Effects of Remote Business During the Covid-19 Pandemic - A Literature Review

D. Tomić[1*], K. Vizinger[2]

ABSTRACT

Remote work as a form of business has been used for many years, but not in all industries. In the midst of a pandemic caused by the COVID-19 virus, this way of working has become an inevitable form of business. Overnight, one had to adjust to the "new normality" and accept a new way of working from home. This way of working has positive and negative effects on the job itself and on the individual. These issues have been addressed in a number of studies that have identified different impacts of distance business on productivity, as well as on all participants in the business process. Research shows that there are a number of positive effects on employees of different companies, but also some negative effects. Most of the research covered by this paper, 81.82% of them, found that this way of working has no negative effects on productivity. Also, 63.64% of papers showed that the consequences for employees are mostly positive. Remote work has had a number of implications for businesses and individuals as it has become more widespread, particularly during the COVID-19 pandemic. While it has been shown to have mostly positive effects on productivity and employee well-being in many studies, there are also some negative impacts that have been identified. It is important for businesses and individuals to carefully consider the benefits and drawbacks of remote work and to implement strategies to address any potential negative effects.

INTRODUCTION

The century we live in has brought many changes in the way we do business, in the ways we communicate, but also in our lives in general. Computers, the Internet and the development of various applications have made the world much different than in previous centuries. Using technology, people have changed themselves and the world around them. They have adapted to change by introducing new possibilities into everyday lives, year after year. Of course, these technological changes have also affected the business world, which has become faster and more flexible. Some things ten or twenty years ago were still science fiction.

The development of mobile devices and the ever-increasing possibility of Internet communication have brought countless possibilities to the business world and now it is as if the whole world lives in this science fiction. Business outside the office, thanks to various applications, primarily those for communication, has become commonplace. But still, it all came as a surprise when they had to switch almost completely to new ways of working overnight. The COVID-19 pandemic, which has been burdening us since 2020, primarily in terms of health, has also threatened the business world. With the appearance of the pandemic, many were concerned about the question: 'How will we organize remote business?'. Remote business has expanded more and more in recent years to most geographical areas, but still not as fast as during the COVID-19 pandemic. Quarantine, isolation and the rest, however, forced millions and millions of people to work from home. At the beginning of the pandemic, working from home was the biggest problem

due to lack of experience and knowledge of this type of work, but after a year, remote business became 'new normal'. Most employees will return to offices when the pandemic ends, but certainly more and more employers will apply a hybrid business model. Working from home raises a wide range of problems and challenges for employees and employers. Companies are thinking about how best to train their employees and how to provide them with the necessary infrastructure to work remotely. On the other hand, employees struggle to find the best balance for collaboration and remote business. In its research, McKinsey Global Institute (2020) defined in detail the activities and occupations that can be done from home to better understand the future power of remote business.

The potential for telecommuting - or work that does not require interpersonal interaction or physical presence in a particular workplace - was analysed in a number of countries: China, France, Germany, India, Japan, Mexico, Spain, the United Kingdom and the United States. To determine the total potential for teleworking for jobs and sectors, time spent on various activities within the occupation was used. They found that remote work potential was concentrated in several sectors. Finance and insurance have the greatest potential, with three-quarters of the time spent on activities that can be done remotely without losing productivity. The next biggest potentials have management, business services and information technology. These sectors are characterized by a high proportion of workers with a university degree.

The study will deal with the impact of remote work, in the mentioned circumstances, on labor productivity

[1] Faculty of education, Osijek, Croatia
[2] Croatian Association of technical Culture, Zagreb, Croatia
* Corresponding author's e-mail: tomic.damir.dj@gmail.com

through a review of previous research on this topic. Also, the effects of such work on business process participants will be examined.

Given the new situation caused by the COVID-19 pandemic, it was necessary to investigate how it affects business productivity and to investigate the positive and negative impacts on such work. With the growing influence of multimedia and various communication platforms in modern times, it is to be expected that most will cope well in situations like this. The purpose and goal of this research is to determine the possible advantages and disadvantages of previous research related to the problem caused by the COVID-19 pandemic, i.e., how it affects business productivity and to explore the positive and negative impacts on such work. Scientific research methods are manifested in searching databases and those articles that are closely related to the problem of work. The results obtained will be displayed at the percentage level. According to the collected research, it will be determined where in the world the most research is conducted related to this issue. It will also determine which sectors, i.e., types of work, are most covered by research on remote operations during the pandemic and which structures of employees and users of services are the subject of research.

LITERATURE REVIEW
Literature Review of Previous Research Related to Remote Business

The number of scholarly articles, blogs, commentaries, essays, perspectives, podcasts, tweets and vlogs related to COVID-19 has grown and is still growing exponentially, all within months, not years. All of this is independent of the type of business to which these works relate, as well as whether it is about work in a particular country or about work that takes place between subjects of different countries. As for the short-term consequences, there is a broad consensus that the world's lockdown responses in one country after another will wreak economic chaos. The longer it takes until the virus is adequately contained with an effective vaccine or treatment, the deeper and longer the economic fallout will be. However, when it comes to long-term diagnosis, scientists do not agree. At one extreme we find those who claim that COVID-19 is a one-time disaster, after which the global economy will return to its "old normal" pre-corona state. At the other extreme, the argument is that the world is experiencing radical disruption that will create a "new normal," and scientists are speculating about a whole range of different "new normals" in the world.

