technology tools, about 40% would like to adopt it as a new way of communication, and another 40% would like to use it as a new way of working. In the further exploration, the more specific digital technology tools are posted, within which, the communication website, social media are selected by 58.8%. From an overview of the survey, figure 4 suggests that compared to the business model innovation, digital technology tools are more effective under the situation of Covid -19.

### **The Qualitative Study Method:** Data and Sample

The result of the survey guides the direction of designing the questionnaire for interview, According to the survey, the answers related to the business model innovation, leadership and digital technology are fuzzy, more specific and detailed description about how the company survives or thrives based on different competence and type of business of SMEs. In this case the questionnaire for the interview is redesigned. There are 7 questions, 2 questions for each factor, and 1 question is about how Covid-19 impacts the business, and how SMEs deal with the crisis.

Simultaneously, the selection of participants of the interview is also made, to cover most types of the companies, we email and visit companies, which include: financial service, health service, technology and to some extent they survive and thrive successfully. (Insert table 1 here)

**Analysis:** Results of the Qualitative Study--Case Study Company A

Company A is a middle-sized bank. With a view that people who lend money to them should also have an interest in their money, they offer some of the market's most competitive savings accounts. The bank creates time and opportunities for people and companies to develop by simplifying their financial everyday lives. And they do their business by listening to their customers and offering uncomplicated and competitive products and services accordingly.

During Covid 19, the company was affected significantly like most of the SMEs in Sweden. They lost many small customers as lots of them were even affected worst by the pandemic and went bankrupt. However, some individuals will have to search for financial support to meet the personal or family's necessities due to the pandemic. And in order to find flexible finance or service support to deal with the difficulties they encountered with the big banks who usually required a range of terms to the loans, some of the other small companies chose to turn to this company A, which brought them even a very positive boost in the economy.

The company adjusted its business model to some extent and got a great reward back. They didn't have any systematic working routine to guide their core businesses before the pandemic. So, when the crisis came, their customers were reducing while the requirement for service from finance, credit cards, audit and salary accounting etc were emerging; they realized that the situation challenge was also a good opportunity. So, they built a full-service link systematically to the customer and even created new services combined with the old ones. For instance, for individual customers, their credit cards can only be used for shopping or some other business usage. Still, now they even allow their cards to be used as a public transport pass when they travel through collective buses or subways. And for the customers from small companies, they extend their deadlines to return their loans or interests at least 15 days; this is essential and helpful for the customers to be flexible in their financial stream.

Like their changes in the business model, they also did very well in the management. The leaders also play a critical role in dealing with this pandemic crisis. The FMH(Public Health Authority) and the government called on all of the people and the companies to try to work from home as much as they can. The company has taken advantage of their particular finance service; most of the employees are allowed to work from home. However, this advantage became, to no small degree, the leaders' challenge as well. They need to change their communication from face to face to virtual contact, and some of their team members felt uncomfortable to work alone at home.

Therefore, the motivation of the teams appeared more critical than ever before. The leaders have also taken various actions towards these challenges. For example, they showed carefulness to the groups on their psychology or thoughts via telephone or teleconference. More importantly, they carried out a plan to reward the employees for having training like running or walking outside for a physical break. If they do, then they are indeed getting a present from the company. And another exciting plan is also worthy of

mentioning. As we all know, the FIKA culture is unique but very important in Sweden; it provides the company with an opportunity to share ideas or experiences or just relax with the team. Usually, the team will sit together to have the fika in the office. But now they changed it to a Cloud Fika. So, it's hard to have all the members involved. The leaders invite all the team members to "sit" together to buy some snacks or coffee or even cakes from the shop Pressbyrå with their free Coupon from the company. With these motivation strategies, most employees felt even warmer in the freezing winter.

As far as digital technology is concerned with the company, they are not behind any other companies. They "meet" through Teams and feel it is quite similar to Skype they used before. The most crucial digital tool they use is social media which includes Facebook, LinkedIn and YouTube when doing their promotions. Moreover, they even begin to use AI technology to help them to deal with most of their invoicing administration work; this improves efficiency and reduces the personal closer contact under the pandemic largely.

All in one word, despite the negative impact that the Covid 19 has on them, they still operate very well and get positive progress.

