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COVID-19 Impact on IT Industry in Finland

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Abstract

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This thesis is analyzing the impact of the COVID-19 pandemic on the IT industry of Finland from different perspectives. The choice of the subject was determined by the lack of the relevant studies of this topic and its actual continuity. The methods used in this research are mix of quantitative and qualitative.

The goal of this paper is to provide a deep analysis of the short-term influence of COVID-19 pandemic on the industry, specifically from the labor, financial and business operations points of view. Based on these findings, the current thesis describes the optimal business strategies for overcoming the pandemic or any other similar global crisis.

Introduction states the study objectives and problem, describes the methodology used and delimitations of the research.

The theoretical part of this thesis describes the background of the project, the similar pandemics in the past and their impacts on the economies. It also gives the overview of the Finnish IT industry and the pandemic development timeline. In the end of this chapter, the possible future pandemic threats are discussed.

The Pandemic Impact Research Implementation part provides the findings of the research on COVID-19 impact on IT industry. The initial data was collected from the open sources related to the subject. After that, the findings were supported by the survey conducted among the IT professionals working in Finland during the COVID-19 pandemic, the replies to which can be found in the appendices. This paper does not aim at conducting any wide-scale survey but is using the received responses to support the data received from the source analysis.

The results of the current paper describe the changes that occurred in the labor, financial and business operations spheres of IT industry of Finland. They provide an overview of what companies managed to overcome the crisis and in what way, what are the optimal strategies for risk management in this kind of situations and the ways to adapt the business routines to the new realities.

The last chapter of this paper talks about the process of this thesis conduction, its learning outcomes, and the general conclusions on the findings of this research and their applicability for any future research on the subject.

Keywords
COVID-19, IT industry, coronavirus, ICT industry, pandemic

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1 Introduction

COVID-19 epidemics has had a dramatic effect on every industry in the modern world and the IT sector is not an exception. Even though from the first sight it might seem that the information technology industry has suffered the least in the current crisis, there still has been a lot of turbulence and changes in it.

The initial breakout of coronavirus in China broke down the vital supply chains, but since it grew to become a global pandemic with several million of confirmed cases all over the world, its consequences turned out to be even more destructive and less predictable.

It was a matter of weeks after the first contamination cases, when the IT events started to get canceled around the world. One of the first widescale mobile industry exhibitions Mobile World Congress was one of those canceled in order to prevent the spread of the new disease.

Shifting ICT conferences, meetup and summits to online and the fact that IT businesses in Finland, and all over the world, are promoting the idea of remote work among their employees have resulted in the perspective of postponed initiatives and lost collaboration opportunities.

However, the ICT industry has also been working on the opportunities to help overcoming the most important goal during the challenging times of the pandemic, i.e., developing means for safety and health protection of the population, by optimizing the performance of the businesses that are working towards making video and online communication more approachable and helping the government to spread the checked information about the virus and means to contend with the pandemic among the population.

1.1 Research objectives

This project aims at evaluating the unprecedented challenges and dramatic changes in the IT industry that occurred due to the COVID-19 pandemic. The objectives include but are not limited to studying the financial impact on the sector, the IT labor market fluctuations, the changes that were forced to be implemented in workplace management and the general industry volume decrease in view of concurrent increase in technologies related to medical sphere, delivery and online events.

As the result of this projectб it will be possible to estimate how much the pandemic situation in the world influenced the IT industry in Finland. The result will be measured in objective figures estimates for the previous and current levels of ICT production, employment and unemployment rates, risk-management strategies efficiency, financial figures for IT businesses and growth levels. As the result of qualitative research, the project will get the situation perspective from the point of view of IT industry employees and employers.

1.2 Research problem

The global pandemic has had an influence over many businesses around the world, many of which are facing bankruptcy or serious losses. Even though ICT enterprises have wider opportunities for isolation and remote work without seriously damaging their business operations, they still had to perform a lot of adjustments to the so called new normal.

Based on the set project objectives, the problem of the project can be outlined as follows: estimating the impact of the pandemic over the main spheres of the IT industry and determining which strategies turn out to be the most effective in terms of overcoming the crisis.

The advantages of this project are primarily related to elaborating a strategy for risk-management in case of any pandemic or other similar types of crisis take place in future. Modern world is facing this kind of challenge for the first time in the digital age; thus, the existing risk-management strategies should be adapted according to the crisis specifics.

1.3 Research methodology

There are three major and currently applicable types of research methods: qualitative, quantitative and mixed. The first ones have a descriptive nature and are based on free format data collection with its later analysis. Quantitative methods are mainly comprised of numerical datum and statistics. Mixed methods are the ones that combine both qualitative and quantitative methods.

The methods to be used in this research are to be considered mixed. This is determined by the fact that to the major extent the research results will be based on the statistical data supported by the data received as the result of the surveys conducted.

The quantitative part of the research is to be conducted based on the various numerical data sources, such as economic indicators throughout the last year, fluctuations of the ICT labor market, amount of financial support requested for the enterprises in Finland and other available statistical information.

Qualitative methods are aimed at getting to know the subjective opinions and some underlying reasons and opinions of individuals related to the IT industry during the pandemics. This approach will be used in the current research via conducting the surveys with the current business owners, employees and freelancers working in the ICT sector in Finland.

1.4 Delimitation

This project is not aiming at conducting any widescale interviews or surveys to cover the significant part of IT businesses or IT employees in Finland due to the limitation of the resources and the project scope. Thus, it is planned to build the conclusions and estimates mainly based on the existing data, that had already been received by research-oriented organizations. The project will contain qualitative results to some extent, but the main impact will be made to the quantitative indicators.

It should also be mentioned that the period for this project implementation is taking place when the most critical point of adaptation seems to have passed by, but the lasting consequences are still ongoing and visible. Undoubtedly, there will be demand for other research on the long-lasting impacts of COVID-19 crisis in the years to come. However, this research is aimed at analysing the current situation in the IT industry of Finland.

2 Theoretical Framework

Theoretical framework part of this research is aimed at studying the existing practical and experiential data related to the pandemic influence on the economies of the world. The first part of this chapter will be related to the project background, where the focus of the current research, the reasons behind its launch and the description of the desired outcomes are to be described.

The author believes that in order to estimate the aspects of the current research subject, it is important to provide an overview of several pandemics of the past examples and their impacts over the economies of different countries, compare their effects with those of COVID-19 in the present. All these aspects will be delved into in the second subchapter of the theoretical framework.

After discussing the past pandemic effects, this chapter will talk about the general overview of the IT industry in Finland, its structure and main development directions. Next, the short description of COVID-19 timeline in Finland will be provided. And at the end, the existing future pandemic predictions and means to avoid or get over it will be examined.

2.1 Project background

COVID-19 has made a huge impact on every sphere of the modern life. And the IT sector is not an exception. Even though from the first sight it might seem that the information technology industry has suffered the least in the current crisis, there still has been a lot of turbulence and changes in it. In future it arguably might be considered as one of the main factors that influenced the world economy in the first part of the century. For this reason, it is a very important subject for research, that might bring up a lot of knowledge and experience in case of other crises to happen in the years to come.

Even without any research or data collection studies, it is obvious for a person involved in the ICT sector (or even to the one not being part of the industry), that the global economy is on the decline, the labor market is shrinking, economies of the absolute majorities of countries are dwindling and the world is facing a significant economic crisis, probably one of the most noticeable milestones of the decade, if not the whole century.

On a rough estimate, the IT sector does not exist in the world independently of the other industries. Its aim in many cases is providing the other economy spheres with the tools, products and solutions that ease and accelerate their operations. Therefore, if the other

industries get struck severely with the pandemic, it will consequently impact the IT sector as well.

The aims of this project are to analyze the most visible impacts of COVID-19 on the IT sector, to evaluate the actions different companies in Finland took in order to overcome the crisis, to determine the best working decisions for risk-management strategies in future. It should also be mentioned that the period, when this project is being implemented, is chosen in such a way, that the most critical point of adaptation seems to have passed by, but the lasting consequences are ongoing and visible. Certainly, there will be a need for another research about the long-lasting impacts of the COVID-19 crisis in the years to come. However, this research is aimed at analyzing the current situation in the IT industry.

2.2 Pandemics impact on world economy in the past

Currently there are almost 85 million confirmed cases of COVID-19, including 1.8 million deaths (World Health Organization 2021). The number of unreported cases is probably much bigger and as this amount keeps growing, the bigger is the concern not just about the health, but also about how the lives will change because of the pandemic. In order to properly analyze the COVID-19 influence nowadays, it is beneficial to see how the world handled similar challenges in the past.

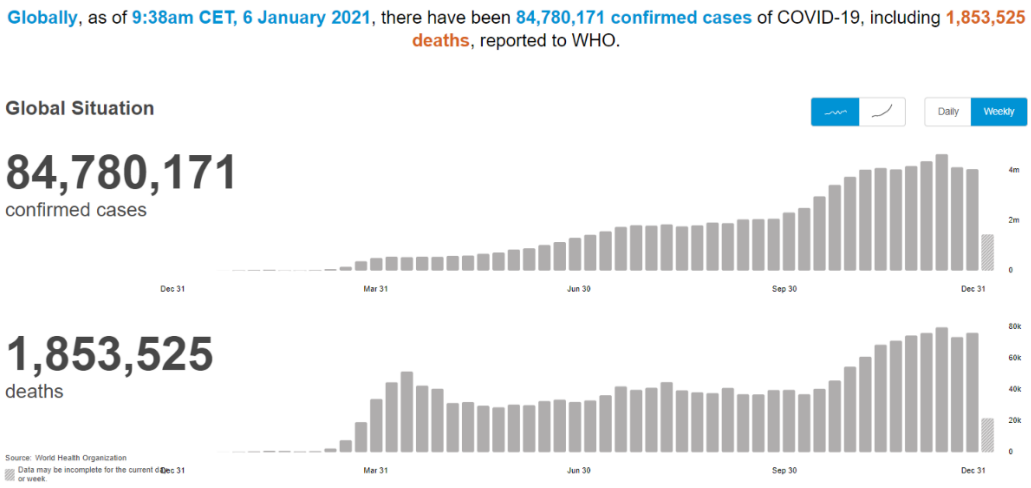

Figure 1. WHO Coronavirus Disease (COVID-19) Dashboard (World Health Organization 2021)

There has been a lot of speculation about how dramatically the after-COVID world will be different from the world we used to know. Some of the latest predictions state that it will be impressive, especially considering that the vaccination has just set off and will take months to be completed.

According to the IMF report, the crisis the world is facing today might be compared to the one of the Great Depression, and despite a lot of uncertainties in the forecasts, they predict the global growth to fall to 3% in 2020 and to partially recover in 2021 with the growth of about 5.8%. (Georgieva 2020)

It is hard to make very certain conclusions when analyzing and comparing the pandemics: it is not a frequent phenomenon to happen, and every pandemic is much different from the other ones. Besides, there have not been many examples in the modern age that could provide with a good data source for the research.

One of the examples is H1N1 flu of 2009, which was quite widespread though with relatively low death rates. In the USA there have been roughly 60 million cases, and between 151,700 and 575,400 deaths around the world. (Centers for Disease Control and Prevention 2019)

A closer comparison could be made with a different type of H1N1 virus – “Spanish Flu” pandemic, that took place a century ago in 1918-1919. Centers for Disease Control and Prevention estimate the global number of cases as 500 million people with about 10% of them resulting in death (Centers for Disease Control and Prevention 2019). Though the mortality rate of COVID is not so high as that of the Spanish Flu, the economic influence is already quite severe.

There have not been that many economic factors monitoring instruments 100 years ago as there are now, however there are statements that many companies, especially the ones providing services and entertainment had quite impressive losses during the pandemic period. Businesses whose sphere of activity was related to healthcare and healthcare products had on opposite an increase of income. Even though the economic effects of influenza pandemic were short-term, after it was over the economy had a shortage of labor in the market which caused the increase of wages for employees. As for the more long-term impacts, the 1918 flu pandemic reduced the human capital for the people born right after it, which in its turn brought the impact over the economic activities many years after the pandemic was over. (Garrett 2007)

In 2016 there has been an outbreak of Zika virus in Latin America and the Caribbean. The virus developed mild symptoms, similar to flu. In the United States there have been over 40,000 cases registered during the year. (Centers for Disease Control and Prevention 2019)

Handling this outbreak resulted in expenditures between 7 and 18 billion USD in the short-term evaluation. As for the longer-term losses, including health care for the children born with defects due to the virus, the costs were as high as 29 billion USD. (United Nations Development Programme 2017)

In 2014 the world faced Ebola epidemic, that contaminated 28.6 million people and caused 11.3 million deaths in West Africa. More than 3.6 billion USD were spent around the world to fight the outburst. The most impacted African countries (Liberia, Guinea and Sierra Leone) jointly lost over 2.2 billion USD from their economic output during the epidemy. The private sector of Sierra Leone was short by 50% of its labor force. (Centers for Disease Control and Prevention 2019)

In 2003 there was a short spark of another SARS (Severe Acute Respiratory Syndrome) which lasted only half a year. The number of cases was relatively small, only 8,098 of which 774 deaths occurred within 26 countries around the world. However, the not so long duration, the death rate of almost 10% was a source for serious consideration and fear for the humanity. (Centers for Disease Control and Prevention 2013)

The effect on the economy of this short outbreak was also noticeable, especially in tourism and retail sales sectors. The amount of investments shrank due to uncertainty and the economic shock. The cost for the SARS epidemic of 2003 for the world was estimated from 40 to 54 billion USD, depending on whether SARS was considered to recur or not in future. (Lee and McKibbin 2004)

2.3 IT industry in Finland overview

To properly evaluate the pandemic impact over the country's IT industry, it is vital to understand the importance of this sector in the Finnish economy as a whole and how widely it is applied to the individuals' and businesses' routine operations.

The Information and Communication Technology (ICT) is one of the major sectors of the Finnish economy and it is profoundly dependent on the global market. The employed labor force in the industry was 6.8% of the country's workforce in 2017, which is the biggest share among the EU states, the absolute majority of which is employed within the software related companies. Software development, considering also a highly developed game development sector, takes up a major part of the annual turnover of the IT industry in Finland. (Privacy Shield 2019.)

Finland takes up the first place in the EU Digital Economy and Society Index (DESI), an index that estimates a variety of indicators on the countries' digital performance and competitiveness, such as connectivity, human capital, use of internet services, integration of digital technology and digital public services. (European Commission 2020.)

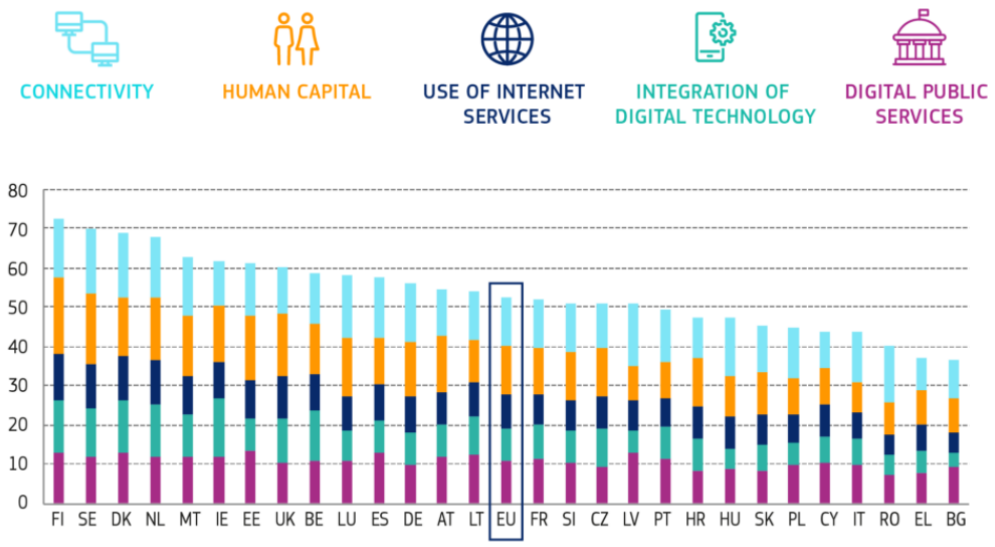

Figure 2. The Digital Economy and Society Index (DESI) 2020 (European Commission 2020.)

According to OECD Science, Technology and Industry Scoreboard, Finland is the second country in the world in terms of mobile broadband penetration (European Commission 2020.). There is a 99% of household 4G cellular network coverage which is estimated as 154 subscriptions per 100 individuals (International Trade Administration, U.S. Department of Commerce 2020).

The broadband market is up to 99% dominated by the three major companies – DNA, Telia and Elisa. The provided connection speed is constantly growing, thus about 60% of mobile subscriptions are implementing the speed of 100 Mbps which is 33% higher than that of 2017. The mobile operators are considering the market trend shift towards the growing volumes of mobile data usage and are constantly working on the mobile services upgrading and development, covering the 99% of the household with LTE. (Privacy Shield 2019.)

Finland accounts for 1.2% of AI technology companies located in the country, which is more than the share of the relevant companies located in Sweden, UK or Canada. (Highlights from the OECD Science, Technology and Industry Scoreboard 2017 - The Digital Transformation: Finland 2017, 1.)

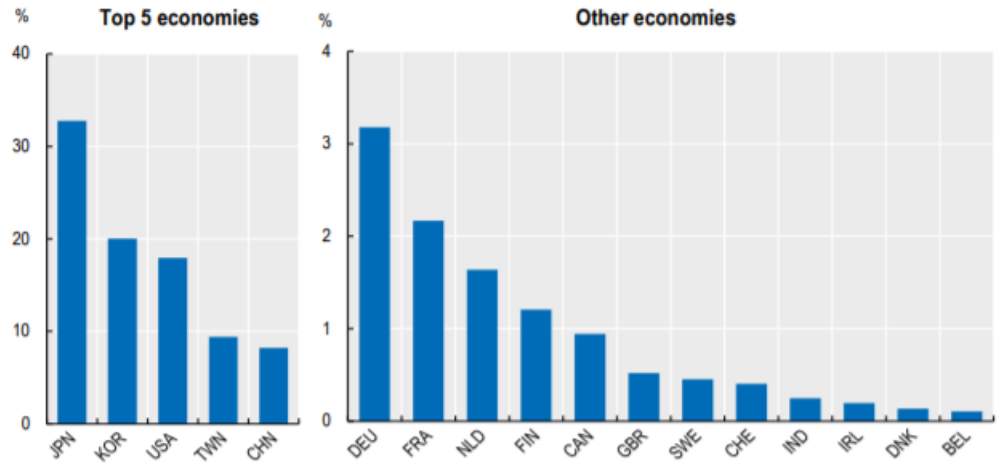

Figure 3. Artificial intelligence patents by top R&D companies, by headquarters' location (Highlights from the OECD Science, Technology and Industry Scoreboard 2017 - The Digital Transformation: Finland 2017, 1.)

Cloud computing is widely used in technology businesses in Finland, comprising 57% of the total amount, which is respectively 87% of large businesses and 72% of small and medium enterprises. Among all the countries, members of Organisation for Economic Co-operation and Development, Finland was the biggest user of cloud services in 2017. (Highlights from the OECD Science, Technology and Industry Scoreboard 2017 - The Digital Transformation: Finland 2017, 2.)

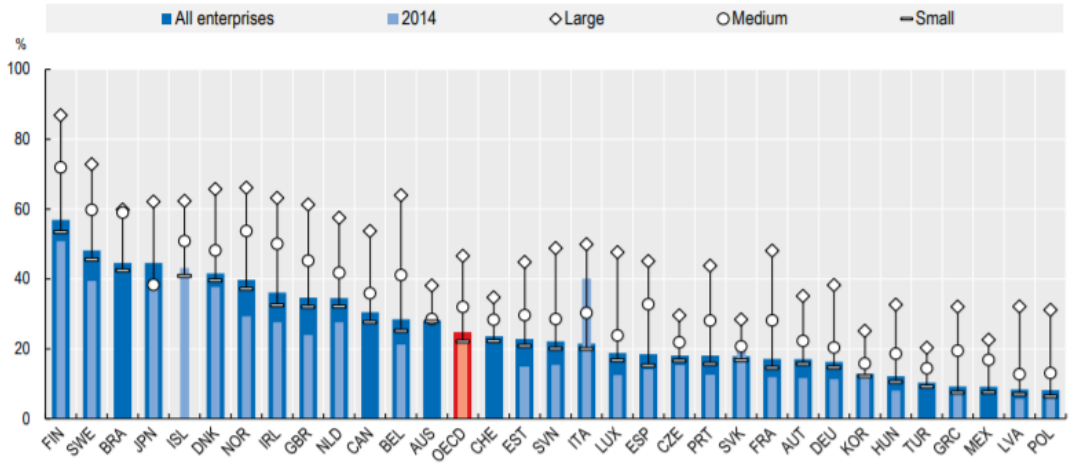

Figure 4. Enterprises using cloud computing services, by size (Highlights from the OECD Science, Technology and Industry Scoreboard 2017 - The Digital Transformation: Finland 2017, 3.)

Solutions for information-sharing have been constantly elaborated in Finland due to the improvement of the mobile networks, which made it possible to develop industrial networks and enabled the growth of connectivity for home appliances. Machine communication (M2M) usage is growing which applies not only to households, but also to a variety of production facilities that work on automation of their processes. (Ministry of Transport and Communications 2019, 10)

2.4 COVID-19 in Finland timeline

The first confirmed COVID-19 case in Finland was confirmed in January 2020 in Ivalo (Yle 2020) and the next day it was announced that up to 24 people may have been exposed to the new virus (Yle 2020).

During the next two months the number of the contaminated grew exponentially, until in the middle of March the government makes the first actions to fight the pandemic. On March 16th, the state of emergency is declared as the number of confirmed cases reached 272: schools and government-run facilities are closed, public meetings limited to 10 people, limited access to healthcare facilities, state borders shutdown preparation started (Yle 2020). By the end of the month the first death from COVID-19 is recorded (Yle 2020) and the Parliament votes for the shutdown of Uusimaa region borders due to the biggest amount of the disease cases in a hope to slow down the epidemic (Yle 2020). By this time many companies, especially the IT sector, are encouraged to shift to remote work as much as possible.