Many studies dealt with communication problems even before the outbreak of the pandemic. The global economy has set some new frameworks in which entrepreneurs operate. Remote business has been advanced in some specific jobs for a long time. Of course, the IT sector is dominant, but there are also some specific systems where an increased need for this type of business can be expected.

Thus, in the book Beautiful But Costly: Business Costs in Small Remote Economies, trading economies and their ability to generate competitive exports are problematized. Crises like this further erode trade, especially internationally. (Winters and Martins, 2004)

Author Wolfe (2020) points out that companies must be prepared for a workforce that lives in different environments and provide remote work. As the pandemic has made clear, events beyond the control of companies or even governments can suddenly affect the ability to do business as usual. Ensuring remote and virtual work in any situation will become the "new normal". This will help reduce unnecessary travel, reduce costs and become a greater motivator.

Wolfe (2020) states that working from home eliminates commuting, which for many could be up to an hour or more each way per day, and that is plenty of time for exercise, family, meditation, reflection, health and wellness - everything you need in a pandemic. The future of service workers is likely to involve a combination of some office socialization, collaboration and meetings combined with working from home or remotely. This will enable companies to tap talent wherever they live. It can also reduce expensive office space by designing spaces for work to be done together rather than individually.

However, if a full-time in-office employee had a good relationship with their manager before the pandemic, but prefers to work remotely after the pandemic, the nature and quality of that relationship may change. Furthermore, because the job design allows for frequent social interaction, subordinates learn a lot from observation and interaction with their superiors. These interactions also enable supervisors to identify their subordinates human resource development needs and design interventions accordingly. (Varma *et al.*, 2022)

Here is a brief overview of important research on remote work during the COVID-19 pandemic as an introduction to the issue of using this form of business during the pandemic, but also in the time to come.

"Working from home" refers to the act of completing one's job duties outside of the traditional office setting. According to Savic (2021), this can involve being an employee of a company or organization, taking on specific tasks for a company or organization, conducting work outside of the company's physical location, and communicating with one's employer through telecommunications.

As COVID-19 has forced companies around the world to allow their employees to work from home, teleworking has become extremely important in business. The need to give employees access to all the tools they need to work from home was quite urgent for most employers. But once everyone has adapted, what quickly became apparent to many is that employees can be productive and focused even when they are not in the office - in many cases, even more than when they are. Employers have begun to realize that telecommuting really works. (Courtney, 2021).

According to the same author, there are at least 10 benefits of working from home: better work-life balance, less stressful travel, workplace independence, improved inclusiveness, saving money, positive impact on the environment, positive impact on sustainability, flexible office, increased productivity and performance and a happier and healthier working life (Courtney, 2021).

The impact of the global COVID-19 pandemic, both in health and economic terms, has affected SMEs around the world. Research conducted by Islam *et al.*, addresses the challenges of telecommuting in SMEs and solutions during the COVID-19 pandemic in Bangladesh. Based on a qualitative approach, interviewing 14 SME owners, advisors, civil servants and professors, they identified several challenges such as financial constraints, bureaucracy, lack of knowledge and interests, communication problems, high employee turnover and difficulties in finding a reliable employee who implements remote work practices. The study also improved some solutions such as persuasion about the benefits of remote business practices, government rules, financial incentives, IT courses and online courses at universities on the application of homework in SMEs not only during the COVID-19 pandemic but also long term. (Islam, *et al.*, 2020)

The current crisis has forced companies to adapt quickly to the new reality, opening everyone's eyes to new, faster ways of working with customers, suppliers and colleagues. Many CEOs are wondering what will be needed to sustain this form of work for as long as possible. The companies that took the lead in adopting the new organizational model showed significant improvements in both pace of execution and productivity. This was maintained during the crisis, as we see a direct correlation between agility in the pre-crisis period and the time it took companies to launch the first crisis-related product or service. (Baig, 2020).

A survey conducted by Akpan *et al.*, in 2020 confirms that the development of the global economy and a very strong competitive business environment prove that cutting-edge technology is key to strengthening competitive advantage and ensuring survival. Now that the world is at the beginning of the fourth industrial revolution in which technology and innovation will drive operations and dictate pace, SMEs, despite limited financial resources, can use the cloud computing option now readily available for various information systems platforms. The Cloud option requires little or no expense, is affordable and can be implemented with minimal technical expertise. In addition, there are now low-cost technologies that can help small businesses with virtual operations in community lockdown situations, such as cases that occur during the COVID-19 pandemic. In today's competitive business environment, growing small businesses with smart cutting-edge technology can create and sustain competitive strategies and lay the groundwork for long-term growth and market leadership. Furthermore, the emergence of the COVID-19 pandemic offers an opportunity to re-emerge a new generation of entrepreneurs who will lead the next industrial revolution and invent new ways of doing business using cutting-edge technology. (Akpan, *et al.*, 2020a)

RESEARCH METHODOLOGY

By studying previous research, it was necessary to find papers that answer key questions. The research was conducted during 2021 and 2022 in the Google Scholar database on the following terms:

 a) remote business

 b) COVID-19, covid, benefits.

Inquiries in the mentioned database resulted in articles that are systematized in Table 1.

The purpose of the synthesis work is research that will answer the following research questions:

 Q1: What is the impact of remote business, resulting from the COVID-19 pandemic, on productivity?

 Q2: How does remote business affect the participants of the business process, i.e., what are the positive and negative impacts of this kind of work?