### **Company B**

Company B is a small technology company as a part of the Telecommunications Equipment Manufacturing Industry. Although they are tiny, they have acquired the ability and experiences in the integrated communications and information technology which made them a market leader in trusted communication systems, services and end-to-end solutions for mission-critical operation.

Like the other SMEs, company B doesn't escape from the tremendously negative effect of the Covid 19. The number of orders from the customers has sharply dropped, and some of the orders' total values are much less than before.

However, the company works more on the R&D and brings new efficient products to the customers and made some changes to the products, so they enlarged their market aim. Therefore, more customers are showing their business cooperation intentions with them. To meet the orders' delivery deadline, they improved their supply chain efficiency and contacted their suppliers more often than before to track their components' supply. It's proved that these new strategies on whatever their new products or their supply chain management work significantly.

As they are a small company, they adopt a very flexible leading style. They allow all employees to work from home and keep in contact if there is any need to work at the office for testing. To reduce the face-to-face contact, they choose to work some days at home and some days at the office (as the system test needs to be done at the office). They consider the employees a great resource of the company; however, they have to reduce the labor cost to maintain the new normal. Therefore, they have some consultants off of fewer hours of work but keep in contact and ask them back to work directly when the situation becomes better. They even keep the consultants' laptop or others at the office to wait until the day when they come back. Therefore, they build up a good trust between the leaders and the team members, and they will always keep their talents with them to contribute to the company together.



The company itself belongs to the high technology industry; they consider every new digital technology tool as the driver to make the work efficient. They use Teams before the pandemic. However, they updated their business system to have it easier and more efficient with different functions.

Although the company experienced such a crisis, they felt more confident with these new strategies to overcome any difficulties they met. They adopt flexible policies according to the external environment while they also focus on enhancing their strengths.

### **Company C**

Company C is a micro company with 5 members including 2 partners and other 3 employees. Company C is a small Yoga gym, teaching and coaching Yoga. During the Covid-19, a sharp decrease of customers made a huge loss to the company. In order to survive, they actively innovate the business model. They conduct yoga class online and use the social media such as Instagram, Facebook, and Youtube lives to attract more people doing the advertisement and teaching as an E-commerce business model, besides, a cross-selling was also adopted, the cooperation with one coffee shop in the city center, customers who shop coffee can scan QR code or take a brochure. As was said previously, the customers and market is very important and need to always broaden.

As a leader of the company, she created a strong faith and support for employees and a relaxing environment even under such a bad situation, a positive attitude and communication with every employee to show carefulness and support so that everyone stays together to go through the crisis.

### **Company D**

Company D is a three-year-old escape game company with 3 full time employees and 2 part-time employees. The company offers face to face escape games for adults, family and organizations to solve challenges in a room together. Covid 19 hits the company very hard because social gathering is banned and people try to avoid face to face interaction. To survive, the company changes how people can play challenging games. Instead of people coming to the company to play challenging games, the company delivers challenging boxes to customers so that they can play with their family during quarantine time. Due to the increasing number of unemployment and encouragement of social distance, more people are staying home and they are the new target customers for the challenging boxed delivered to house. Family or organization can also book a room through an online platform where they can come to play games by following safety standards such as social distance and hand washings. The company also diversifies services by offering new online music streaming services called Music Quiz where people can watch live music broadcast from the websites with minimal subscription service fee. Although these strategies keep the company afloat during a crisis, it is still far from thriving because the price of services is lower and the cost is higher as the company is still experimenting on development of new products and services.

In terms of leadership and human resource management, since the Covid 19 started in 2019, the leader takes immediate actions to have an open discussion with the team members about the impact and the work arrangement. For the part-time employees, the company will pay them based on hours rather than monthly basis. Besides, since the company is unable to meet the expectations of employees in some aspects and there is not much work to do at company as the services are converted to an online platform, all employees

are allowed and encouraged to take other jobs with other companies and if there is work needed, the owner will contact them to work. The leader admits that the crisis makes it hard for everyone to be motivated and causes a lot of challenges to employees to adjust with the new working environment. Hence, the leader maintains an open attitude and free information flow and focuses on employee's well-being. The leader opens for employees to share information and their thoughts to make their voice heard and make them feel needed and belongs to the company.

