Czech University of Life Sciences Prague

Faculty of Economics and Management

Department of Information Technologies

Master's Thesis

Impacts of workplace digitalization from the employees' perspective

Ambra Vogli

CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Economics and Management

DIPLOMA THESIS ASSIGNMENT

BSc. Ambra Vogli, BSc

Economics and Management
European Agrarian Diplomacy

Thesis title

Impacts of workplace digitalisation from the employees' perspective

---

Objectives of thesis

From the discovery of the internet to the present day, digitalization has been transforming businesses. Organizations are facing numerous challenges as well as excellent opportunities as a result of digitalization. The main objective of the research is to analyze impacts of workplace digitization.

The partial objectives are such as the following:
-to provide a general overview of how digitalization is affecting the workplace,
-to analyze employees' perspective of workplace digitalization
-to evaluate findings and formulate conclusions.

Methodology

Methodology of the thesis is based on reviewing and analyzing the latest literature which includes books, reports and reports and research papers related to the topic.

In the practical part, all the data collected from a survey will be analyzed based on employees' responses from different companies. The results will be interpreted using quantitative and qualitative methods.

Based on the evaluation of theorical and practical part, conclusions are presented.

The proposed extent of the thesis

60-80 pages

Keywords

Digital workplace, employee's perception, workplace transformation, technostress.

Recommended information sources

BREGENZER, Anita; JIMENEZ, Paulino. Risk Factors and Leadership in a Digitalized Working World and Their Effects on Employees' Stress and Resources: Web-Based Questionnaire Study. Journal of Medical Internet Research, 2021, 23.3: e24906.

CARROLL, Noel; CONBOY, Kieran. Normalising the "new normal": Changing tech-driven work practices under pandemic time pressure. International Journal of Information Management, 2020, 55: 102186.

CIJAN, Anamarija, et al. How digitalization changes the workplace. Dynamic relationships management journal, 2019, 8.1: 3-12.

DIGITAL TRANSFORMATION IN ORGANIZATIONS:THE IMPACT ON WORKING LIFE QUALITY AND NEWRISK FACTORS. Emma Pietrafesa et al. 2019. Rome, Italy : ResearchGate, July 2019, International Conferences ICT, Society and Human Beings, Sv. 1.

MÄHLER, Viktor; WESTERGREN, Ulrika Holmström. Working with IoT–a case study detailing workplace digitalization through IoT system adoption. In: IFIP International Internet of Things Conference. Springer, Cham, 2018. p. 178-193.

Expected date of thesis defence

2021/22 SS – FEM

The Diploma Thesis Supervisor

Ing. Miloš Ulman, Ph.D.

Supervising department

Department of Information Technologies

Electronic approval: 17. 8. 2021

doc. Ing. Jiří Vaněk, Ph.D.

Head of department

Electronic approval: 19. 10. 2021

Ing. Martin Pelikán, Ph.D.

Dean

Prague on 13. 03. 2022

Declaration

I declare that I have worked on my master's thesis titled "Impacts of workplace digitalization from the employees' perspective" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the master's thesis, I declare that the thesis does not break any copyrights.

In Prague on 31.03.2022 _____

AMBRA VOGLI

Acknowledgement

I would like to thank my thesis supervisor, Miloš Ulman for guiding and

supporting me over this paper.

Impacts of workplace digitalization from the employees' perspective

Abstract

Digital workspace does not only transform technological constructions of workplaces but also social components for employees' engagement and development at work. In this thesis, we explore emerging challenges related to the digitalization of workplaces aiming for an understanding of the changing prerequisites for working and competence seen on employee's perspective. The results of a brief qualitative exploratory survey in this thesis show the complexity of workplace evolution, which is marked by powerful but ambiguous linkages between people, technology, and work practices. Via literature review, this thesis provides a general overview of how digitalization is affecting the workplace focusing on the impact of the Covid-19. Aiming to answer the three research questions, a correlation between company size, company industry type, gender and technostress is analyzed further. As a conclusion, a simple focus on information systems as new technology, coupled with training and instruction on their functionality, is insufficient in the creation of digital workplaces.

Keywords: Digital Workplace, employee's perception, workplace transformation, technostress, pandemic, exploratory data analysis, contingency analysis

Impacts of workplace digitalization from the employees' perspective

Abstrakt

Digitální pracovní prostor proměňuje nejen technologické konstrukce pracovišť, ale i sociální prvky pro zapojení a rozvoj zaměstnanců v práci. V této práci zkoumáme vznikající výzvy související s digitalizací pracovišť s cílem porozumět měnícím se předpokladům pro práci a kompetence z pohledu zaměstnanců. Výsledky krátkého kvalitativního průzkumného průzkumu v této práci ukazují složitost evoluce na pracovišti, která se vyznačuje silnými, ale nejednoznačnými vazbami mezi lidmi, technologiemi a pracovními postupy. Prostřednictvím přehledu literatury tato práce poskytuje obecný přehled o tom, jak digitalizace ovlivňuje pracoviště, se zaměřením na dopad Covid-19. S cílem odpovědět na tři výzkumné otázky je dále analyzována korelace mezi velikostí společnosti, typem odvětví společnosti, pohlavím a technostresem. Závěrem lze konstatovat, že prosté zaměření na informační systémy jako novou technologii, spojené se školením a instruktáží o jejich funkčnosti, je při vytváření digitálních pracovišť nedostatečné.

Klíčová slova: Digitální pracoviště, vnímání zaměstnanců, transformace pracoviště, technostres, pandemie, průzkumná analýza dat, kontingenční analýza

Table of Contents

List of pictures

List of tables

1 Introduction

Digitalization is a term that describes the phenomenon of adopting digital technologies in business and society.

Digitalization, which refers to and use of information and communication technologies in all aspects of our lives, has influenced all levels of society and has changed how we do business. It has provided several challenges as well as excellent opportunities in the workplace and in life. One of the most significant effects of digitalization on businesses is that information has become more accessible and transparent, allowing companies to share more information with all workers, including those at lower levels of the organization. (Pietrafesa, 2019)

The main objective will be to give a brief overview of the impact of the digitalization in the workspace nowadays.

Digital workplaces minimize costs and provide excellent features when properly designed, implemented, and introduced. Employees would be able to work faster and collaborate more effectively if workplace technology such as mobile, cloud, analytics, and social tools are integrated into the workplace.

Increased employee satisfaction, improved employee experience, closer teamwork, decreased operating costs, enhanced creativity, improved customer experience, and increased revenue are only a few of the benefits of a digital workplace in a modern organization.

Another point will be focused on the benefits that digital workspace brings compared to the old traditional one.

Many elements of the digital workplace had to be rapidly changed during the early stages of the pandemic. Automation of manual processes, the introduction of new cybersecurity technologies, the development of new worker forms from a location and work-time perspective, and secure client side (virtual and physical) support was among the changes.

These adjustments are the result of how corporations have implemented new or changed existing digital workplace setups (tools and technology) to meet immediate needs. (Carroll & Kieran, 2020)

The long-used term of anywhere, any platform, anytime is no longer a future goal, but rather, a must have. This research will help to understand on how those organizations are facing recent challenges. Despite its many advantages, the digital workplace may have unintended consequences for employees, such as technostress, information overload, IT anxiety, and addiction. These consequences can be mitigated by the way the digital workplace is designed and delivered, as well as by assisting people in upskilling.

Employees' expectations and concerns about how digitalization would change their jobs will be analyzed in this chapter. The issue will be approached by gathering information obtained through a survey. The aim is to determine whether they see digitalization's impact on their work as positive, negative, or something else, as well as which areas are highlighted.

2 Objectives and Methodology

2.1 Objectives

This research is going to focus on how digitalization is affecting the workplace. From the discovery of the internet to the present day, digitalization has been transforming businesses. Organizations are facing numerous challenges as well as excellent opportunities as a result of digitalization. The main objective of the research is to analyze impacts of workplace digitization.

The partial objectives are such as the following:

- to provide a general overview of how digitalization is affecting the workplace,

- to analyze employees' perspective of workplace digitalization

- to evaluate findings via exploratory data analysis and cross-tabulation analysis

2.2 Methodology

Methodology of the thesis is based on reviewing and analyzing the latest literature which includes books, reports and reports and research papers related to the topic.

In the practical part, a questionnaire for evaluating the variables to determine the impact of digital workspace was conducted.

 The results will be interpreted using exploratory data analysis and cross-tabulation analysis.

Based on the evaluation of theorical and practical part, conclusions are presented.

3 Literature Review

The digital workplace is an evolution of the physical workplace that alters the environment and culture of the working lifestyle. The digital workplace is a virtual equivalent to the physical workplace that emphasizes strong planning and management strategies that can impact productivity, engagement, and work lifestyle performance. Working practices and technologies in the modern era are frequently meant to shape the character of work and influence employee behavior. Previously, the digital workplace was known as teleworking or virtual working, in which workers worked remotely for all or part of the working week from their homes, distant offices, or other locations, and were connected to the main organization via telephone and computer technologies.

The goal of workplace digitization is to improve the productivity and comfort of individual employees.

The Digital Transformation has a variety of effects on businesses, and the corresponding strategies are aimed at overcoming the various threats that this transformation brings.

Large corporations go through this change in a variety of areas, including product innovation, work digitization, and consumer integration. As a result, managing this Digital Transformation has become an important aspect of many enterprises. There are two basic goals in general: products on the one hand, and people on the other. Changes in work culture, for example, have an impact on people.

Office workers will find themselves in a more digitized workplace, rather than the traditional office environment they are accustomed to. Processes of digital transformation transform businesses into non-office enterprises that store their workforce in the virtual space.

This is a very advanced way of looking at the currently ubiquitous transformation process, but it highlights one of the key points surrounding the digital workforce: The Digital Transformation has a wide-ranging impact on the human being. Not only will offices change, but so will collaboration tools, where people work, and, eventually, how people work.

In this massive transformation toward a digital working environment, businesses face numerous issues, one of which is that "automation is beginning to move in and eliminate

office positions as well." Simple activities are expected to be mechanized, requiring a more educated and imaginative workforce. Where simplicity and recurrence begin, machines take over. As a result, it might be considered a change that employees are both frightened about and thrilled towards. (Stieglitz, 2018)

The transition to a more digital manner of working entails more than just a change in information technologies; it also entails a movement in perceptions about the working environment. This quite holistic viewpoint is often referred to as "New Work" and it includes the redesign of all workplace elements, including information technology, human resources, and facility management. The transition to new work necessitates extensive change management due to the wide range of people who must be at simplicity in their new surroundings. Furthermore, factors such as corporate culture and technology adoption

influence employees' level of satisfaction or dissatisfaction with their current – traditional – work environment.

3.1   Definition of a digital workplace

According to Schönefeld, digital workspace can be defined as the complete set of essential access infrastructure, apps, and device platforms for information or knowledge workers who rely on them to complete their work responsibilities and collaborate (Wolf, 2011)

The importance of technology in the workplace has grown in recent years. Technology and digitalization are critical to the development of enterprises and entire society. The rise of digital organizations has also become a well-studied topic, with the digital office environment functioning as a valuable organizational tool for enhancing employee productivity.