Table 1 provides an overview of all analysed empirical research together with systematized basic data on papers. Columns are presented that provide information on the type of work, the method of data collection, the profile of the respondents as well as the country in which the research was conducted.

The following are columns that answer research questions for each paper; P1 shows the response that can be positive, negative or the impact cannot be determined, while P2 also indicates the type of impact identified. If a given research question is not considered in the paper, it will be marked separately.

Table 1: Overview of analysed research and their characteristics

no	Study	Type of work	Method of data collection	Profile of respondents	Country in which the survey was conducted	Q1	Q2
1	Courtney, 2021	All	Bases	Employees, executives	United States	+	+Independence of place
2	Kniffin, *et al.*2020	All	Bases	Employees	United States	+	+ - loneliness
3	Wang, 2021	All	Interview	Employees, executives	China	+	- loneliness
4	Bartik, *et al.*, 2020	Retail	Poll	Employees	United States	0	0

5	Donald, 2020	Individuals, companies, gov.	Bases	All	United States	+	+ lower costs
6	Pedersen, *et al.*, 2020	All	Bases	Employees, executives	United States	0	0
7	Baig, *et al.*, 2020	All	Bases	Employees, managers,			0
8	Craft, 2020	Libraries	Poll	Employees	United States	+	0
9	Akpan, *et al.*, 2020	Small businesses	Bases	Employees	United States	+	+Increased use of platforms
10	Ali, *et al.*, 2021	Rural population	Poll	Unemployed	United States	+	0
11	Fitzpatrick, *et al.*, 2020	All	Interview	Executives	United States	+	- Communication problems
12	Islam, *et al.*, 2021	Small and medium enterprises	Interview	Owners, consultants, government officials	Bangladesh	0	- Communication problems
13	Akpan, *et al.*, 2022	Small and medium enterprises	Bases	All	World	+	+
14	Witteloostuijn, 2021	All	Bases	All	World	+	+
15	Savic, 2020	All	Bases	All	World	+	+ Digital transformation
16	Davies, 2021	Rural economy	Bases	Rural inhabitants	World	+	+ Opportunities for new jobs
17	Burrell, 2020	Cyber security	Bases	All	World	+	+ Improving cyber security
18	Moore, 2019	Small and medium enterprises	Interview	Executives	Poland	+	+ lower costs
19	Tongkum, *et al.*, 2022	Small and medium enterprises	Poll	All	Thailand	+	+ lower costs
20	Rometsch, *et al.*, 2022	Small and medium enterprises	Interview	Employees	Germany	0	- lack of physical activity
21	Stubstad, 2022	Small and medium enterprises	Bases	All	United States	+	+ Increased productivity
22	Lourenço, 2022	Banking	Poll	Employees	Portugal	+	+ motivation

(*Source: According to research conducted by the authors*)

Analysis of Results

The number of scientific articles, blogs, comments, essays, perspectives, podcasts and tweets, has grown and continues to grow exponentially, all within months, not years. All this is independent of the type of work to which the work relates, as well as whether it is work in a particular country or work that takes place between entities of different countries. As for the short-term consequences, there is a broad consensus that global lockdown responses in one country after another will produce economic devastation. The more time passes until the virus is adequately controlled with an effective vaccine or treatment, the deeper and longer the economic downturn will be. However, when it comes to long-term diagnosis, scientists do not think the same. At one extreme, we find those who claim that COVID-19 is a one-time disaster, after which the global economy will return to its 'old normal' state. At the other extreme, the argument is that the world is experiencing a radical disorder that will create a 'new normal,' and scientists are speculating about a whole host of different 'new normal' states in the world.

Many studies have addressed communication issues even before the pandemic broke out. The global economy

has set some new frameworks in which entrepreneurs operate. Remote business has advanced in some specific businesses for a long time. Of course, the IT sector is dominant, but there are also some specific systems in which an increased need for this type of business can be expected.

Among developed countries, the Anglo-Saxon world is particularly vulnerable and therefore very likely to suffer from labour market disturbances awaiting the post crisis future. The reason is that the advantage of having their native language (English) as the 'world language', which they have benefited from for so many decades, will turn into a disadvantage. Finally, many outside the Anglo-Saxon countries are fluent in English well enough to emerge in the post crisis world as fierce competitors to their Anglo-Saxon counterparts who will perform the delocalized modular jobs and tasks in many parts of the world. (Witteloostuijn, 2021)

On the other hand, globalization is likely to increase the demand for jobs and tasks that can be performed from less developed countries or more remote regions. In part, within the club of rich countries, workers outside the major economic agglomerations where most business activities are located can see their job potential and how their prospects improve, as they can offer their services from anywhere and anywhere. However, the main shifts could be those from developed to less developed countries. As happened during the beginnings of globalization when capital moved from rich parts of the world to poor parts of the world, now the opposite is happening, jobs are done in poor countries because the way of doing business no longer requires workers from those countries to move to richer countries. If the workforce in these less developed parts of the world manages to adapt to a skills-based economy with a large market for modular jobs and tasks, this opens up great opportunities to encourage their further development. (Witteloostuijn, 2021)

Many studies deal with this topic and especially highlight the problem with the experience that both employers and employees lacked, and when we talk about the transition to this form of business.