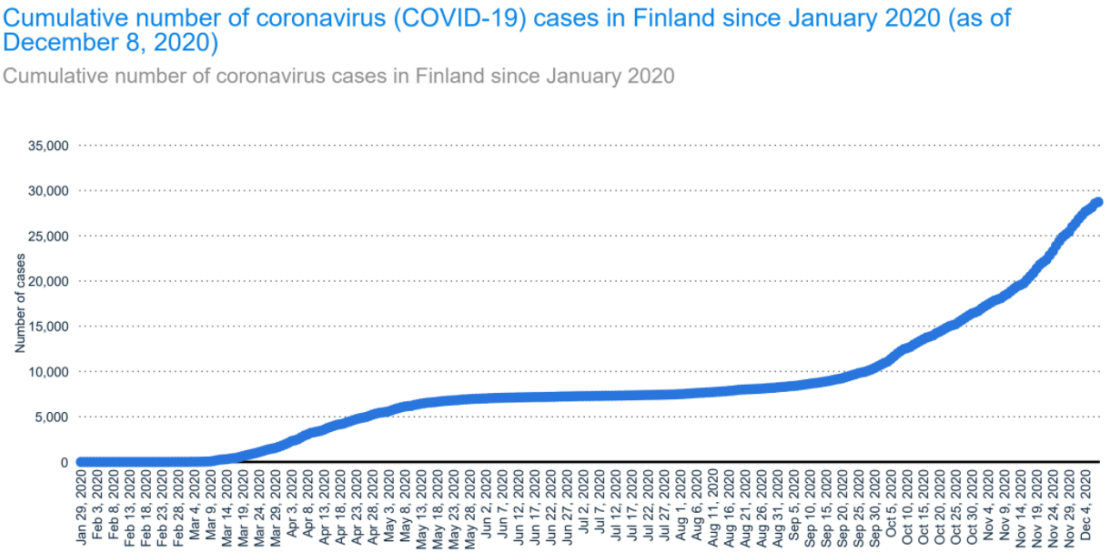

Figure 5. Cumulative number of COVID-19 cases in Finland during 2020 (Statista 2020, 3)

Later in spring some of the restrictions are lifted. Specifically, Uusimaa border control is canceled (Yle 2020), libraries and schools are reopened (Ilta Sanomat 2020). In addition to this, work/related travels within the European Union are allowed as well, though leisure travel is still not recommended (Ilta Sanomat 2020).

Summer months have seen the most unrestricted period of the whole COVID-19 timeline. Though most of the workplaces are still advised to keep their employees remote, the public gatherings of up to 50 people are allowed. Restaurants are open and sport events are allowed with a set of certain precautions (Ilta Sanomat 2020). Travel restrictions are eased a little more: some of the EU countries with the small number of COVID-19 cases become open for travel and public events of up to 500 people are allowed (Yle 2020).

In the end of summer an application to trace the contacts of the infected people is released and starts its trail period in Helsinki and Tampere (Yle 2020). Also, an official recommendation to wear a mask in public is issued by the Finnish Institute of Health and Welfare (Yle 2020).

In autumn, the situation started to deteriorate due to the second wave of COVID-19, as was expected by many experts. And even though Finland had much lower infection rate than most other EU countries, some precaution measures were tightened in order to slow down the epidemic. In October, the amount of coronavirus cases in Finland reached 10,000 (Yle 2020). The application for tracing was actively used by the public: its users amount reached one million within just one day, which was a pleasant surprise to the authorities and set a world record for integrating a pandemic application to public (Yle 2020).

In the end of the year, the first vaccines for COVID-19 have been registered and the vaccination successfully started. Primarily health workers of Helsinki University Hospital were the ones to receive the vaccine, later the vaccines spread to the other regions. (Yle 2020)

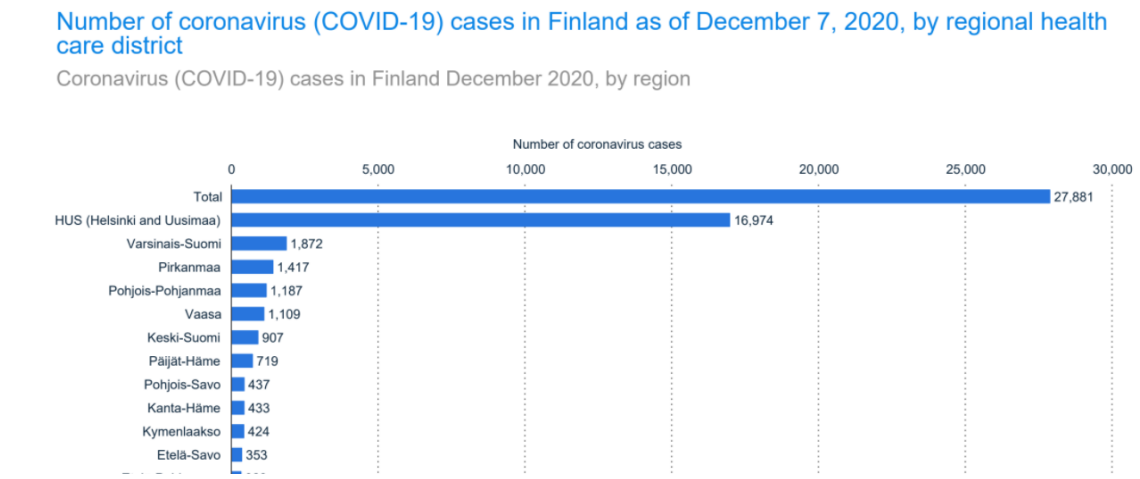

Figure 6. Coronavirus (COVID-19) cases in Finland by region (Statista 2020, 6)

Currently, at the beginning of January 2021, the confirmed cases of coronavirus in Finland are estimated at 38,068. Over 80% of the reported cases have recovered from the disease. The amount of the received vaccines is estimated about 50,000 and this number keeps growing. (Finnish Institute for Health and Wellfare 2021)

2.5 Pandemics threat in the future and existing means to overcome it

Due to the diverse nature of the pandemics, their relatively rare, though undoubtedly highly destructive, occurrence and the fast technologies development, it is quite challenging to make any certain predictions related to the potential economic losses related to the future pandemics.

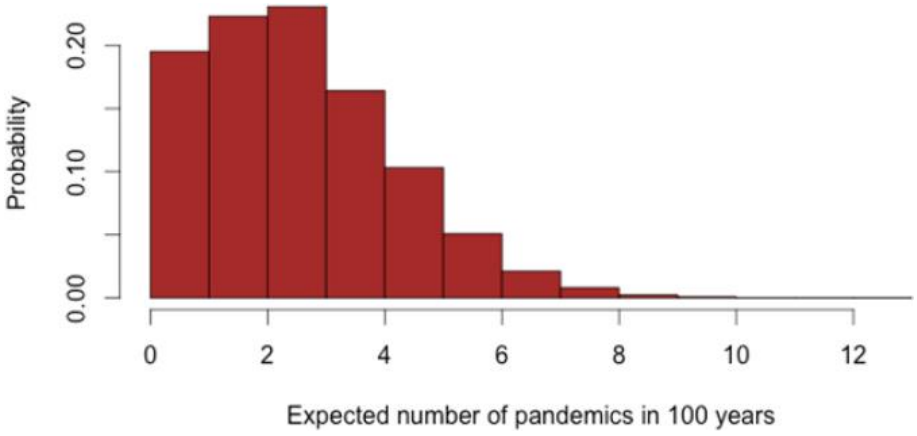

Figure 7. Expected number of pandemics in 100 years (Turabi and Saynisch 2016)

However, the estimates based on the three pandemics of the 20th century, state that there might be roughly the same number of pandemics in 21st century too. The 19th century has seen 5 pandemics of cholera, which for sure cannot be directly related to the modern times, but still provides with a certain scale of the possible outcome. The probability model shows that most likely the world will see a few more pandemics in the next 80 years. (Turabi and Saynisch 2016)

In order to estimate the potential economic damage of the future pandemics, the data from the previous pandemics can be used as well. It has been researched that each of the three pandemics of the 20th century resulted to 0.7-4.8% of the global GDP (McKibben and Sidorenko 2006).

Based on this data, the estimate of expected losses for the world economy would be over 60 billion USD every year, which is over 6 trillion USD throughout the whole 21st century. It should be noted that this prediction is a rough estimate and, the expenditures can turn out to be much bigger. Specifically, there is a 10% possibility that the losses will overcome the sum of 120 billion USD yearly. (Turabi and Saynisch 2016)

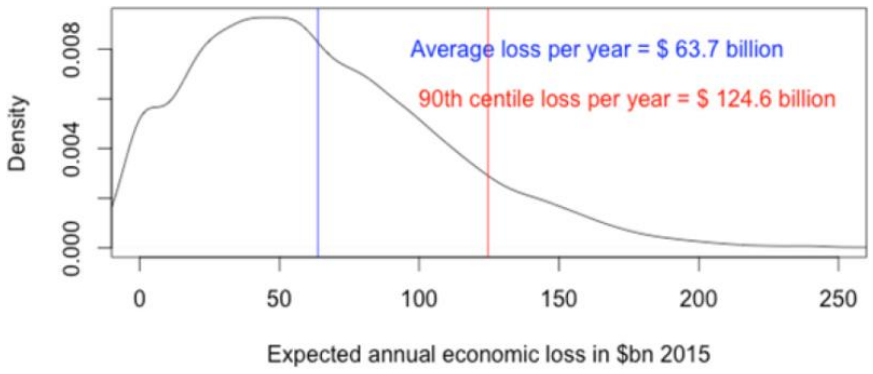

Figure 8: Distribution of expected economic losses due to pandemics in the 21st century (Turabi and Saynisch 2016)

The general means to slow down the pandemic offered by the World Health Organization have been similar and used in all the most recent pandemics. They include the recommendations to keep the physical distance of at least 1 meter, wear a face mask when in public, avoid crowded places, follow the standard hygiene rules and be attentive in order to not overlook the small symptoms. (World Health Organization 2021)

At the EU Member States coordination level, a certain set of tools and measures has been implemented in order to fight the pandemics and to easy its course for the population and businesses. First, it relates to allocating resources to strengthening the healthcare indus-

try and the safety regulations in order to support the people of the affected economic sectors. Also, support for the businesses of the affected industries have been assisted by tax remissions. (European Council 2020)

Many countries have taken to the use of the armed forces in order to respond the pandemic threat. It solved two problems at the same time: supplementing the lack of the provisional labor force and allowed the military to strengthen and widen their operations abilities with this sort of experience. (Kalkman 2020)

One of the new means dramatically helping to fight the current pandemics is the opportunity for the scientists around the world to quickly and freely share the information about the virus. It unprecedently allowed the scientists to joint their efforts to find common solutions in the fight with the global threat. (Crowe 2020)

The technical development has had other impacts on the course of the pandemic around the world. Many countries have out into use the mobile applications that were supposed to rack the possible contacts of the infected individual. There has been a lot of speculation as to whether these applications really provide with the important data or on the contrary are the means of the coming technocratic society and limit the individual freedoms (O'Neill, Ryan-Mosley and Johnson 2020). Irrespectively of the point of view on this subject, this is one of the biggest trends of the COVID-19 pandemics and it is safe to say that it will continue developing.

As the conclusion on the threat of the future pandemics overview, it can be stated that according to the probability predictions, humanity will most likely face several pandemics to the end of the 21st century. In order to handle this situation better, the demand for biotech solutions will be growing and surely enough the ICT sector will play a vital role in overcoming the pandemics of the future and minimize their effect on the world.

3 Pandemic Impact Research Implementation

Due to lack of studies on COVID-19 pandemic at the period of this research conduction, it is performed primarily with the use of two major methods: online content analysis and the survey on COVID-19 impact for IT professionals in Finland conduction.

Online content analysis is based on searching the available information on the global pandemic impact on certain areas of IT industry in Finland. The main aspects that are put emphasis to are the articles and reports, estimating the level of financial fluctuations, impact on the labor market and changes of the business operations. The sources for this research method were primarily research conducted by the Finnish authorities or private companies, as well as the official reports of the major Finnish IT companies available online. Also, several statistical information reports provided by Statista, one of the major companies specializing in market and consumer data, was used.

The survey on COVID-19 impact for IT professionals in Finland was performed in order to see the personal view on the pandemic situation from the perspective of people who are involved in this industry. The survey was aimed at figuring out how these people estimate their own financial situation, the changes in their work lives, as well as how the crisis impacted their companies to their knowledge. This survey provides both quantitative and qualitative results which will be analyzed further.

The survey for the current research, was conducted among the IT professionals in Finland. The percentage of the respondents can be seen in the chart below. A major part of them (52.8% were software developers of all levels). Smaller groups of respondents were designers and CEO/CTO, about 10% each, respectively. 5.5% of the respondents were at the moment of the survey conduction unemployed or students.

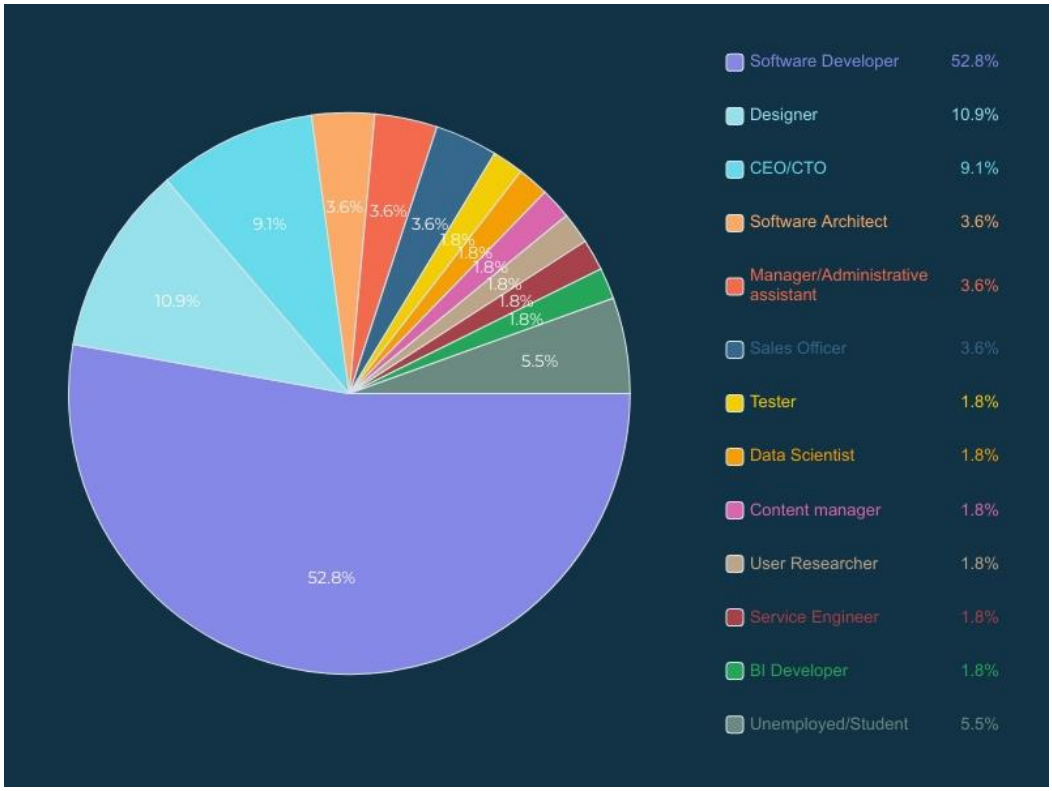

Figure 9: Work positions of the survey participants.

Over a half of the participants had a bachelor's degree and 26% more had a master's. Almost 15% of the respondents were self-educated and a small percentage either had a short-term courses or vocational education. No PhD respondents participated in the survey.

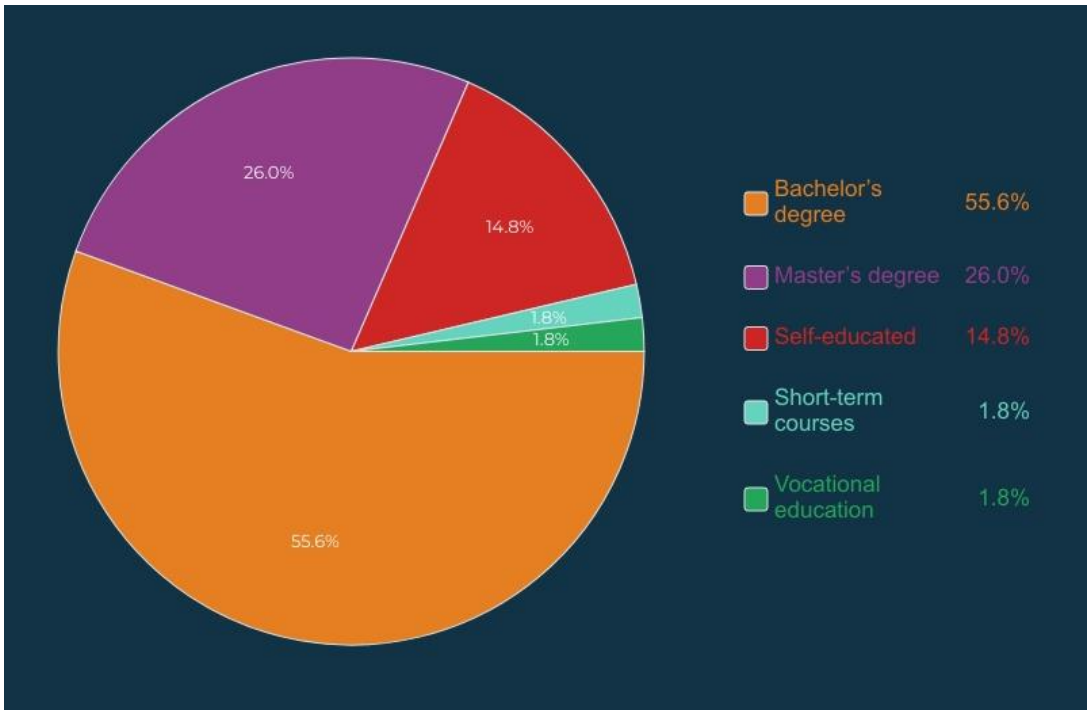

Figure 10: Education levels of the survey participants.

The work experience of the participants was quite diverse. The biggest percentage of 39.9% related to the expertise of 1 to 3 years. The second biggest group consisted of quite experienced IT professionals with over 10 years of work experience. Only about 8% were young employees below 1 year of experience and the rest of them was 14.5% and 18.2% for 3-5 and 5-10 years of professional experience.

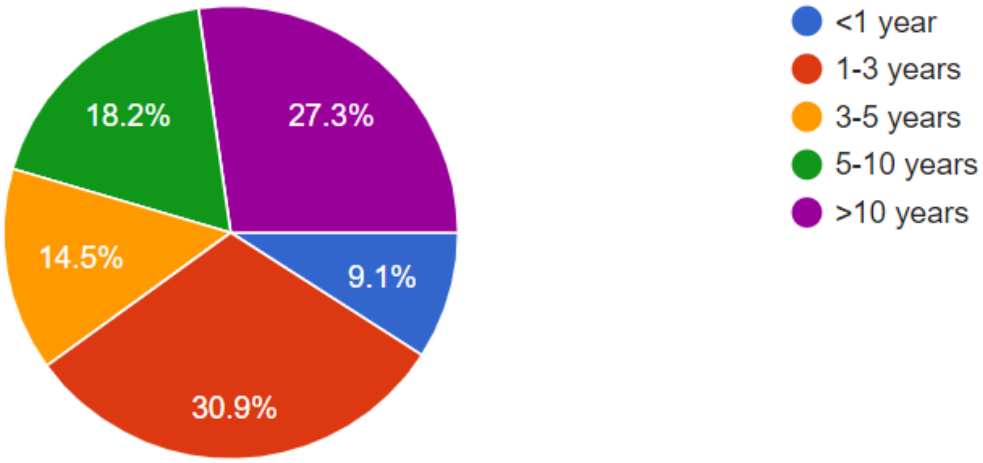

Figure 11: Work experience of the survey participants.

Structurally the COVID-19 impact analysis is divided in this research into separate study of business operations, financial and labor spheres. The last part is the analysis of the best working and most frequently used adaptation strategies according to the data collected. Certainly, this division is rather relative because all the spheres are tightly connected to one another and it is impossible to analyze them completely separately. However, the author of this research considers it important to look at the specific challenges and changes that take place in each of this sphere for a better understanding of the processes.

Looking at the COVID-19 impact in the High Tech and Telecommunication industry in the joint perspective with the other industries on the diagram below, we can see that in March 2020 the impact was forecasted as the most severe in the financial and supply chain sectors. The global picture shows that ICT industry was projected to be among the top 5 most impacted industries in the world.