Workplace changes are brought on by digitalization, which affects not only corporate performance and worker productivity, but also job happiness, work/life balance, worker autonomy, and monitoring at all levels of the organization. Information and communication technologies (ICT) in particular are crucial working tools and fundamental components of work. (Savage, 2005)

Human replacement by machines and technology advancements have become major stressors and dangers to employment and job security. Aside from automation, the types of knowledge, skills, and talents that organizations demand have evolved. Autonomy, interdependence, and greater cognitive, creative, technical, and social capabilities are all required. (Deloitte, 2011)

The phrase "digital workplace" has evolved as a result of elements such as digitization and the advancement of wireless communication technologies. A workplace is defined as "a combination of tools that are transitioning towards a digital environment" by the term. The goal of a digital workplace is to create a more flexible and productive employment environment by incorporating new technology such as the internet of things and video communication tools. The smart workplace will be shaped by the characteristics of both the digital and agile workplaces. (Guenther, 2018)

Remote work is described as organizational work that is completed outside of standard organizational time and space limitations. Workers can use computers and other communication aids to accomplish their work outside of the actual office. Working remotely has been possible for years, however its popularity has increased in recent years due to technological advancements that have made the switch simpler, and also the fact that many employees find it convenient. Certain occupations, such as health care and construction, do not allow for remote employment since they demand physical labor, and this difficulty might result in labor market inefficiencies. (Allen, 2015)

According to an article by Choudhury, (Choudhury, 2019)over 43 percent of the US workforce spent some time remote working in 2017, while about 5.2 percent of people worked fully from home in 2018. Furthermore, workers enjoy the ability to work from home, with the average employee prepared to accept an 8% pay cut in exchange for the option of working remotely. Managers, on the other hand, are concerned about their employees being less productive and maybe mixing their personal and professional lives.

The Covid pandemic has pushed many workers to work from home, which has had both beneficial and negative consequences. Many people struggle with working

remotely for significant periods of time since the switch to remote work happened so quickly and no one prepared them for it.

Other resources (David A, 2017) emphasize about the advantages of technology in the workplace, such as the reduction in burden in several fields. The expansion of ICT and the permanent interconnection of work positions has heightened autonomy demands; despite increased flexibility of time and place, developments in mobile technologies have increased the process of daily life, adding the need to be continuously online and connected to the workplace, reduced pauses, more multitasking, and time pressure.

With advancements in information technology, the expansion of communication apps, and the availability of computer and internet access, employees can carry out activities in remote locations, with teleworking becoming an alternative work arrangement in the developed world.

While there are benefits to teleworking, such as control over work location and flexibility in work location and time allocation, there are also drawbacks, such as social isolation, career stagnation, work–family conflict, or reduced opportunities to monitor employee behavior. The importance of technology in the workplace has grown in recent years. Technology and digitalization are critical to the development of enterprises and entire society. The rise of digital organizations has also become a well-studied topic, with the digital office environment functioning as a valuable organizational tool for enhancing employee productivity.

Workplace changes are brought on by digitalization, which affects not only corporate performance and worker productivity, but also job happiness, work/life balance, worker autonomy, and monitoring at all levels of the organization. Information and communication technologies (ICT) in particular are crucial working tools and fundamental components of work.

Human replacement by machines and technology advancements have become major stressors and dangers to employment and job security. Aside from automation, the types of knowledge, skills, and talents that organizations demand have evolved.

Autonomy, interdependence, and greater cognitive, creative, technical, and social capabilities are all required.

Figure 1 depicts a paradigm for the digital workplace developed by Infocentric Research, which incorporates three basic blocks: personal performance, team performance, and organizational performance. (Schillerwein, 2011) These building blocks house all of a person's, team's, or organization's information and functions. They work as a central repository for all personal, team, and project tasks, allowing you to keep track of what's going on across all projects and activities.

Figure 1 - A framework for digital workspace (Attaran, 2019)

Within the digital workplace, these blocks do not exist in isolation from one another. Based on their distinct jobs and situations, they blend into each other. They serve as a logical framework for developing the digital workplace's strategy and idea design. Workers employ all of the information, technology, collaboration tools, and processes in the digital workplace to get work done on any device, at any time, and from anywhere. The digital workplace should be based on a standardized and adaptable infrastructure that allows users to access and safeguard data across numerous devices and channels. To make life easier and knowledge sharing more effective for all workers, it should incorporate video and

messaging. Finally, the platform should enable secure access to the data required from any device. (Attaran, 2019)

Other studies emphasize the advantages of technology in the workplace, such as the reduction in burden in several fields. (CAZAN, 2020) The expansion of ICT and the permanent interconnection of work positions has heightened autonomy demands; despite increased flexibility of time and place, developments in mobile technologies have increased the process of daily life, adding the need to be continuously online and connected to the workplace, reduced pauses, more multitasking, and time pressure.

With advancements in information technology, the expansion of communication apps, and the availability of computer and internet access, employees can carry out activities in remote locations, with teleworking becoming an alternative work arrangement in the developed world.

While there are benefits to teleworking, such as control over work location and flexibility in work location and time allocation, there are also drawbacks, such as social isolation, career stagnation, work–family conflict, or reduced opportunities to monitor employee behavior (Biron, 2016)

3.2 Advantages of digital workplace

Working virtually has several advantages. Employees who have the flexibility to work remotely are happier, which may lead to decreased turnover in the coming years. Additionally, it has been noticed that when employees work remotely, they perform better and work harder while also managing their work hours better.

Also, digital working minimizes the need for physical presence in a specific environment and the associated costs, minimizes travel time, preserves the environment, and allows individuals across the organization to coordinate actions at the very same time.

Due to the continued increasing flexibility that allows employees to balance job responsibilities and personal life, working virtually reduces work-related stress. Working

remotely, on the other hand, might be difficult due to internet access, rising demands, and a lack of social interaction. Collaboration and trust in virtual work are also affected by communication difficulties.

These situations obstruct managers' and employees' well-being and productivity at work. (Vendramin & Nardelli, 2020)

Employee experience

The idea of "flexible working arrangements" may come up as organizations examine their post-pandemic prospects. Companies should anticipate some employees to work remotely, while others may work from the office. This may be accomplished by establishing a unified digital workplace.

The workers' experience in the modern world of work may be transformed by a powerful, collaborative digital workplace. Many businesses discovered that their operations and work could be accomplished from anywhere in the world during the pandemic. Companies had the chance to recruit fresh, top talent - regardless of their geographic location - with new, more flexible working arrangements in place. As a result, workers can work from anywhere they want, on whatever device they want, whenever they want, thanks to the digital workplace. (Lagus, 2020)

Greater adaptability

Employees benefit from more flexibility in their work schedules and work environments in an efficient digital workplace. The teams may connect from anyplace using digital solutions like mobile intranet software, reducing the need for a tight timetable. This allows individuals to strike a better work-life balance that is more in line with their personal lives. (Rocha, 2018)

Reduce costs

Companies may minimize or eliminate in-person cooperation by using virtual meetings and interactive chat boards, which saves money on travel and overhead expenditures like office space and equipment. Companies won't need a huge IT crew to operate on-premises servers

or specialized software that requires time-consuming maintenance if you use a SaaS platform. (OWL-Labs, 2021)

Increased Profits

When a company is able to cut expenses while simultaneously increasing productivity, it generates more money. According to Avanade's authoritative digital workplace research, deploying digital workspaces has resulted in a 43 percent boost in income. (Avanade, 2013)

Recruiting and retaining top talent

Top applicants have grown to demand a work atmosphere that is both progressive and modern. Companies should be able to recruit qualified and inventive applicants if they meet their requirements through a digital platform. Furthermore, organizations that have implemented a digital workplace have seen a 25% reduction in employee turnover, indicating that bright people are more inclined to stay with a company that offers digital prospects. (Miller, 2019)

Employee Satisfaction

There are possibilities to network with peers, engage with team members, and exchange ideas in the ideal digital workplace. Employee satisfaction and engagement are enhanced by these qualities, which allow employees to openly voice their thoughts and feel appreciated. Additionally, people who work remotely even once a month report being 24% more likely to be satisfied at work. Remote work is substantially facilitated in the digital workplace, allowing employees to be more flexible and responsive to employee demands. (OWL-Labs, 2021)

Customer Experience Improvement

Employees who have a better work-life balance, feel heard, and are given the tools to accomplish their jobs more effectively and with less stress are more likely to become brand ambassadors. By natural consequence, this will lead to staff that care more, therefore resulting in happy consumers as well. (Klaus, 2013)

3.3 Disadvantages of digital workplace

Working remotely, however, has negatives, including a blurring of the boundaries between work and personal life and less social interactions.

According to a study, (Perry, 2018) emotional stability has an impact on how effectively a person can manage with remote work and avoid getting stressed. Workers with strong emotional stability and autonomy appear to be the least sensitive to strain, whereas those with lower emotional stability and autonomy appear to be more susceptible.

Furthermore, the study implies that certain people will gain more from working remotely, while others may experience disadvantages such as strain if they work remotely too frequently.

Collaboration issues

Interpersonal cooperation is an important requirement for effective work as knowledge workers need both information and knowledge, and collaboration facilitates knowledge and information exchanges. (Vuori, 2019)

Virtual work, on the other hand, requires collaboration and communication with less face-to-face interactions, which reduces cohesion among co-workers, limits interpersonal relationship development, interrupts tacit information exchange, complicates conflict management, and delays decision-making and effective collaboration.

Collaboration is essential for optimal performance, but it is based on trust, which encourages knowledge sharing within the team. Individuals working online benefit from knowledge sharing because it encourages trust and teamwork. However, in virtual work, knowledge transfer is typically slower and less efficient, resulting in employees missing information or not receiving information on time.

Furthermore, sharing tacit information in virtual work using simply verbal and written means is challenging, as tacit knowledge cannot be fully grasped even with the most advanced virtual communication form. In some cases, information sharing can result in a loss of knowledge ownership, which can lead to a reluctance to share knowledge with others.

Knowledge sharing limitations may restrict collaboration, resulting in challenges such as missed objectives due to distance. (Vendramin & Nardelli, 2020)

Lack of trust

Building trust is complicated, especially in workplaces with a high level of virtuality, when employees who are unfamiliar with one another interact via digital technology. Individuals in circumstances where they are located in various locations, time zones, and have distinct cultural backgrounds may have different trusting behaviors, values, expectations, and ways of communicating and collaborating, which can lead to trust development and cooperation issues. The main obstacle to virtual work performance is a lack of trust. (Ok-Kyu Choi, 2019) Trust develops through time and is founded on perceptions of trustworthiness. It includes components such as uncertainty, vulnerability, and risk, which individuals working online must overcome in order to collaborate effectively.

Social isolation

The other concern with virtual work is the lack of social engagements, support, and a sense of belonging, which can lead to feelings of loneliness and isolation due to reduced face-to-face engagement and a heavy reliance on digital technology. These attitudes may have a negative impact on work-related outcomes. Since digital technology cannot replace direct interactions, virtual work reduces opportunities for socializing and engaging in outside-of-office activities, encouraging friendship formation.

These relationships help teammates create trust and perform better. Physical separation makes collaboration more difficult, and it may lead to the impression of missing important information for work tasks and access with others who are involved in those tasks. Information exchange may be delayed or absent due to individuals' lack of presence and invisibility. Informational isolation can occur when there are no links, and it is difficult to access the information needed for work duties. (Vendramin & Nardelli, 2020)

Employees with the least social interaction face major level of informational isolation and they're more likely to be excluded from exchange of information among co-workers.