Most workers had little distance work experience so neither they nor their organizations were willing to switch to this form of business. The outbreak of the COVID-19 pandemic in 2020 required millions of people around the world to become remote workers, inadvertently leading to a global telecommuting experiment. Working from home has become a new business norm almost overnight. (Kniffin, *et al.*, 2020)

A study conducted in China explored the challenges faced by workers who were working from home due to the COVID-19 pandemic, and examined how individual differences and performance characteristics affected these challenges. Through interviews with Chinese employees who were working from home, four main challenges were identified: the impact of working from home on work, the effectiveness of communication, the potential for delays in fulfilling obligations, and feelings of loneliness. Additionally, four characteristics that influenced these challenges were identified: the amount of social support available to employees, the level of autonomy in their job, the extent to which their work was monitored, and the workload they faced.

One key factor of individual difference has been identified, namely the self-discipline of workers.

In the second part of the study, using a survey of 522 employees who worked from home during the pandemic, it was found that performance characteristics are related to work performance and worker well-being through experiential challenges. Social support was found to be associated with lower levels of all remote challenges; job autonomy, i.e., the fact that the employee is far from the office and has greater autonomy in performing the work, associated with his loneliness; workload and supervision are associated with major disturbances in the house; and workload further associated with less work prolongation. Self-discipline was a significant mediator among several of these relationships. (Wang, *et al.*, 2020)

A study conducted in 2020 indicates how the outbreak of the COVID-19 pandemic around the world has forced companies to innovate and change the way they work. Offices have become less important, and working from home has suddenly become mandatory. This sudden need for work from home has triggered the digital transformation of the workforce and the development of the work environment at an unprecedented rate. The mass adoption of telecommuting has become a vital business change since the virus outbreak. This scientific paper considered this unprecedented impact of the pandemic on the sudden demand for work from home and the subsequent impetus for the digital transformation of the workforce, emphasizing that it is good that this change in work philosophy remains there after the pandemic. (Savic, 2020)

In all of this, the business world had to react quickly. Within days, companies were asked to improve their remote collaboration skills. Video conferencing, online shopping, special deliveries, telemedicine, e-learning, e-commerce, online marketing, video streaming and many other IT-enabled processes have undergone a transformation, replacing traditional ways of working. The digital transformation covers a wide range, including maximizing the use of modern information technology, which is gaining in importance due to COVID-19 and is becoming widely recognized and accepted by employers and employees. The transformation of the workforce from worker to digital worker is a crucial step forward for digital transformation. Organizations that have improved their IT capabilities and hired their employees to work from home are in a much better position not only to survive these unprecedented circumstances, but also to more easily overcome the short-term and long-term challenges that will inevitably follow. (Savic, 2020).

The following scientific paper considers whether the COVID-19 pandemic will bring employees of an

organization closer together or separate them. The authors point out that organizations that balance profit, ethics and compassion during the COVID-19 pandemic will keep their existing staff loyal. These organizations will also attract new employees and gain consumer support based on a positive perception of their business culture. Equally, organizations deemed to have acted inappropriately will experience reduced motivation, reduced productivity, and increased departures rates of their staff. They will also fight to hire new staff and risk boycotting consumers by threatening their long-term sustainability. (Pedersen and Ritter, 2020)

Pandemic and the resulting public health measures required that many workers be allowed to work from home. The question is whether a temporary transition that will allow workers to work from home can become more permanent and how this will shape the spatial distribution of employment opportunities and, on the other hand, the workforce. Davies focuses on the potential of ICT working from home to reshape employment opportunities in rural areas. Given that limited local employment opportunities are a major driver of rural emigration, providing rural residents with access to a wider range of employment through ICT can result in long-term changes in rural migration. Despite the potential of ICT to support telecommuting, acceptance in rural areas is relatively low. This paper argues that the recent increase in the use of ITC-supported home work arrangements, promoted by public health measures, may have two main barriers to participation in teleworking - negative employer perceptions of working from home and limited knowledge in the workplace on how to manage a partially or completely remote workforce. For the rural population, a rapid transition to ICT-supported work from home is likely to open up a variety of employment opportunities. However, still for some rural areas and populations, the digital divide between urban and rural areas remains an obstacle to participating in telecommuting through ICT. (Davies, 2020)

ICT-supported telecommuting is usually negotiated between employees and managers, and there is a noticeable diversity in the way people participate in telecommuting through ICT and perceived benefits for employers and employees. Throughout the ICT-supported remote business research literature, broad insights into the behaviour of workers and employers and their experiences include: Engaging in ICT-supported work from home can enable workers to improve work-life balance. This in turn refers to employee satisfaction, performance and retention; Engaging in ICT-supported work from home allows workers access to work they would not otherwise be able to because of the distance they would have to travel between their home and their place of work; Employers have shown that by participating in ICT-supported remote business they are able to expand jobs beyond the usual scope and overcome the problem of labour shortages; Isolation of workers can be a problem for both employers and workers. There are a number of research papers that talk about different strategies in the workplace (at the employer) and at home (at the workers) to address and manage the workers sense of isolation. (Davies, 2020); For employers, ICT-supported teleworking can result in reduced office-related costs, lower recruitment costs and staff turnover, and enable increased worker productivity. (Urbaniec, et al., 2022)

Some research has addressed the issues of unemployment and education of the unemployed. The problem of unemployment was very pronounced even before the outbreak of the pandemic in rural parts of the US state of Utah.