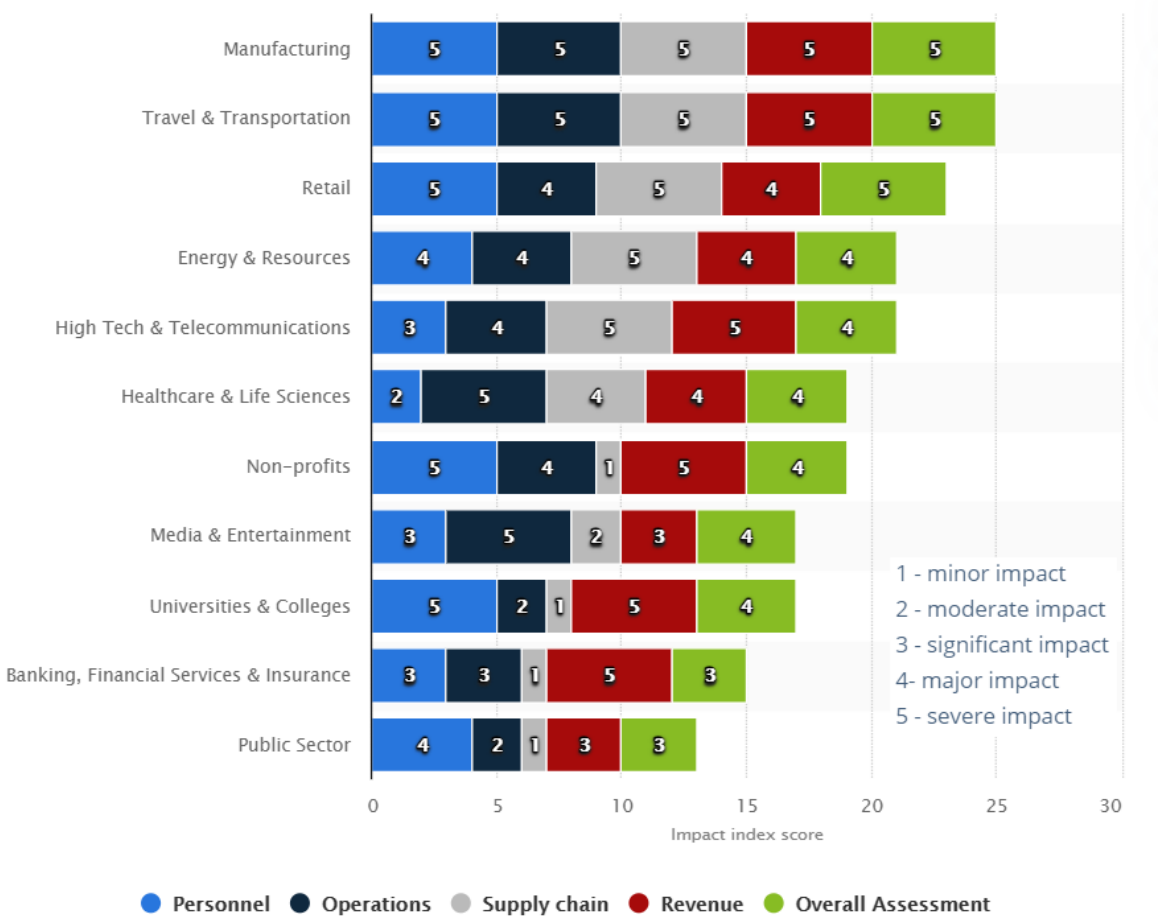

Figure 12: Projected Coronavirus (COVID-19) impact index by major sector and dimension 2020 (Statista 2020)

In this chapter, we will try to see how much, if at all, the situation in Finland is deviating from this global forecast.

3.1 Business operations impact

If we talk about the IT spheres that definitely managed to benefit from the pandemic, the first one to mention would be media services. The share of people subscribing to TV and movie streaming services grew during the 2020. According to the survey conducted among almost 1000 people aged from 18 to 65 years old, the percent of people without online streaming service subscription dropped from 42% to 39%. The share of Netflix subscribers grew by 4% in Finland. However, from the graph below, we can see that Finnish companies Elisa Viihde, DNA and Telia were also beneficials of this trend. (Statista 2020)

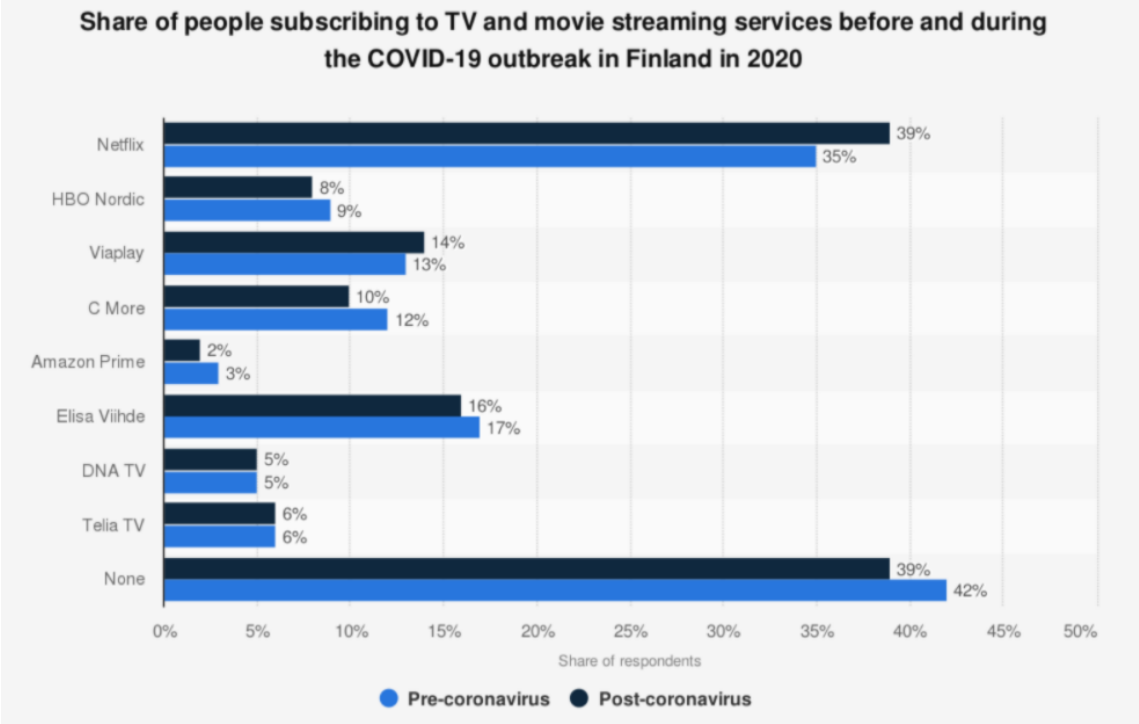

Figure 13: COVID-19 impact on the subscriptions to video streaming services in Finland 2020 (Statista 2020)

Media consumption in general has also increased according to the statements of 62% of Finnish respondents within the survey conducted in April 2020. About 50% of them claim that their media consumption has increased somewhat, while 16% notice the significant increase. About a third of the respondents estimate their media consumption level as the same as before the pandemic. (Statista 2020)

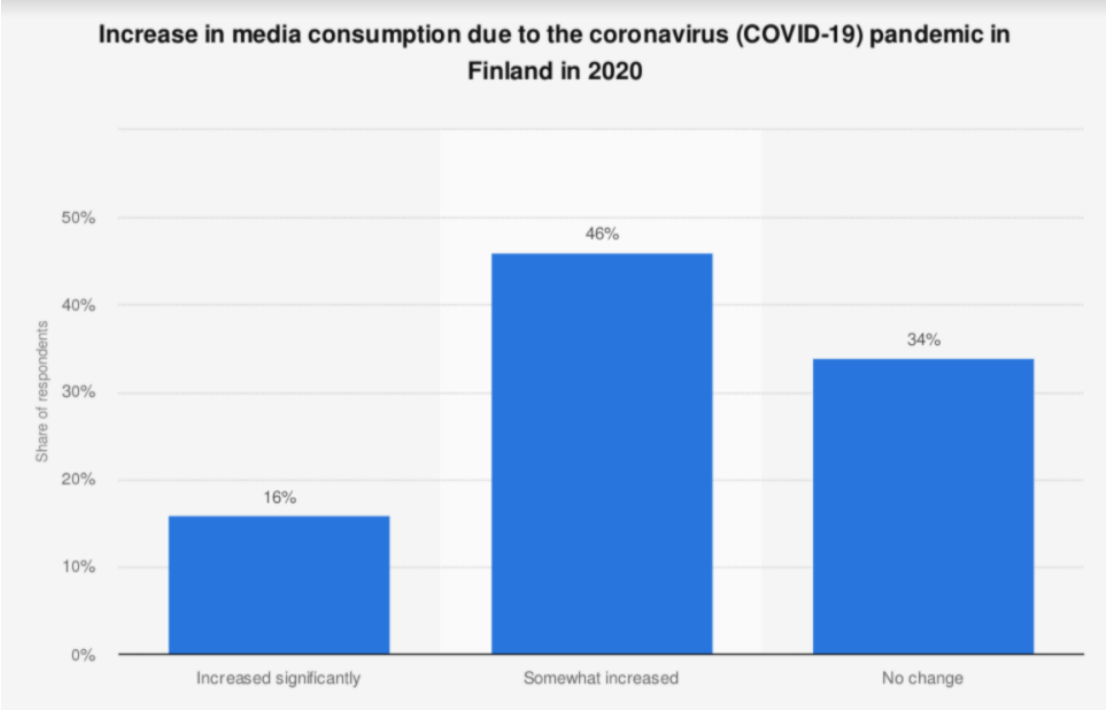

Figure 14: Increase in media consumption due to the COVID-19 pandemic in Finland 2020 (Statista 2020)

Another sphere that saw the consumption growth was online shopping. According to a survey, conducted in the April-June 2020, about 30% of Finnish residents have been using online shopping more frequently than they used to before the pandemic. At the same time nearly 44% of respondents claimed that they did not have plans to change their shopping preferences in case the pandemic lasts longer than currently estimated. Only about 6% of people stated that their purchase volume decreased while about 20% did not have a defined answer. (Statista 2021)

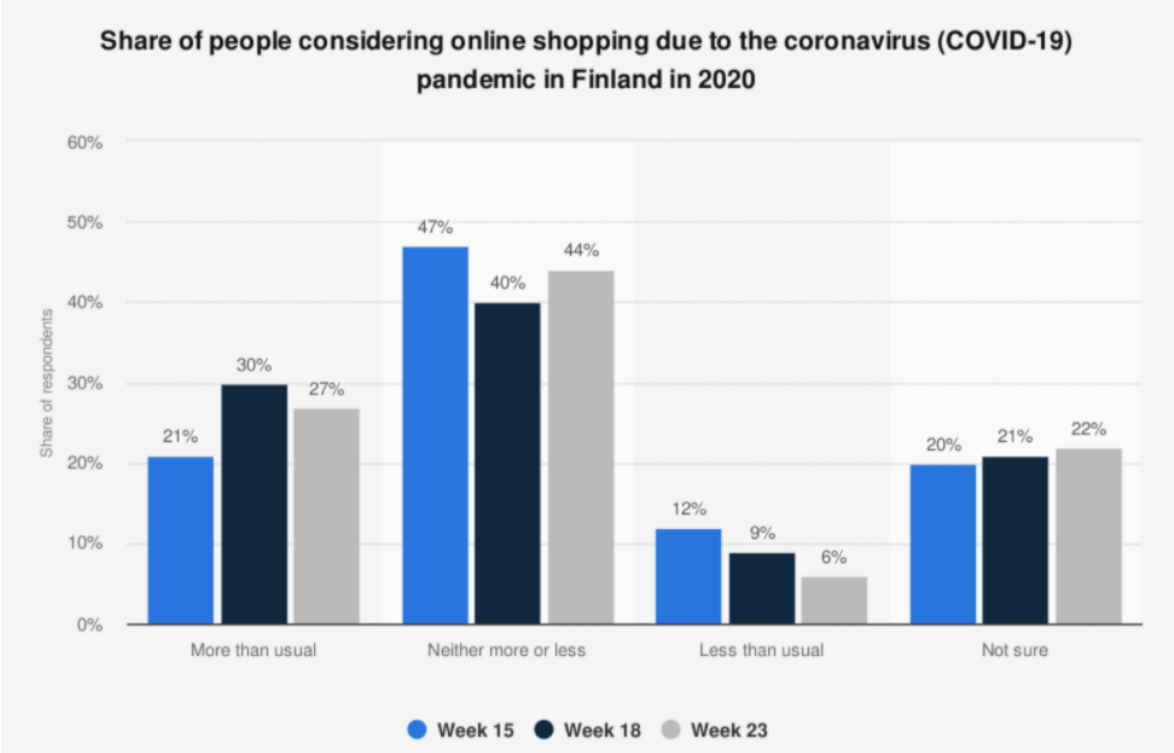

Figure 15: Share of people shopping online due to the COVID-19 pandemic in Finland 2020 (Statista 2021)

According to another survey conducted among Finnish consumers in spring 2020, over 50% of Finnish residents conducted purchases online during the COVID-19 pandemic. Among the first-time clients, the most popular products were clothing and grocery, while about one fifth of all the respondents purchased accessories and clothes. For about 14% of the surveyed people, the online purchase of groceries has been performed for the first time during the pandemic. (Statista 2020)

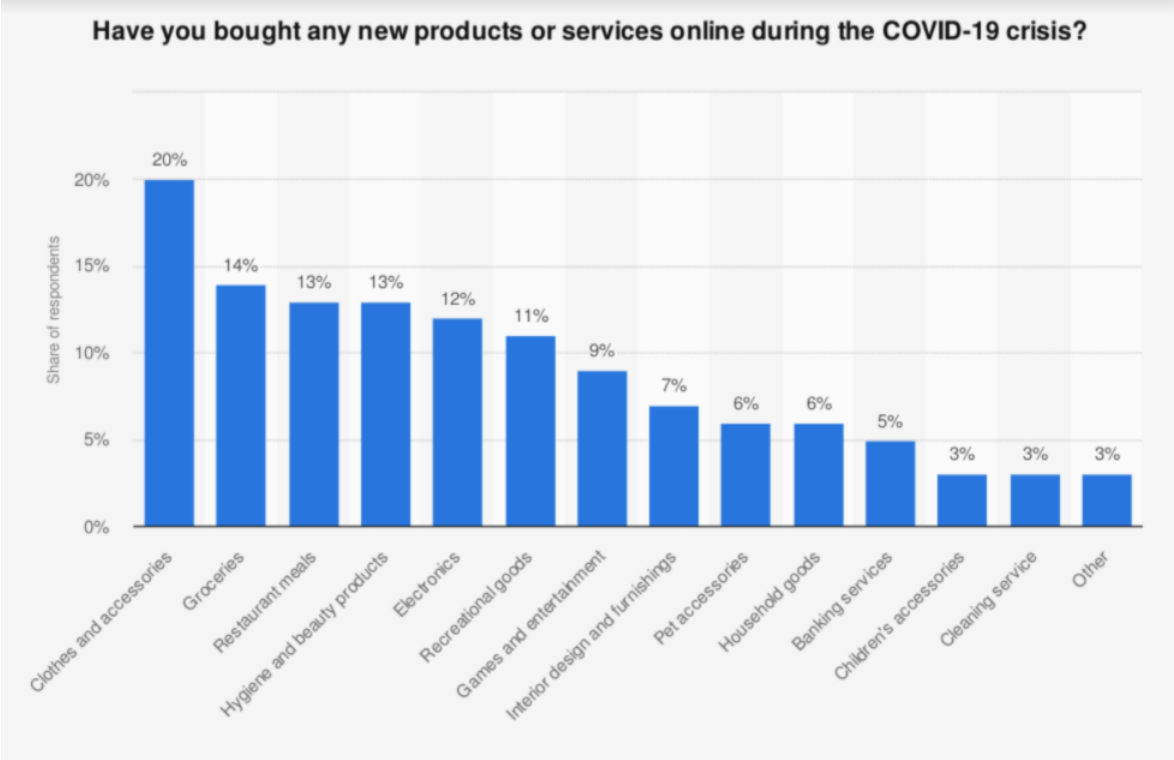

Figure 16: Online purchases of new products and services due to COVID-19 in Finland 2020 (Statista 2020)

Looking at how the specific companies handled the COVID-10 pandemic, it would be useful to examine the official information provided by some of them in their official media sources.

In order to keep a high-quality delivery to its customers, Nokia organized a global command center to manage the supply chain operations which became challenging due to the pandemic. The company has several business plans, which will be put in use according to how the situation evolves. Nokia supply chain is comprised of 31 facilities in various countries and 6 customer fulfillment hubs. Because of this the company is not much dependent of the local disruptions in several of these facilities and can make up for them with the use of the rest. (Nokia 2020)

Konecranes estimates the impact of COVID-19 pandemic on its operations as negative. The demand around the world has decreased and become uncertain which influenced the orders amount. In addition to it, the physical restrictions on the routine operations in facilities caused the fall of revenues. Konecranes states that order intake and sales have dropped in all the three business areas of the company during 2020. (Konecranes 2020)

The pandemic has had an impact on CGI's customers purchasing behavior which resulted in redirected IT investments and some projects have been terminated or postponed. However, the company claims that the demand for digitalization and related services still remains at a high level. (CGI 2020)

According to the abovementioned cases, many companies suffered the decrease of services demand and disruptions in the supply chain operations. But there are also known cases when businesses managed to use the pandemic situation as the source of new opportunities and use it to their benefit.

3.1.1 **Timely business switch cases**

One if the examples of companies that benefited from this change of consumption was Wolt, a Finnish food delivery tech company. And it not only benefited itself. But also saved many of the restaurants during the hard times. When the pandemic outbroke, only the take-away orders were allowed for the cafes and restaurants in Finland. The company quickly reacted to the environment changes and introduced the non-contact delivery between the courier, restaurant staff and the client. Besides, the company added to its services delivery from cosmetics and grocery stores. (Helsinki-Uusima regional Council 2020)

The community of the one of the biggest start-up and technologies event SLUSH has faced the cancelation of the event in 2020. However, the team managed to refocus its business from organizing the festival to helping the start-ups, many of which are facing hard times and really value this kind of professional support. (Ojala 2020)

Another event and networking company Brella was facing a complete absence of sales when the pandemic burst out. Due to the events ban, there was absolutely no chance to sell their product. Thus. The team came up with an online event and virtual meeting solutions with live streaming and pre-made videos of performers. The new platform has an option of several simultaneous sessions, which was even beneficial compared to the real-life events. (Ojala 2020)

Another set of beneficiaries from COVID-19 pandemic is the companies related to HealthTech sector. In comparison to the companies described in this part, HealthTech did

not have to come up with urgent and dramatic business operation switches to save their businesses. However, many of them have been searching for the ways to ease the life during the lockdowns and slow down the virus spread.

3.1.2 **HealthTech businesses growth**

Research show that many HealthTech companies in Finland that have been working on COVID-19 related solutions have managed to use the pandemic situation to benefit their business development. The survey was conducted by Health Capital Helsinki research group by applying to 57 small and medium sized businesses working on various COVID-19 solutions, such as Abacus Diagnostica, ArcDia International and Mobidiag. (Health Capital Helsinki 2020)

About 53% of the review companies stated having a positive overall impact of COVID-19 on their business operations. Primarily it is related to the significant increase of demand in the spheres of remote healthcare and diagnostics, but the other digital services demand has also boosted accordingly. (Health Capital Helsinki 2020)

Movendos, one of the leaders in this market, says that since they are providing digital solutions for health care, social care and rehabilitation, they got a rapid growth of the clients count. They also notice that their old customers tend to increase the number of orders for digital services from the company. (Health Capital Helsinki 2020)

Nevertheless, even in this prospective sector, still a third of the reviewed businesses responded that the pandemic situation had a negative effect over their business operations. The reasons for this, as stated, are the delays of the customers' projects by the customers themselves, mainly due to the lack of resources, time, travel bans and logistic problems. 17% of the reviewed, however, estimate COVID-19 impact on their businesses as neutral.

According to the survey, the pandemic situation has affected the long-term strategic plans of 40% of the reviewed. The new kinds of demand from the customers are influencing the new decisions regarding the future of the business operations, offers and revenue streams. (Health Capital Helsinki 2020)

Nearly all HealthTech companies are seeing the future in a positive light, since because of the pandemic the healthcare realized the potential of digital services that can be applied, which provides a big scope of future opportunities. In Cardiolyse opinion, a cloud ECG &

HRV analytics platform, COVID-19 is the new normal and remote healthcare will be booming. (Health Capital Helsinki 2020)

Finnish HealthTech companies are making an impact to fighting the pandemic not only inside Finland, but also globally. Ninchat, a Finnish startup, is providing the medical workers worldwide with the online communication solution. Medical organizations use Ninchat to communicate with the patients and each other to coordinate work and share experience. In Finland, the service is used for example by HUS Helsinki University Hospital and Terveystalo chain. (Health Capital Helsinki 2020)

Another example of a successful story is Oura Health, the manufacturer of a wellness ring, became widely popular in the US market, after the case when its user managed to diagnose COVID-19 at an early stage. This case was followed by providing Oura rings to 2000 medical employees across the USA. Oura is currently providing data to the world's top scientists and health organizations, helping them to fight the pandemic. (Turula 2020)

3.1.3 **Survey findings on business operations impact**

According to the responses received from the survey of IT professionals in Finland, we can see that the number of companies whose customers and/or orders increased (both significantly and slightly) is almost the same as the companies with the opposite situation. However, the proportion of answers "increased slightly" is 29% when the part of "decrease slightly" is only 21.8%. Also, 10.9% gave stated the significant increase of customers and/or orders compared to 14.5% of significant decrease.

Analyzing this data, it can be concluded that in case a company faced the decrease in its orders or clients' number, it was more likely to be a significant challenge to its business operations. One explanation to this could be the dependency on which industry the company's clients were coming from. In case their industry was facing significant crisis because of the pandemic, it would be very likely for many of its companies would terminate or freeze their projects. In case the IT company was working only with a narrow set of industries or sectors, it was at a bigger risk to bear significant losses in terms of clientele.

One of the examples of this trend was described in the survey open form. The respondent states that in the period of initial lockdowns all their customers related to sport streaming and advertisement financing disappeared due to the fact that all the sport events were canceled. The company started looking for new cases and sources of income and managed to set their business back on track even though after significant alterations.

In case of the companies that on the contrary noticed increase of the customers and orders, we can see that their success was in most cases milder than the losses of the less successful IT companies. Most of them had a slight increase of business operations volume and only few noticed a significant growth. Only 9% of respondents did not notice any change in their companies' business operations volume and 14.5% chose the "I don't know/Not applicable" option.

The significant increase would be a typical situation for HealthTech companies, as discussed earlier in this chapter. In the open form, the representatives of such companies stated that indeed the pandemic had brought increased focus to health and well-being and this in its turn brought significantly more opportunities for the relevant businesses and boosted the revenues and promotion. They also noticed that the chosen business model had proved to be the right choice for the pandemic times, as the company's developed technology, aiming at preventing virus and aerosols spread, won the competitive advantage in the market.