Constant connectivity

Connectivity to digital platforms helps people working in virtual environments to have more spatial and temporal freedom, yet research indicates that disconnecting from working can indeed be difficult. On the one hand, employees can do their jobs while also taking care of personal matters like childcare.

Employees, on the other hand, can reach out for work materials at any time, leading in overwhelm and anxiety. Individuals are working extra hours as a result of the connectivity provided by digital technologies. Individuals are also frequently under pressure to respond to emails and instant messaging platforms as soon as possible. As a result, extensive digital technology use can lead to technostress and/or burnout. (Sven Dittes, 2019)

Increasing demands

As individuals work from multiple locations, virtual work given by digitalization changes the needs for employees and leaders in businesses, asking them to adapt various skills, behaviors, and approaches in their job. According to research, (Schwarzmüller, 2018) obtaining at least a basic level of IT literacy, problem-solving and information processing ability, decision-making skills, and social skills are all essential. Individuals should increase their agility, increase cultural awareness, build resilience to deal with the challenges of digitalization and modern work arrangements, and self-regulate their performance.

Individual leaders must develop IT skills, build intercultural skills, learn distance management, and master skills in managing growing complexity. Employees and leaders alike confront higher job requirements at work as a result of increased complexity, more technology systems, and the need to analyze a larger amount of data.

Employees are not ready to handle and interpret massive amounts of data, despite the fact that digital technology enables for obtaining and organizing knowledge and information. Information overload and a fear of losing control might result from an inability to comprehend information.

Furthermore, implementing additional digital technologies, platforms, interfaces, and software products to boost productivity and efficiency in job activities may contribute to a chaotic work atmosphere, where employees are experiencing with frequent interruptions, multitasking, and heavy workload. (Vuori, 2019)

Organizations are requiring individuals to perform work tasks that were previously performed by administrative staff as a result of new digital devices and intuitive information systems. The digital tools can be extremely complex and learning how to use them may result in an increase in workload.

Incompatibility of technology and users

Virtual work entails a strong reliance on digital technology, which demands the use of digital tools to complete work duties and resolve major tasks. While digital technology supports employees in completing their responsibilities, its technical components may obstruct their efforts. Delays could be caused by technology incompatibilities, malfunctions, or network issues, for instance. Using digital technologies can be frustrating, especially if people are experiencing problems with it and don't have the appropriate training to use tools and deal with the issues.

These concerns may decrease job happiness and engagement, as well as influence productivity and work quality. Employees' willingness to adopt and use technology at work is based on the usability and user-friendliness of digital technology. Furthermore, because of the lack of communication diversity, digital tools limit dialogue.

In particular, the research highlights difficulties with user groups and their usage of technology.

Older generations, for instance, are more hesitant to adopt digital technologies. While many elders are active users of digital tools, others are more. Many people may not understand how to use digital technologies at work and may be rejected as a result. At the same time, even if they are proficient in the use of technology, younger generations struggle without previous training. (Vuori, 2019)

3.4   Information and Communication Technologies

There has been an exponential and ongoing digital transition in the last decade that has altered our culture and, as a result, the way individuals connect and work on a daily basis. As a result, a multiplicity of communication technologies has arisen, which are currently used in a wide range of commercial and office circumstances. For example, video streaming

programs such as Zoom, Google Meet, and Microsoft Teams are replacing traditional seminars with so-called webinars.

Despite the fact that videoconferencing tools have been around for a long time, their use has expanded in recent years as a result of the Covid pandemic, which has pushed large segments of the workforce to communicate and engage digitally. (Schwarz, 2020) Furthermore, the massive expansion in the use of communication technologies has raised the demand for these products' capabilities.

It is essential to think about the advantages and sectors where these digital communication technologies might be strengthened.

Digital connections can improve knowledge sharing and worker productivity while reducing commuting time and allowing for more flexible work environments, such as working from home. Remote working can also help organizations minimize and simplify resources, lowering costs. Digital tools, on the other hand, may generate data security concerns and make it impossible to reproduce social interactions such as informal discussions and the establishment of professional and personal relationships.

Another issue to consider is that employees may establish weaker personal bonds with one another, making it more difficult to establish a strong company culture, particularly when communicating it to newly hired employees, which can have a damaging long-term influence on an organization. Furthermore, to satisfy the demands of enterprises, today's communication technologies must be further improved.

Creating virtual group areas where coworkers may connect more casually and implementing capabilities within the programs that allow for increased social interaction are two possible solutions to the abovementioned difficulties. As a result, greater innovation in digital technologies is required to fill the gap between working from home and working in an office, for example, by improving data security and social interaction. (Fredstrand & Hanna, 2021)

It's vital to have the correct technologies in place. The agile workplace necessitates a well-designed IT infrastructure to allow continuous collaboration. The organization's network infrastructure, including the whole backbone as well as every switch, router, and firewall, should be upgraded by the cross-functional delivery team. The goal should be to move away

from closed offices and toward open workspaces, accessible meeting areas, and current technology. Installation of operating systems that allow for higher productivity and the recruitment of fresh personnel should be part of this move. Upgraded tools should be offered to each employee, including a universal laptop, collaboration tools such as video

conferencing, and voice-over-internet phones (VOIP) that can roam freely on the network.
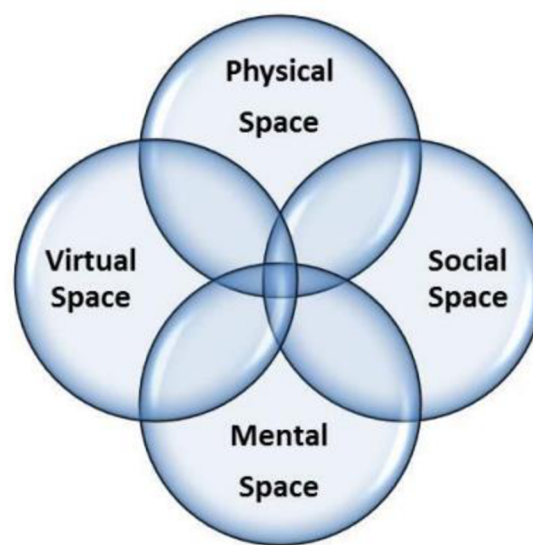
Figure 1 - Distributed Workspaces (Attaran, 2019)

It is highly advised that companies install a low-cost, open-source, easy-to-use hardware and software collaboration solution that can be readily upgraded and expanded over time. Depending on the business and job activities, different tools will be required to support the digital workplace. These tools should not be used in isolation, but rather as part of a larger digital workplace plan. (White, 2012)

3.5 Digital workspace a new way of workstyle

Newer generations of workers bring with them very different expectations for the job. They seek transparency, self-sufficiency, flexibility, and personal independence, as well as face-to-face communication. Newer, digital generations seek an office environment where they can easily accommodate themselves.

Age, sex, and responsibility are among demographic criteria that have an impact on a user's digital tool activity. (OECD, 2018) It will be interesting to see if this simply reflects in how the technology is used, or if it also affects the user's expectations of the workplace. Furthermore, the future workforce expects technology to be present in the workplace and incorporated into day-to-day business operations.

As a result, providing all employees with the same modalities in the workplace is not conceivable. One of the effects is that materials that are often considered to be basic, such as furniture, must be updated. This truth may appear ordinary, yet it has significant implications for the modern workplace. The way furniture is situated in the office, as well as the style of furniture utilized, will largely determine the type of peer interaction that occurs within the workplace.

If performed correctly, this result in a dynamic exchange of information, but if done in a traditional method that ignores the principles of these new workplaces, it leads to information silos and less engagement with other departments. (Alosaimi, 2018) But, in the future, not only employees will have different expectations of the new work environment. Companies are being pushed to adopt more efficient and productive thinking as a result of the previously outlined changing business model. Although corporations are obligated to do so, people will become aware of it and accept it. As a result, the future workforce must be capable of supporting this mode of operation. Thus, the latter is to be viewed as a holistic ensemble playing of all components - first and foremost, the generational shift and digitization. Technostress, like regular stress, has a negative impact on an employee's creativity, which is why implementing new digital technology in the office without also modifying the working environment does not function effectively. (Mette Fuglseth et al., 2014)

On the other hand, technology that is compatible with the environment speeds up the creative process, which will be essential for knowledge workers in the future. In addition, according to the research, (Kissmer, et al., 2018) creativity is based on the "integration of varied information." As a result, we might conclude that knowledge exchange is essential for innovation. Productivity/efficiency and creativity are viewed as significant drivers for the future workplace culture.

Due to the need for information flow, interconnection between people is essential to the accomplishment of projects and tasks. It is important to make this information available to everyone, no matter where they are, in order to enable the transparent knowledge sharing towards all interested parties, which is one of the essential parts for virtual teams.

3.5.1 Smart workplace concept

Three key elements that will create a smart workplace are adaptability, digitalization, and activity-based work. "A workplace that is continually transforming, adapting, and responding to organizational learning" is just how the agile workplace is characterized. This requires constant improvements in work processes and methods, as well as the work environment. Human factors such as changing lifestyle trends and generational behavioral diversity are among the elements that contribute to the requirement for an agile workplace.

Many studies have been conducted over the past two decades on how to adapt workplaces to the demands of different generations. A portion of these studies in this research focused on millennials, who are expected to make up half of the workforce by 2020. (Fredstrand & Hanna, 2021) As a result of this issue, several businesses have given millennials a higher priority than other generations when it comes to workplace adaptation. However, studies into agile workplaces has highlighted the significance of taking into account the demands of all generations when establishing an agile workplace.

The concept of an activity-based workplace (ABW) states that an office should be flexible enough to allow employees to do tasks in a variety of settings that best suit the required task. Mobility in terms of wireless technology and mobile devices is essential to construct an ABW. As a result, establishing an ABW sometimes necessitates a significant IT investment. Because the physical environment in an ABW varies depending on the type of activity performed, it is commonly divided into three zones, each with its own set of specialized requirements for reaching conclusions. (Fredstrand & Hanna, 2021)

Quiet, medium, and active are the three zones. The quiet zone is for jobs that require focus and concentration, such as reading and writing, and so disturbance is prohibited. By facilitating communication and overhearing activities, the middle zone strives to facilitate

sharing of knowledge between departments. The nature of these activities is similar to that of an open plan office. Meetings, both virtual and physical, are held in the active zone.

These three zones can be structured in a variety of ways, and there is no yet another approach because each organization's demands are unique. As a result, these zones can overlap, interweave, or be strictly divided. When companies create a smart workplace, they can obtain a number of benefits. Benefits include higher productivity, lower stress levels, and increased employee satisfaction.

Organizations will also be able to optimize office spaces, lowering costs and reducing their ecological impact. As a result, a smart workplace can contribute to a more sustainable future. On the other hand, there is a disconnect between the rate at which the workplace and the workers are changing. Due to variability in age, education, and abilities to be able to use new technologies, people cannot adapt at the same rate as technology in the workplace. (Fry, 2018) This gap presents a big obstacle in the path of the smart workplace's development.

3.6   Impact of Digitalization on Employees

The gradual evolution that the digitalization of things brings has a significant impact on employees on a variety of levels, including rationalization, knowledge, performance, effectiveness, professional skills, and so on. Employees and leaders can benefit from digital learning platforms by attending customized trainings and development programs that are linked with their work schedules, paired with their self-pacing and choice of content. This innovative training method facilitates the development of skills based on the organizational approaches that educational systems fail to give.

