

Digital Transformation and Automation of the Workspace in Times of Covid-19

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ABSTRACT,

This paper aims to analyze the dependency of SMEs on digitalization, how the SMEs coped with Covid-19 crisis. This exploratory study tries to define digitalization, the different levels and variables associated. Multiple semi-structured interviews with owners, CEO's, IT-managers have been conducted to say something about the IT-infrastructure of their company. The evidence collected is outlined in three separate subsections: *Before Covid-19*, *Current situation*, and *Future Expectations*. This research shows that the impact of Covid-19 on SMEs may not be underestimated, it also shows that the SMEs must transform their business models through digital transition in order to not become obsolete.

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Keywords

Office Automation, Digitalization, Work From Home, Office, IT-infrastructure

1. INTRODUCTION

1.1 Situation and complication

COVID-19 has engendered the biggest human and economic catastrophe in recent history. The introduction of strong restrictive measures is having a substantial effect on the global economy, including an increase in the unemployment rate worldwide. Because of this economic catastrophe, millions of people lost their jobs, (Monitor, 2020). Some sectors will recover quickly, for other sectors, the impact of COVID-19 will have a bigger effect in terms of unemployment rates.

In pre-Covid-19 times a host of papers estimated that new technologies put anywhere from 9% to 47% at risk of automation in the near future, (Arntz et al., 2016) (Benedikt & Osborne, 2017). Not much research has been conducted on the impact Covid-19 has on the technological advancement and automation of jobs. However, early research shows that Covid-19 has a big impact on the digital transformation, (Ojong-Ejoh et al., 2021). Employers invested in technology to adapt the production process, workplace operations of many businesses went virtual, and a lot of consumers went from offline shopping to online shopping. With this research the goal answering the following questions: what was the level of digitalization at SMEs before Covid-19? In what way does Covid-19 impact SMEs? And how big is that impact?

1.2 Research Gap

While there has been much research on the impact of working from home during Covid-19 and the impact on mental well-being for office workstation users, there has not been a lot of research about the impact of Covid-19 on the pace of digital transition through office automation in SMEs.

Qualitative methods will be used to gain in-depth insight into the decision-making process of key figures related to making IT-related decisions during times of Covid-19. This data will be contextualized with a literature review on digitalization, automation, and its connected variables.

To answer the main research question: *“How does Covid-19 impact the pace of digital transition through Office Automation in Small Medium Enterprises?”* we first must look at the subsections that will help us draw conclusions at the end of this research paper.

Sub question	Method
What is the dependency of SMEs on digitalization?	Literature Review
Levels of digitalization.	Literature Review & Semi-structured Interviews
The level of digitalization of SMEs	Semi-structured interviews

Table 1: Methods used to answer the sub question

1.3 Academic Relevance

According to the Organization for Economic Co-Operation and Development (OECD, 2019), small and medium enterprises account for 99 percent of global businesses and 50 percent of global employment. Thus, SMEs account a large proportion of the businesses globally. For this reason, it is interesting to research SMEs, as it was impacted by Covid-19 at large.

In this research, I will focus on companies categorized as SMEs, this research will consist of practical evidence collected from Dutch companies. The situation before Covid-19, the current situation and future expectations will be discussed.

In the literature about the impact of digital transformation and workspace design a lot of research has to do with the mental well-being of employees, The investigation of impact of Covid-19 on the pace of digitalization and the size of that impact could be very beneficial for future studies. To gain a fuller understanding of why this is so present during times of crisis, in-depth qualitative research is required, focusing on SMEs.

The paper will provide definitions of digitalization and automation, connected variables, and will discuss Covid-19 and SMEs. It will be interesting to see how the SMEs coped with Covid-19, what they did to maintain revenues, how some struggled and how some of them flourished in times of Covid-19.

1.4 Practical Relevance

From the seven conducted interviews, five of the connected companies can be considered to be micro companies according to the European Union standards (Berisha & Pula, 2015).

Especially for these smaller companies that are younger and still growing, it is interesting to know how other small companies coped with the Covid-19 crisis that we are experiencing now. Interviewee 3: Founder & CEO at Neofollics Hair Technology, has a workforce of eight people wants to be interviewed because he is interested in the outcome of this research, so that he can benchmark his company against other companies.

This research will provide practical and theoretical evidence on the main research question and will help SMEs understand to know if they are doing enough to stay upfront regarding the digital transition or that they are lacking behind and need to act before their business becomes obsolete.

2. CONCEPTUAL FRAMEWORK

2.1 Digitalization Defined

To better understand the impact that Covid-19 has on the pace of digital transition through Office Automation in Small Medium Enterprises, we first must define digitalization and the related concepts. The term digitalization is sometimes referred to as digitization and are often used interchangeably (Berger, 2015). The term digitalization is defined as the ability to collect relevant information, and to analyze and translate that information into actions. The change brings advantages, challenges, and

opportunities (BMW, 2015). “Digitalization can be defined as the use of technology to radically improve the performance or reach of enterprises. Executives in all industries are using digital advances such as analytics, mobility, social media, and smart embedded devices to change customer relationships, internal processes, and value propositions” (Westerman, G, C Calm  jane, D Bonnet, 2011). A third definition is “digitalization is the consistent networking of all sectors of the economy and adjustment of the players to the new realities of the digital economy. Decisions in networked systems include data exchange and analysis, calculation and evaluation of options, as well as initiation of actions and the introduction of consequences” (Bou  , 2015). The three definitions all talk about collecting data and information, analysing that data, and translating it into meaningful actions with the help of new technologies. To make the analyses of the results of the research easier we use and adapt the Digital Maturity Model (DMM) (Berghaus & Back, 2016).