Rural Online initiative, USU Extension has created a Master Remote certification course Work Professional, specialized training that provides rural residents with the skills needed to work remotely. Although this started before the pandemic, the importance of distance employment opportunities has further increased in rural communities affected by COVID-19.

As of October 2018, about 1,298 participants have completed such a course. The evaluation of short- and medium-term outcomes showed changes in participants' knowledge, attitudes, skills and aspirations towards seeking remote employment. The results showed a statistically significant increase in students' knowledge after completing the course. Although 63% of participants did not have distance work experience, the majority (92%) stated that it is important or very important to acquire distance work skills. This included participants who experienced job loss due to COVID-19 and were eager to acquire teleworking skills. On average, participants had high overall average scores of all teleworking skills; participants felt that after the course they have better skills in balancing their professional and personal life, to better manage their professional and personal life which has become more productive, to solve problems better, to communicate better digitally, to use internet technology easier and better, that they are more successful and adaptable to teamwork and manage their own careers.

A large number of 97% of participants felt that the value of remote workers had improved, and 96% were encouraged to look for a remote job after completing the course. Follow-up surveys showed that 167 out of 560 active job seekers found a job remotely. In response to COVID-19, about 36% (123 participants) started working remotely. One participant said: '... due to restructuring, I was fired from my previous job. After five long months of unemployment due to COVID, I have a new job as a payroll controller. I am so excited about my employment, my new position and the company I work for! In addition to bringing in a nearly 40% salary increase, there are opportunities for new responsibilities, along with other benefits.'

Considering the environmental impacts, the reduced travel time to work equated to savings of $ 997 per month for all participants who found a long-distance job due to lower fuel costs. This has further resulted in an overall reduction of 3.34 metric tonnes of carbon emissions per

month which helps promote clean air. (Ali and Hill, 2021,) The unexpected disruption caused by COVID-19 has accelerated the transition to virtual systems in the workplace and for employees in government, businesses and the military. The accelerated transition to the entire organization of telecommuting has also created new complex challenges around managing cybersecurity risks. Complex business and government organizational systems have several significant and critical work tasks around cyber security. These roles are responsible for functioning as effective teams for handling incident responses, intrusion assessments, crisis management, crisis communications, forensic data testing, malware analysis, firewall assessments, disaster recovery, emergency response planning, risk management, analysis human factors, training assessment and active network monitoring. Qualitative research conducted by Burell in 2020 explores the nuances of employee engagement, organizational development, and managing virtual and remote cybersecurity teams in ways that enhance complex business and organizational systems in the professional world. (Burell, 2020)

The use of information technology and virtual teams provides significant benefits to individuals and organizations, but also poses significant information security risks or, more specifically, cyber security risks. Accessing elements of virtual teams from a holistic perspective contributes to a strategy and end result called the 'Virtual Team Cycle of Success'. Once leaders embrace this cycle of success and establish processes and policies focused on this theory, work performance among virtual teams will improve. As the market continues to evolve, more and more organizations will be forced to turn to virtual teams to accomplish the task and operate effectively. Organizations that discover how to accurately lead and use virtual cyber security teams will ultimately create for themselves an extremely useful and potentially sustainable competitive advantage. (Burrell, 2020).

A study conducted in the U.S. on more than 5,800 small businesses provided insight into the economic impact of the COVID-19 pandemic on small businesses. The results also shed light on the financial weakness of many small businesses and the significant impact that COVID-19 had on those businesses in the weeks following the onset of COVID-19 related disruptions. The results also provide evidence of the company's expectations of the long-term impact of COVID-19, as well as their perception of the assistance program offered by the government.

Small businesses employ nearly 50% of American workers. The results of this research highlight the financial fragility of many small businesses and how much they have been hit hard by the current crisis. In this sample, which is based on the retail sector, it was found that 43% of businesses were temporarily closed and that employment fell by 40%. The results of this study suggest that many of these companies had little cash available at the start of the pandemic, which meant they had to dramatically cut costs, take on additional debt or declare bankruptcy.

(Bartik, *et al.*, 2020)

During teleworking, a problem occurs that involves engaging in physical activity (sport) and this has a worse effect on health than before the pandemic. Respondents do less sports than usual, although there were certainly opportunities for that. This is due to a lack of motivation for physical activities that have arisen as a result of the pandemic. Regardless of existing health awareness, self-organized integration of exercise into daily life is becoming increasingly difficult. (Rometsch, *et al.*, 2022)

Teleworking shows clear benefits for both the employee and the employer to potentially improve productivity. As part of the study, the working report states that in the US, hourly labour productivity increased by 3.2% in 2020 compared to 2019, the highest annual growth since 2010. (Stubstad, 2022)

Another study looks at the impact of the pandemic on small businesses. Akpan, *et al.*, conducted one such study in the United States. Evidence from research and results clearly show the slowness with which small businesses adopt or are willing to implement state-of-the-art technologies beyond the regular use of conventional information technology infrastructure.