On the other hand, this requires that workforce must be able to learn on a regular basis in order to keep up with technological improvements and avoid long-term rationalization. Until now, the automation of production processes has had a significant impact on workers with poor qualifications as a result of workforce rationalization due to the new digitalized environment.   (Autor,   2015) Advancements in intelligent automation and artificial intelligence are beginning to cast a shadow over higher-qualified resources. Due to the obvious rapid developments in

technology that the educational system can no longer ensure, having a formal qualification is no longer a guarantee for a lifelong secure employment. (Foerster-Metz, et al., 2018)

Sales staff in customer support, clerical workers, packers, pilots, and even lawyers are among the professions that are particularly vulnerable nowadays because they may be more rapidly mechanized and replaced by computer software. In the situation of the latter, it is suggested that they compete unfairly with autopilots and algorithms, which can navigate flawlessly and make wise decisions. Jobs that demand more creativity, social intelligence, and entrepreneurship, on the other hand, appear to be more sustainable. (Osberg, 2007)

A future of work based on a digitalized economy need a wide variety of skills that will ensure a long-term working future. For example, the outsourcing sector has begun to require specialized technical and soft skills related to technological improvements in order to provide added value services that will assist win the battle against artificial intelligence and algorithms. Due to cloud computing platforms, a new working space is established within higher skilled employment in the digitized world, encouraging different collaborative working models. (Benerjee et al., 2020)

The software business is one of the foundations in regards of this working approach, which is based on agile development methods such as Scrum with Lean Production concepts. This new sort of cloud-based collaborative working allows for rapid development cycles that allow managers and leaders to test the performance of each delivered work package in real time. It also allows them to make faster decisions and supervise work, as well as making the work performance of each staff member transparent. As a result, each team has more independence. It also demonstrates the tendency for straightforward execution, as in an "assembly line." (Wang, 2013)

Employees are no longer restricted to operate simply at a desk and for a particular enterprise, thanks to the digitalized world. The way people are recruited has changed as a result of this. Many people today choose to work as digital entrepreneurs, sometimes known as "crowd workers" who may work from anywhere using tools such as clouds, skype, teleconferences, and other similar technologies. These individuals offer their services and expertise using virtual crowdsourcing portals, which allow businesses to outsource and post specialized

work packages. Home offices and variable shift patterns will continue to boost the growth of this flexible work organization and flexible work time models, thanks to the lack of skilled employees. (Alves de Oliveira et al., 2020)

Entrepreneurship risks are now being carried from the employer to the employee as a result of this trend. New civil procedures fill the role of strict labor regulations. Flat hierarchies and performance-based compensation are becoming more essential. Employees becoming entrepreneurs, necessitating the development of entrepreneurial thinking as a valuable skill for the future labor market. Employment compensation is also reduced to work packages, reducing costs to last for the duration of an assignment and permanent employees' hidden cost reserves to be minimized. (ILO, 2018)

The workforce is becoming more international and competitive as a result of these virtual platforms. During a downturn, these workers lost their sense of connection to their employers, requiring a greater effort to encourage and involve them in the company's values, vision, and mission. Contractors, on the other hand, are not covered by syndicates or similar groups and do not have codetermination rights. They are exempt from labor law agreements since they are self-employed. Furthermore, if the government has not provided any protection, freelancers are rarely integrated into the social security systems by legislation.

The digitalization of work steps has given rise to various forms of performance surveillance, such as in the logistics business, where pickers use a hand scanner with cameras and microphones to transfer workforce movement data. Companies can utilize this data to create performance profiles for their employees, as well as measure and compare their performance. This hand scanners provide a high technical process control in addition to performance surveillance, since they offer employees with consecutive processes to maximize workforce productivity. (Moussa, 2015)

This trend can also be seen in secondary jobs such as developers, sales agents, and analysts. This is achievable thanks to personalized performance evaluations based on big data analysis and control tools. For instance, using big data analytics, it is practical to establish if a salesperson ordered enough products for a particular selling phase, as well as evaluate how many customer interactions were made and what the meeting's duration and outcome were.

As business may require using mobile applications with their employees to log targeted accomplishments on a regular basis, performance measurement through target setting brings a new dimension. These apps increase transparency by allowing employees to share their individual performance with the rest of the organization. Platforms like Twitter allow you to "follow" coworkers and keep them updated on changes to their work schedules. As a result, communities can be utilized to monitor, track, and encourage employee social behavior. With telework options, the dissolution of time and workplace restrictions began in the 1980s. (Foerster-Metz, et al., 2018)

Working has become a continuous companion in many regions, especially for more qualified professionals, as a result of greater digitalization of work and the ability to take work wherever with smartphones, tablets, and laptops. Working on weekends, vacations, trains, and airports has now become the normal. Despite the improved possibilities of performance surveillance, not all organizations enable their employees to take advantage of these options because they fear losing control over their staff and the expected job performance.

Employees that are allowed to utilize these work technologies, on the other hand, have begun to complain about the higher demands of traditional monitoring. In this scenario, certain EU countries are again striving to establish the appropriate labor legislation combination to deal with these new working conditions. At the same time, flexibility and boundary-free working necessitates a high level of self-organization and time management on the part of employees. Data of the company, which was previously mainly accessible to senior leadership due to higher printing and data expenditures, can now be shared with employees via a variety of digital technologies such as sharing platforms, chatting rooms, intranets, and so much more.

Employees are more aware of the company and its operations as a result, allowing organizations to become more honest and transparent with their employees. Employee confidence and internal networking have improved as a result of more transparency in decision-making. Increased transparency, on the other hand, necessitates new ethical standards to prevent information from leaking. Furthermore, businesses must cope with the reality that greater digitalization of information results in better-informed employees, customers, and partners who have real-time access to competitive pricing and product information, increasing pricing transparency.

On the one hand, digital platforms allow consumers to make peer recommendations, which can be demanding because it creates a lot of pressure on the brand's message control, but on the other hand, it enables organizations to interact with customers as brand ambassadors. Both are referred to as "prosumers". In this method, a new two-way connection between the consumer and the brand has been enabled, which presents both advantages and threats. To maintain engagement, new collaborative methods to stakeholders are necessary. (Foerster-Metz, et al., 2018)

Companies are beginning to use this new digital interaction to test ideas in communities and to gather and share feedback on product difficulties, among other things. This active interaction with stakeholders, however, necessitates a new style of thinking and culture within businesses that is more service-oriented than ever before.

3.7   New challenges – Old stereotypes

Due to various technological advancements and digitized workspaces, existing organization will drastically change. Examples include the greater usage of data in production environments and the use of mobile devices in production that provide faster communication channels between individuals. As a result, the ability to work with new technologies is essential. Vocational is one opportunity to implement these skills. The target group's distinctive learning habit necessitates specific needs for vocational training. Solutions particularly tailored to meet the needs of senior employees, on the other hand, are limited. In the workplace, an understanding of older persons is defined by a deficit-oriented approach. This hypothesis assumes a decline in cognitive and physical capacities. As a result, businesses consider older employees to be less productive, less eager to learn, and less innovative.

With a few exceptions, this stereotype viewpoint may be found all over Europe. Taking the example of vocational training, the real implications of stereotyped attributions become clear: Organizational sections that can make a significant contribution to the company's performance are subsidized from a business standpoint. According to the deficit-oriented viewpoint, (Teichmann, 2019) elder employees are less valuable to a business. Supporting

them so appears to be unprofitable from the company's perspective. As a result, it's reasonable to believe that the lack of target-group-specific offerings is linked to stereotypes.

In conclusion, the predominating deficit theory plays an important part in older workers' structural disadvantages. An alternative viewpoint must be given in order to combat stereotypes and their consequences.

3.7.1   The generation of gold employees

Old employees that have been with the company for a long time might provide organizational benefits, such as higher levels of employer loyalty. This lowers the likelihood of a career move. As a result, the likelihood of a company's expertise being passed on to competitors may decrease. In addition, older folks have a variety of experience-based knowledge. Certain concerns that demand this type of knowledge are better addressed by older people than by younger people.

Furthermore, as technology increases, communication networks become more complicated, increasing their susceptibility to errors linked to scenarios that cannot be predicted in advance. Employees are responsible for acting as control authorities and reacting instinctively to defects in technical working environments, among other things.

As a result, experience-based knowledge and the capability to apply it in the sense of action competence became increasingly important. In conclusion, when it comes to the problems of digitalization, older people have a different kind of potential than younger, less experienced individuals. Furthermore, the existing research indicates that the deficit-oriented strategy is unsustainable: methodical knowledge, existing experience-based information, and digital support platforms can compensate for a possible physical capacity decrease and its consequences. At this point, it would be worth considering a reciprocal relationship: decreasing cognitive performance is due in part between one and undemanding activities, as well as a lack of learning opportunities at work. As a result, age-appropriate occupational training and learning possibilities at work can improve cognitive performance.

It is required to provide a greater understanding of older people's learning behavior in order to highlight the criteria for this.

While theory-based and externally regulated learning content loses favor among the elderly, the link between experience-based knowledge and one's own practical activity becomes increasingly significant. (Teichmann, 2019)Extrinsic incentive (e.g., job promotion) is less relevant than intrinsic motivation in vocational training (e.g., interests in the learning topic). Furthermore, learning-stimulating surroundings and work designs are required to enable efficient learning.

Combined altogether, it's possible to hypothesize that older people learn differently than younger people. Age-appropriate vocational training requires the following prerequisites:

-content based on personal knowledge and professional experience

-opportunities to participate in the content selection procedure.

 In order to combat the prevailing deficit hypothesis, elder employees must generate more interest both in society and in the workplace in order to achieve this goal.

Existing perceptions and the stated implications will persist if biological age and social devaluation processes are maintained as a supposedly useful reference point. In addition to a new point of reference for businesses, this research study recommends a focus on experience-based knowledge as well as a language shift from new to experienced personnel. When it comes to establishing this linguistic change, the first step is to isolate qualified workers from stereotypes. Further conceptual work in the field of vocational training can be done using this new method. (Teichmann, 2019)

3.8   Introduction to technostress

Although technology benefits people and organizations in general, it can also have negative aspects, such as technostress. Technostress is a psychological stress connected with IT use or IT demands. The technostress experience at work is characterized as a "negative

psychological state associated with the use or risk of future ICT use." Anxiety, mental exhaustion, skepticism, and inefficacy are all associated with this experience."

Workplace technologies can be intrusive, contributing to a sense of techno-invasion and overwhelm, leading to increased work pressures, work overload perceptions, information fatigue, frustration, demoralization, decreased motivation, job strain, poor job performance, intentions to quit a job, and dissatisfaction at work. Anxiety, tiredness, skepticism, and inefficacy are some of the effects of technostress, with computer anxiety being among the most well studied techno strain experiences.

According to research (Cazan, 2016) on computer and internet behaviors, some adults have high levels of computer anxiety, suffer feelings of discomfort, annoyance, and tension, and anticipate catastrophic implications of their actions, such as pressing the wrong key and losing information. Another aspect of techno strain is the feeling of inefficacy when using ICT. This relates to the level of perceived inefficacy when using ICT.