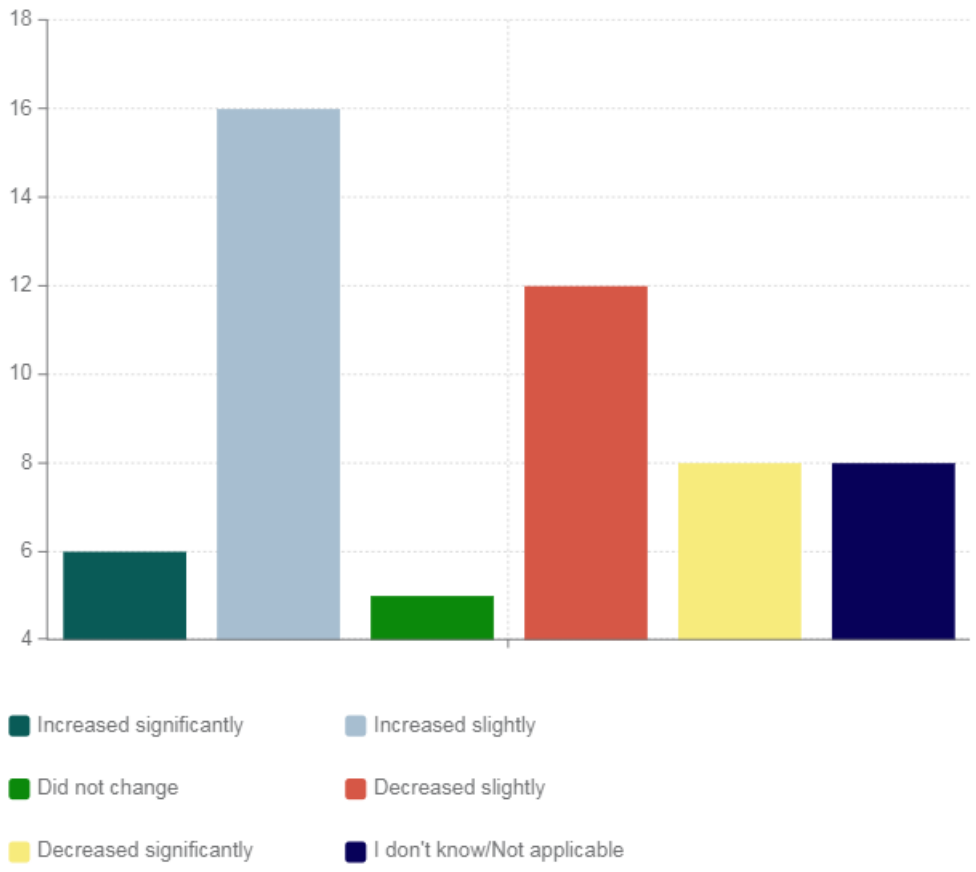

Figure 17: Changes to the companies' customers and/or orders amount during the pandemic period.

As for adaptation to the new business realities, 41,6% of the respondents stated that their companies had to introduce slight changes to their businesses, such as for instance minor changes to the product the company was providing. 20% of the replies indicated the medium changes to the business operations, the example of which could be sufficient switch to online services. The open feedback form answers feature some business switches to the products and services aimed at supporting the fight with the pandemic. And 9.1% of the answers showed the significant alterations made to the business operations, for example a complete change of the product or business field of the company.

Summing this up, we can see that 70.9% of ICT companies featuring in the survey were affected by the pandemic and had to adapt their business operations due to the situation changes to minor or major extent. Only 21.8% of the respondents claimed that their business operations were left unchanged and 7.3% did not give any definite answer.

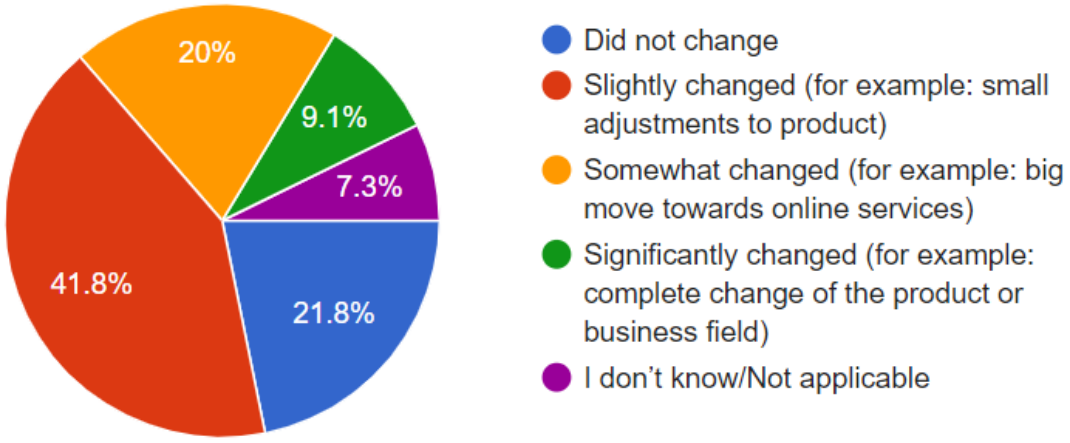

Figure 18: Changes to the companies' business operations during the pandemic period

As a general estimate of the pandemic year for the company operations, 10.9% and 23.6% of respondents described this period as rather a source of challenges and definitely a source of challenges, respectively. 9.1% and 20% described it in the same respective way as the source of new opportunities. And 29.1% believe that it was equally challenging and giving new opportunities. Based on these answers, we can state that even though the difference is relatively small, but still more professionals from the IT field in Finland considered the pandemic situation as the period that brought more problems than new perspectives.

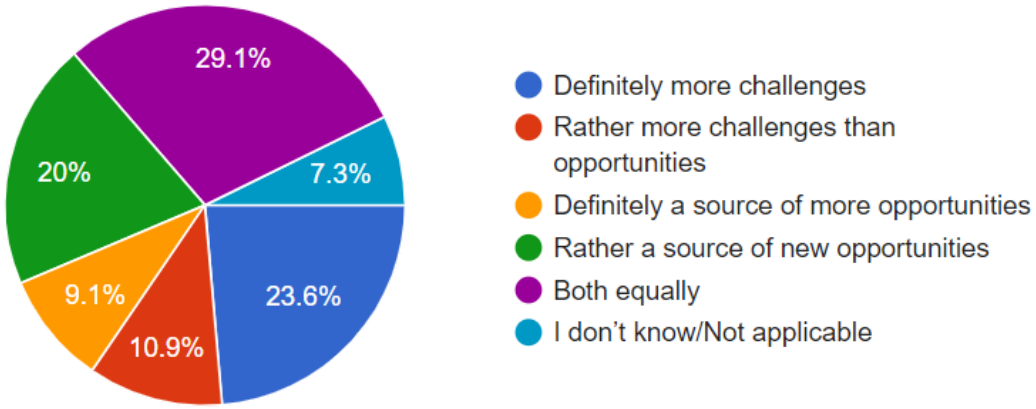

Figure 19: Estimation of the pandemic as a source of challenges or new opportunities for businesses

Among the challenges of the work operations during the pandemic, the respondents noticed some difficulties during tech and gadget presentations to the customers via online meetings. Also, many respondents pointed out the difficulties to organize team gatherings and group work compared to the pre-pandemic times, and the work done is precepted in a more routine way.

Some of the respondents, despite the challenging times, feel optimistic about the future of the IT industry and believe that the value of the opportunities that will arise after the crisis is over are still to become evident. They also point out the importance of self-organisation and clear communication skills.

Among the observations pointed out in the open feedback form, it would be important to notice the one claiming that during the pandemic year customers became more open to remote meetings, however their willingness to purchase a solution from an unknown start-up over a known and working solution is still doubtable. Therefore, for smaller companies it would be more beneficial to use face-to-face meetings with the clients.

3.2 Labor impact

The general employment rate in Finland has been in decline since the beginning of the pandemic situation. In the end of 2020 it estimated as 71.7%, which is 1% lower than in the beginning of the year. Approximately 37,000 people have become unemployed from January to October 2020. Also, the number of underemployed has increased and the number of working hours decreased almost by 50%. (Ministry of Finance 2020, 59)

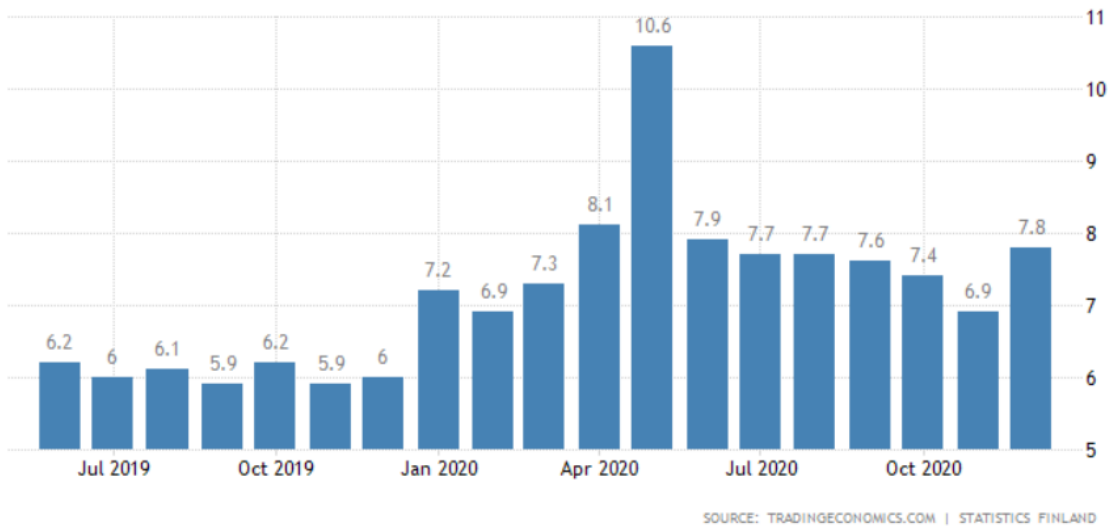

Figure 20: Finland unemployment rate from June 2019 till December 2020 (Trading Economics 2020)

ICT sector was not among the sectors struck most severely by the pandemic. However, since all of the industries use information technologies to support their operations in one way or another, the impact could not be avoided totally.

The amount of job offers yet still has dropped significantly and many ICT projects have been stopped or postponed. The rare exception from this trend are e/commerce and logistics sectors. (Flinkman 2020)

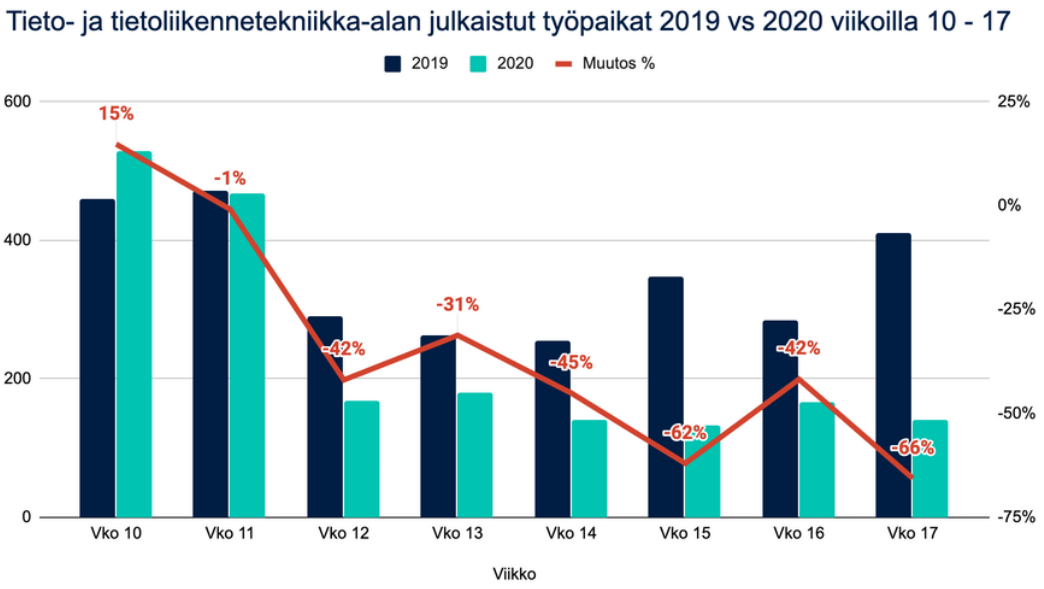

Figure 21: Information and telecommunication job offerings, weeks 10-17 of years 2019 vs 2020 (Flinkman 2020)

According to the report on software services, issued by The Ministry of Economic Affairs and Employment in the beginning of 2020, just before the pandemic started, there was a shortage of experiences labor in the market which threatens the development of the ICT industry. The approximate number of workers in this field was 53,000 in about 7000 enterprises. (Ministry of Economic Affairs and Employment 2020)

The results of the report were published in February 2020, just a few weeks before the pandemic crisis events turned out. And it is safe to suppose that during year 2020 this situation with the skilled employees in the ICT market had no chance to improve itself. Before the pandemic, the new labor was employed from abroad, but with the borders closed this source of new workers was closed almost fully. This may have long-term impact on the ICT industry in Finland which is yet hard to estimate. During 2020 a lot of companies were forced to lay off or fire some of their employees and ICT sector was not an exception.

However, in May 2020, business owners in the country considered themselves pretty well prepared for establishing a safe environment for the workers at the offices. Though many of them still were not feeling that the pandemic situation was held under control enough. The economic turbulence had not passed in Finland, but the businesses' overview of the future got more positive, according to Jyri Häkämies, Director General of the Confederation of Finnish Industries EK. This conclusion was made mainly because of the government lockdown restrictions easing, which gave the first impression that the most severe period of layoffs and bankruptcies was in the past. (Confederation of Finnish Industries 2020)

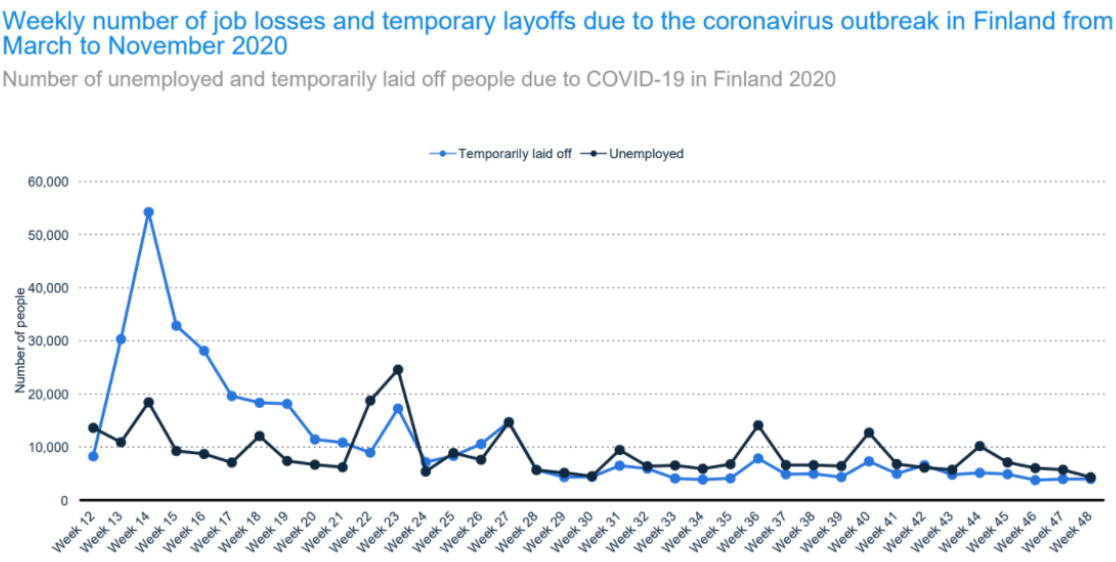

Figure 22: Weekly number of job losses and temporarily layoffs due to COVID-19 pandemic in Finland (Statista 2020)

Despite such a positive outlook, the situation was still quite challenging and in terms of layoffs it did not change much, staying at a relatively same level: 45% of all Finnish companies had to resort to these measures and 9% more businesses were getting ready to perform the layoffs in the nearest future, compared to that of 44% and 15% earlier that spring. (Confederation of Finnish Industries 2020)

Business Finland, referencing Eurofound's survey, states that the number of remote workers in Finland is 59% higher than in other European countries, the average rate of which is about 37%. According to their data, the number of working hours in Finland did not decrease as much due to more opportunities for remote work. The reasons for such success are defined by the well-developer IT infrastructure, as well as the amount of highly educated and self-managing professionals, whose operations do not depend that much on their physical location. (Business Finland 2020)

3.2.1 **Layoffs and new employments**

The fact of underemployment growth and working hours number decrease is determined by some companies' decisions to lower the workload for its employees instead of laying off a part of them. Even though the industries that suffered most in terms of employment decline were trade, social welfare and hospitality (Ministry of Finance 2020, 59), the IT companies in Finland were also forced to take the harsh measures during the economic slowdown.

Nokia had made a decision to reduce its employees amount by 148 in March 2020 in order to lower the costs. The newly unemployed were offered to take part in Bridge program, that is providing financial aid and training to the workers who are leaving the company. (Nokia 2020)

In the same month, Konecranes had conducted negotiations to the Finnish work council representatives concerning the temporary layoffs, the total amount of which was estimated as 2,000. The aim of these measures was to figure out all the possibilities to reduce the costs during the uncertain times for business. Konecranes was not setting the exact measures to be taken, but the maximum period of layoffs was set to 90 days. (Konecranes 2020)

It took CGI, one of the largest IT and business consulting companies in the world, longer before they also had to perform the layoff negotiations, resulting in 118 people unemployment, though the preliminary estimate was 180. The final number was lowered due to pension plans reconsideration, relocations and training opportunities for growing demand sectors. (CGI 2020)

Even so, some companies did not have to introduce layoffs. On the contrary, their business growth allowed to extend the amount of the labor. According to Health Capital Helsinki survey, about 37% of HealthTech companies with the COVID-19 solution projects have initiated new recruitment processes during spring 2020 (Health Capital Helsinki 2020).

Another specific trait of the pandemic impact can be seen in the example of Wolt, food delivery company. Wolt has been criticized for using the contractor model for its couriers, which in comparison with the standard model means less social protection for the workers. And in times of pandemic and mass job losses, this factor became more critical. Wolt claimed that this drawback is being worked on and safety of every employee of the company is the major priority of the company. It was stated that after the new adjustments to the corporate policy, in case an employee was quarantined, the company provided them financial support. (Helsinki-Uusima regional Council 2020)

3.2.2 **Safety measures**

The work conditions have also had a lot of changes in terms of labor safety procedures. Many businesses switched to remote work fully or partially. In cases when employees'

presence at work was desirable, the companies had to make sure the working conditions were following the general safety guidelines issued by the local authorities.

For instance, TietoEVRY, a software and service company of about 24,000 people, urged its employees to work remotely as much as possible and provided the necessary means for that, such as remote access and virtual meetings capacity. The company also implemented travel restriction in all the branches of the company and put an emphasis on the online meetings usage to reduce the contamination risks for both labor and customers. (TietoEVRY Communications 2020)

Smartly, social advertising automation company, claimed that COVID-19 pandemic has had an impact on their recruitment processes. In March 2020 they have switched their operations fully to online mode. All the interviews since then have been conducted virtually with no on-site meetings. The company has also faced difficulties regarding relocation of new employees because of the travel restrictions. (Smartly.io Solutions Oy 2020)

Nokia, as the means of safety measures, introduced a ban for international travel for its employees, with the exception for a strict set of critical reasons. It terminated all visits to its facilities, with the exception to essential maintenance operations. The company continuously motivates its employees to work remotely as much as possible. As for the in/place measures, Nokia implemented the reconfiguration of the office space, introduced compulsory masks and social distancing in accordance with the local rules. (Nokia 2020)

3.2.3 **Survey findings on labor impact**

According to the survey results, most of the respondents (52.7%) did not notice any change in the amount of their working hours during the pandemic. However, 23.6% stated that the amount of their working hours increased slightly and 9% that they increased significantly. The number of respondents whose working hours decreased estimates to 12.7% of the respondents.

Even though most of the respondents did not indicate any change to their working hours amount, there is evidence from the open feedback form that the borderline between work time and personal time became very non-obvious. Some of the respondents work long hours and at the weekends, which was not the case for them before. This fact tends to worsen the work and life balance for the ICT professionals and might have long-term consequences to their physical and mental state in the long run.

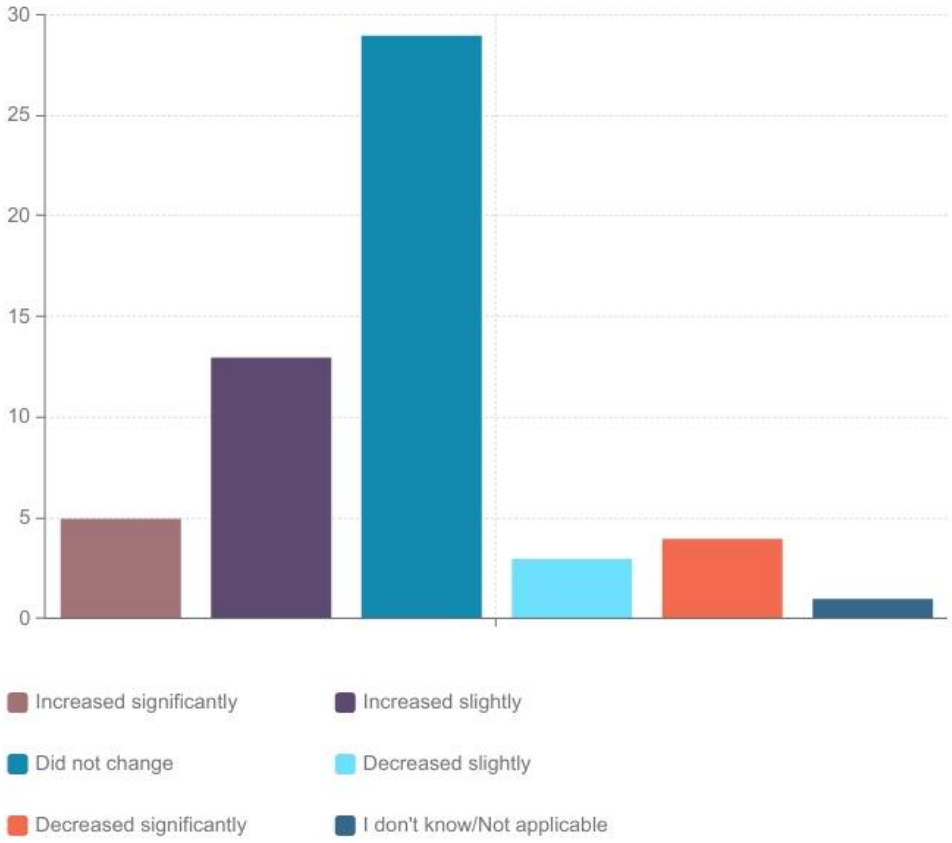

Figure 23: Change to the working hours of IT professionals.