In addition, this paper went a step further to assess cases where technologies that small businesses considered too advanced in the past and under normal conditions suddenly became crucial when companies became forced into new situations and survival needs, such as erupted in the event of a pandemic (COVID-19). Despite the inadvertent adoption of information technology during the global health pandemic to survive disruptions in small business models, the fact remains that advanced technologies can offer significant benefits while still not being too expensive. For example, the use of virtual reality platforms seems accessible to small businesses, platforms such as the use of virtual teams, and Zoom platforms to provide services in small business meetings. Likewise, printing 3D face masks and other health supplies has proven to be easier for small businesses than traditional models of technology adoption have often suggested. Further studies should continue to emphasize the role of state-of-the-art technologies as the world moves towards a fourth industrial revolution. (Akpan, *et al.*, 2020b, p. 8)

The fourth industrial revolution (or industry 4.0 - I4.0) is the constant automation of traditional production and industry, using modern smart technology. Machine-to-machine communication (M2M) and Internet of Things (IoT) are integrated for increased automation, improved communication and self-control, and the production of smart machines that can analyze and diagnose problems without the need for human intervention. (Moore, 2019)

The Internet is the foundation of the I4.0 paradigm, enabling others to use technology dependent on this digital communications infrastructure. The Internet enables the interaction between separated people and machines in I4.0 through global addressing and universal communication service. (Aceto, *et al.*, 2019)

The development of networks based on Ethernet and

wireless networks in digital communication has led to the emergence of IoT. Similarly, the proliferation of mobile personal communications and wireless local area network (WLAN) technologies has significantly reduced the cost of connecting mobile devices to the Internet. (Ande, *et al.*, 2020)

The noticeable increase in I4.0 has further encouraged migration to the Internet Protocol Version 6 (IPV6) due to the need to identify and provide unique addresses for billions of cyber -physical systems. Thus, without the capabilities provided by the Internet, paradigm I4.0 would not be different from the scenario produced in the 3rd Industrial Revolution. In the absence of the Internet, a wide range of automation tools and devices, enabled by electronics and computer advancement, would be forced to act as stand-alone parts, which would severely limit the possibilities offered by integration and interaction. (Akpan, *et al.*, 2020a)

Organizations that continued to recruit during the COVID-19 pandemic had to accept online interviews due to social exclusion regulations and restrictions on national and international travel. For many companies, this has been a major shift from the traditional face-to-face approach. However, this offers several opportunities to develop the employment process in the economy after COVID-19. For example, online interviews combined with telecommuting significantly increase the opportunities available to businesses and can help reduce the costs associated with physical office space. Organizations should invest in technology infrastructure to support telecommuting, but in return they could promote a green agenda and offer a work-life balance to new employees (Donald, 2020). This highlights the interconnected and interdependent interactions of different actors within the career ecosystem. (Baruch, 2015)

Employers who want to succeed in digital-driven recovery need to quickly reset their digital programs to meet new customer needs.

They need to support systems and adjust organizational models and technology packages to work at maximum effective speed. In other words, managers need to focus their 'digital' action on the right goals and execute them quickly. It is important to set goals at the beginning and regularly measure progress towards them. Achieving parity or improvements through digital channels to win the revenue race, rebuilding the most critical decision support models and doubling the pace of development are goals that are within everyone's reach. (Baig, 2020, p. 8).

In 2020, Fitzpatrick *et al.* conducted a survey where they asked directors five questions: do they have clear goals and ways to achieve them, what role should business organizations play in accelerating entry into new markets or access to new customers, how can they take advantage of a faster operating model to increase speed in their business, how should they rethink their giftedness strategy to have the necessary people when recovery begins, and what investments are most needed to create a technological environment that allows their company

to thrive in the next normal period. Many surveys have been conducted by interviewing employees or owners of these companies, and some have addressed the views of directors. (Fitzpatrick, *et al.*, 2020)

These questions clearly show that new circumstances impose a rethinking of goals and that the new organization of work and access to new customers or clients largely depends on business models based on human resources and their talent in navigating the technological environment. It is all a pledge for business survival in the circumstances of the pandemic, but also a pledge needed to start when the recovery begins.

How the crisis will affect the future and what consequences this situation will have on business, time will tell. But some things can already be assumed.

So far, the vast majority of company executives have digitized at least part of their business to protect employees and, as a result, serve clients facing mobility constraints caused by the COVID-19 crisis. As one CEO of a large technology company recently stated, 'We are witnessing what will surely be remembered as the historic setting of telecommuting and digital access to services in all domains.'. (Baig, 2020).

Digital transformation is emerging as a driver of great change in the world around us. The potential benefits of digitization are clear, including increased productivity, safer operations, and significant savings. (Tongkum, *et al.*, 2022)

In 2020, after the start of the COVID-19 pandemic in the United States, Craft conducted research on the impact of the pandemic on library operations. The pandemic continues to affect lives, communities and organizations across the country and around the world. Libraries have experienced a major impact on services, facilities and many other aspects of the profession, with many libraries providing services entirely online and many employees working remotely. The paper studied all aspects of teleworking on library technical services, with a primary focus on academic libraries, and considered how the history and existing literature on teleworking laid the foundations for understanding and dealing with some of the problems many libraries have. The COVID-19 pandemic is still ongoing and its full impact on technical services, libraries and life in general is not yet known. Also, the length of time that libraries will continue to work remotely due to new working conditions is unknown. There are several questions that have yet to be answered regarding the transition of library services to teleworking due to the COVID-19 pandemic. These include: how the library's technical services departments have coped with this transition, what challenges they faced and how they were addressed, the innovations, resources, and lessons learned in support of and managing this transition, how libraries have dealt with technological challenges, how they have addressed staff isolation, and how the pandemic will affect the long-term operation of libraries. Responses to these discussions and reflections on these and related topics can potentially help members of

technical services and library communities to learn from each other and apply in practice that can help staff, departments, libraries and communities. (Craft, 2020)

However, the benefits of telecommuting are shown through increased productivity and individual motivation of employees, which is the result of improved self-confidence and self-control, with a higher sense of belonging and commitment in the organization. Work flexibility has also increased, aided by technological developments. This acquired flexibility should enable employees to better organize their personal and working time. (Lourenço, 2022)

Synthesis of Results

Out of a total of 22 surveys, and according to where the surveys were conducted, (see Figure 1), five relate to the whole world, one to Bangladesh, China, Thailand, Portugal. Germany and Poland, and the remaining eleven to the United States. These figures show that the greatest interest is in the use of computer technology in business (especially after the pandemic), but also in conducting research in this area in the United States.