Computer self-efficacy is linked to user attitudes, intentions to use computers, regular computer usage, computer skills, and computer anxiety, as well as users' attitudes, intentions to use computers, actual computer use, computer literacy, and computer anxiety. Researchers have also looked at computer anxiety and computer self-efficacy in relation to aspects of the technology adoption paradigm, such as perceived utility, perceived ease of use, behavioral intention, behavior, and computer capabilities. (CAZAN, 2020)

The technology acceptance model was applied to issues such as the motivations for collaboration, the costs and rewards of collaboration, work group characteristics, and change attitudes in organizations. According to earlier findings, companies that want to promote the utilization of an IT system should offer supervisory support and improve extensive relationships among colleagues to encourage a more favorable attitude toward IT systems.

The perceived utility and "cost" of new technology may also have an impact on their acceptance. Furthermore, personality traits and job involvement are essential factors in technology acceptance; more specifically, work engagement mediates the association between personality traits and the use of communication and collaboration tools in the workplace.

Another negative aspect of technology is techno addiction, which can be described by excessive and compulsive work with ICT. Workaholism is considered a kind of techno addiction. As a result, techno addiction is a type of technostress characterized by an uncontrollable need to use ICT for long periods of time and also in extreme. As many would assume, higher levels of techno addiction are linked to lower levels of contentment.

Techno-addiction and techno-strain are two psychological phenomena linked to the usage of ICTs that should be acknowledged. Users with techno-addiction experience negative consequences as a result of their excessive and compulsive use of ICTs. Techno-strain causes users to feel overwhelmed and exhibit anxiety, ineffectiveness attitudes, tiredness, and cynicism about the use of technology. Technostress can have a variety of effects depending on the individual.

Physical effects (since technostress can have negative consequences on the health of all those who experience it, favoring, among other things, headaches, muscle pain, and gastrointestinal disorders), difficulties with sufficient sleep (favoring difficulty falling asleep and monitoring irregular sleeping habits), and irregular dietary behavior (which can lead to obesity in the long term). All of these factors may have consequences in other aspects. (González-López, et al., 2021)

Group Effects of Technostress

Technostress causes social implications. They can increase unfavorable family situations, and uncontrolled use of technology can lead to less face-to-face interaction and privacy implications. (Cham, et al., 2019)

Professional Effects of Technostress

Technostress can have a negative impact on the workplace. Burnout is linked to technostress. Technostress, in particular, has been linked to a lower level of professional fulfilment. It is critical to emphasize the major detrimental impact of technostress on staff productivity and attendance. Considering the circumstances, it is reasonable to assume that technostress has a direct and detrimental influence on overloaded users of technology at the individual, group, and professional levels, however this must be demonstrated. (González-López, et al., 2021)

3.9 UTAUT and TAM model

The UTAUT Model is an explanation of user perception and acceptance behavior based on the Unified Theory of Acceptance and Use of Technology. (Venkatesh, 2003) Performance expectation (PE), effort expectancy (EE), social influence (SI), facilitating conditions (FC), behavioral intention (BI), and use behavior are the core components of the UTAUT paradigm (UB). (Kang, 2015)
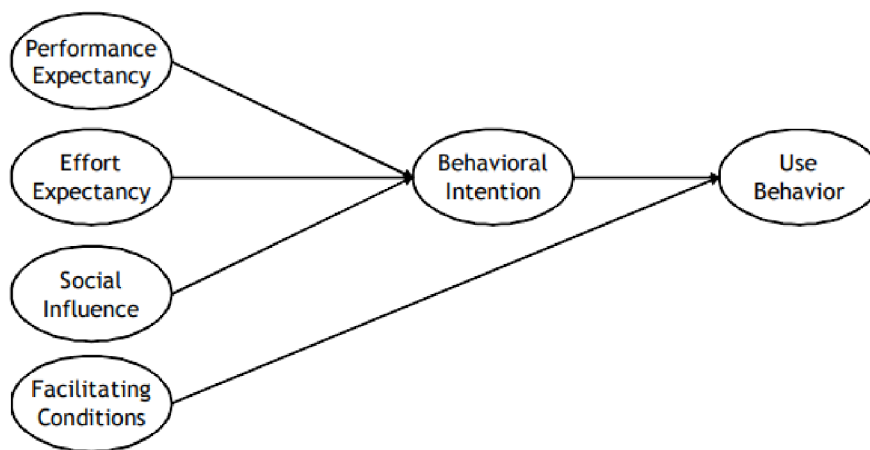
Figure 2- The UTAUT Model (Kang, 2015)

The theory was created by reviewing and combining the constructs of eight previous models used to explain information system usage behavior (theory of reasoned action, technology acceptance model, motivational model, theory of planned behavior, a combined theory of planned behavior/technology acceptance model, model of personal computer use, diffusion of innovations theory, and social cognitive theory). (Venkatesh, 2003)

Davis established the Technology Acceptance Model, which is based on the idea of reasoned action and deals with the prediction of an information system's acceptance. The goal of this model is to anticipate a tool's acceptance and to indicate the changes that must be made to the system in order for it to be acceptable to users. According to this approach, an information system's acceptability is defined by two key factors: perceived utility and perceived ease of use. (Davis, 1989)

The degree to which a person feels that using a system would improve his performance is characterized as perceived usefulness. The degree to which a person feels that using a system

41

will be simple is referred to as perceived ease of use. Perceived usefulness and perceived ease of use were found to be two distinct aspects in several factorial studies. (Larcker, 1980)

The Technology Acceptance Model postulates that the use of an information system is determined by the behavioral intention, but that the behavioral intention is determined by the person's attitude toward the use of the system and his perception of its utility, as demonstrated by the theory of reasoned action. According to Davis, an individual's attitude is not the only aspect that influences how he uses a system; it also depends on the impact it may have on his performance. Even if an employee dislikes an information system, the likelihood that he will utilize it is high if he believes the system would help him perform better at work. (Davis, 1989)
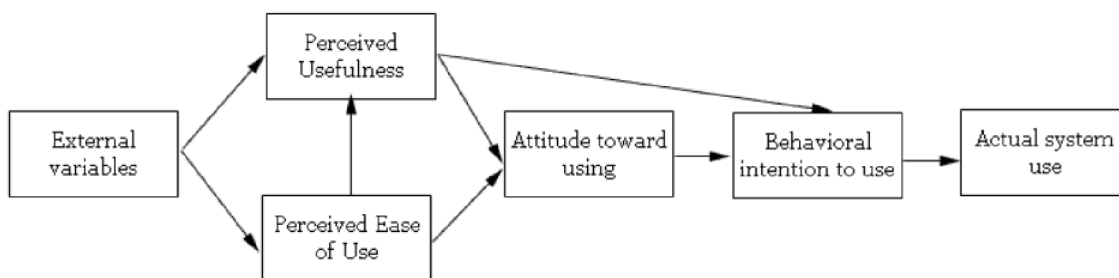
Figure 3 - Technology Acceptance Model (Davis, 1989)

Furthermore, the Technology Acceptance Model proposes that perceived utility and perceived ease of use are inextricably linked. When two systems have the same features, the one that is easier to use will be more beneficial to the user. (Dillon, 1996)

Perceived ease of use, according to (Davis, 1989) influences an individual's attitude in a substantial way through two key mechanisms: self-efficacy and instrumentality. (Bandura, 1982) proposed the notion of self-efficacy, which states that the easier a system is to use, the higher the user's perception of efficacy should be. Furthermore, an easy-to-use tool will give the user the impression that he has control over his actions. One of the key components supporting intrinsic motivation is efficacy, which is what shows the direct link between perceived ease of use and attitude in this case.

42

However, the data given by (Davis, 1989) to confirm his model shows that the link between the intention to utilize an information system and perceived usefulness is higher than the link between perceived ease of use and perceived usefulness. According to this concept, the perceived utility of a tool will be the most influential aspect in a user's decision.

Despite the fact that the initial TAM model was empirically confirmed, it only explained a small portion of the variance in the end variable, IT use (from 4 percent to 45 percent, according to (McFarland, 2006). As a result, numerous authors have improved the basic model in an attempt to uncover the latent elements that underpin perceived ease of use and utility. (Venkatesh, 2003) demonstrated how social influence mechanisms (subjective norm, voluntarily, image) and cognitive instrumental processes (job relevance, output quality, outcome demonstrability) influenced perceived usefulness and intention to use in TAM2. A significant improvement to the TAM model is proposed by (McFarland, 2006)

Six contextual variables (previous experience, other's use, computer anxiety, system quality, task structure, and organizational support) are assumed to influence the dependent variable system usage through three mediating variables, according to their model (computer efficacy, perceived ease of use and perceived usefulness). The model not only assumes mediation through perceived ease of use and perceived usefulness, but also direct relationships between external variables and system usage (see Figure 5).
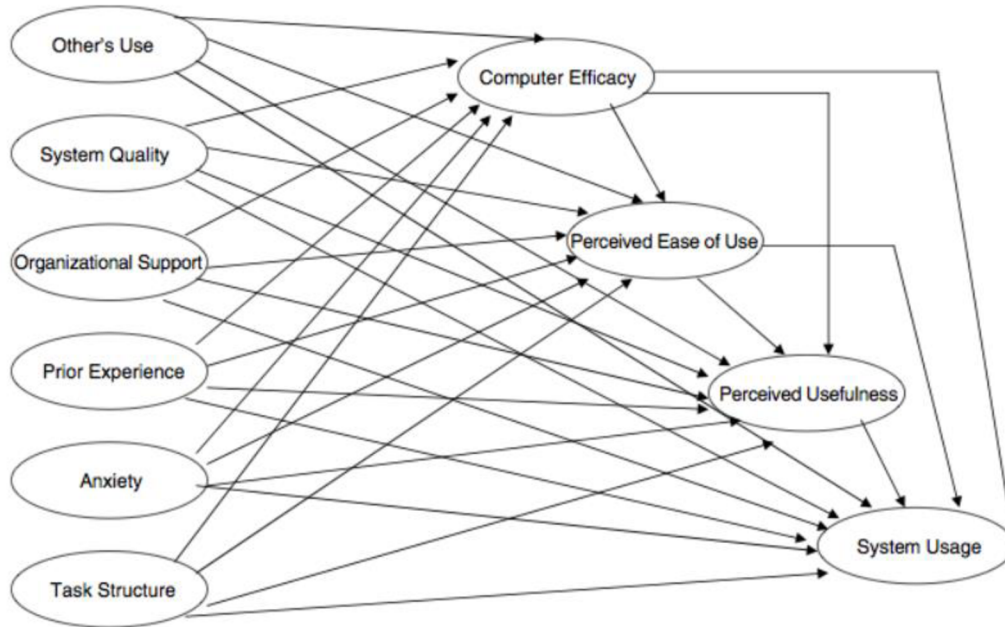
Figure 4 - Adding contextual specificity to the Technology Acceptance Model (McFarland, 2006)

The findings bolstered the research model, demonstrating that "task structure, prior experience, other's use, organizational support, anxiety, and system quality were all directly and significantly affected by system utilization." The mediation effect was also observed, as expected. Thus However, for several relationships, the effect was the opposite of what was expected, such as other people's use diminishing computer efficacy or high-quality systems connected to low use frequency.