In terms of digital technology tools, they hold meetings on Zoom applications to keep each other updated on work progress and maintain positive relationships. The company also makes websites to allow for online booking registration or purchase of the challenging boxes and to host live music. The company promotes their products and services on Facebook, email newsletters and sponsorship from other organizations to promote the music events for the west coast of Sweden.

### **Company E**

Company E is a small second hand shop, with around 20 employees, this small business gives opportunities for old people who are retired and disabled people to give a chance to contribute to the social activities. From the beginning of the Covid-19, there is a huge loss on employees because they are more easily to get infected or already been infected. As a second-hand business, many old products collected need to be washed or renewed, which requires much labor force, and due to the loss of employees the productivity starts drop same time. The leader of the company tells there were more than 25% labor loss and 35% profit minus happened in the beginning of the Covid-19. More Worse, the target customers of these kind of business are mainly old people as well, more and more restrictions are set up, such as maximum 40 people in the shop which includes employees, and 2-meter social distance in the shop and recently shopping alone policy, which makes the business dying.

While, the leader expresses some confidence since several measures are taken, which creates a stable situation. As a retailer, the products can sell online, which means more young customers can be attracted, the adoption of the concept from Ikea, that this second-hand shop are not only provide a safety, virus-free environment, but also a very warm space, the showroom are built and to offer customers a more relaxing shopping experience and the furniture put in the showroom are frequently changed, so that people can always come back for the new creatures.

The new products bakery food is now available in the shop, the food in the shop, this is popular in Sweden to increase a good shopping experience. And the business relations are actively built with local furniture shops and other suppliers.

As a leader, even if she suffered from many challenges, she still needed to contribute to the company and be responsible to her employees. Be more open to tell the truth, and give clear instructions or the concept of the new business, this moment, the employees needs more mental support even if it is an encouraging word, or a good communication. She also did a survey to her employees and she studies leadership since it is needed in this special negative moment. However, it is a chance to build up a strong team, people who are included are linked together toward the goal, the carefulness and the trust is the key of one team.

In the end the leader shows her opinion on digital technology, as it's more users on Facebook or Instagram, they will try to promote on these social medias and more easy for old people to learn and use.

### **Discussion**

So far as we investigated, there are some elements mentioned several times which belong to the 3 factors: leadership, business model innovation and digital technology.

Firstly, the attributes of leaders, which is openness, open attitude, the leaders conducting exercises for employees' physical health, company B show a great trustiness on the consultants, and company C offers a positive atmosphere and company D gives employees more flexible selection of jobs. Company E shares the information and business concept. Communication as the channel to let the information flow among employees, no matter what news or decisions are made by leaders or owners, everyone of the company has the right to know it, communication as the base of the trust, without trust, the leader will not have followers, employees will not feel they are needed.

Secondly, the elements of business model innovation: it is popular to adapta business model E- commerce, since the online business can not only save time or cost, but also it can help SMEs increase competitive advantage. From both surveys and case study, more companies sell products or services online to avoid face to face contact. In addition to E-commerce, various business models are applied to search for more customers. Company C cooperates with a coffee shop belonging to a cross-selling business model. boost the economy of both itself and the coffee shop to make win-win. To win more customers, more products or services are newly offered, for example Company D starts to sell challenging game boxes and the live music, Company E offers bakeries to increase their competitive advantages to attract more customers to maintain or even broden the market.

Thirdly, more digital technology tools are adopted on social media like facebook and instagram and communication tools like ZOOM and systems or software: ERP for monitoring the balance. Compared Company B an telecommunication company with Company E a second-hand shop, it is obvious that technology companies have more advantages to take usage of digital technology, while the old traditionals are not so easy to take advantage of digital technology since it requires some training or learning, or even large cost for monthly internet in the company.

### **Limitations**

This study has its own limitations since the numbers of samples are not sufficient to reach a generalizability, this is because of the time constraints, and under such negative situations, companies are unwilling to do the survey or take the interview to show themselves how they suffer. Because of this, the participants of the survey and interview are mostly who survive and thrive during Covid-19, and data are thus more positive.