When it comes to the types of work covered by the research, they mainly referred to all types of work, small and medium enterprises and rural economy (Figure 2), and when collecting data, the authors relied mostly on Internet sources and various bases, interviews and surveys (Figure 3). Regarding the profile of the respondents, employees and managers of companies are in the lead, followed by business owners and users of services of different companies (Figure 4).

Figure 1: Representation of regions covered by this review *(Source: According to research conducted by the authors)*
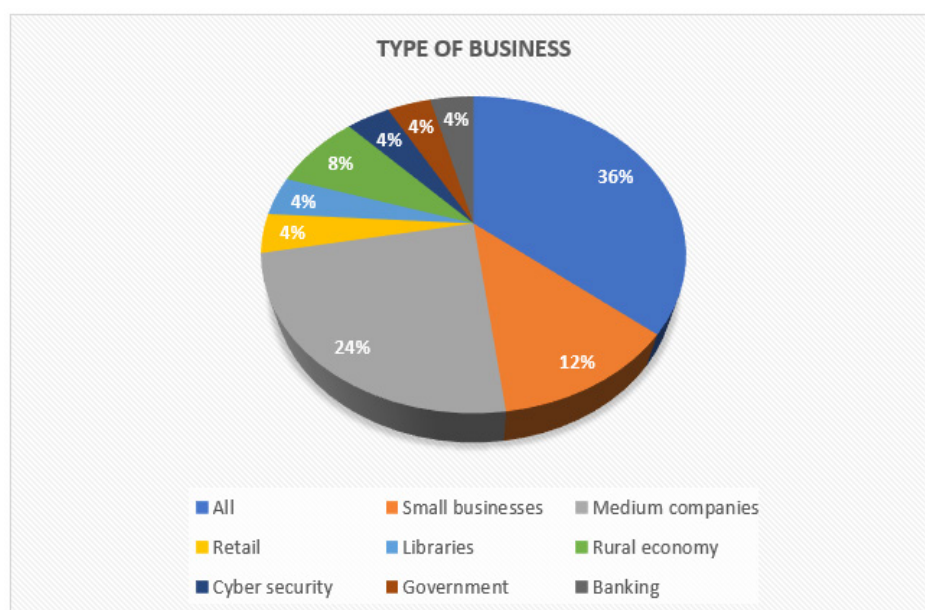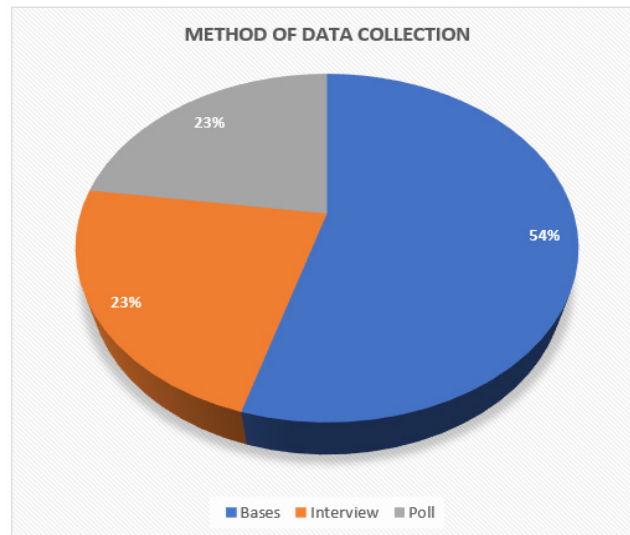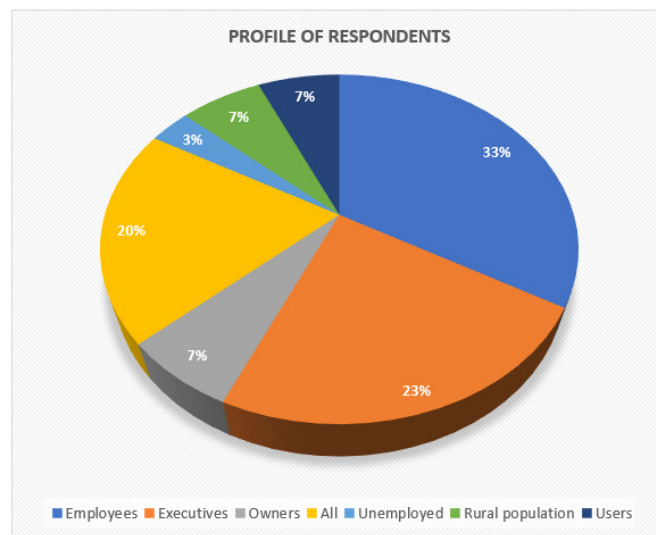