Stage	DMM Stage
1: Beginner	Create & Build
2: Intermediate level	Commit to Transform
3: Advanced	User-centered & elaborated processes
4: Expert	Data-drive enterprise

Table 2: Adapted Digital Maturity Model

2.1.1 Create & Build

Digital innovation plays a more prominent role within the business. This also includes the start of evaluating internal communication or service processes. The business starts to strengthen its digital competencies, collaborating more strongly with the internal IT department.

2.1.2 Commit to Transform

In the after stage the goal is to start the digitalization process, in stage 2 the focus shifts from experimenting with digital innovations to using digital transformation to change the internal culture and organizational structure more profoundly. The management of the company should be willing to perceive digitalization as more radical change to their organization as well as creating a strategic plan for the transformation process itself (Berghaus & Back, 2016).

2.1.3 User-centered & elaborated processes

A company in this stage is known as a digital innovator within its industry. The company involves users in their innovation processes and focus on customer data when designing new products and services. The company has the ability to drive day-to-day operations alongside its digital innovations (Arntz et al., 2016).

2.1.4 Data-driven Enterprise

A company in the last stage is a company that is driven by data. It uses advanced data analytics technologies for resource planning, the acquisition of customers with data across multiple channels, the real-time analysis of customer behavior and personalizing customer experiences with data.

2.1.5 Automation

According to (Goldberg, 2012), the research about automation emphasizes efficiency, productivity, quality, and reliability and focuses on systems that operate autonomously. The actual implementation is not any different. Automation is about making sure that systems operate autonomously without interference of a person. In this case, it is about the automation of jobs.

2.1.6 Remote Work

When Covid-19 struck in March 2020, many governments put in motion regulations regarding the confinement of movement (lockdowns). allowed to go outside to get groceries and sport. The consequence of this was that everybody had to work from home, they had to work remotely. The following definition of remote work dates back to 1983, but still stands till day as it describes how people used to work before Covid-19. “Remote work generally refers to organizational work performed outside of the normal organizational office space” (Olson, 1983). With Covid-19 people are working five days a week at their own home, which is a big difference with the situation before Covid-19 (Brynjolfsson et al., 2020).

2.2 Small and Medium Enterprises

The European Union provides definition of such enterprises as “a company with the number of employees fewer than 250, the annual turnover up to   50 million or total value of the assets on the balance sheet equal or up to   47 million.”

In their paper have defined SME characteristics that are divided into particular dimensions describing their properties (Khadrouf et al., 2020).

2.2.1 Economic Dimension

Where SMEs usually characterize with the limited budget for development of their own departments related to the ones focused on their major operations and as a result often need to rely on the third-party providers.

2.2.2 Organizational Dimension

The SMEs characterize with the more condensed ownership structure in which the owners are often executive managers, the decision-making process is centralized with the flat structure with more flexible business processes.

2.2.3 Environmental Dimension

The level of uncertainty of their environment in the technological and competitive context. The influence of few and as a result significant clients or suppliers can bring impact drastically changing or the demanding the change in conduct of operations.

2.2.4 Technological Dimension

Characterized in the limited expertise in technical and IT related solutions as their limited budget allows to concentrate only on specific parts of their business with the restricted resources for the build-up and maintenance of the infrastructure.

2.3 Covid-19

In the combined research being the comprehensive review about this phenomenon (Pascarella et al., 2020) they provide comprehensive summary “SARS-CoV-2, a novel RNA coronavirus from the same family as SARS-CoV and Middle East respiratory syndrome coronavirus (MERS-CoV), was identified in early January 2020 as the cause of a pneumonia epidemic affecting the city of Wuhan from where it rapidly spread across China. After infecting and causing thousands of deaths in China, the virus has spread, reaching Italy and other European countries and the USA, with the number of confirmed new cases currently increasing every day. The World Health Organization named the disease coronavirus disease 2019 (Covid-19) and subsequently declared it a pandemic due to the wide-spread infectivity and high contagion rate. Human coronaviruses typically cause respiratory and enteric infections. The new coronavirus has become a worldwide health threat up to 28 March 2020” The disease and resulting in its pandemic has had immense influence almost every element of everyday life. In business, the direct result of it has come in a form of the

mandatory isolation of people. Therefore, the abandonment of the regular workplaces and forced remote work.

2.4 Covid-19 and SMEs

The current outbreak of the SARS-CoV-2 started in the People's Republic of China, after which it has spread all over the world. This outbreak is the biggest problem since the second world war. Apart from health and mental-health consequences, the socioeconomic uncertainties and the impact of safety measures for small and medium enterprises have had a big impact on the global economy so far, but the sector that got the biggest hit is the companies that fall in the category of the small medium enterprises (SMEs) (Eggers, 2020).

In their paper Horváth & Szabó (2019) base their definition of the digitalization as "the use of computer and internet technology for a more efficient and effective economic value creation process" which is based on the analysis from (Reddy & Reinartz, 2017) additionally it has been described as "the process of organizational transformation through the adoption of digital technologies" by (Horváth & Szabó, 2019). The research conducted by van Veldhoven & Vanthienen (2020) performs a deep analysis of the role digitalization in bringing the efficiency into the business processes of SMEs. They name advantages coming in the expansion of velocity, volume, and variety of the resources management in the situation of the digital administration of data as well as transferring their work-flow processes into the computerized system. The paper focuses on the SMEs and points to the effect that Covid-19 had on their digital transition. "During the Covid-19 outbreak, firms with a high degree of digitalization, such as Freshhema and Meituan, have been able to quickly reshape their businesses to minimize the adverse impacts or even benefit from the crisis."