There has been almost the equal number of respondents who consider that their productivity decreased or increased during the pandemic. 29% of them did not notice any changes to the productivity. It might be assumed that this parameter is dependent on how well the work is organized remotely. In case the company managed to provide the employee with all the means for work, the productivity level is not likely to decrease.

It should be noted that according to the open feedbacks from the respondents some of them point out the increased productivity due to bigger flexibility of time organisation. This phenomenon arises due to the lack of necessity to spend time to commute to the office and the possibility to split the working days into several parts. Some of the respondents notice the challenges during the first weeks of the remote work when they were struggling to adjust their motivation and productivity, though later they managed to adjust to the new realities and turned this change to their benefit, even noticed higher productivity working from home.

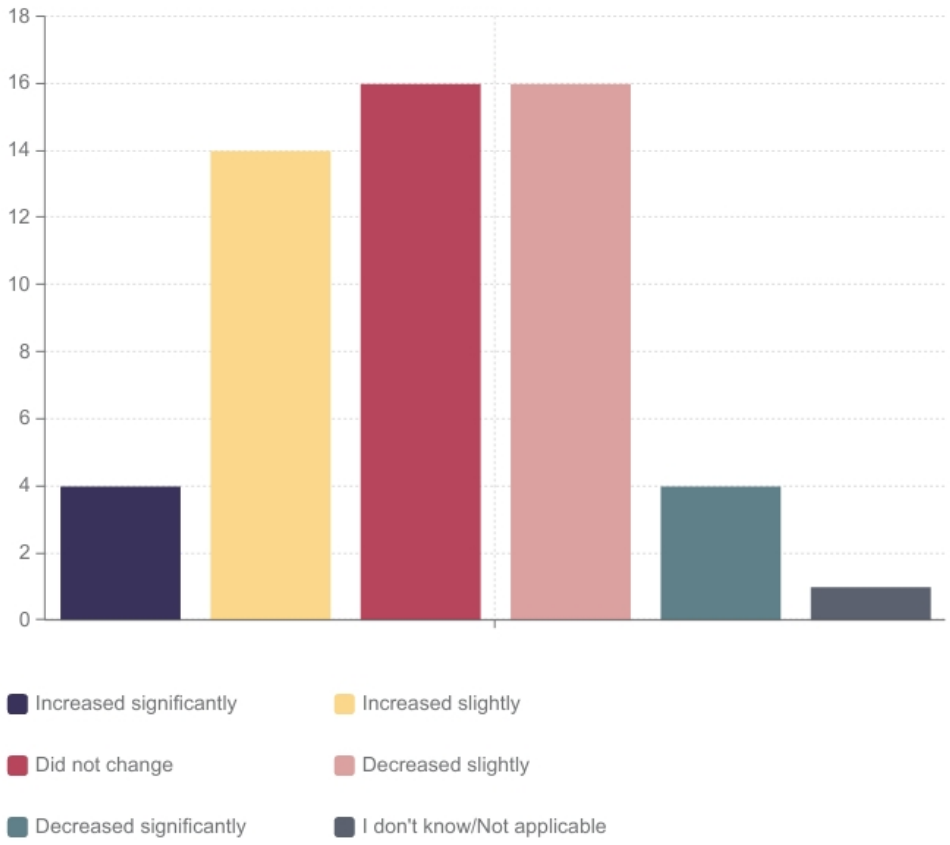

Figure 24: Change to the productivity of IT professionals

Some of the respondents noted that such work types as design, pre-coding and brain-storming naturally goes better face-to-face and this communication challenge reduced the productivity slightly. Coding, though, was performed relatively well online in case of no challenges caused by the issues not properly discussed beforehand.

38.1% of the respondents, state that the communication quality decreased slightly during the pandemic and 16.4% describe this decrease as significant. 31% did not notice any communication quality change and only 12.7% or the survey participants state that their communications improved. From the open form responses, we can get the facts about the decreased personal communication skills, especially in English, resulting from the lack of everyday communication with the co-workers. Besides, the respondents point out the importance of communication process and the reduce of progress on the projects in case it is not performed properly.

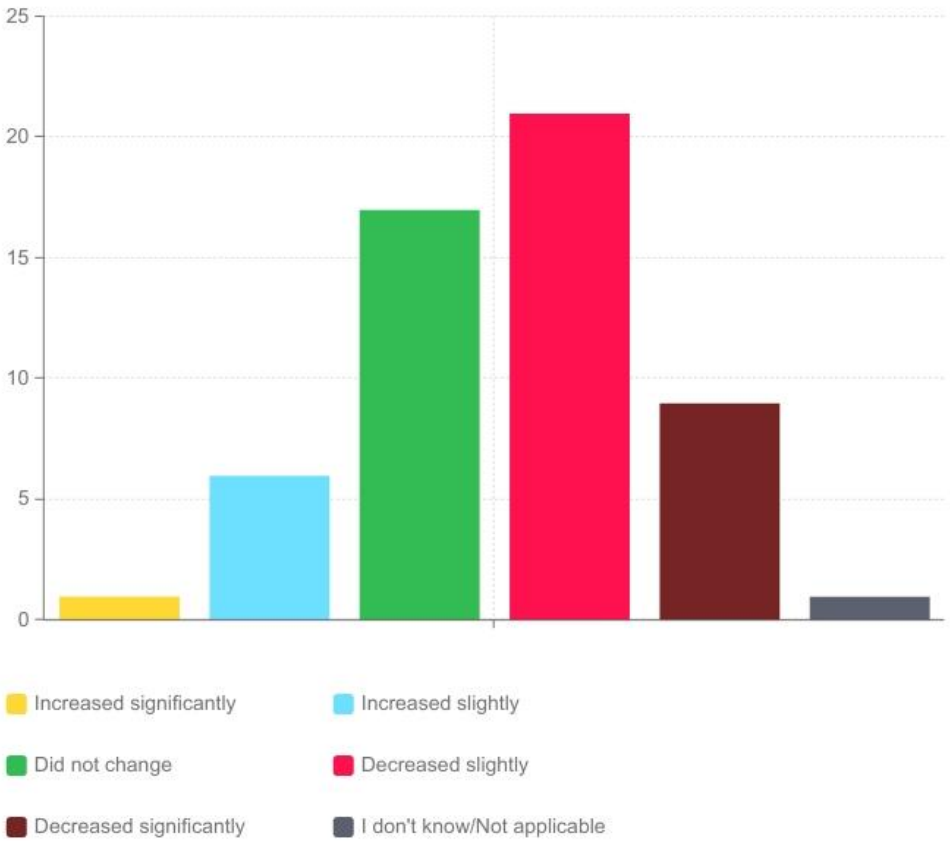

Figure 25: Change to the communication quality with the co-workers

According to the responses most of the companies (83.6%) in the ICT sector initiated new recruitments during the pandemic period. This data could be estimated as a sign of a good or satisfactory performance of the company. In the open feedback responses, there have been positive feedbacks of the online recruitment processes. Also, some of the respondents managed to take advantage of the pandemic situation and switch to a company whose policies and practices suited the respondent better.

The layoffs were performed only by 12.7% companies where the respondents were employed. This pretty much corresponds to the data received from the previous question about the initiation of the new recruitments. We can make a conclusion that most of the companies of the respondents of this survey performed relatively well and did not have to lay off their workers as well as had opportunities for staff extension. Nevertheless, in the open feedback form there were respondents from the ICT field who lost their jobs or were laid off due to the termination of the customer's contract due to the COVID-19 pandemic. Finding a new job was noticed to have become much harder at this period as well.

Most of the companies (69%) planned to keep the opportunity of the remote work for their employees in future even after the pandemic is over. 29% of the respondents however did not know if this was going to be an issue.

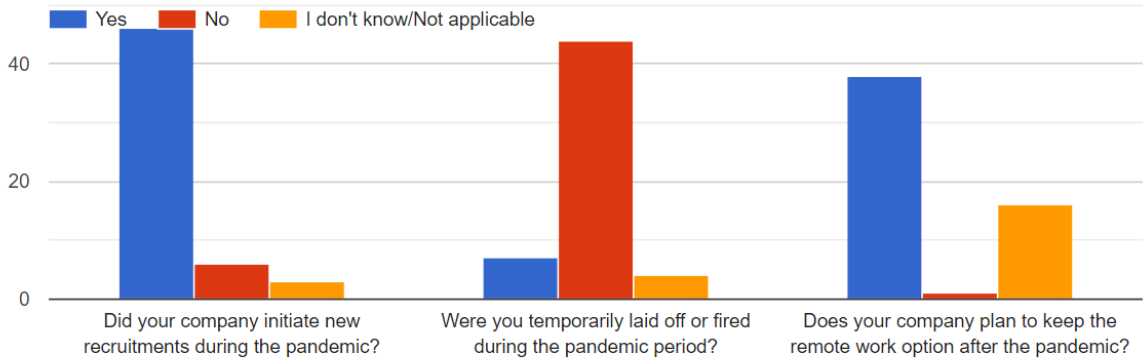

Figure 26: Responses on the respondents' companies' actions regarding the labor force

Over half of the companies did not need to perform any layoffs of their staff. 36.6% of those whose situation was worse, had to lay off up to 25% of the employees. And 9.1% laid off from 25% to 50% of the labor force. In this survey there have not been replies about layoffs of over 50% or the company bankruptcy. This indicator is lower than the average layoff amount in the other industries of Finland.

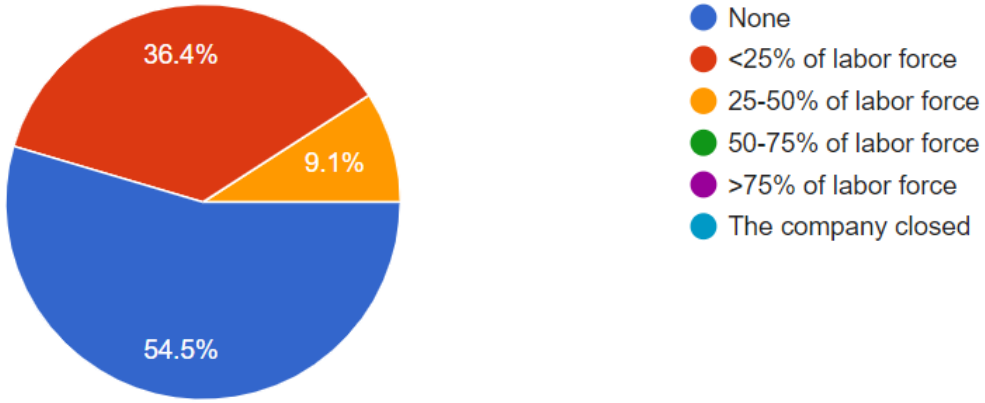

Figure 27: Percentage of staff layoffs during the pandemic

When analyzing the safety measures and restrictions the ICT business owners implemented as a means to adapt to the pandemic situation, almost 91% of the respondents' companies introduced the remote work possibility. However, the percentage of remote access and virtual meetings tools was slightly lower (81.9%) this might mean that a small part of the employers might have not provided their employers enough opportunities for successful remote work organizing. Shifting customer meetings to online was noticed by

72.7% of respondents which might be explained by the specifics of work. Travel restrictions were introduced by over a half of the companies and pretty much the same amount of them introduced restrictions on the amount of people present at the office at the same time. Sanitizers and face masks were distributed only at 70.9% of companies.

In the open feedback form, some respondents spoke about a slight or significant lack of support on the company side for smooth remote operations at home offices. Sometimes, it took some companies too long to organize the device distribution to the workers had to spend their own funds to create a proper environment, purchasing furniture, computer hardware, faster broadband connection and other equipment. Also, some of the respondents noted the company news did not reach all the employees due to the not proper communication organisation.

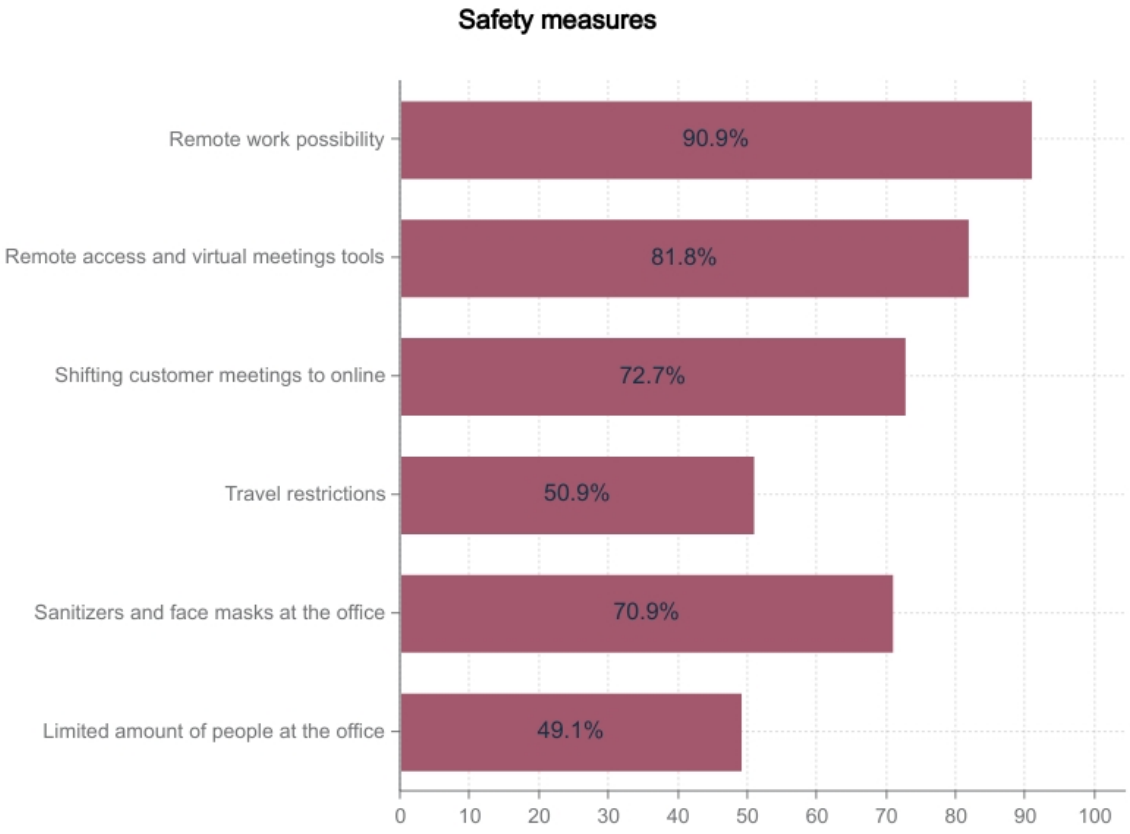

Figure 28: Safety measures taken by the respondents' employers.

Based on the replies of the respondents about the amount of remote work hours we can safely state that almost 75% of ICT professionals that participated in the survey worked 4-5 working days remotely. This conclusion is drawn from the 27.3% of responses indicating 75%-99% remote work and 47.3% of those stating the fully employment. The amount of ICT professionals working about half of the time remotely is around 3.6% for 2-3 remote

days and 5.5% of 3-4 remote days. A bit over 9% claimed that they worked only 1-2 days remotely during the pandemic and 7.2% of respondents did not switch to remote work at all.

Many respondents speak about feeling more comfortable and productive, despite lower expectations, after having adjusted to remote work and even consider choosing only remote jobs for future. Some of the replies indicate that the possibility of organising the remote work equally productive as the office one is one of the biggest findings not only for the ICT field workers, but for the company owners as well.

There are also several respondents who had already switched to full or almost full remote work before the pandemic for various reasons. It can be assumed, that this is another reason why the ICT industry suffered less than it could have since part of the people involved in it had already been prepared for the coming changes.

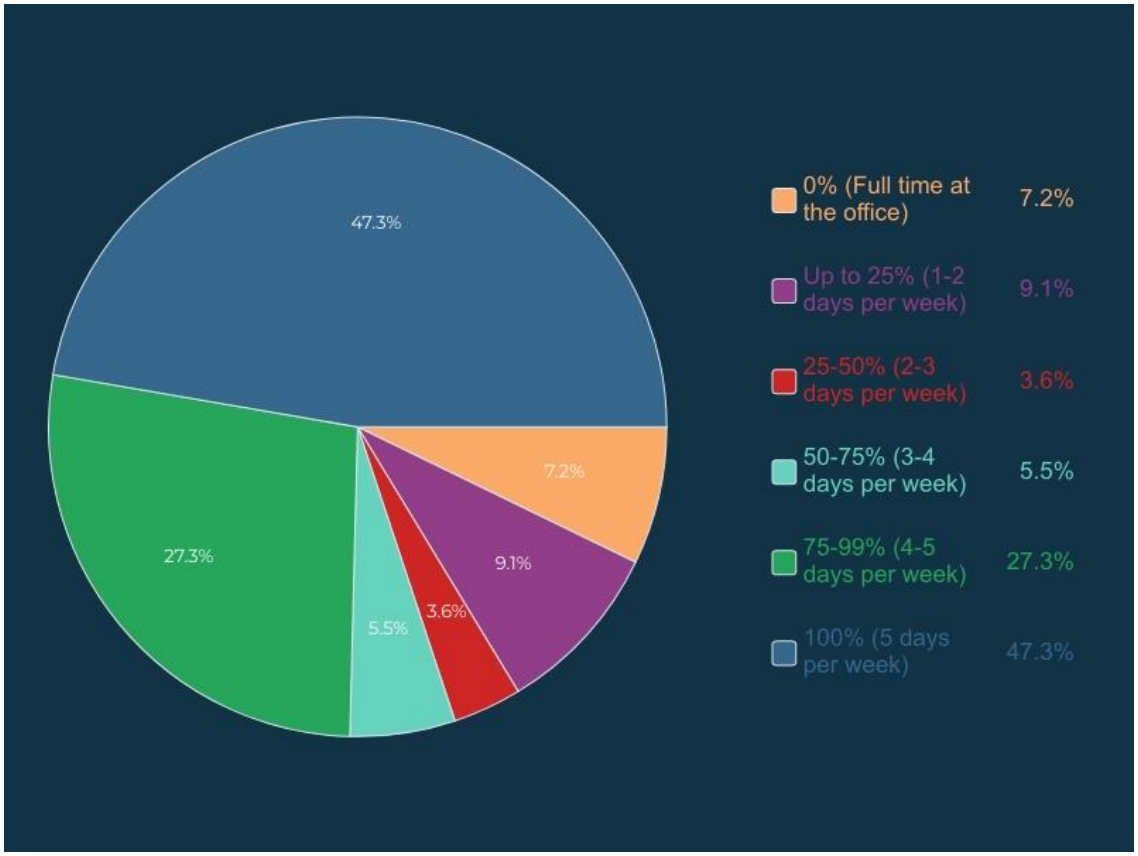

Figure 29: Remote working hours percentage of the total work time (base estimate of a standard 37.5-hour working week)

There was a number of open form responses stating that the work life of those responding had not changed significantly, since they had already been working remotely fully or partially.

Another important finding from the open feedback form, is the statement that remote work might not be beneficial for junior professionals willing to build new networks with other professionals. But the definite benefit of working remotely is that the citizenship and ethnicity factor is being left out of the context in most of the cases and there is less possibility for any bias to arise in the work relations.

3.3 Financial impact

In the beginning of the pandemic. Business Finland conducted a survey to analyze how Finnish companies estimate the COVID-19 impact on their businesses, about a quarter of which were ICT companies. About a half of the whole amount stated that their turnover would not be impacted by the crisis within the short term and a third estimated the potential financial damage as negative. (Business Finland 2020)

In November 2020, already 68% of the Finnish businesses stated the negative impact of the pandemic on their revenues. About 6% of them expected the losses of over 75% by the end of the year. Yet, about one third of the businesses believed that their revenues would increase or stay the same. (Statista 2020)

It can clearly be noticed that the overview of the future became less optimistic during the year. Since the situation did not improve in the short term, for many businesses the primary estimation was beyond positive.

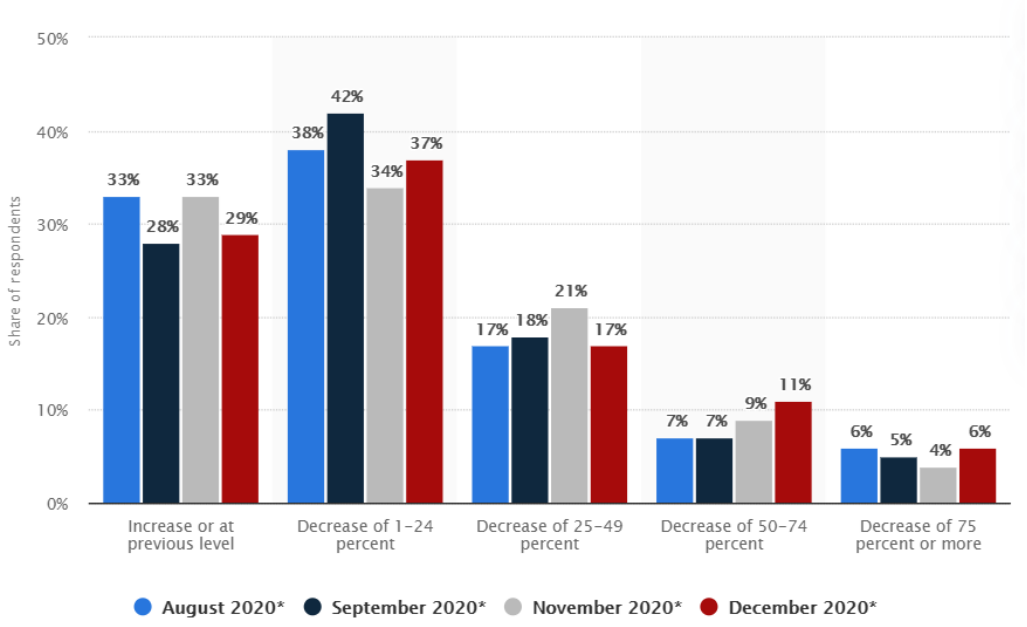

Figure 30: Estimated impact of the coronavirus (COVID-19) on revenue development of Finnish companies 2020 (Statista 2020)

For many companies in all industries the pandemic period has been financially challenging. The number of bankruptcies in 2020 compared to 2019, though smaller in the beginning of the year, was growing constantly and by the end of it exceeded the results of 2019 by about 18% (Statista 2021).