In the process of contact the company, we are unable to get much response from email which we find on the page, thus we made the physical visit to the company, 1 group member live in Stockholm, and other 2 members live in Halmstad, so the company we choose are located in Stockholm and Halmstad, more company in north and south, west and east and middle of Sweden should be included in the survey.

## Conclusion

Previous studies about crisis management have primarily conducted an investigation to the changes that SMEs must implement in order to bring about long-term survival and entrepreneurial value creation when facing a bankruptcy and failure (Mayr et al., 2016) and internal dynamics and external stakeholders of crisis management (Bundy et al., 2016) in a large enterprise context. This study focuses on the three critical factors of business model innovation, crisis leadership and digital technology tools associated closely with SMEs in Sweden. The study identifies the significant impact that the Covid 19 has on the SMEs in Sweden; and provides practical strategies that the SMEs adopt in terms of these three aspects under the pandemic.

Based on the analysis conveyed, we can see clearly that the SMEs adopt different essential strategies and are proved efficient and useful. In one of the factor business model innovation, the SMEs try to systematically improve their quality of products or service or that the companies try to change their potential customers to be real ones. Secondly, the leaders in the SME played an essential role when the crisis came. Most of them adopt a democratic leadership style and allow their teams to work remotely but keep contact via teleconference or some other ways. And they realize that under such a particular working environment at home, psychology or thoughts are more critical than ever before. They focus more on motivating the employees to train at home and outside to balance work and life. Thirdly, due to working from home, SMEs have to use various digital tools in different aspects. For instance, they use Teams or Zoom for meetings and Social media tools like Facebook, Linkedin and Youtube to promote sales. Moreover, they use a new system to work efficiently. The difference between our research models and those proposed by other researchers in previous crisis management suggests that the survival and developing strategies in SMEs may depend on the specific context, level and coverage of the crisis. Our study findings contribute to the current literature on crisis management by providing empirical evidence from the SMEs in different industries.

Having reflected on the SMEs' experiences of business-level crisis, the top management needs to observe their company's exposure to a large extend of crisis events in terms of their likely occurrence, the impact of such crisis in terms of their operational interruption and short- and longer-term financial effects (Herbane, B.,2012). Therefore, to overcome and reduce the problems that the pandemic crisis brings about, the SMEs need to respond to the situation quickly and make the right decisions accordingly in terms of innovating business models, leadership transformation and utilization of digital technology tools. Crisis management is an ongoing process, continuous improvement by embedding lessons learned can minimize the risk of the next crisis (ALVES et al., 2020). The SMEs should strive for their strength and keep working efficiently and adopt pact crisis management.

Finally, we have identified some limitations of our research. Many factors will affect the SMEs' survival during such a long-time pandemic. We only focus on these three ones closely connected to the core crisis management, and we also focus our investigation on empirical evidence in local companies in Sweden. Due to the company's different size and industry, although they can be defined as SME, our findings may not be comparable. So, whether an SME is running its business in other contexts is adopting the same strategies or approaches to strive and thrive could lead to further research. Moreover, the study findings also suggest that the company size, leadership styles or motivation to dealing with a crisis, and the business areas and the level of their digitalization are all factors that may impact crisis management.

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**Figure and Tables:**

figure 1

The new adoptions according to the 3 factors—business model innovation, leadership, digital technology.	
Business model innovation	Online shopping, food delivery, digital marketing system, software tool, explore new target customers,
Leadership	Earlier adjustment about work environment, proactive, more communication, mental health, less attention on money, more attention on people, more action to external, stay stable and well informed, change the keys of performance.
Digital technology	Online meeting, WhatsApp, Teams, Odoo, Zoom, Wechat, Facebook, Instagram