The safety measures that were set in place because of Covid-19 caused a lot of SMEs to abruptly work completely different to what they used to. Companies had to close offices or had way less capacity for all their employees. These issues were mainly solved by digital solutions, but the impact that Covid-19 has on the digital transition through office automation is not researched that much.

3. METHODOLOGY

3.1 Research Design

To achieve the research objective of answering the overall research question an appropriate research design needs to be chosen. For this research, the primary research model will be applied, meaning that data will be collected directly from the research. The primary data of this paper will be obtained from the sample using a qualitative data collection approach taking interviews with the entitled decision makers.

The primary data will be collected in the form of multiple semi-structured interviews and structured interviews.

We are using the semi-structured interviews because we want to know if there are other unknown factors that influence the digital transition in SME's.

A semi-structured interview means that several questions are prepared in advance, but the questions that are prepared are designed to be sufficiently open so that the follow up questions cannot be prepared but must be improvised.

If we would apply a more structured way of interview, then there would be no room for elaboration on unknown factors.

Basic questions and context are given to the interviewees to start off the conversation, but once those are answered the goal is to create spontaneous conversation with questions that are improvised.

The interview will contain questions about the situation before Covid-19, which for practical reasons is defined as the period before January 2020, it will contain questions about the current situation, which is defined as the period from January 2020-now and the last segment of the interview contains questions about future expectations.

The research will be done based on the dependency of the variables shown below (Fig. 1). Where digital transition is the dependent variable and office automation is the independent variable. Covid-19 is defined as the moderator.

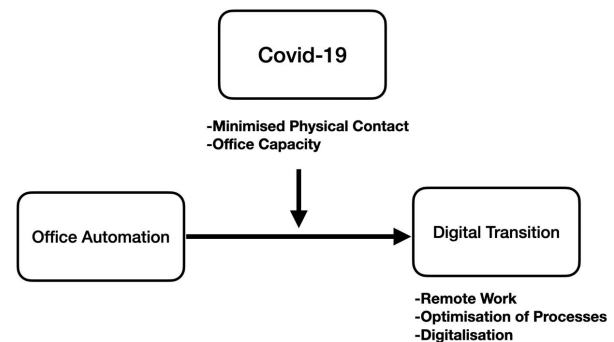


Figure 1. Conceptual Framework

(The methods applied to investigate the impact of Covid-19 on the pace of digitalization can be seen (Fig. 1).

3.2 Data sample

In total, seven interviews have been conducted with various interviewees. The interviewees are owners, CEO's, IT-managers and have something to say about the IT-infrastructure of their company. All the connected companies are SMEs, except interviewee 1, which is a cloud architect at Capgemini, he has a lot of experience implementing IT-solutions to bring the bigger SMEs to higher level of digitalization.

4. INTERVIEW RESULTS

Here is written down the summaries of the interviews. The interviews are structured in the following order: 1. Before Covid-19, 2. Current Situation, 3. Future expectations.

For practical reasons, the period before Covid-19 is defined as the period before January 2020, the current situation is defined as January 2020 onwards and future expectations is a situation where Covid-19 is not present anymore.

The different levels of Digitalization and Automation are classified as followed: Beginner, Intermediate level, Advanced & Expert.

4.1 Interview 1: Cloud Architect at Capgemini

On the 1st of June, a semi-structured interview took place with a consultant who works as a cloud architect at Capgemini. Capgemini is a French multinational specialized in designing, developing, and implementing technology projects focused on complex system integration and IT-application development. Capgemini has its own IT-department, it is called Group IT.

Capgemini had an early view on Cloud. They started a partnership with Amazon Web Services in 2008 (Services, 2008). To put that in perspective, back in 2008 only ~20% of the world was using internet compared to 60% now (Löf & Seybert, 2009).

The job of interviewee 1 is to help big companies implement their cloud-infrastructure and to align their business needs with their cloud-infrastructure. He is responsible for designing and developing the cloud-infrastructure that meets the needs of the clients. In his role as Cloud Architect, he is able to say something about digitalization and automation that is useful for this research.

4.1.1 Before Covid-19

According to interviewee, 1 digitalization has been the major strategic spear point of every big company in the last couple of years. Today, every company has a lot of data, and you want to use that data to improve the business process, be more efficient, and maximize profit. Interviewee 1 thinks that the level of digitalization at Capgemini before Covid-19 was intermediate focusing on the Capgemini internal workspace.

Interviewee 1 is having his lunch break walk while we are talking and observes that having such a conversation while he is walking and meeting me while I am sitting behind my desk at my home office would have been different before Covid-19, because he would have been behind a desk at the office.

Everybody at Capgemini had the opportunity to work from home before Covid-19, however the interviewed consultant guesses that less than 30% of the workforce worked from home: There was not any pressure to show your face at the office, but at the office it is a lot easier to talk to colleagues and get to know what is going on in the organization and keeping up with that.”

4.1.2 Current Situation

Interviewee 1 explains that one of the big improvements / differences with the current situation and the before Covid-19 situation is the way employees talk to the service desk. Before they picked up the phone and called the IT-service desk, which is stationed in India, you asked a couple of questions, you were given a ticket-number and hopefully they came back to you after a couple of days with a solution or feedback.

Nowadays, a big part of that process is automated, you open Microsoft Teams and ask questions to Adam, an AI bot developed in-house that can help you with all kinds of small IT-problems. Interviewee 1 explains that the level of digitalization rose from intermediate level to advanced / expert.