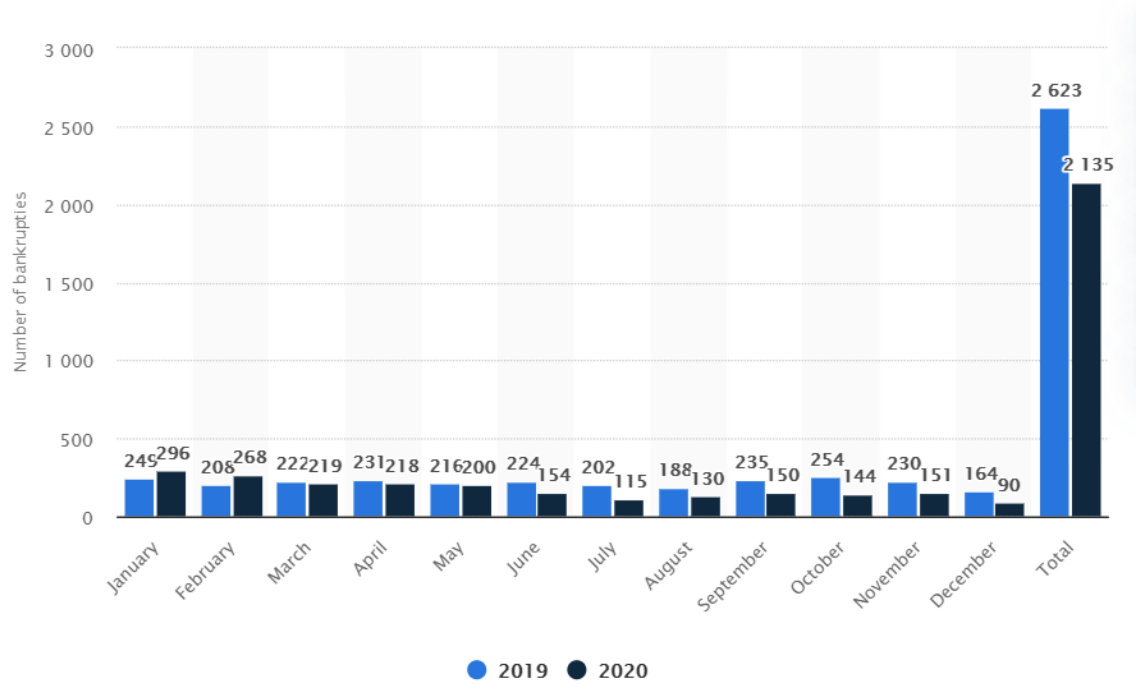

Figure 31: Number of bankruptcies in Finland from January to December 2020 (compared to 2019) (Statista 2021)

Almost 50% of small and medium companies in Finland stated the need of bailout funds to get through the pandemic crisis. Only one third of such companies were stable enough to not need any support while 16% did not have a ready decision on this issue. (Statista 2020)

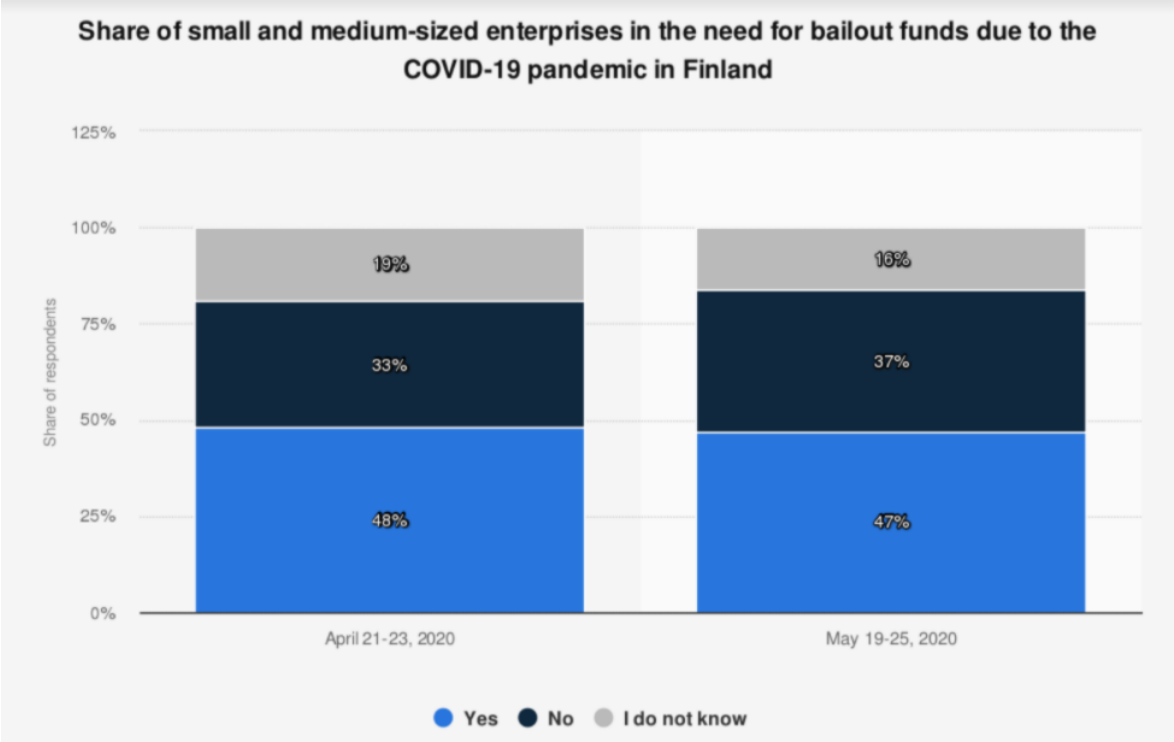

Figure 32: Share of small and medium-sized enterprises in the need for bailout funds due to the COVID-19 pandemic in Finland (Statista 2020)

As stated in the beginning of this chapter, all the industry sectors are closely interconnected, thus it would not be an understatement to conclude that the companies that had a positive or neutral impact of the pandemic in business operations and labor spheres, turned out to be as successful in terms of revenues.

3.3.1 **Financial support to businesses**

In the very start of the pandemic, in March 2020, the Finnish authorities issued support packages worth 6% of the state's GDP (EUR 15 billion), which included loan guarantees, capital support, increase of grant amount and a set of tax measures. The government also provided unemployment benefits for entrepreneurs and freelancers as well as counseling support for businesses. (OECD 2020)

Later additional reforms were introduced allowing to implement layoffs in a faster pace in order to avoid bankruptcies, cancelation of waiting period for receiving the unemployment benefits and decrease of pension contributions. Besides the value added tax paid earlier could be reimbursed for enterprises. (OECD 2020)

Individual entrepreneurs could apply for a EUR 2000 one-time direct grant from the local municipalities regardless of the legal entity. The applicants had to be full-time entrepreneurs and their annual revenue or invoicing should have been at least EUR 20,000 (City of Helsinki 2020)

Small enterprises (less than 5 people) could get a grant from regional ELY Centres of up to EUR 10,000 (EUR 2000 per employee) for business and product development and analyses. The grant could be spent on either situation analysis or business development. (Centre For Economic Development, Transport and the Environment 2020)

Business Finland was providing support to medium and large enterprises of 6-250 employees or with a revenue of up to EUR 300,000 million per year as a preliminary funding of up to EUR10,000 aimed at investigation and business planning operations, new supply chains and alternations to production caused by the pandemic. In addition to this, Business Finland provided to the same type of companies with the development funding of up to EUR 100,000 with the target to aim the businesses to be successful during and after the coronavirus crisis. (Business Finland 2021)

Finnish state financial institution Finnvera granted 80% of bank guarantee of up to EUR 1 million loans for all companies and entrepreneurs and 100% guarantee for companies that had been in operation for over 3 years. In addition to that, Finnvera provided installment-free months for its current debtors. (Finnvera 2020)

3.3.2 **ICT businesses' financial cases**

According to Health Capital Helsinki survey, the majority of HealthTech companies (77%) working on their COVID-19 solution projects stated that their financial situation has either improved or stayed at the pre-pandemic level. (Health Capital Helsinki 2020)

One of the biggest success stories in 2020 belongs to Oura, health monitor wearables company, that entered 2020 already on the raise and during the pandemic managed to raise USD 28 million of investments and this helped the company to develop gradually during the 2020. (Oura Ring 2020)

Wolt, the food delivery company, managed to raise about EUR 436,4 million within the latest funding round of ICONIQ Growth. The company managed not only to get through the crisis without losses but could also develop further and increase its revenue by 200% (about EUR 284,1 million) with a loss of about EUR 37 million. The company estimates its

position as good enough to invest funds in their labor, technology and market development in the nearest few years. (Silicon Canals 2021)

Nokia revenue was forecasted to decline in spring 2020, yet after a new CEO assignment it performed better than expected. The company's profit was up by 22%, despite the pandemic and the sales decrease by 11%. Nokia stated that the damage done by COVID.19 was estimated as EUR 800 million during the first three quarters of 2020. However, the company managed to get the best of the 5G technologies, concluding 83 commercial contracts, which made it one of the three top world 5G providers (together with Huawei and Ericsson) (Nokia 2020)

A mobile game company Supercell had also been successful in 2020 even despite not releasing any new products. Their number of players grew constantly throughout the year and the total sales reached USD 5 billion. (Paananen 2021)

Even so, companies from many other sectors, especially the ones dependent on the other industries that suffered more from COVID-19, cannot share the same successfull results in terms of their revenues. Confederation of Finnish industries estimates the situation during the pandemic as severe for one third of all the businesses in Finland who expect their sales to be 50% lower than normally and about 11% were at risk of getting bankrupt in May 2020 (Confederation of Finnish Industries 2020).

Slush, event company that switched to start-up support during the pandemic crisis, states that about a half of the existing startups in Finland were to be bankrupt within half a year in 2020. Without the extra financial support their revenues were expected to be lower than planned and only 8% have stopped their fundraising activities. (Mäntylä and Brchisky 2020)

Konecranes state that the pandemic has impacted its sales due to the postponed maintenance operations because of the access restrictions and local lockdowns. Besides the company faced severe cancelations of the orders as well as postponed scheduled works and projects. (Konecranes 2020)

3.3.3 **Survey findings on financial impact**

Most of the respondents (58.2%) state that their personal financial situation did not change during the pandemic period. At the same time 21.8% noticed slight and 5.5% significant increase in their finances. The slight decrease was pointed out by 10.9% of the respondents and a significant one by 3.6%. Generally, it can be concluded that the overall financial situation of ICT professionals in Finland tended to improve or stay at the pre-pandemic level.

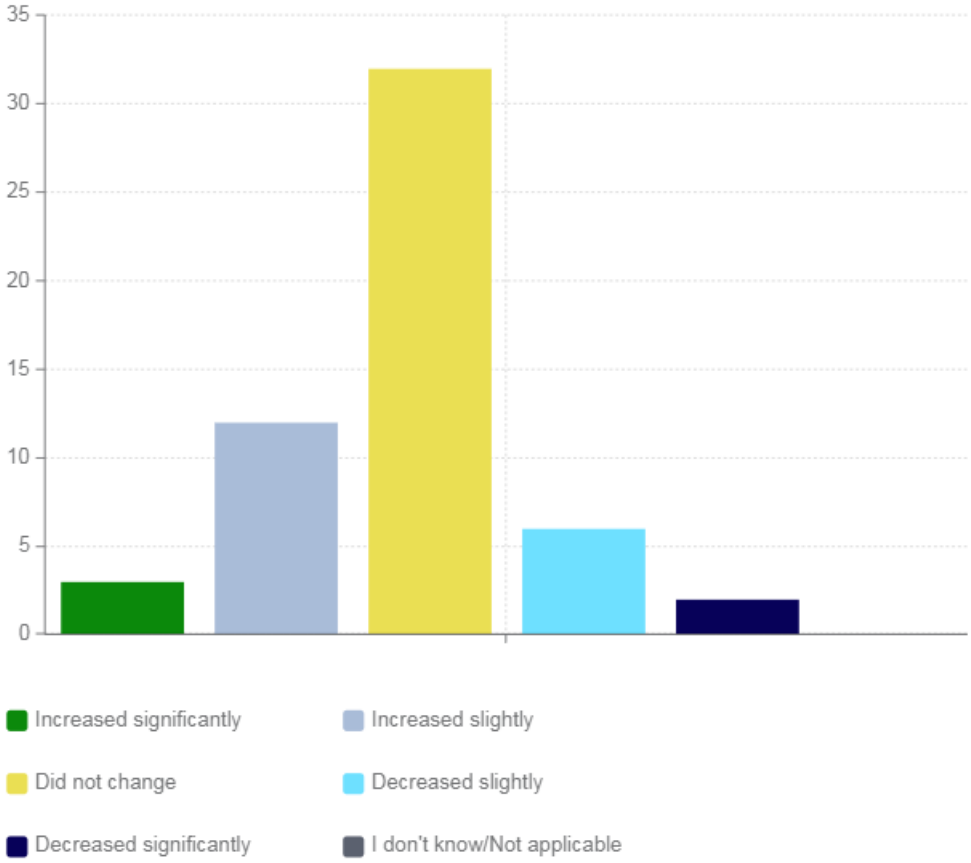

Figure 33: Changes to the personal financial situation of the respondents

The situation with the companies' revenues differs from the personal one. 32.7% of the respondents stated the slight decrease of their company's revenue and 12.7% claimed that the decrease was significant. In total it brings up the conclusion that 45.4% of the companies featuring in the survey suffered losses during the last year. From the open feedback form of the survey there have been statements about the impossibility to make up for the losses caused by the terminated contracts with use of replacement sales.

A slight revenue increase was chosen by 18.2% of the respondents and the significant growth by 16,4%, which makes it 34.6% of the Finnish ICT businesses that turned out to

be profitable during the pandemic. 12.7% of the respondents pointed out that the revenues of their companies did not change.

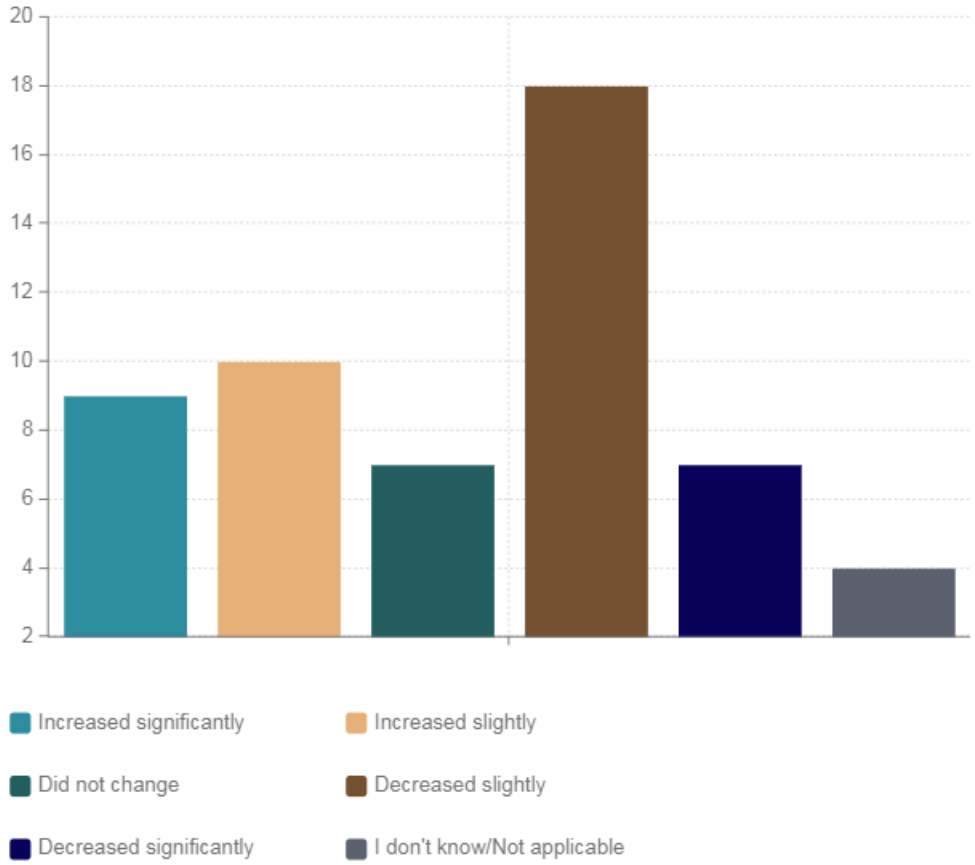

Figure 34: Changes to the companies' revenues of the respondents

Business Finland was one of the main sources of funding for the Finnish companies. 33.3% of respondents received financial aid from it and only 5,6% of them got help from other sources. The same 33.3% did not use any financial aid at all and 27.8% of the respondents did not know if their company used external funding sources or this was not applicable in their case.

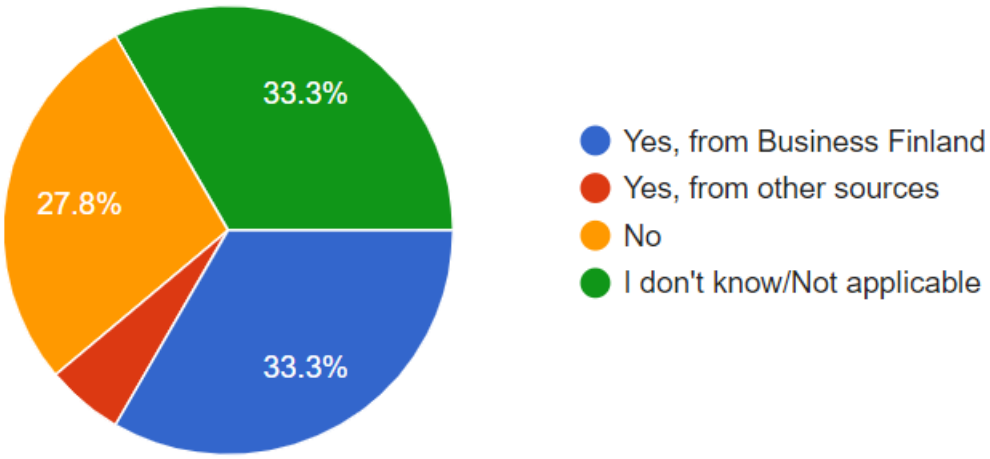

Figure 35: Distribution of responses to question "Did your company get funding from Business Finland or other funds due to pandemic?"

From the open feedback form we can figure out that sometimes some business spheres of a company could be profitable while the other ones the opposite. One of the respondents points out the increased revenue of the extended reality business unit while the rest of the company operations suffered the decline. Also there have been several notes about the increased profit of the company that allowed to extend the staff number, invest in education and provided space for future business development.

3.4 Strategies for ICT businesses

According to Accenture article "COVID-19: Mitigating the impact in the High Tech industry" published in the beginning of the pandemic, the ICT companies will have to focus their efforts in overcoming the pandemic crisis on three main fields: supply chain, market demand and labor. It is very important to thoroughly plan for the nearest future while considering the long-term changes. The authors state that the supply disruptions will harm the production capabilities and travel restrictions will make the situation even worse, but since the ICT industry is prepared for remote work better than other sectors it will manage to take advantage of it. (Accenture 2020)

From this research we can see that the statements of the abovementioned article have proved to be right. The ICT industry turned out to be better prepared for the remote work and other challenges. The successful overcome of the crisis was reached not only by the companies, that delivered services whose demand grew, but also those who managed to quickly react to the changes and make a timely shift of their business vector.

According to Lauri Kuronen, Business Advisor of Health Capital Helsinki, in Finland, like in the rest of the world, the trend is that the companies with digital health solutions or diagnostics are winning the competitive advantage in the market, especially the ones that were able to perform quick changes to their operations. The demand for healthcare digital services has boosted and is not going to decrease in the foreseen future, which will only benefit them even more. He also adds that a good strategy for the future startups would be to consider several possible paths for their business to follow when planning the development strategy, so it would facilitate the possible scaling of the business according to the environment changes. (Health Capital Helsinki 2020)

Different ICT business guides that were made when the pandemic started provide with sets of strategic steps aimed at helping ICT companies to get over this crisis and the possible future pandemic easier. Below is the summerized list of the most important points based on those guides and the data of the current research.

1. Thorough set of remote work tools
   Develop a so called Elastic Digital Workforce (Accenture 2020), an extendable workplace environment, which includes choosing and setting the technologies and tools for successful remote work that will help to quickly adapt to the business environment changes.

2. Financial planning
   In case of the worsening financial situation NewCo Helsinki suggests not going for quick fixes, like quicl loans, but rather considering the big picture. The financial plan should be done for the next 6 months considering several scenarios on the upcoming sales. (NewCo Helsinki 2020)

3. Bank and funds negotiations
   It is vital at this step to contact the company's bank about the payment options considering the situation and research for support grants from Business Finland and other sources. In an interview to Slush, Sami Lampinen, Managing Director At Inventure And Chairperson Of The Board At Fvca, mentions the possibility to ask investors or partners for financial backing up (Brchisky 2020).

4. Reduce of payments
   The reconsideration of prepaid tax might be required and also insurance, rent and pension fees payment deadline can be extended. For small and medium companies, especially startups, in case the situation is getting more challenging, it

could be beneficial to cancel or freeze the contracts with the subcontractors and also to attempt to renegotiate the orders that have already been made. (NewCo Helsinki 2020)

5. Financial consulting for free
   In Finland there are several organizations that perform financial consulting free of charge, helping with funding applications and other related issues. One of them is Yritys Suomi Talousapu. It is advisable to use the free service as much as possible instead of the similar paid services. (NewCo Helsinki 2020)

6. Application of remote services
   It was hereby proved that the companies that managed to switch their businesses fully or partially to remote, managed to benefit from the pandemic situation. If applicable for the business area, the delivery and online services most likely can improve the company's situation.