To summarize, the basic model, or its expansion, does not account for all of the observed variation in system usage. The models, on the other hand, all agree that computer efficacy influences perceived ease of use, which is in turn linked to perceived utility.

3.10 Covid impact on workplace

The Covid-19 pandemic not only impacted normal work routines all around world, particularly when government decided to enforce a lockdown on people's movements and commercial activities in order to prevent the coronavirus, but it also speeded up work trends such as workplace flexibility, which had already begun with the migration of work to online

or virtual platforms. Workplace flexibility is defined by researches as a mutually beneficial agreement between employees and employers on when, where, and how people will work to fulfill the organization's needs. (Amankwah-Amoah, et al., 2021) Workplace flexibility can be formal and authorized by HR norms, or it can be informal and accessible on a particular circumstance basis. Alternative work arrangements such as flextime, teleworking, leaves, and part-time work may be included. When infection rates began to rise in March 2020, most businesses had almost no choice but to encourage their workforce to embrace teleworking, a kind of workplace flexibility that allows employees to work from home.

Working remotely differs from the usual nine-to-five, office-bound method used by traditional companies. The rapid expansion of communication and networking technologies has advanced and empowered the new normal. According to the research teleworking (also known as telecommuting or work-from-home) is becoming a more popular practice. It literally refers to the process of working from home using the internet, email, and telephone. Many businesses and organizations used it to ensure that business could continue at a distance despite the lockdown in order to prevent social and economic crises. (Amankwah-Amoah, et al., 2021)

Telework, which has been occurred during the Covid-19 crisis and quarantine period, has eased some of the most common concerns (such as the belief that only just few jobs can be accomplished from home, the fear of losing control over the people, and so on), and this has been made possible by boosting digitalization and technological developments.

3.10.1 Paperless organizations and offices

Large and small organizations have been rapidly adopting new and rising digital technologies to improve operational efficiency and effectiveness for decades. Many organizations are turning to digitally oriented value-chain operations to not only minimize the negative impact of COVID-19, but also to strengthen competitive advantages and long-term sustainability. Although the concept of a paperless office has been popular since the late 1960s, the pandemic has boosted the urgency of digitalization, making it attractive to a

broad range of companies. Laptops, high-capacity storage systems, tablets, smartphones, and high-speed wirelessly broad-band are becoming increasingly available to organizations as tools for digitalization and paperless organization. Firms that will go digital decrease their demand on paper documents and enable all employees more access to information without covering the fee of printing or maintaining physical paper flows. Although paper-based work is still common in traditional offices, the accessibility of alternatives has transformed considerably.

Technological advancements have encouraged a tendency to rely on digital technologies, such as electronic document scanning and retaining digital information via cloud storage. Reduced use of copiers and printers, as well as less need for maintenance and repair of such equipment, as well as papers and related supplies, are all associated with digitalization. For many organizations in the new global age, partial or full digitalization of corporate activities has become a must. Companies can enhance workflows and save administration and processing costs by moving away from physical paper toward a digitally oriented strategy to storing, disseminating, and interpreting data. Indeed, paper and paper-based practices are also slow and unreliable when compared to automated digital devices; it's much more difficult to identify data from physical paperwork, but also reports on paper-based methods are manual and slow to generate, employees waste an hour every day searching for documents, wasting time and money, and reducing productivity.

It also has the ability to reduce obstacles in paper offices' routines and processes, which often stifle innovation. Apart from cost savings, digitalization offers the ability to eliminate human errors associated with a variety of administrative and manual routines and duties. Considering technological advancements, corporations can now not only have paperless offices but also become paperless businesses, cutting costs and removing the laborious processes that restrict creativity.

Numerous small and medium enterprises (SMEs) utilized digital devices to manage sections of their organization, motivated by the expanding prospects inherent in digitalization in terms of eliminating paper-based bureaucratic processes and expenses associated. Most of the other factors that influence the adoption of new technology include the technology's

potential benefits above alternatives, such as performance and value, as well as compatibility with the focused organization's existing goods and services.

As the urge to progress toward digitization increases, there are also barriers to achieving this goal. Adopting electronic reporting techniques may be a tiny step toward digitization for organizations, but it has the potential to transform existing processes. (Amankwah-Amoah, et al., 2021)

3.10.2 The impact of loneliness during a pandemic

Loneliness is often defined as a state of being alone or isolated from one's society or community. It's assumed to be a dark and depressing sensation that can lead to depression, anxiety, emotional problem, chronic stress, insomnia, and even late-life dementia. Loneliness is widespread among the elderly, leading to higher rates of depression and suicide. Long durations of isolation in custodial care or quarantine for sickness have been shown to have negative impacts on mental health. (Stickley, 2016) Loneliness is thought to destabilize this crucial construct and affect social integration, resulting in an increase in isolation.

This is a vicious process that isolates the lonely person even further into his own 'confined' environment. One of the most important measures of social well-being is loneliness. The concept of social loneliness makes most individuals feel uncomfortable. They'll do anything to keep themselves engaged or distracted, from hedonistic behaviors to ludicrous displays of pride and depravity. In addition, loneliness has been linked to sensory loss, connective tissue and immunological illnesses, cardiac disease, and overweight.

Chronic loneliness is likely to lower physical activity, increasing the risk of frailty and fractures if this self-isolation and lockdown is maintained. This COVID-19 pandemic appears to have slowed modern society's solid pace to a halt, effectively flattening the wings of unrestricted social connection. Individuals are expected to deal with the frightening reality of isolation as a result of these social restrictions, that can increase to domestic inter-personal violence and boredom.

In Wuhan, China, emergency workers and the isolated populace have witnessed similar increases in isolation and loneliness. Depression, anxiety, post-traumatic chronic depression, and insomnia have all risen in the population as a result of this. It also causes exhaustion in health-care personnel and lowers their performance. However, neither life nor society had effectively prepared us for this challenge. (Torales, 2020) Boredom and loneliness prompt authorities to become irritated and impatient, and many people are breaking quarantine regulations, resulting in serious public health impacts.

Although this sort of situation is unusual in every way, emotional unpreparedness for such biological disasters has negative consequences. It also makes us take a step back and wonder if social distancing is only for a certain socioeconomic class, as millions of labor migrants, homeless people, and daily wage workers are stranded in overcrowded workplaces, train and bus stations, and manufacturers. When basic necessities are lacking, thinking about distancing or hand sanitization according to defined norms would be a far myth. Isolation or loneliness is therefore different for them. It's being separated from their homeland and families, as well as being frequently denied human rights and dignity. Loneliness can be caused by a separation from one's self-identity; nevertheless, it manifests differently in different socioeconomic groups. It's amusing, once again, how the concept of loneliness varies depending on social levels, resulting in multiple psycho-social concerns.

3.10.3 The way forward post Covid

The very first step in this process is to turn this hidden loneliness into solitude. On one hand, loneliness is a feeling associated with fear and despair; on the other hand, isolation is associated with harmony and calmness. The ability to be at peace with oneself has always been the fundamental answer to loneliness. However, in the age of globalization, humanity has lost track of this tendency. Solitude has produced many great works of art, philosophy, and literature. This comes from being able to appreciate one's existence as well as the ability to value one's interactions with others.

That might be a good time to rediscover old interests, underestimated hobbies, and unrealized goals. Another possibility is to strengthen close relationships with family and loved ones. Distancing yourself from social media during a pandemic will be advantageous,

as it can contribute to an 'infodemic,' producing information overload. COVID-19 is unquestionably a "digital pandemic," with statistics spreading faster than the virus itself. During isolation, only current and relevant information about the situation outside can help to reduce anxiety. (Banerjee & Rai, 2020)

It is essential that the virus does not damage us on a psychological level, as this might last far beyond ending of the epidemic. As mental health providers, we must be aware of and respond to the special needs of those in quarantine. Their psychological and personal needs must be fulfilled. With their loved ones, they must keep digital communication. As previously stated, social connectivity is important. Similar protocols used in China during the early stages of the pandemic improved the wellbeing of individuals who were quarantined.

Torales (Torales, 2020)emphasized the need for community-based and brief psychosocial treatment in its recent research, emphasizing the ongoing pandemic's chronic mental health consequences. Furthermore, research has shown that even basic telephone consultations once a week can help lower anxiety during pandemics. These meetings should be shorter and solution oriented. Another key feature of social integration is the involvement of the connected people in everyday life.

Taking care of domestic employees, business owners, security employees, and so on, or even transmitting greetings with neighbors or strangers, might provide the impression that "we are all in this together." At times like these, when the entire world is experiencing the same fear, humanity's bonds become even more essential. Allied specialties must be similarly oriented in order to recognize and accept the mental health demands of a biological disaster. The pandemic will finally end, leaving two key lessons: mental preparedness for solitude in times of disaster and the need of psycho-social well-being as a cornerstone of public health.

4 Practical Part

In the practical part, a questionnaire for evaluating the variables to determine the impact of digital workspace was conducted. The survey is formed by 6 segments: 1. Introduction Data: covers questions regarding the demographic of the participants; 2. Company data: questions in this segment assess information about the company the participants work for; 3. Digital culture: questions given have a goal to get a basic understanding of employees' view on digital culture in their company; 4. Digital workspace: questions formed allowed to evaluate employees' understanding of digital workspace in their company; 5. Covid 19 Impact: in this segment individuals were asked to assess according to their perception the impact Covid 19 had on the workspace; 6. Technostress: these questions were used to find out how respondents evaluate the impact of technology in the daily work tasks and life.

The UTAUT model was used to create the model for this study. It combines past research with survey participants' real experiences and their perceptions of the influence of digital workplace on employees. The independent variables in this research model include the performance expectancy, effort expectancy, facilitating conditions and individual innovation. Moderators are gender, age group and company industry.
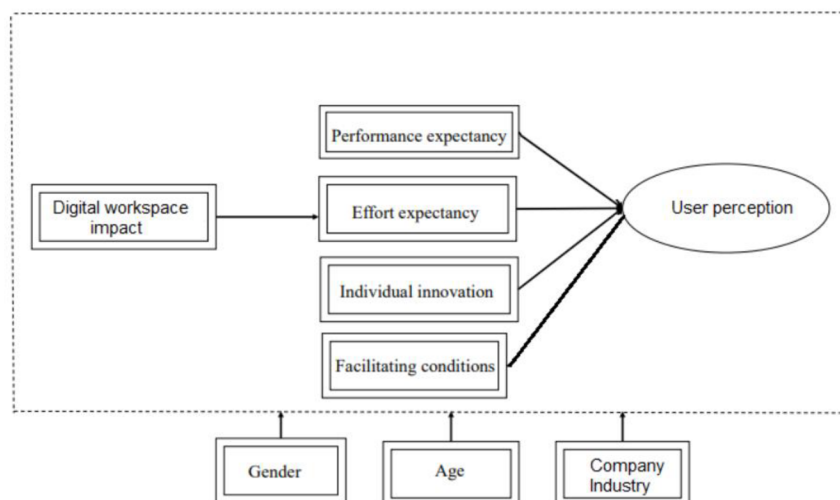
Figure 5- User perception on digital workspace impact UTAUT

Variable	Definition
Performance Expectancy	The degree to which users perceive that digital workspace can improve their work performance
Effort Expectancy	The degree of ease associated with digital workspace.
Facilitating Conditions	The degree to which users perceive that the

knowledge and skills required to use new technologies as part of digital workspace can be obtained from e-learning infrastructure (e.g., users' training). |
| Individual Innovation | The degree to which individuals believe they are willing to try out new technology. |

Table 1 – Definition of independent variables in UTAUT model (Lin, 2019)

The survey participants were offered a closed type of survey where their opinion was expressed via Boolean answers (Yes or No), five-point scale where strongly agree is represented by 5 and strongly disagree by 1.