Working from home struck like lightning at Capgemini in ~mid-March 2020. There was a directive from the headquarters that everybody had to work from home. In the beginning, systems were slow and not everything was facilitated, after a couple of days, those issues were resolved. Employees of Capgemini can work at the office for maximum one day in the week. Custom arrangements can be made when personal circumstances play a role.

When Covid-19 was just emerging, everybody was scared about the market and revenues, but the growth that we experienced last year was very high and much more than expected.

4.1.3 Future Expectations

Interviewee 1 thinks the office will become a meeting place after the pandemic and employees will be able to work at the office two days per week max. When you have big projects with your team you will work together at the office. According to the interviewee, it will be more common to work from home, phone / video calls when walking as these will be more common too.

The processes in place will change, but the technique will stay the same. It has been here for years already. Interviewee 1 also sees differences between SME's and big companies. Small companies prefer employees to work at the office for very

practical reasons. They are working together more closely; also, smaller companies do not have to think that much about their public relations as big companies have to. If Capgemini has a Covid-19 outbreak at one of its offices and it will hit the paper, they will have bad PR, for smaller companies that is not necessarily the case.

4.2 Interview 2: Co-Founder & CEO at LoCoMoGo

On the 1st of June, a semi-structured interview took place with Interviewee 2 who is the Co-Founder and CEO of LoCoMoGo. LoCoMoGo believes that every child should be able to thrive. They are trying to fulfill that wish by making products that teach children via teach through play. Their first product is a physical toy train that teaches kids coding through play from the age of four to twelve.

The interviewee is the founder of the company, and he likes to refer to his role as the engine driver of the company. Making sure the company is steering in the right direction. LoCoMoGo has nine employees.

4.2.1 Before Covid-19

The interviewee and his employees were able to work remotely before Covid-19. This also had to do with the fact that a couple of his employees were not based in the Netherlands, so they already had to use digital tools to work together. Because of that the interviewee thinks that the level of digitalization of LoCoMoGo before Covid-19 was advanced.

The interviewee and his employees were able to work from home, but he adds that 70% of the work cannot be done from home while it consists of product development and needs to happen at the company's office.

The communication processes within the company were automated already. The interviewee refers to those processes as standard processes that you should automate from the start. Integrations with Slack, automatic notifications and project management systems that automatically notify you about upcoming tasks that need to be finished to name a few: “If something is recurring and can be automated, you want to do that.”

4.2.2 Current Situation

Because LoCoMoGo is developing a product, its employees need to work on the hardware, so they need to be at the office. The CEO is not applying a strict policy regarding working from home / working at the company's office. Two of its nine employees are working remotely now.

The interviewee is saying that because of Covid-19 he and his colleagues pushed the company to another level of digitalization and automation. He adds by saying that they did not undergo big challenges to achieve these new levels, but that Covid-19 intensified things, and did not make anything go faster.

4.2.3 Future expectations

The interviewee thinks that the future of the office will be a combination of a meeting place and working place. The layout of the office will be different, people will not have a fixed place anymore as they can login at any workplace and start working.

What will stay the same is that people like to have social interactions with each other, the office is a very suitable place for that. According to the interviewee, this part is also very important, he says that you will not call a colleague all the sudden to crack a joke. That is something you would do in the hallway of the company. The interviewee believes that meetings are not more efficient than they used to be, because you miss information

that you would normally would have heard when everybody is at the same place, so you need more meetings to receive the same information.

4.3 Interview 3: Founder & CEO at Neofollics Hair Technology

On the third of June, a semi-structured interview took place with interviewee 3, Founder & CEO at Neofollics Hair Technology. Neofollics Hair Technology is involved with the development, production and distribution of products that prevent hair loss and other hair problems among men and women. Neofollics sells these products in approximately 29 countries through a direct-to-consumer business and via distributors. Its market channels are mainly online marketplaces, pharmacies, hair clinics and drugstores. Neofollics currently has eight employees, their IT is managed by another firm.

Interviewee 3 is the founder and the CEO of the company and is involved with the research and development of the products.

4.3.1 Before Covid-19

Interviewee 3 thinks that the level of digitalization before Covid-19 was intermediate. The way Neofollics was working five years ago is similar to the situation before Covid-19. They did not need to change the way they are working until Covid-19 was there. Interviewee 3 is also noticing that because his company is in the e-commerce business, you must be more digital otherwise you miss out on opportunities.

Interviewee 3 says that before Covid-19 the level of automation of Neofollics was not that high, he thinks they were a beginner in that regard.

4.3.2 Current situation

Interviewee 3 and his colleagues are able to work at the company's office for five days a week. They have a strict policy about working at the office, but if you do not want to work at the office it is also no problem you can work from home if you feel more comfortable. If communicated properly, is employees are free to work where they want.

Since January 2020, a lot of the processes within Neofollics are automated, the sales process for example is automated for ~80%, this used to be ~20%. Neofollics also automated their e-mail marketing, and they have a fully automated order-fulfillment process. Interviewee 3 also says that the procedure of automating a lot of the company's processes is not a direct consequence of Covid-19. However, Covid-19 accelerated the whole thing.

Interviewee 3 thinks that the level of digitalization & automation of Neofollics has risen from relatively intermediate & beginner to advanced & advanced.

According to Interviewee 3, meetings are not more efficient, because there is a lack of information that would be given spontaneously. The meeting is taking away a lot of communication that you would normally have during the day.