7. Business extension
   The companies helping to overcome the pandemic have been quite successful within the last year. Extending the business with the solutions of HealthTech or social support would be in good demand.

8. Supply chain rethinking
   According to CGI President and CEO George D. Schindler, the supply chain should be reconsidered according to the new realities. More agility and elasticity should be applied to the business operations. CGI executives state that among the most important innovations to be applied are cloud technologies, robots and automation. (CGI Inc. 2020)

9. Communication strategy
   It is very important to keep the good level of communication between the employees. Special attention should be put to making sure none of the workers feel abandoned. It could be perfomed for example by daily Scrum meetings and/or weekly review meetings. The tools for clear work issues communication that could be beneficial are for example Trello boards and topic defined channels in corporate messenger (Slack or Teams).

10. Safety measures

    The employees' safety should be priority number one for every business owner. From this researched we found out that not all companies perform all the advised safety measures in their offices. Sanitizers and face masks are advised to be available at the work place, as well as hygiene instructions. In case the fully remote work can not be performed, it is good to consider at least the limited amount of staff at the office at the same time.

11. Lay-offs

    It is possible to make lay-offs by law with a short notice in case there is a crisis situation: 5 days instead of the standard 14. However, it is advised to notify the employees to be laid off as early as possible.

12. Empathy

    As could be noticed from this research, some of the ICT professionals shared the feeling of being left out by their companies. For a better atmosphere and trust level among the company's staff, it is advised to have more consideration for the phisical and mental state of the employees.

13. Bankrupcy case

    In case all the measures did not help to keep the business on float, it is possible to terminate the business temporarily via an application. In case of a permanent termination, it is quicker to do so for the reason of bankrupcy compared to the long process of the basic close down. (NewCo Helsinki 2020)

At the current moment, following these strategies is considered to be the optimal way to ease the negative impact of COVID-19 and it also might provide for the businesses the opportunity to benefit from the new opportunities that the changed business realities bring.

4 Discussion

4.1 Thesis process

This thesis work has been conducted from October 2020 to April 2021, though the initial thinking through, planning and source search was started already in spring 2020. The primary course of work schedule has been described in the thesis plan and it has proved to be quite realistic with only minor deviations from the set path. The thesis plan can be found in Appendix 1. The presentation was set to take place even earlier than planned.

This project was not aiming at conducting any widescale interviews or surveys to cover the significant part of IT businesses in Finland, as due to the lack of resources for this. Thus, it is planned to build the conclusions and estimates mainly based on the existing data, that had already been received by research organizations as well as the results of the survey conducted among the ICT specialists residing in Finland. The project results are mixed, qualitative, and quantitative, with the main focus on quantitative ones.

The initial data was collected from the open sources related to the studied phenomenon which included for example official statistics, research publications and official statements of IT companies.

The survey for this thesis was conducted in February-March 2021 among the people employed in the IT field with the use of Google Forms. The total amount of responses was 55. The questions were related to the participants' personal view and experience of the pandemic impact on the IT industry in Finland. The main topics covered were financial situation, change in business operations and organization of work.

The questions were mostly either single or multiple choice with an option to add a textual response. In the end of the survey the respondents could leave an open feedback about everything else they noted about the COVID-19 situation in the IT industry. The availability of open reply option allowed the author of this thesis to have a broader perspective of the most vital trend of the industry change process, as well as not to miss out on the possibly unnoticed observations. The similar open replies have been joint for the data analysis purposes and the raw data can be seen in Appendices 2 and 3.

After having been collected the received data was combined, analyzed, and delivered in a revised form. The survey replies were grouped to charts and diagrams in order to show the ongoing processes in IT industry during the pandemic period. Based on the received

conclusions and additional research, the optimal strategic steps for overcoming this and any similar crises were elaborated and listed.

All in all, this thesis conduction took approximately 7 months of work, which is over 400 hours. Assistance during the thesis conduction was provided by the academic advisor and the presentation of this work took place on April 7th, 2021.

4.2 Learning outcomes

The main learning outcome of this thesis is allowing the author to develop a profound and deep understanding of the IT industry and business research. This work allowed to elaborate a better view of the professional activities in the studied sector.

Another important learning outcome to be mentioned is the acquired knowledge of IT business operations and project management in the times of crisis. In comparison to the possible studies of this type at an educational institution or at work during quiet times, seeing the important and sometimes tough decisions made during the world crisis is a rare possibility to obtain unique managerial knowledge. This knowledge can surely prove to be useful in future for the professional career, as this crisis is definitely not the last one.

This research strengthened the skills of collecting and analysing big amounts of data from many different sources which was taught during this bachelor's degree. Also, it was important to learn the way to choose the appropriate sources of information and how to use them for empirical research conduction.

4.3 Conclusion

This paper has covered a phenomenon of COVID-19 impact over information technology sphere of Finland. Its aim was to study how the IT industry has changed due to the pandemic. The study questions cover the challenges and new sources of opportunities companies and professionals had to face in different aspects of their professional activities and what were the best working strategies to cope with the crisis.

As a theoretical background we have taken a close look at the previous pandemics' influences over the world's economies, studied the actual Finnish IT industry state before and at the beginning of the pandemic, followed the timeline of the pandemic related events and examined the possibility of similar threats in the future and existing means to overcome them in the years to come.

The empirical analysis of the stated has been conducted from three perspectives labor, financial and business operations. The data for the research has been collected from a variety of sources, including but not limited to business research publications, press-releases, news, and articles. The collected data was supported by a survey conducted among the IT professionals. The survey included questions related to the three above-mentioned perspectives both from the point of view of an individual employee or owner and their company.

The main findings of the research shoed that from the business operations point of view, the pandemic crisis has pushed many companies to drastically change the sphere of their business or at least to make sufficient additions to their way of working. The successful stories described in this work are related mainly to HealthTech, delivery and online business companies or the companies that managed to timely adapt to the new realities.

The labor impact brought layoffs to many people during the last year and IT sector was not an exception, even though it suffered less than other industries. According to the conducted research, IT professionals' average number of working hours increased during the pandemic. This fact is related to the ubiquitous switch to remote work, which in its turn erased the border of work and life balance. This issue might cause long-term consequences related to physical and mental health of the employees. The findings also show that there has been widespread decrease in communication quality among the team members. The productivity, though, increased or stayed the same for those who managed to adapt to remote work quickly enough.

As for the companies, the absolute majority of them conducted new recruitment processes during the pandemic, which is a sign of a fairly good state. One of the most meaningful findings in labor related impact is the plans to keep the remote work option open for future even after the pandemic. Many business owners and professionals realised that working remotely can be as good as working from the office. It probably would be safe to state that this trend will remain and define the future of the IT industry in Finland and worldwide.

Most of the companies implemented safety measures to their policies. The most widely used ones were fully remote work or limitation of the staff present in the office, travel restrictions, switching all the meetings to online, supplying office spaces with sanitizers and face masks. It should be noticed however, that some of the companies took too much time for providing their employees with all the necessary equipment for remote work and could have elaborated their communication strategies better so not to leave out any of the team members.

From the financial perspective it can be stated that the personal situation of IT professionals did not change to the worse in most cases, but the situation is quite opposite for the businesses. Most of the latter ones state a decrease of revenues during the pandemic period. It can be concluded that financially the businesses were the ones that suffered the most from the pandemic crisis, while the individuals mostly were intact. Because of this fact the majority of IT businesses used financial support from Business Finland or other sources to stay on float.

The last part of the Pandemic Impact Research Implementation chapter describes the conclusions on the best working strategies that won the competitive advantage to the companies that used it according to their own experience and some professional investigation findings. The listed set of strategic steps is aimed at easing the possible crises of the future as well as to still overcome the current COVID-19 crisis.

This paper findings can be relevant to any future research related to pandemic impacts on economy, as well as to any other global crisis impacts. The long-term consequences of COVID-19 are still to be studied from different perspectives and after different periods of time. Therefore, this thesis work, conducted specifically in the midst of the pandemic can be a fair addition to the studies of the future.

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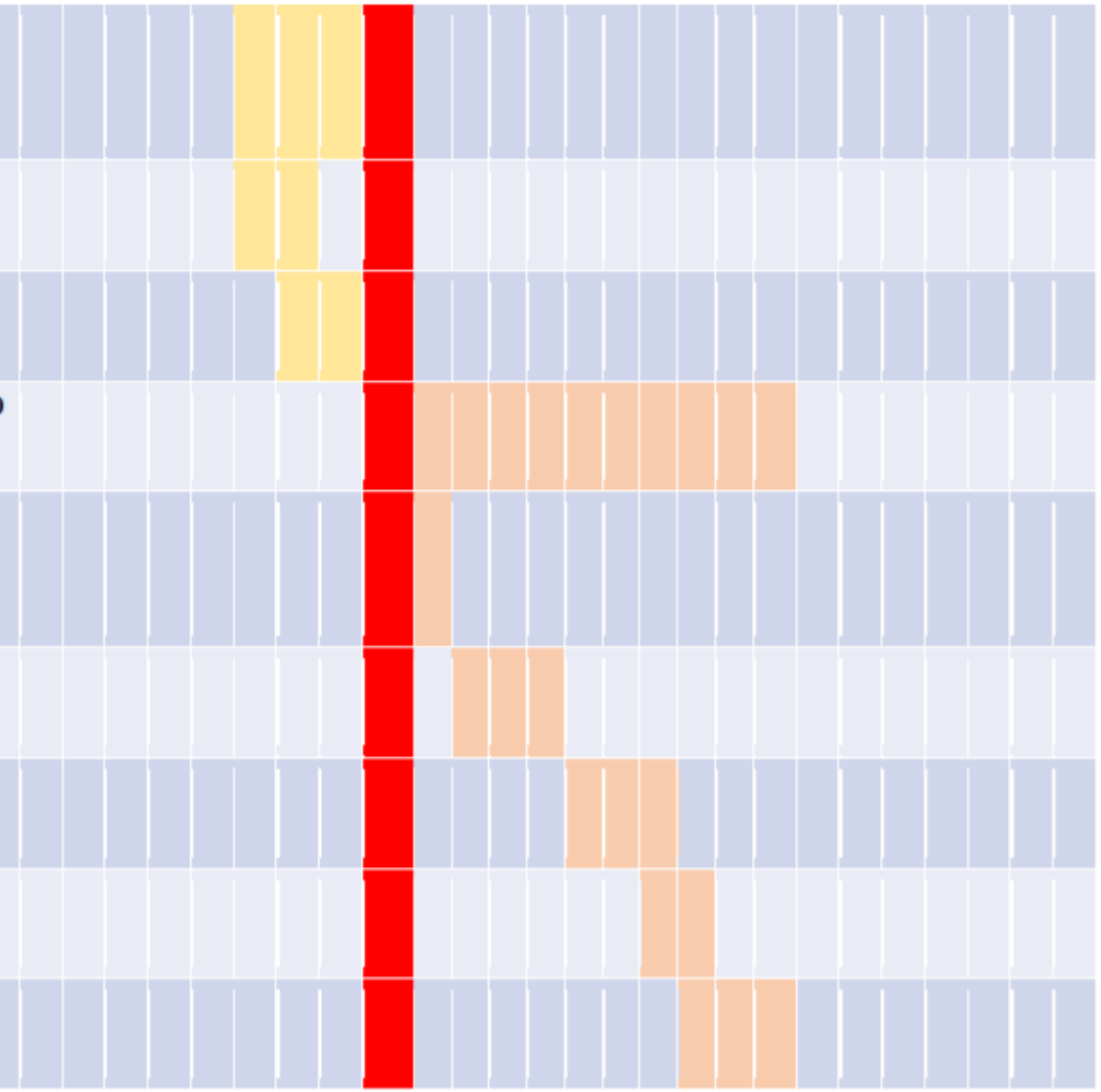
Appendices

Appendix 1. Initial thesis plan

No.	Task	Outcome	Beginning criterion	Hrs	44	45	46	47	48	49	50	51	X mas	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1.	**Start of the project**	**Accepted project plan**	**Project start cofirmation**	**20**																										
1.1	Initial meeting and plan	Initial road map confirmed	Project start cofirmation	20																										
2.	**Research planning**	**Project frameworks**	**Project start confirmation**	**100**																										
2.1	Material search	Primary materials set	Project start confirmation	20																										
2.2	Theorietical framework	Theoritical framework	Set objectives and sources	40																										
2.3	Practical framework	Practical research methods set	Theor. framework and sources	40																										

3.	**Data processing**	**Set of research data**	**Frameworks**	**80**	
3.1	Data collecting	Data set	Data requirements	30	
3.2	Data analysis	Analysed data	Data set	50	
4.	**Implemen-tation**	**Thesis doc.v.1**	**Plan and data**	**150**	
4.1	Intro and general decription	Introduction chapter	Thesis plan and data set	20	
4.2	Financial impact	Financial imp. chapter	Thesis plan and data set	25	
4.3	Labour impact	Labour imp. chapter	Thesis plan and data set	25	
4.4	Workplace impact	Workplace imp. chapter	Thesis plan and data set	25	
4.5	Other impacts	Other imp. described	Previous impacts ready	25	

4.6	Conclusions	Impact conclusions	All impacts ready	30	
5.	**Revison**	**Revised document**	**Thesis document v1**	**50**	
5.1	Advisor's feedback	Changes and additions to thesis	Thesis v.1 ready	10	
5.2	Changes to project	Thesis final version submit	Changes requirements	40	
6.	**Presentation**	**Thesis completion**	**All previous stages completed**	**5**	
6.1	Presentation	Thesis presented	All previous stages completed	3	
6.2	Maturity exam	Exam passed	Thesis submitted	2	

Appendix 2. Results of the survey on COVID-19 impact for ICT professionals in Finland

	Timestamp	What is your position? (choose the most suitable answer)	What is your education level related to your position?	What is your experience in ICT field?	How did your personal financial situation change due to COVID-19 pandemic?	How did the revenue of your company change during COVID-19 pandemic?	How did your working hours change?	How did your productivity change due to remote work?	How did communication quality with your coworkers change due to remote work?	How did the amount of your company customers and/or orders change during the pandemic?	Did your company get funding from Business Finland or other funds due to pandemic?	Did your company initiate new recruitments during the pandemic?	Were you temporarily laid off or fired during the pandemic period?	Does your company plan to keep the remote work option after the pandemic?	How did your company change its business operations due to COVID-19 pandemic?	Were there layoffs in your company and how many?	What safety measures did your company implement?	How much of your work time did you work remotely?	Has the pandemic caused more troubles and challenges for your company or become a source of new opportunities?
1	2021/02/21 2:15:50 pm EET	Software Developer	Bachelor's degree	3-5 years	Increased slightly	Decreased significantly	Decreased slightly	Did not change	Did not change	Decreased significantly	Yes, from Business Finland	Yes	No	Yes	Did not change	<25% of labor force	Remote work possibility;Remote access and virtual meetings tools;Sanitizers and face masks at the office	50-75% (3-4 days per week)	Definitely more challenges
2	2021/02/21 2:43:43 pm EET	Unemployed/Student	Bachelor's degree	1-3 years	Increased slightly	I don't know/Not applicable	I don't know/Not applicable	Decreased slightly	Decreased slightly	Decreased significantly	I don't know/Not applicable	Yes	No	Yes	Somewhat changed (for example: big move towards online services)	<25% of labor force	Remote work possibility;Remote access and virtual meetings tools;Sanitizers and face masks at the office	25-50% (2-3 days per week)	Both equally
3	2021/02/21 2:49:22 pm EET	Software Developer	Master's degree	1-3 years	Did not change	Decreased slightly	Did not change	Decreased slightly	Did not change	Decreased slightly	I don't know/Not applicable	Yes	No	Yes	Somewhat changed (for example: big move towards online services)	<25% of labor force	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Travel restrictions;Sanitizers and face masks at the office	Full time (5 days per week)	Both equally
4	2021/02/21 2:58:55 pm EET	User Researcher	Master's degree	1-3 years	Did not change	Decreased slightly	Increased slightly	Decreased slightly	Decreased slightly	Decreased slightly	Yes, from Business Finland	Yes	No	Yes	Did not change	<25% of labor force	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Travel restrictions;Sanitizers and face masks at the office	Full time (5 days per week)	Definitely more challenges

5	2021/02/21 3:10:02 pm EET	Software Developer	Bachelor's degree	5-10 years	Did not change	Did not change	Did not change	Increased slightly	Did not change	Did not change	No	Yes	No	Yes	Did not change	None	Remote work possibility;Remote access and virtual meetings tools	Full time (5 days per week)	Rather a source of new opportunities
6	2021/02/21 3:55:28 pm EET	Lead Developer	Bachelor's degree	>10 years	Increased slightly	Decreased slightly	Did not change	Did not change	Decreased slightly	Decreased slightly	No	Yes	No	Yes	Slightly changed (for example: small adjustments to product)	<25% of labor force	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Only certain amount of people in offices at the same time. Organized with booking from excel.	Full time (5 days per week)	Both equally
7	2021/02/21 5:09:16 pm EET	Designer	Bachelor's degree	1-3 years	Did not change	I don't know/Not applicable	Did not change	Decreased slightly	Decreased significantly	I don't know/Not applicable	I don't know/Not applicable	Yes	Yes	I don't know/Not applicable	Did not change	<25% of labor force	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Sanitizers and face masks at the office	25-50% (2-3 days per week)	I don't know/Not applicable
8	2021/02/21 6:45:59 pm EET	Tester	Bachelor's degree	>10 years	Decreased slightly	I don't know/Not applicable	Did not change	Decreased significantly	Decreased significantly	I don't know/Not applicable	I don't know/Not applicable	Yes	No	I don't know/Not applicable	Significantly changed (for example: complete change of the product or business field)	<25% of labor force	Remote work possibility;Remote access and virtual meetings tools;Travel restrictions;Sanitizers and face masks at the office	Full time (5 days per week)	Both equally
9	2021/02/21 7:25:08 pm EET	Software Developer	Bachelor's degree	5-10 years	Did not change	Did not change	Did not change	Increased slightly	Did not change	Did not change	No	Yes	No	Yes	Did not change	None	Remote work possibility;Remote access and virtual meetings tools	Full time (5 days per week)	Rather a source of new opportunities
10	2021/02/21 9:53:54 pm EET	Manager/Administrative assistant	Master's degree	5-10 years	Increased slightly	Did not change	Increased significantly	Increased slightly	Increased slightly	Did not change	Yes, from Business Finland	Yes	No	Yes	Somewhat changed (for example: big move towards online services)	None	Remote work possibility;Remote access and virtual meetings tools;Travel restrictions;Sanitizers and face masks at the office	75-99% (4-5 days per week)	Rather a source of new opportunities
11	2021/02/21 10:42:50 pm EET	Software Developer	Bachelor's degree	<1 year	Decreased significantly	Decreased significantly	Decreased significantly	I don't know/Not applicable	I don't know/Not applicable	Decreased significantly	Yes, from Business Finland	I don't know/Not applicable	Yes	I don't know/Not applicable	Significantly changed (for example: complete change of the product or business field)	25-50% of labor force	Remote work possibility	Full time (5 days per week)	Definitely more challenges

12	2021/02/21 10:50:45 pm EET	CEO/CTO	Self-educated	5-10 years	Did not change	Increased significantly	Increased slightly	Increased significantly	Did not change	Increased slightly	Yes, from Business Finland	Yes	No	Yes	Somewhat changed (for example: big move towards online services)	25-50% of labor force	Shifting customer meetings to online;Travel restrictions	Full time (5 days per week)	Rather a source of new opportunities
13	2021/02/22 11:17:15 am EET	Software Architect	Master's degree	>10 years	Did not change	Decreased slightly	Did not change	Decreased slightly	Decreased significantly	Increased slightly	I don't know/Not applicable	No	No	I don't know/Not applicable	Slightly changed (for example: small adjustments to product)	<25% of labor force	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Travel restrictions;Sanitizers and face masks at the office;Office visit restrictions, max 20% of people	Full time (5 days per week)	Both equally
14	2021/02/22 12:07:23 pm EET	Software Developer	Short-term courses	1-3 years	Did not change	Decreased significantly	Did not change	Increased slightly	Did not change	Decreased significantly	Yes, from Business Finland	Yes	No	Yes	Somewhat changed (for example: big move towards online services)	25-50% of labor force	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Sanitizers and face masks at the office	75-99% (4-5 days per week)	Both equally
15	2021/02/22 2:27:02 pm EET	Software Developer	Self-educated	1-3 years	Increased slightly	Decreased significantly	Did not change	Decreased slightly	Decreased significantly	Decreased significantly	Yes, from Business Finland	No	No	Yes	Significantly changed (for example: complete change of the product or business field)	25-50% of labor force	Remote work possibility;Remote access and virtual meetings tools	75-99% (4-5 days per week)	Definitely more challenges
16	2021/02/22 6:09:33 pm EET	CEO/CTO	Self-educated	>10 years	Did not change	Decreased slightly	Did not change	Increased slightly	Did not change	Increased slightly	No	Yes	No	Yes	Slightly changed (for example: small adjustments to product)	None	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Travel restrictions;Sanitizers and face masks at the office	Up to 25% (1-2 days per week)	Definitely a source of more opportunities
17	2021/02/22 6:28:12 pm EET	Designer	Self-educated	1-3 years	Did not change	Decreased slightly	Increased slightly	Decreased slightly	Decreased significantly	Decreased slightly	I don't know/Not applicable	Yes	No	Yes	Slightly changed (for example: small adjustments to product)	None	Remote work possibility	Up to 25% (1-2 days per week)	Rather a source of new opportunities