To draw the conclusions, the following research questions were formulated:

Research question 1: What are the priorities and challenges those employees face daily in the digital workspace?

Research question 2: How did Covid-19 impact the digital workspace? Which industries adopted faster the new digital workspace requirements?

Research question 3: How does technostress affect employees in their daily life? Is there a correlation between gender and how technostress is perceived?

4.1 Exploratory Data Analysis.

Exploratory data analysis is a process of evaluating data in order to summarize its primary properties, which is frequently done using visual approaches. It's frequently the initial stage in the data-analysis procedure.

With EDA, the chosen characteristics can be determined if they are appropriate for the model. It allows to get the most out of a data collection by revealing the underlying structure and extracting essential variables. Outliers and abnormalities may be detected, underlying assumptions can be tested, and optimal factor settings can be determined.

4.1.1 Demographics Data

The data was collected using the convenience sampling method. A convenience sample is a non-probability selection approach that takes a sample from a group of people who are simple to contact or reach. (Thornhill, 2012) The survey was distributed in social media such as LinkedIn, Facebook and Instagram using a weblink. The replies obtained reached a 54% participation. On a time-interval from February 1st to February 12th, 167 answers were collected. 79 females and 89 males participated in the survey setting the ground for a gender-equality answers.

Gender representation		
Male	89	53%
Female	79	47%
Age group		
18-25	93	56%
26-39	23	14%
40-49	27	16%
50-59	16	10%
60+	8	5%
Location (Country)		
Albania	60	36%
Czech Republic	100	60%
Italy	3	2%
France	4	2%

Table 2 – Demographic data summary

The participants in the survey belong to different age groups. Age group was included in the demographic questions because people of a comparable age group tend to have similar interests and ways of thinking. (Gigliotti, 2014)

4.1.2   Company Data

To understand if there is a correlation between company size (based only on the number of employees) and the digital workspace, participants were asked to determine their company size. According to Hong, company size is one of the factors that drives innovation and economic performance in companies. (Hong, 2016)

Company Size		
	Nr of answers	%
1-100	21	13%
100-500	35	21%
500-2000	41	25%
2000-5000	9	5%
5000-10000	7	4%
10000-50000	15	9%
50000+	39	23%

Table 3 - Company size summary

Industry type		
	Number of participants	%
Agriculture	7	4%
Construction	19	11%
Education	29	17%
Electronics	22	13%
Hospitality	14	8%
Information Technology	32	19%
Manufacturing	16	10%
Mining	2	1%
Pharmaceutical	2	1%
Telecommunication	8	5%
Transport	16	10%

Table 4 - Industry sector of participants.

76 participants responded with Yes to the question "Does your company have an established digital workplace program?" and the rest of 92 answered with No. The answers show that respondents might not be aware of digital workplace programs or that other factors (to be discussed as part of the research questions below) might affect the implementation of a digital workplace program.

When asked to rank the priority of digital workspace in terms of their company's priority, where 1 is a low priority and 5 is a high priority, participants answered as per below:

Priority level		
1	69	41%
2	7	4%
3	6	4%
4	16	10%
5	69	41%

Table 5 - How does the digital workplace rank in terms of your company's priorities?

Majority of the respondents answered with "I have no information" to the question "How would you rate the maturity of the digital workspace in your company?" The rest got divided between the answer of "Not started", "Mid-way" and "Mature Phase"

Digital workplace maturity level		
I have no information	57	33%
Not started	23	13%
Mid way	31	18%
Mature phase	60	35%

Table 6 - How would you rate the maturity of the digital workspace in your company?

The levels of maturity are a reflection of the success of such implementations. Results indicate that organizations included in this survey have not developed enough maturity or experience in digital workspace implementations.

4.1.3   Digital Culture

92 Yes answers were received for the question "Do you have frequent trainings on how to use IT tools of your company?" Results indicate that the respondents recognize the importance of trainings in the use of day-to-day technology.

Depending on whether the company has introduced a digital workspace to their employees, the "old fashioned" communication method, phone, faces a tie with the new communications tools such as Teams, Skype or Zoom.

IT tools		
Phone	75	45%
Mail	17	10%
Teams/Skype/Zoom	75	45%

Table 7 - IT tools used when in need to contact colleagues, managers, client

When it comes to communication and document Exchange, 93 respondents answered with Yes to the question "Is there any collaboration software, such as MS SharePoint, that the company uses for communication and document exchange?"

Respondents were asked to rate how simple it is for them to locate the information they require to deliver prompt service to customers or coworkers. Majority, 66 of them responded that it is very easy for them to locate information. Moreover, if the rating category of very difficult and somehow difficult get combined, we get 48 respondents. This suggests that the respondents may possess sufficient analytical and critical thinking abilities to assess the purpose, meaning, and logic of content found on internal tools. However, the results suggest that some of the respondents may be unaware of or lack the abilities needed to effectively appraise digital content.

Difficulty Level		
Very Difficult	16	10%
Somehow Difficult	9	6%
Relatively Easy	31	20%
Very Easy	66	43%
No answer	32	21%

Table 8 – Rating simplicity of locating the information required to deliver prompt service or work along with customers and coworkers

To investigate if organizations are helping the employees to manage information by reducing barriers to its access, the respondents were asked if they find it easy to gain new skills and expand their knowledge by accessing information. Majority of respondents didn't answer this question. The rest was split between very easy and relatively easy. Therefore, the result indicates that organizations are not doing enough to facilitate e-learning access in the workplace.

New Learning Difficulty Level		
Very Difficult	17	10%
Somehow Difficult	10	6%
Relatively Easy	36	21%
Very Easy	32	19%
No Answer	74	44%

Table 9 – Summary of the question "How easy is it for you to gain new skills and expand your knowledge as a natural part of your job via e-learning with flexibility, real-time access to experts and experience, communities of practice, best practices, lessons learned?"

The responders may be left to their own means to learn how to use search tools and new skills. One factor might be that some firms lack the financial means to spend in staff training and development.

4.1.4 Covid-19 Impact on digital workspace

COVID-19 has had an impact on various enterprises in a variety of ways and to varying degrees. Many firms were muddied with uncertainty as to how to adjust to the shift as soon as the lockdown was implemented, and some even had their IT teams pushed to capacity trying to organize and work towards the new setup. The digital transformation was sped up. It was new to some, while it was already a part of others' 'means of working,' but it was difficult for all.

Digital workspace before Covid		
Yes	62	37%
No	105	63%

Table 10 – Summary of the question "Were you working remotely even before the pandemic?"

105 respondents said that they were not working remotely before the pandemic from which 75 of these respondents did not move to working remotely during the pandemic. Employees that started working remotely during the pandemic showed a 33% increase in numbers.

Digital workspace during Covid		
Yes	92	55%
No	75	45%

When asked about the adaptability of their company in major events, only 76 respondents answered with impossible to the question "How adaptable is your company when it comes to reacting quickly to major events such as the pandemic?" whilst the rest got divided between moderately flexible up to very flexible. Results are summarized in the table below:

Adaptability Rate	Respondents	Relative Frequency
Impossible	76	0.46
Moderately flexible	16	0.1
Relatively flexible	13	0.08
Very flexible	62	0.37

The results of this question will be interpreted below at the research question 1 because parameters like the company industry or company size can affect the adaptability on crisis events.

From employees that worked remotely during the pandemic, 29 of them reported issues with unified communication and 32 networking issues.

Type of issue	Respondents	Relative Frequency
No issues at all	9	0.1
Application compatibility issues	9	0.1
Lack of devices (PC, Laptop, docking stations, printer, etc.)	13	0.14
Network connectivity issues	32	0.35
Unified communication issues	29	0.32

Table 13 – Summary of the question "What was your main issue whilst working from home?"

Majority of respondents say that it was easy to troubleshoot the issues above as their company has resources and systems available. 90 out of 92 respondents that worked from during the pandemic feel that workspace has become more important during the pandemic.

Workspace during pandemic-scale	Respondents	Relative Frequency
Not successful	17	0.18
Mixed feeling	34	0.37
Successful	41	0.45

Table 14 – Summary of the question "If you worked remotely during the pandemic, do you feel it was successful"

4.1.5 Technostress

While many businesses are still assessing the impact of digital transformation on their operations, there are rising fears that technology excess, or technostress, is placing too much stress on the workforce.

Results from the technostress section of the survey are summarized in the table below:

	I am forced by technology to do more work than I can handle.	I am forced to change my habits to adapt to new technologies.	I have a higher workload because of increased complexity of technology	I feel my personal life is being invaded by this technology.	I do not find enough time to study and upgrade my technology skills.	I felt drained from tasks requiring me to do my work remotely.
TRUE	66	41	38	42	66	67
FALSE	82	79	82	78	82	52
No Answer	19	47	47	47	19	48

Table 15 - Technostress: answers summary

Employees may lack the requisite digital literacy abilities to operate with information sharing systems and software; this may be explained as the respondent's capacity to use new technology and execute their task efficiently in the workplace is severely hampered by the rapid growth of technology.

This data will be further analyzed under research question 3 with contingency table analysis method.

4.2 Contingency table analysis

4.2.1 Research question 1

Research question 1: What are the priorities and challenges those employees face daily in the digital workspace?

To answer the first research question, the employees we asked to choose at least 3 priorities that their company is focusing on the digital workspace. The responses were ordered according to the highest frequency. Tools and Processes and Real time collaboration on top list because companies and employees both benefit from such priority. Also, tools and processes are in constant change, requiring more focus from companies compared to Governance risk and compliance for example.

Digital workspace priority	Votes
Mobile services and adoption	29
Intranet Effectiveness	12
Real-time collaboration	47
Employee experience	28
Culture and Change	32
Ideation tools and processes	56
Performance management	12

Governance, risk and compliance	10
Learning and development	44
Smart office/ Physical and digital workspace alignment	38
Digital self-service	15

Table 16 -Digital workspace priority according to survey participants.

Ideation tools and processes was an expected priority for digital workspaces. The success of knowledge-based employees depends on the creation and management of digital workspaces. Knowledge-based employees, according to McKinsey, spend up to 19 percent of their workweek searching for and acquiring information. (Chui, 2020)

Companies are increasingly searching for solutions that act as a central repository and key information to eliminate such waste of valuable knowledge employees' time. These solutions should be able to link a variety of communication channels, including employee communication applications, document sharing platforms, social media, and other technologies that these workers may utilize. The age of improving employees' experience with these technologies has arrived, now that integrating digital solutions in the workplace is no longer a novelty. Employers are no longer deploying any tools; instead, they are implementing solutions that are user-friendly, intuitive, and mobile-friendly, allowing workers to have an amazing digital working experience.

Rated as second priority was real-time collaboration. Collaboration in the workplace is critical for resolving issues and increasing productivity. As a result, firms must provide online, seamless, integrated, and intuitive collaboration solutions that improve employees' capacity to collaborate throughout the workplace.