4.3.3 Future Expectations

Interviewee 3 argues that the IT-infrastructure will be even more important in the future: "We as a company are growing rapidly, our company is getting bigger and so are the risks. Besides that, we are more and more dependent on IT & the internet, so we need to have proper security to protect our company from risks that come from outside our company."

Interviewee 3 believes that the office eventually will still have the same role, especially for smaller companies that need to work closely together to make the difference.

4.4 Interview 4: Manager IT & Development at Hestia Cardiovascular Service Center B.V.

On the 7th of June, a semi-structured interview took place with Interviewee 4, Manager IT & Development at Hestia Cardiovascular Service Center. Hestia-CSC strives to be a service integrator, they do that on different levels and in different markets. Their main market before Covid-19 was the thrombosis care. Hestia-CSC is one of the companies that changed their business model radically. Hestia has outsourced its main IT-work to an IT-company and has over one hundred employees at the moment this interview was conducted.

Interviewee 4 is a manager IT and development.

4.4.1 Before Covid-19

Interviewee 4 thinks that before Covid-19 Hestia-CSC's level of digitalization was intermediate. Employees of Hestia-CSC were able to work from home, almost no employee was doing this. There was also no policy about working from home. The interviewee mentioned that Covid-19 only expedited things, it pushed plans forward and funds were available much faster for IT-related investments.

4.4.2 Current Situation

Interviewee 4 and his colleagues are able to work at the company's office. During the pandemic, the policy regarding working from home changed a lot. In the beginning, it was only work in the office keeping in mind the measurements, that slowly changed to partially work from home and partially working at the office to work in the office again, preferably, but for whatever reason you can also work from home.

During the pandemic, the level of digitalization and automation jumped from intermediate to advanced. Interviewee 4 explains this has to do with the fact that Hestia-CSC integrated an intranet. An intranet can be defined as a private network used by an organization. The primary purpose of it is to help employees securely communicate with each other, to store information and to collaborate. It also integrated Microsoft Teams, together with the implementation of OneDrive & SharePoint.

Covid-19 had a big impact on Hestia-CSC. In the beginning of the pandemic the management saw a business opportunity. Hestia-CSC started offering that as a service. With great success, the company grew from ~40 employees to around 100 employees currently.

Interviewee 4 is not a big fan of online meetings, according to him you do not know if people are paying attention and if they do, they are easily distracted. The company has one social moment in the week that is forced. One Friday afternoon 'beer meeting', in this way everybody sees each other physically and knows what is going on in the company and in private life. Interviewee 4 believes that when people see each other frequently and know each other at a deeper level, there will be more commitment for the company. This is of course hard to quantify, but that is his personal observation.

4.4.3 Future Expectations

The main function of the office will stay the same for us. What will change is that the layout of the office will be different, people that do not come to the office five days a week will get workplaces that are not fixed and owned by one person.

4.5 Interview 5: Founder & CEO at Barnhoorn ICT

On the 9th of June, a semi-structure interview took place with Interviewee 5, Founder & CEO of Barnhoorn ICT. The company is a medium-sized IT company that has the aim to take care of any IT-related business so that the client can focus on its core business.

4.5.1 Before Covid-19

Interviewee 5 says that it is hard to answer the question related to the level of digitalization and automation, because before the pandemic he was working on his own and had no employees. Because of Covid-19, business was booming and the company had the chance to grow from zero to ten employees or 'colleagues' as he likes to call them. He did not have to communicate anything internally before Covid-19, now he must communicate with his colleagues. But if he had to make a guess, he says that the level of digitalization was advanced.

4.5.2 Current situation

Interviewee 5's company grew exponentially. He hired ten people in 12 months and his company continues to grow. Currently, the internal communication processes are automated for 90%, Interviewee 5 Says that he would place his company at the level expert now. The interviewee would like one thing to get back to how it once was and with that he is referring to the physical meetings. "Of course, before Covid-19 a lot of meetings were unnecessary, but now a lot of meetings are useless, because you do not see the face of people, you do not know if they actually agree or that they are just nodding to move on."

4.5.3 Future Expectations

Interviewee 5 argues that every company got a wakeup call and IT is crucial to stay alive. "IT will be even more present, and you cannot twist around it anymore. All the companies that offer good solutions in the form of a monthly cloud solution will prosper, companies that stick to the old business models and do not transform fast enough, will fail and eventually die out."

Interviewee 5 adds that the office will be more flexible for the bigger companies. Bigger companies will be able to save a lot of money if the space of the office will be used optimally. Interviewee 5 says that the office will stay important in the future as it is important to talk and see your co-workers to stay up to date and not only know what is going on a company level, but also on a private level.

4.6 Interview 6: Consultant in the Financial Service Industry

On the 10th of June, a semi-structured interview took place with a consultant from the financial service industry. His knowledge and insights of the industry are of great value for this research.

The company is a medium-sized consultancy company in the financial services industry that provides quantitative risk solutions for clients like pensions, insurance, and the banking sector. Interviewee 6 is a consultant together with 120/130 of his colleagues, the rest, 10 employees are overheads in the form of Finance, HR & Secretary. All IT-work used to be managed by a smaller company, but since a year is managed in-house.

Interviewee 6 is active in the banking business line where it is normal to work for half a year at a client as a main assignment and then do some smaller work assignments on the side.

4.6.1 Before Covid

Interviewee 6 thinks that the level of digitalization before Covid-19 was between intermediate and advanced. At the company, they were able to work from home, "this mainly has to do with the fact that as a consultant you work for clients and you are on

the move all the time, so before corona we also had to be mobile" interviewee adds.