18	2021/02/22 7:06:50 pm EET	Software Developer	Self-educated	1-3 years	Did not change	Decreased slightly	Did not change	Increased slightly	Decreased slightly	I don't know/Not applicable	I don't know/Not applicable	Yes	No	Yes	I don't know/Not applicable	None	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Sanitizers and face masks at the office	Up to 25% (1-2 days per week)	Rather a source of new opportunities
19	2021/02/22 8:02:50 pm EET	Software Developer	Self-educated	1-3 years	Decreased slightly	Decreased slightly	Did not change	Did not change	Did not change	Decreased slightly	Yes, from Business Finland	Yes	No	Yes	Did not change	None	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online	50-75% (3-4 days per week)	Definitely a source of more opportunities
20	2021/02/23 1:10:47 pm EET	Software Developer	Bachelor's degree	1-3 years	Did not change	Increased slightly	Did not change	Decreased slightly	Decreased slightly	Increased slightly	I don't know/Not applicable	Yes	Yes	Yes	I don't know/Not applicable	None	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Travel restrictions;Sanitizers and face masks at the office	Full time (5 days per week)	Both equally
21	2021/02/23 4:41:56 pm EET	Software Developer	Bachelor's degree	5-10 years	Did not change	Increased slightly	Increased slightly	Increased slightly	Decreased slightly	I don't know/Not applicable	No	Yes	No	Yes	Did not change	None	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Travel restrictions	Full time (5 days per week)	I don't know/Not applicable
22	2021/02/23 5:01:43 pm EET	Software Developer	Self-educated	1-3 years	Did not change	Decreased slightly	Did not change	Did not change	Decreased slightly	I don't know/Not applicable	I don't know/Not applicable	Yes	No	Yes	I don't know/Not applicable	None	Shifting customer meetings to online	0	Definitely more challenges
23	2021/02/23 9:00:41 pm EET	Software Developer	Bachelor's degree	1-3 years	Did not change	Decreased significantly	Did not change	Did not change	Decreased slightly	Decreased slightly	I don't know/Not applicable	No	No	Yes	Slightly changed (for example: small adjustments to product)	<25% of labor force	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Sanitizers and face masks at the office	75-99% (4-5 days per week)	Rather more challenges than opportunities
24	2021/02/23 9:26:45 pm EET	BI Developer	Bachelor's degree	1-3 years	Did not change	Did not change	Did not change	Decreased slightly	Decreased significantly	I don't know/Not applicable	No	Yes	No	Yes	Somewhat changed (for example: big move towards online services)	None	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Travel restrictions;Sanitizers and	Full time remotely (5 days per week)	Both equally

																face masks at the office;Limited amount of people at the office		
25	2021/02/24 12:25:52 pm EET	Sales	Master's degree	>10 years	Did not change	Decreased slightly	Did not change	Increased slightly	Did not change	Decreased slightly	No	Yes	No	Yes	Slightly changed (for example: small adjustments to product)	<25% of labor force	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Sanitizers and face masks at the office;Limited amount of people at the office	At office full time but 95% of customer meetings are online	Both equally
26	2021/02/24 1:12:26 pm EET	Chief Sales Officer, Member of the Board	Master's degree	>10 years	Decreased slightly	Decreased slightly	Did not change	Did not change	Did not change	Increased slightly	Yes, from other sources	Yes	No	Yes	Somewhat changed (for example: big move towards online services)	None	No actual changes. Remote work has always been there. Short periods due to lockdowns office has been closed, remote only option	Full time remotely (5 days per week)	Rather a source of new opportunities
27	2021/02/24 2:13:54 pm EET	Manager/Administrative assistant	Bachelor's degree	1-3 years	Did not change	Increased slightly	Did not change	Increased slightly	Decreased slightly	Increased slightly		Yes	No	Yes	Did not change	None	Remote work possibility;Remote access and virtual meetings tools;Sanitizers and face masks at the office;Limited amount of people at the office	Full time remotely (5 days per week)	Both equally
28	2021/02/24 2:40:38 pm EET	Designer	Bachelor's degree	<1 year	Increased slightly	Increased significantly	Increased significantly	Did not change	Did not change	Increased slightly	I don't know/Not applicable	I don't know/Not applicable	I don't know/Not applicable	I don't know/Not applicable	Slightly changed (for example: small adjustments to product)	None	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Travel restrictions;Sanitizers and face masks at the office;Limited amount of people at the office	Full time remotely (5 days per week)	Definitely a source of more opportunities
29	2021/02/24 2:47:01 pm EET	CEO/CTO	Master's degree	>10 years	Increased significantly	Increased significantly	Increased significantly	Increased significantly	Increased significantly	Increased significantly	Yes, from Business Finland	Yes	No	Yes	Slightly changed (for example: small adjustments to product)	None	Remote work possibility;Travel restrictions	75-99% (4-5 days per week)	Both equally

30	2021/02/24 3:50:29 pm EET	Software Developer	Vocational education	1-3 years	Increased slightly	Increased significantly	Did not change	Decreased slightly	Did not change	Increased slightly	Yes, from Business Finland	Yes	No	Yes	Slightly changed (for example: small adjustments to product)	None	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Travel restrictions;Sanitizers and face masks at the office;Limited amount of people at the office	Full time remotely (5 days per week)	Rather a source of new opportunities
31	2021/02/24 9:01:23 pm EET	Software Developer	Bachelor's degree	1-3 years	Did not change	Increased slightly	Decreased slightly	Decreased slightly	Did not change	Did not change	I don't know/Not applicable	Yes	No	Yes	Slightly changed (for example: small adjustments to product)	<25% of labor force	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Travel restrictions;Sanitizers and face masks at the office;Limited amount of people at the office	0% (Full time at the office)	Rather a source of new opportunities
32	2021/02/24 9:38:03 pm EET	Software Developer	Master's degree	3-5 years	Did not change	Decreased slightly	Did not change	Decreased slightly	Decreased significantly	I don't know/Not applicable	I don't know/Not applicable	Yes	No	I don't know/Not applicable	Slightly changed (for example: small adjustments to product)	<25% of labor force	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Travel restrictions;Sanitizers and face masks at the office;Limited amount of people at the office	Full time remotely (5 days per week)	Rather more challenges than opportunities
33	2021/02/25 8:40:07 pm EET	Software Developer	Master's degree	5-10 years	Did not change	Increased slightly	Did not change	Did not change	Decreased slightly	Increased slightly	No	Yes	No	Yes	Slightly changed (for example: small adjustments to product)	None	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Travel restrictions;Sanitizers and face masks at the office;Limited amount of people at the office	Full time remotely (5 days per week)	Both equally
34	2021/02/25 8:40:49 pm EET	Data Scientist	Master's degree	5-10 years	Increased significantly	Did not change	Increased significantly	Did not change	Decreased slightly	Did not change	Yes, from Business Finland	Yes	No	I don't know/Not applicable	Slightly changed (for example: small	None	Remote work possibility;Shifting customer	Full time remotely (5 days per week)	I don't know/Not applicable

														adjustments to product)		meetings to online;Limited amount of people at the office		
35	2021/02/25 8:47:45 pm EET	Content manager	Self-educated	1-3 years	Did not change	Did not change	Increased slightly	Increased slightly	Increased slightly	Increased slightly	Yes, from other sources	Yes	Yes	I don't know/Not applicable	Somewhat changed (for example: big move towards online services)	None	Remote access and virtual meetings tools;Shifting customer meetings to online;Limited amount of people at the office	75-99% (4-5 days per week)	Definitely more challenges
36	2021/02/25 9:01:17 pm EET	Unemployed/Student	Bachelor's degree	<1 year	Did not change	Decreased slightly	Did not change	Decreased significantly	Decreased slightly	Increased slightly	No	Yes	No	I don't know/Not applicable	Slightly changed (for example: small adjustments to product)	None	Travel restrictions;Sanitizers and face masks at the office;Limited amount of people at the office	Full time remotely (5 days per week)	Definitely more challenges
37	2021/02/26 3:40:58 pm EET	Software Developer	Bachelor's degree	>10 years	Did not change	Increased slightly	Did not change	Decreased slightly	Decreased slightly	Increased slightly	No	No	Yes	Yes	Slightly changed (for example: small adjustments to product)	<25% of labor force	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Sanitizers and face masks at the office;Limited amount of people at the office	Full time remotely (5 days per week)	Both equally
38	2021/02/26 3:47:28 pm EET	Software Developer	Bachelor's degree	3-5 years	Did not change	Increased slightly	Increased slightly	Increased significantly	Did not change	Increased slightly	Yes, from Business Finland	Yes	No	I don't know/Not applicable	I don't know/Not applicable	<25% of labor force	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Travel restrictions;Sanitizers and face masks at the office;Limited amount of people at the office	50-75% (3-4 days per week)	Definitely more challenges
39	2021/02/27 2:48:59 pm EET	CEO/CTO	Bachelor's degree	5-10 years	Increased slightly	Increased significantly	Did not change	Did not change	Decreased slightly	Increased significantly	No	Yes	No	Yes	Slightly changed (for example: small adjustments to product)	None	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Travel restrictions;Sanitizers and face masks at the office;Limited amount of people at the office	Up to 25% (1-2 days per week)	I don't know/Not applicable

40	2021/02/27 3:51:41 pm EET	Designer	Bachelor's degree	<1 year	Increased slightly	Increased signifi-cantly	Increased signifi-cantly	Did not change	Did not change	Increased slightly	I don't know/Not applicable	I don't know/Not applicable	I don't know/Not applicable	I don't know/Not applicable	Slightly changed (for example: small adjustments to product)	None	Remote work possibil-ity;Remote access and virtual meetings tools;Shifting customer meetings to online;Travel re-strictions;Sanitizers and face masks at the of-fice;Limited amount of people at the office	Full time re-motely (5 days per week)	Definitely a source of more opportunities
41	2021/02/28 1:13:42 pm EET	Software Developer	Bachelor's degree	>10 years	Did not change	Did not change	Increased slightly	Did not change	Decreased slightly	Decreased slightly	No	Yes	No	Yes	Did not change	None	Remote work possibil-ity;Remote access and virtual meetings tools;Shifting customer meetings to online;Travel re-strictions;Sanitizers and face masks at the of-fice;Limited amount of people at the office	Full time re-motely (5 days per week)	Rather more challenges than opportunities
42	2021/02/28 2:32:36 pm EET	Software Developer	Master's degree	>10 years	Did not change	I don't know/Not applicable	Increased slightly	Decreased slightly	Decreased slightly	I don't know/Not applicable	I don't know/Not applicable	Yes	No	I don't know/Not applicable	Slightly changed (for example: small adjustments to product)	<25% of labor force	Remote work possibil-ity;Remote access and virtual meetings tools;Shifting customer meetings to online;Travel re-strictions;Sanitizers and face masks at the of-fice;Limited amount of people at the office	Full time re-motely (5 days per week)	Definitely more challenges
43	2021/02/28 2:37:12 pm EET	Software Developer	Bachelor's degree	5-10 years	Did not change	Decreased slightly	Increased slightly	Did not change	Decreased slightly	Decreased slightly	I don't know/Not applicable	Yes	No	I don't know/Not applicable	Did not change	None	Remote work possibil-ity;Remote access and virtual meetings tools;Shifting customer meetings to online;Travel re-strictions;Sanitizers and face masks at the of-fice;Limited amount of people at the office	75-99% (4-5 days per week)	Definitely more challenges

44	2021/02/28 4:00:06 pm EET	Designer	Bachelor's degree	>10 years	Did not change	Increased slightly	Increased slightly	Increased slightly	Increased slightly	Increased significantly	Yes, from Business Finland	Yes	I don't know/Not applicable	Yes	Somewhat changed (for example: big move towards online services)	<25% of labor force	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Sanitizers and face masks at the office;Limited amount of people at the office	75-99% (4-5 days per week)	Both equally
45	2021/02/28 4:16:21 pm EET	Software Developer	Bachelor now, studying masters while working	<1 year	Did not change	Increased slightly	Did not change	Did not change	Decreased significantly	Increased slightly	No	Yes	No	Yes	Did not change	None	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Travel restrictions;Sanitizers and face masks at the office;Limited amount of people at the office	In summer few Office days, other that that full remote work	Rather more challenges than opportunities
46	2021/02/28 4:51:14 pm EET	Designer	Bachelor's degree	>10 years	Did not change	Increased slightly	Increased slightly	Increased slightly	Increased slightly	Increased significantly	Yes, from Business Finland	Yes	I don't know/Not applicable	Yes	Somewhat changed (for example: big move towards online services)	<25% of labor force	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Sanitizers and face masks at the office;Limited amount of people at the office	75-99% (4-5 days per week)	Both equally
47	2021/03/01 10:36:18 am EET	Software Developer	Master's degree	3-5 years	Increased significantly	Increased significantly	Increased slightly	Increased slightly	Increased slightly	Increased significantly	Yes, from other sources	Yes	No	Yes	Somewhat changed (for example: big move towards online services)	None	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Travel restrictions;Sanitizers and face masks at the office;Limited amount of people at the office	75-99% (4-5 days per week)	Definitely a source of more opportunities
48	2021/03/01 2:00:33 pm EET	Service Engineer	Bachelor's degree	3-5 years	Increased slightly	Increased significantly	Did not change	Decreased slightly	Decreased slightly	Increased significantly	No	Yes	No	Yes	Slightly changed (for example: small adjustments to product)	None	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to	Up to 25% (1-2 days per week)	Rather a source of new opportunities

																	online;Travel restrictions;Sanitizers and face masks at the office;Limited amount of people at the office		
49	2021/03/02 4:05:34 pm EET	Unemployed/Student	Bachelor's degree	3-5 years	Decreased slightly	Decreased slightly	Decreased significantly	Decreased slightly	Decreased slightly	Decreased slightly	Yes, from Business Finland	No	Yes	No	Slightly changed (for example: small adjustments to product)	25-50% of labor force	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Sanitizers and face masks at the office	75-99% (4-5 days per week)	Definitely more challenges
50	2021/03/02 7:00:41 pm EET	CEO/CTO	Master's degree	>10 years	Decreased significantly	Decreased significantly	Decreased significantly	Decreased significantly	Did not change	Decreased significantly	No	No	No	Yes	Significantly changed (for example: complete change of the product or business field)	None	Remote work possibility;Travel restrictions	75-99% (4-5 days per week)	Definitely more challenges
51	2021/03/02 11:32:00 pm EET	Software Developer	Bachelor's degree	>10 years	Increased slightly	Decreased slightly	Did not change	Increased slightly	Increased slightly	Decreased slightly	I don't know/Not applicable	Yes	No	I don't know/Not applicable	Slightly changed (for example: small adjustments to product)	<25% of labor force	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Travel restrictions;Sanitizers and face masks at the office;Limited amount of people at the office	75-99% (4-5 days per week)	Rather more challenges than opportunities
52	2021/03/03 1:28:53 pm EET	Software Developer	Bachelor's degree	3-5 years	Decreased slightly	Decreased slightly	Decreased slightly	Decreased significantly	Decreased significantly	Decreased significantly	Yes, from Business Finland	Yes	No	Yes	Slightly changed (for example: small adjustments to product)	<25% of labor force	Remote work possibility;Remote access and virtual meetings tools;Sanitizers and face masks at the office	Full time remotely (5 days per week)	Rather more challenges than opportunities
53	2021/03/06 4:32:38 pm EET	Software Architect	Bachelor's degree	>10 years	Did not change	Increased significantly	Increased slightly	Increased significantly	Decreased slightly	Increased slightly	I don't know/Not applicable	Yes	No	I don't know/Not applicable	Did not change	None	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online	Full time remotely (5 days per week)	Rather a source of new opportunities
54	2021/03/09 10:55:03 am EET	Software Developer	PhD	5-10 years	Decreased slightly	Decreased significantly	Decreased significantly	Did not change	Did not change	Decreased significantly	Yes, from Business Finland	Yes	Yes	I don't know/Not applicable	Significantly changed (for example: complete change of the product	<25% of labor force	Remote work possibility;Shifting customer meetings to online;Sanitizers and face masks at the office	75-99% (4-5 days per week)	Both equally

															or business field)				
55	2021/03/14 11:18:29 am EET	Software Developer	Master's degree	3-5 years	Increased slightly	Decreased slightly	Did not change	Did not change	Decreased slightly	Decreased slightly	Yes, from Business Finland	Yes	No	Yes	Slightly changed (for example: small adjustments to product)	None	Remote work possibility;Remote access and virtual meetings tools;Shifting customer meetings to online;Sanitizers and face masks at the office;Limited amount of people at the office	75-99% (4-5 days per week)	Definitely more challenges

Appendix 3. Open feedback results of the survey on COVID-19 impact for ICT professionals in Finland

	Please, write a few words about how COVID-19 pandemic influenced you as a specialist of an IT field. What was unexpected, what challenges you personally faced, how the industry changed in your point of view or anything else you noticed.
1	n/a
2	The companies in the consulting sector had less customers during the year due to less financing for the services that were not crucial. In the company that I worked with, they did decide to use the situation to get new opportunities in the online sector, hence my employment. The possibility to work in the office was quite good, but everything on remote was a bit less productive and less supported by the company. Common time was definitely much better in terms of employment and employment benefits in my case. All sorts of design work always goes better face-to-face, as well as brainstorming and other pre-coding steps. Coding online can be good enough, but might also be challenging due to different issues not discussed properly beforehand.
3	Company did not provide sufficient support to create a work environment at home. By the time they started giving displays, for example, I have already spend a significant amount of personal finances on creating a workable environment at home: furniture, computer hardware, faster broadband connection, computer peripheral equipment
4	n/a
5	n/a
6	Well. We had already worked remotely a couple days a week, so change to full time was not so much of an issue. Some brainstorming meetings are a bit more difficult. Recruiting team members remotely has worked pretty well. Worst is not being able to organize team gatherings so easily. Also work feels a bit more like a chore than before.
7	n/a
8	To me, most part of every day communications have always happened at work, so now I am feeling that I am losing my communication skills, and my oral speech level in English decreases too.
9	n/a
10	Lines between work and own time have never been so blurred. I need some r&r.
11	I lost my job
12	n/a
13	n/a
14	The biggest change for me personally was moving to 100% remote work, which I ultimately found to be beneficial for the level of my job (and life) satisfaction. Although initially I struggled with motivation and productivity, eventually I adjusted to the new circumstances and routines and I actually found that I am more productive while working from home. Although it is evident that even our industry took a rather big hit during the pandemic, I personally feel optimistic about the future, because I believe that when the challenges presented by the situation are finally overcome, it will be evident that the opportunities that came with the crisis are invaluable.
15	n/a
16	n/a
17	Communicating with co workers was more difficult and news of company stuff did not reach everyone.

18	Remote work has pros and cons. A careful balance needs to be maintained so communication does not suffer, as lacking communication will significantly reduce progress made on projects.
19	Had to adapt to situation and focus on products/services to that help others in pandemic
20	n/a
21	n/a
22	COVID didn't have much effect on my work
23	n/a
24	n/a
25	Our XR Business Unit's revenues increased while revenues for the whole company decreased.
26	I've been always travelling for work, past years around 200 days/year. That obviously changed. People are now more open to remote meetings, but I still doubt their willingness to buy from an unknown start up a solution which would replace existing (and working) solution. So for less known companies, meeting f2f, building trust onsite is/will still be necessary. I've been working remotely (note: not just WFH) for the past 10 years. Covid didn't change that too much. But of course instead of working remotely, we now work from home. Meaning the social interactions with customers & partners is close to 0. Regarding customers/verticals we serve, when the first lockdowns hit the markets, all live sports was terminated. So those customers who based their business on live sport streaming & ad financing more or less disappeared. We had to find new use cases (which we did, but had to develop our offering accordingly)
27	In general, I didn't face much challenges at work during pandemic, the biggest difference is remote work which seems even more productive than office work. Our company's revenue has increased and we hired new employees, also everyone now has an option to permanently work remotely, I think it creates new opportunities for company and employees.
28	Nothing has changed. I am a cat, I have paws
29	Pandemic is time to learn and earn money
30	n/a
31	Organizing yourself is sometimes difficult but even then I believe I do better quality work. One problem is that I do work more often during weekends
32	It was unexpected to be working remotely for so long, and definitely challenges in some challenges in communication with colleagues, less opportunity to chit chat.
33	Remote working turned out to be not that bad as I expected, so now I may consider remote-only jobs as well. Many things changed, I think the most important insight (especially for employers) is that physical presence is not required in order to get things done.
34	n/a
35	n/a
36	more challenging to find a job
37	It's harder to maintain company culture as there's not much you can do as a group and the casual coffee talk isn't there anymore. It's now even more clear how valuable self-organizing and clearly communicating people are.
38	Remote working is not ideal for juniors or enthusiasts who need/want to build networks with other people. But I find it relieving that at least, remote working is equally unideal regardless of your citizenship/ethnicity.
39	n/a
40	Nothing has changed. I am a cat, I have paws
41	n/a
42	My view is slightly off the average I guess, because I switched to fully remote work 1 year prior to the beginning of the pandemic (due to personal reasons) so I have already faced all work-related challenges during that period. So for me the work just continued normally, with

	some minor adjustments (like before the pandemic I would go to a business trip once in a while and now I don't)
43	n/a
44	My own freetime has increased (2.5 h daily travel to the office), productivity has also increased although (work)day is split in to several parts now. Some challenges showing latest tech and gadgets to customers because on meeting restrictions (on their side).
45	Long meeting days exhausting remote. Getting help and tips harder. Harder to discuss with team quickly
46	My own freetime has increased (2.5 h daily travel to the office), productivity has also increased although (work)day is split in to several parts now. Some challenges showing latest tech and gadgets to customers because on meeting restrictions (on their side).
47	Our company operates in the Health Tech field, so the pandemic with its increased focus on health and well-being actually brought us way more opportunities than challenges. We experienced a significant influx of customers, which resulted in a drastic increase in the company's revenue and a promotion for me :) Thank you Corona!
48	Healthcare technology sector in general has not suffered during the pandemic, which meant that I've had my hands full. Our business model specifically has benefited from the pandemic, as our technology prevents spreading viruses and aerosols compared to competitors. The remote working methods are definitely here to stay, at least in our company.
49	I was laid off somewhere in the middle of the pandemic, because the client froze the project I was on.
50	Customers cancelled contracts. Replacement sales could not be obtained.
51	It has been a two side sword, it has benefited some aspects but affected negatively others. It has blurred the line separation between work/life balance
52	In my opinion, the impact of Covid-19 depends on the industry which the company is serving.
53	Working from home has been great!
54	The shift to remote work made changing IT company threshold much lower. I took advantage of this and changed to company whose policies and practices better match my philosophy of low and transparent organization.
55	n/a