figure 2

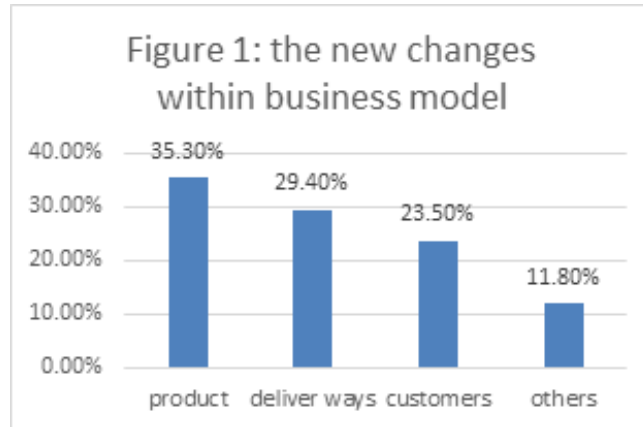


figure 3

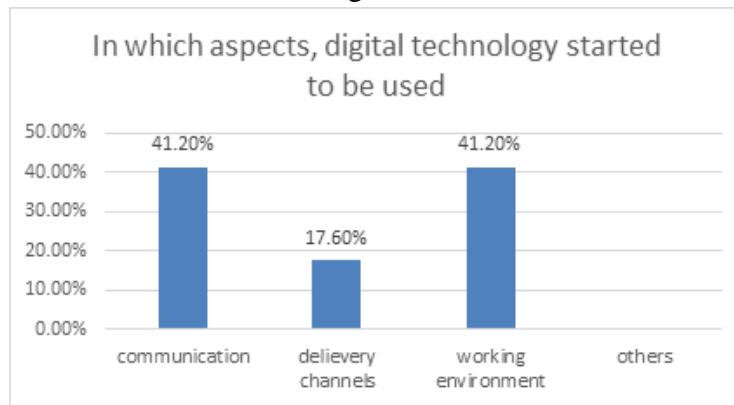


figure 4

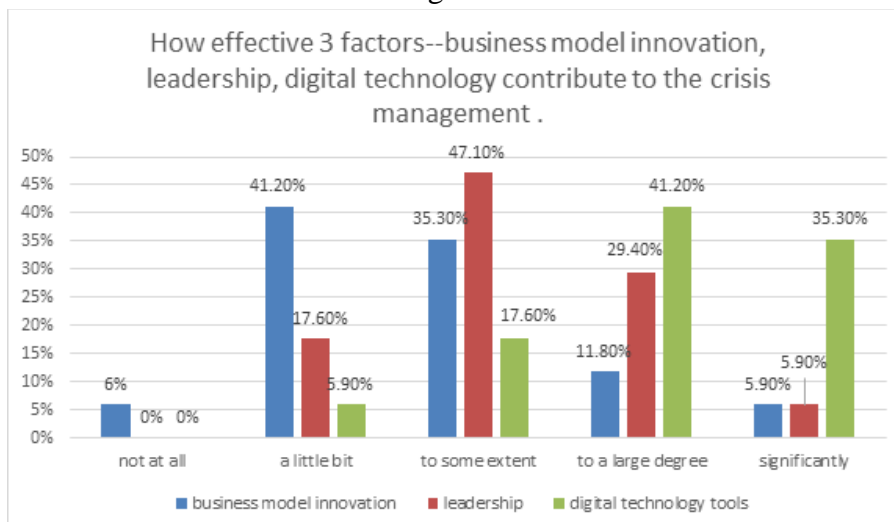


Table 1:

Overview of 5 interviews with different companies					
Company name	Company type	Size	Business model innovation	Leadership strategies	Digital technology they use
Company A	Financial—Bank	Middle-size	A full-service link, new service combined with old one, collective cooperation with public transport, extend deadlines	Employees are allowed working from home, show carefulness, physical training, cloud FIKA,	Teams, Facebook, LinkedIn, Youtube, AI-technology
Company B	Technology—telecommunication	Small	Improve supply chain, more contact with suppliers	Flexible working home or office, reduce consultants	Teams, business systems
Company C	Health—Yoga gym	Micro	Online teaching Yoga, more focus on advertising, E-commerce, cross-selling, cooperate with a coffee shop	Strong faith and relaxing environment, positive attitude, show carefulness	QR code, Facebook, Instagram,

Company D	Technology— game	small	Customer playing from home, challenging games home deliver, online booking, offer online music streaming service,	Open attitude, different payment of salaries. Working from home	Zoom, newly established official web for booking registration, purchase of challenging boxes or music live shows. Facebook, email newsletter
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Company E	Retailer—Second hand shop	Small	Showroom, bakery, supply chain, online promotion	Open attitude, encourage, mental support, communication, working environment safety	Facebook, Instagram
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Table 1: Overview of the interviews