The company is working on a policy stating that working from home is the new normal: "Before Covid-19 you were already able to work from home, but in practice that maybe happened once a week. Now we can go to the office again, but a large amount of my colleagues is still working from home, five days a week. So that is a big difference with the situation before January 2020. The capacity of the office is only used for ~10%."

A lot of processes were already fully automated before Covid-19, that is why interviewee thinks that the level of automation of the firm before Covid-19 laid between advanced and expert.

4.6.2 Current Situation

The level of digitalization very much improved, interviewee 6 says that the current level of digitalization must be expert. "We are able to do everything online and work where we want, I do not think given the current technology we could make a lot of improvements."

According to interviewee 6, Covid-19 accelerated and pushed new technology forward. Before Covid-19, they were using Skype as their main communication program, now they fully migrated to Microsoft Teams.

"The meetings that we have nowadays are shorter, but the number of meetings has gone up significantly." The interviewee is not sure whether the meetings themselves are more efficient or you just have more meetings to discuss everything.

4.6.3 Future Expectations

The interviewed consultant expects more people will be working from home in the future and that there, for example, will be one day in the week where everybody goes to the office to discuss all internal company related work.

He adds that big companies are applying a modern way of working where you do not have to go to the headquarters all week but can also choose to work at the local office for a couple of days.

"The bigger companies are going one direction and the smaller companies do not really choose yet. They will see what happens and follow if necessary."

4.7 Interview 7: CEO at Keizers.nu

On the 10th of June, a semi-structured interview took place with the CEO of Keizers.nu. The company is a medium-sized e-commerce company specialized in selling gardening equipment & machinery. A direct consequence of the lockdowns in Europe was that people were spending more time around the house. This also meant that the garden of people received more attention. People needed the right equipment for the work, but because shops were closed, they had to shop online. These are a few of the reasons why Keizers.nu has continued to grow at a very fast pace during the pandemic. Its workforce also grew from five people at the beginning of the pandemic till being ten people right now. All the IT-work is outsourced to an IT-company.

4.7.1 Before Covid-19

Interviewee 7 thinks that the level of digitalization before Covid-19 laid between being a beginner and intermediate level. Because Keizers.nu is an e-commerce company and because they do not have an automatic order fulfillment system, a lot of the work still needed to happen manually. A lot of the internal processes were not automated before Covid-19 and happened manually, that is why interviewee 7 thinks that the level of automation of the firm before Covid-19 was a beginner.

4.7.2 Current Situation

Both the level of digitalization and the level of automation improved significantly.

“Covid-19 gave us no other choice than to further invest in digitalization and automation. We invested in digitalization so that our sales and customer service team could work from home if necessary. Besides that, we invested heavily in the automation of our internal processes as we as a company were experiencing growth pains because we were growing so fast. If we would not have invested in the automation of those processes, we would not have survived and the costs of manually doing the work would have eventually been too much.”

Interviewee 7 thinks that because of these improvements, the level of digitalization and automation rose from being a beginner at both to being at advanced level.

4.7.3 Future Expectations

Interviewee 7 expects more people to work from home where possible, but he also thinks that when things are slowly returning to normal again, a lot of people would also like to work at the office again as it gives the employees a sense of harmony, that you belong to an organization. This will help to boost the work commitment.

4.8 Summing-up table

The results that are retrieved from the interviews are shown in the table below. All the topics that have been mentioned during the interviews are shown in the first column. Some of the topics are mentioned in multiple interviews, the last column shows the number of times that the factor has been mentioned in total. This

overview makes sure that we can say something useful about how Covid-19 impacted the pace of digital transition through office automation in SME's.

In the last column, the topics that are mentioned most, are colored red. Only one of the interviewees did not have automated processes before Covid-19, the other six had. Because of Covid-19 all the interviewees had automated processes to handle their business processes. They either improved existing processes or designed totally new ones. Six of the seven interviewees mention that in times of Covid-19 meetings are neither efficient nor effective. Five of the seven interviewees think the office will fulfill the same role as it did before Covid-19, however five interviewees also think that layout of the office will be different in the future.

5. CONCLUSION

5.1 Key Findings

Thanks to the conducted interviews and research, we can see that many Dutch SMEs made huge steps forward with their IT infrastructure through Office Automation. The evidence collected through seven interviews shows that Covid-19 had a big impact on Small Medium Enterprises. The SMEs were forced, to change the way they worked in the past. The interviewees all agree that Covid-19 expedited the implementation of new technologies and they almost all agree that the new way of meetings is not an improvement of the old way of doing meetings. They prefer to do face-to-face meetings. Five out of the seven interviewed persons think that the office will maintain the same role that it had before Covid-19, a place to work, have meetings and a place to see your colleagues.

Before Covid-19, Current Situation & Future Expectations	Interview 1	Interview 2	Interview 3	Interview 4	Interview 5	Interview 6	Interview 7	Total
<u>Before Covid-19</u>								
Beginner							x	1
Intermediate	x		x	x		x		4
Advanced		x			x			2
Expert								0
Working Remotely*		x				x		2
Basic Business Processes Automated		x		x	x	x		4
Advanced Business Processes Automated	x						x	2
<u>Current Situation</u>								
Beginner								0
Intermediate								0
Advanced			x	x			x	3
Expert	x	x			x	x		4
Basic Business Processes Automated								0
Advanced Business Processes Automated	x	x	x	x	x	x	x	7
Not Being Able To Work Five Days A Week At The Office	x					x		2
Meetings Are Neither Efficient Nor Effective	x	x	x	x	x	x		6
Covid-19 Expedited The Implementation Of New Technologies*	x	x	x	x	x	x	x	7
<u>Future Expectations</u>								
Not Being Able To Work Five Days A Week At The Office	x					x		2
Office will fulfill the same role.		x	x	x	x		x	5
Layout Of The Office Will Be Different	x		x	x	x	x		5

* Working remotely is defined as working from home five days a week.