Figure 2: Representation of research by type of business *(Source: According to research conducted by the authors)*

Figure 3: Representation according to the method of data collection *(Source: According to research conducted by the authors)*


Figure 4: Representation according to the profile of the respondents *(Source: According to research conducted by the authors)*

With regard to research questions P1 and P2, the following was found:

When asked by P1, what is the impact of remote operations, which is a consequence of the COVID-19 pandemic, on productivity, 18 studies confirmed the positive effects of remote working, and 4 studies found no impact or did not address this issue (Figure 5.). Regarding the question

P2, how remote business affects the participants of the business process, i.e., what are the positive and negative impacts of this work, 13 studies found positive effects on business process participants, 3 studies found negative effects, 1 study found positive and negative effects, and 5 studies did not answer this question (Figure 6). As for the positive effects, they are: increased independence
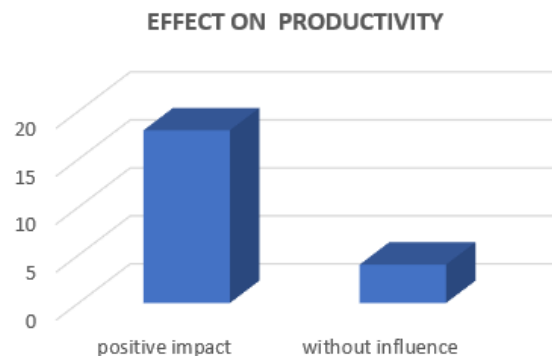
Figure 5: Research question Q1 *(Source: According to research conducted by the authors)*

IMPACT ON BUSINESS PROCESS PARTICIPANTS
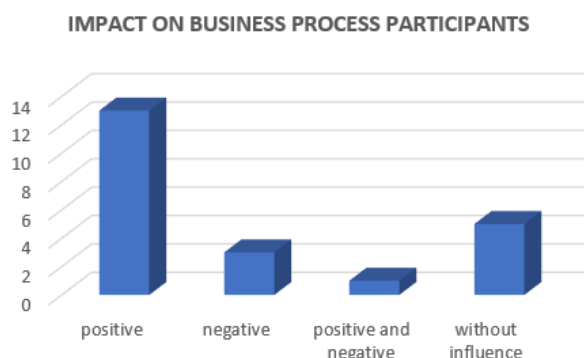
Figure 6: Research question Q2 *(Source: According to research conducted by the authors)*

from the workplace, reduced costs, increased use of communication platforms, greater employment opportunities, globalization of the workforce, digital transformation, increased job opportunities and greater concern for cyber security. Negative consequences are seen in communication problems, and especially in the loneliness that occurs in employees.

CONCLUSION

Research to date has shown that remote business has been introduced in various business sectors, as a lifeline for a faltering economy, and as a result of a pandemic caused by the COVID-19 virus. Of course, this applies to those jobs that could be transferred from the office to homes or other locations. Most of the research covered by this paper, more precisely 81.82% of them, found that this way of working has no negative effects on productivity.

Also, as many as 63.64% of papers showed that the consequences for employees are mostly positive.

It is interesting to note that a higher percentage shows that productivity has not suffered compared to a percentage that shows how many positive effects it has on employees. Namely, research has shown many negative consequences for all participants in business processes, especially employees.

Furthermore, research has shown that companies with smart cutting-edge technology can become and remain more competitive and lay the groundwork for long-term growth and market leadership. The emergence of the COVID-19 pandemic offered an opportunity to rise a new generation of entrepreneurs who will lead the next industrial revolution and invent new ways of doing business using cutting-edge technology.

This experience, which is a consequence of the pandemic, brings greater education of all participants in the business process for this way of working, but also of all people who must communicate in any way in doing their jobs. From education, medicine, the IT sector and others, to those who make decisions about security or make decisions that are important for everyday life. In addition to education, society has become more willing to change the way it works and adapt to the new situation, if it happens again.

Limitations and suggestions for further study

Examining the factors that contribute to successful remote work, such as having adequate technology and home office setup, as well as the challenges that employees face when working remotely, such as distractions and difficulty disconnecting from work. This could help identify strategies for improving productivity and well-being when working remotely.

Evaluating the impact of remote work on team dynamics and collaboration. The study mentions that a higher percentage of research showed that productivity has not suffered compared to a percentage that showed positive effects on employees. It would be interesting to study why this may be the case and how teams have adapted to remote work and the strategies they have used to stay connected and productive.

Studying the long-term effects of remote work on the labor market and the economy. The conclusion notes that the shift to remote work brought on by the pandemic could have lasting effects on how work is done and where people live and work. Further research could help understand these potential long-term impacts and inform policy decisions and help companies prepare for the future.

Investigating the use of cutting-edge technology in remote work and its impact on competitiveness and market leadership. The study mentions that companies with smart cutting-edge technology can become and remain more competitive and lay the groundwork for long-term growth and market leadership. Further research could examine how different technologies are being used in remote work and their impact on business outcomes.

Limitations of this topic include the fact that the COVID-19 pandemic is an ongoing event and much of the research on the topic is still in progress. Additionally, the effects of remote work may vary depending on the specific industry and type of work being done, so it may be difficult to generalize findings to all sectors and types of work. Finally, remote work is just one of many factors that have been affected by the pandemic, so it can be challenging to disentangle the specific effects of remote work from the overall impact of the pandemic on individuals and businesses.

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