Table 3: Overview of topics discussed during interviews

However, the majority does believe that the layout of the office will be different, as people will still want to work from home and not work at the office for five days a week. Two of the seven interviewed persons will not be able to work five days a week at the company's office, because the company's policy will not let them to.

The following subchapters:

Before Covid-19, the Current situation and Future Expectations will provide more details about the key findings of the conducted research.

5.1.1 Before Covid-19

The theoretical framework of this thesis mentions that small and medium enterprises account for 99 percent of global business and 50 percent of global employment and that they will be heavily impacted by Covid-19. If we look at the Summing-up table, we see the same results. One of the SMEs says that his/her company's level of digitalization is beginner, four of the SMEs think that their company is at the intermediate level and two of the SMEs think that their company's digitalization is advanced, only at the two bigger companies working fully remotely is an option and four of the seven companies only have basic business processes automated.

5.1.2 Current situation

To get a complete understanding and picture of how Covid-19 influenced the pace of digital transition, it might also be good to talk to businessowners / businesses that did not grow or even had to downsize. It is written in subchapter 2.4 that, because of the safety measures set in place because of Covid-19, many SMEs had to work completely different from what they used. Companies had to close offices or had way less capacity for their employees if the office was still open. The SMEs also had to provide resources to their employees so that they would be able to work from home. Based on the interviews, we can say that Covid-19 had a big impact on the SMEs regarding their IT infrastructure, level of digitalization, and work from home policy. Three of the seven interviewees think that the level of digitalization of their companies went from beginner / intermediate level to being advanced and four of them became an expert in digitalization. All seven interviewees said that their companies had automated advanced business processes, that is a big jump from only two companies before Covid-19. The employees of the two bigger companies are not able to work five days a week at the company's office and they think that in the future they still will not be able to do that. It is also interesting to notice that six out of the seven interviewed thinks that meeting are neither efficient nor effective compared to meetings before Covid-19, the hypothesis of this research was that meetings were more efficient these days as you do not have to travel anymore. All the interviewees agreed that it was nice that you do not have to travel to be present at physical meetings, Nevertheless, it was noted that because of online meetings, there was a lack of information that is normally shared in the office. The common opinion of the interviewees is that nowadays you need more meetings to receive the same information, meetings might be more efficient, but they are certainly not more effective or even less effective. However, all the interviewees share the opinion that the impact of Covid-19 on the pace of digital transition is limited and that it only expedited the implementation of new technologies. This is in line with subchapter 2.4.

5.1.3 Future expectations

The interviewees were a bit divided about their future expectations. Interviewees 1 and 6 will not be able to work five days a week at the company's office, because the company's office changed for good. These are also the same two that work

for a bigger company. Interviewee 6 said the following about that: "The bigger companies are going one direction and the smaller companies do not really choose yet. They will see what happens and follow if necessary." Interviewees 1 and 6 also believe that the layout of the office will be different, because you do not need to be there five days a week. Most of the interviewees think that the office will still fulfill the same role in the future, three of them however think that the layout will be slightly different.

5.2 Academic & Business Relevance

The outcome of this research can be relevant for business owners. It shows that if you do not transform your business model at time, it may be too late, and your business becomes obsolete or even worse you might be out of business. This research shows that digitalization and automation are important and will be of even greater importance in the future.

5.3 Research limitations

The main limitation of this research is the short time span in which it has been conducted. The data sample must become larger and more diversified. In this research, I mainly talked to businessowners and employees of businesses that were successfully during the pandemic. Although the outcome of the research is quite clear and points to one direction. To get a complete understanding and picture of how Covid-19 influenced the pace of digital transition, it might also be good to talk to businessowners / businesses that did not grow or even had to downsize.

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8. APPENDIX

Appendix A: Interviews:

8.1 Interview 1: Cloud Architect at Capgemini

- Could you tell me something about the company you work for?
- What is your role at the company?
- Does your company have its own IT-department?
- Does your company use any of these platforms?
 - MS 365 – Google Suite for Business – UiPath – Other
- Explanation of different levels of digitalization:

Beginner > Intermediate level > Advanced > Expert

- If you could make a guess what was the level of digitalization before Covid-19 existed or had an impact?
- Was there a work from home policy before Covid-19 existed?
- How big was the percentage that was working from home?
- Was there any form of pressure to work at the company's office before Covid-19?
- If present, could you describe some of the processes that were automated at Capgemini before Covid-19 existed?
- Are you able to work at the company office right now?
- Could you describe the transitioning process of working at the office to working from home?
- What is the current level of digitalization?
- What is the current level of automation?
- What are your expectations regarding the IT-infrastructure of Capgemini in the future?
- Will the office return to its function that it had before Covid-19?
- Do you see the same things happening at your clients?

8.2 Interview 2: Co-Founder & CEO at LoCoMoGo

- Could you tell me something about the company you work for?
- What is your role at the company?
- Does your company have its own IT-department?
- Does your company use any of these platforms?
 - MS 365 – Google Suite for Business – UiPath – Other
- Explanation of different levels of digitalization:

Beginner > Intermediate level > Advanced > Expert

- Were you able to work from home before Covid-19 existed?
- If present, could you describe some of the processes that were automated in your company before Covid-19?
- Are you or your employees able to work at the office?
- Do you have policies regarding working from home / working at the office?
- Did Covid-19 affect the level of automation?
- Did Covid-19 have a big impact on the pace of digital transition at your company?
- What are your expectations regarding the function of the office?
- What is your opinion about the statement that meetings became more efficient?
- Do you see a difference between small & big companies regarding the policy of working from home?

8.3 Interview 3: Founder & CEO at Neofollics Hair Technology

- Could you tell me something about your company?
- What is your role at the company?
- Does your company have its own IT-department?
- Does your company use any of these platforms?
 - MS 365 – Google Suite for Business – UiPath – Other
- Explanation of different levels of digitalization:

Beginner > Intermediate level > Advanced > Expert

- What would be the level of digitalization at your company before Covid-19 existed?
- What would be the level of automation at your company before Covid-19 existed?
- If present, could you describe some of the processes that were automated at your company before Covid-19 existed?
- Are you and your employees able to work at the company's office?
- Do you have a policy about working from home / working at the office?
- What is your opinion about the statement that meetings became more efficient?
- Did Covid-19 have a big impact on the pace of digital transition at your company?
- What are your expectations regarding the IT-infrastructure of your company in the future?
- What will be function of the office in the future?

8.4 Interview 4: Manager IT & Development at Hestia Cardiovascular Service Center B.V.

- Could you tell me something about the company you work for?
- What is your role within the company?
- Does your company have its own IT-department?
- Does your company use any of these platforms?
 - MS 365 – Google Suite for Business – UiPath – Other
- Does your company use software to automate tasks?
- Explanation of different levels of digitalization:

Beginner > Intermediate level > Advanced > Expert

- If you could make a guess what was the level of digitalization before Covid-19 existed?
- Were you able to work from home before Covid-19 existed?
- Was there a work from home policy before Covid-19 existed?

Explanation of different levels of automation:

Beginner > Intermediate level > Advanced > Expert

- If you could make a guess what was the level of automation before Covid-19 existed?
- If present, could you describe some of the processes that were automated in your company before Covid19 existed?
- Did Covid-19 influence the processes that you were automating?
- Are you able to work at the company office at the moment?
- Is there a policy regarding work from home / work at the office?
- If you could make a guess what is the current level of digitalization?
- If you could make a guess what is the current level of automation?
- Did Covid-19 have a big impact on the pace of digital transition at your company?
- What is your opinion about the statement that meetings are more efficient these days?
- Do you miss the chit chat in your company?
- Does this impact the work?
- What are your expectations regarding the IT-infrastructure of your company in the future?
- Will the function of the office stay the same in the future?

8.5 Interview 5: Founder & CEO at Barnhoorn ICT

- Can you tell something about your company and your role within the company?
- What is your role within the company?
- Does your company have its own IT department?
- Does your company outsource IT-work to other companies?
- Does your company use any of these platforms?

■ MS 365 – Google Suite for Business – UiPath – Other

Explanation of different levels of digitalization:

Beginner > Intermediate level > Advanced > Expert

- If you could make a guess what was the level of digitalization before Covid-19 existed?
- Were you able to work from home before Covid-19 existed?
- Is there a need from clients that you need to work at physical location?
- Are meetings more efficient than they were before Corona existed?

Explanation of different levels of automation:

Beginner > Intermediate level > Advanced > Expert

- If you could make a guess what was the level of automation before Covid-19 existed?
- If present, could you describe some of the processes that were automated in your company before Covid-19?
- Are you able to work at the company's office?
- If present, could you describe some of the processes that are automated in your company?
- Are you applying single sign on to all your systems?
- Did Covid-19 have a big impact on the pace of digital transition at your company?
- What are your expectations regarding the IT-infrastructure of your company in the future?
- And about the office, what will be the function of the office?

8.6 Interview 6: Consultant in the Financial Service Industry

- Could you tell me something about the company you work for?
- What is your role at the company?
- Does your company have its own IT-department?
- Does your company use any of these platforms?
 - MS 365 – Google Suite for Business – UiPath – Other
- Explanation of different levels of digitalization:

Beginner > Intermediate level > Advanced > Expert

- Do you work on the systems of your company or on the systems of your clients?
- If you could make a guess what is the current level of automation?
- Were you able to work from home before Covid-19 existed?
- If present, could you describe some of the processes that were automated in your company before Covid-19?
- Are you able to work at the company's office right now?
- Do you use the office yourself?
- What is the level of digitalization at your company right now?
- Did Covid-19 have a big impact on the pace of digital transition at your company?
- What is your opinion about the statement that meetings became more efficient?
- Do you think the behavior of people in online meetings changed during the phases of the pandemic?
- What are your expectations regarding the IT-infrastructure of your company in the future?
- What will be function of the office in the future?

8.7 Interview 7: CEO at GreenTech Trading B.V.

- Could you tell me something about the company?
- What is your role within the company?
- Does your company have its own IT-department?
- Does your company outsource IT-work?
- Does your company use any of these platforms?

■ MS 365 – Google Suite for Business – UiPath – Other

- Explanation of different levels of digitalization:

Beginner > Intermediate level > Advanced > Expert

- If you could make a guess what was the level of digitalization before Covid-19 existed?
- Were you able to work from home before Covid-19 existed?

Explanation of different levels of automation:

Beginner > Intermediate level > Advanced > Expert

- If you could make a guess what was the level of automation before Covid-19 existed?
- Did Covid-19 have a big impact on the pace of digital transition at your company?
- What are your expectations regarding the IT-infrastructure of your company in the future?