The third priority was rated learning and development. The findings emphasize the importance of practice-based learning and that the digitalization of work will necessitate continuous, ongoing, and integrated learning efforts through participation in the (digital) workplace, i.e., learning how to live and work in a digital environment rather than learning a skill.

4.2.2 Research question 2

Research question 2: How did Covid-19 impact the digital workspace? Which industries adopted faster the new digital workspace requirements?

Company Size	I have no information	Mature Phase	Mid-way	Not Started	Grand Total
1-100	2	2	9	8	21
100-500	9	4	12	10	35
500-2000	1	7	29	4	41
2000-5000	0	5	2	2	9
5000-10000	0	5	1	1	7
10000-50000	0	12	2	1	15
50000+	0	32	6	1	39
Grand Total	**12**	**67**	**61**	**27**	**167**

Table 17 - Company size and maturity level of digital workspace

To test the correlation between the maturity level of digital workspace and company size, the results were merged into small, medium and large companies. This will assure that the Chi-Square test assumption of a count more than 5 is met.

comp.size * maturity.level Crosstabulation

Count

		maturity.level				
		I have no informat	Mature Phase	Mid-way	Not Started	Total
comp.size	Large	0	50	8	3	61
	Medium	7	8	29	6	50
	Small	11	6	17	22	56
Total		18	64	54	31	167

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	96.553[a]	6	<.001
Likelihood Ratio	100.707	6	<.001
N of Valid Cases	167		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.39.

Figure 6 - Chi- Square test results for company size and maturity level of digital workspace (after merge)

H0: There is no correlation between company size and maturity level of digital workspace.

H1: There is a correlation between company size and maturity level of digital workspace.

Since p value is less than our chosen significance level ($\alpha = 0.05$), we do reject the null hypothesis H0 and conclude that there is a correlation between company size and maturity level of digital workspace.

Results indicate that small companies with 1-100 employees are rated as not started phase regarding digital workspace. The higher the number of employees in a company, the bigger gets the rating of the maturity level. These results are backed up by previous studies which confirm the same. (OECD, 2020) Despite the benefits and possibilities that digital

technologies provide, and despite the huge growth in uptake in latest years, many SMEs tend to lag in adoption, and digital adoption discrepancies amongst smaller SMEs with 10 to 49 employees have expanded over the previous decade. Indeed, progress has derailed in many countries (e.g., Greece, Hungary, Poland, Portugal, and Turkey), where the average national share of employees with connected computers in small firms remains at or below 40%, whilst large firms in frontier countries (e.g., Denmark, Finland, and Sweden, where the average share of employees with connected computers in small firms remains at or below 80%) have made rapid progress over the period. (OECD, 2020) Considering digitalization is a key driver of productivity and, by extension, wage growth, these variations have exacerbated inequality across individuals, locations, and businesses. For many businesses, the most difficult obstacle is the initial step. There are many strong complementarities in technologies that can encourage additional adoption once an initial transition to digital technology is completed. SMEs rely on external systems, assistance, and guidance to take this step, as well as to find and embrace other digital technologies. This is mainly to compensate for internal capacity deficiencies, but it is also due to economic considerations. Digital platforms, for example, (e.g., social networks, e-commerce marketplaces, etc.) provide great potential for cost-effective optimization of specific processes (e.g., business intelligence and data analytics services). Similarly, SMEs rely on external consultants or the security-by-design aspects of the digital goods and services they employ to manage digital security concerns. They may also source machine learning (AI) solutions from knowledge networks, and with cloud-computing-based AI systems, they can leapfrog to new AI systems. Technology complementarities, on the other hand, might contribute to big digital gaps by making it easier for larger and more digitally adept enterprises to adopt more sophisticated digital practices. The disparity between SMEs and larger companies is thus more pronounced in the adoption of more sophisticated technologies (e.g., data analytics) or in areas where scale matters for implementation (e.g., enterprise resource planning for back-office integration, and supply-chain and customer relationship management software for front office and production process integration).

Most SMEs begin their digital transformation in general administration or marketing, where the digital gaps between SMEs and bigger enterprises in online contacts with the government, electronic invoicing, social media use, and e-commerce are less.

Company Size	Very Easy	Relatively easy	Somewhat difficult	Very Difficult	Impossible	Grand Total
1-100	1	1	3	13	3	21
100-500	3	9	5	16	2	35
500-2000	5	11	3	18	4	41
2000-5000		4		5		9
5000-10000	4	3				7
10000-50000	10	3	2			15
50000+	11	18	8	2		39
Grand Total	34	49	21	54	9	167

Table 18 - Company Size and difficulty level of gaining new skills

Figure 7 - Chi- Square test results for Company size and difficulty level of learning new skills

The footnote for this statistic pertains to the expected cell count assumption (i.e., expected cell counts are all greater than 5): 23 cells had an expected count less than 5, so this assumption was not met. In order to meet the assumption, the company size was merged into small, medium and large.

comp.size * difficulty Crosstabulation

Count

		difficulty					Total
		Impossible	Relatively easy	Somewhat difficult	Very Difficult	Very Easy	
comp.size	Large	5	20	10	5	21	61
	Medium	5	15	5	20	5	50
	Small	6	10	9	26	5	56
Total		16	45	24	51	31	167

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	32.930[a]	8	<.001
Likelihood Ratio	35.931	8	<.001
N of Valid Cases	167		

a. 1 cells (6.7%) have expected count less than 5. The minimum expected count is 4.79.

Figure 8 -Chi- Square test results for Company size and difficulty level of learning new skills (after merge)

H_0: There is no correlation between company size and difficulty level of learning new skills.

H_1: There is a correlation between company size and difficulty level of learning new skills.

Since p value is less than our chosen significance level ($\alpha = 0.05$), we do reject the null hypothesis H_0 and conclude that there is a correlation between company size and the difficulty level of learning new skills.

The importance of workforce training and development in increasing corporate performance and local economic growth cannot be overstated. This is especially important in the case of small and medium-sized enterprises (SMEs), which not only make up a large portion of most local economies but are also frequently perceived as being less likely to participate in workforce development, jeopardizing their own and the local economy's futures.

Respondents that work in a big company (10K+ employees) 10 out of 15 employees said that it is very easy to gain new skills. Whilst respondents that work in a small/ medium company define the difficulty level of gaining new skills as very difficult.

These results back up even prior studies conducted for other countries. According to Experian poll, 85% of SMEs are hampered in their efforts to enhance their workforce's skills. Manufacturing enterprises encounter the biggest barriers to talent development (90%) whereas retail organizations face the fewest (74 per cent). (Experian, 2016)

As per the same survey, the reasons for which learning initiatives are difficult for small and medium companies are listed below:

50%	• Difficult to Commit Employees for Such Initiatives Due to a Lean Workforce
38%	• Other Priorities to Focus Resources and Time On
18%	• Lack of Relevant Targeted Training Programmes for My Sector
17%	• Insufficient Competent Human Resources (HR) Personnel to Support Organisation
6%	• Lack of Leadership Buy-in to Participate in Such Initiatives
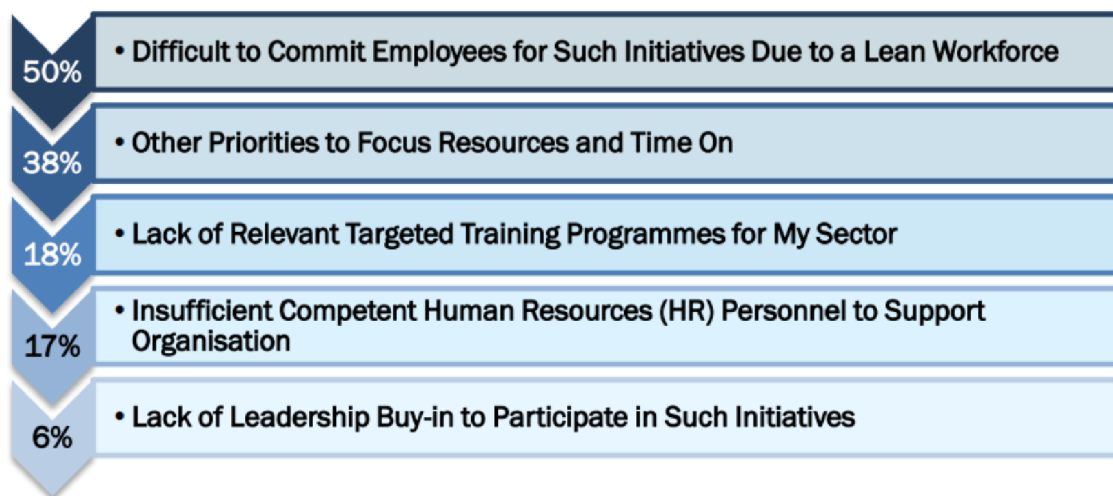
Figure 9 - Reasons behind the difficulty level of gaining new skills (Experian, 2016)

These differences have hindered the ability of certain businesses – and localities – to modify their business models and continue operations during prolonged periods of social isolation, increasing existing inequities.

Many nations, such as Denmark's SME Digital initiative and Australia's Small Business Advice Service, are attempting to address these difficulties by giving financial assistance and advisory services. Some countries, such as Chile, Israel, Latvia, and Spain, provide skills training for SMEs. Infrastructure upgrading strategies exist in Iceland and Costa Rica, as well as networking programs in Belgium and Germany. These initiatives will be critical in

closing the digital gap, but they must be well-coordinated through proper multilevel governance and procedures to match thematic expenditures (for example, ensuring that infrastructure is provided in a timely manner).

Company Industry	Were you working remotely even before the pandemic?		Did you work remotely during the pandemic?	
	No	Yes	No	Yes
Agriculture industry	7	0	5	2
Construction Industry	17	2	15	4
Education Industry	27	2	4	25
Electronics	2	20	2	20
Hospitality Industry	12	2	12	2
Information Technology	1	31	0	32
Manufacturing Industry	16	0	13	3
Telecommunication industry	1	7	0	8
Transport Industry	15	1	13	3

Table 19 – Summary of the question "Were you working remotely before/ after the pandemic?"

Lockdowns and social distance forced businesses to rethink their business models, with companies relocating operations online or deploying smart working solutions on short notice

to stay in business and avoid supply chain interruptions. (OECD, 2019) Industry type was a determining factor also for reaction towards Covid-19. Our survey concluded that for companies in information technology, education and electronics, 100% of our respondents switched to working remotely. Whilst other industries like construction, manufacturing and transport did not change much their practices during Covid. However, it is important to note, that companies from technology work already had established digital workspace conditions prior to Covid, so reacting to such crisis from a pandemic was easier. An important industry that doesn't fall in these trends is the education sector. Before Covid only 2 respondents were working from home whilst after Covid, 25 respondents moved their activity remotely. Education industry was the sector with the fastest reaction to adopting the new Covid-19 practices.

According to early data from company surveys conducted throughout the world, up to 70% of SMEs have increased their usage of digital technology as a result of COVID-19. Given the expenditures made and the commercial benefits of the new models, many of these changes are likely to endure. Business studies done throughout the world in recent months have confirmed the shift: Around a third of the firms surveyed in the United Kingdom have invested in new digital capabilities over the period (Valero, 2020); 75 percent of the firms surveyed in the United Kingdom have moved to remote working over the period (Valero, 2020); 75 percent of the firms surveyed in the United Kingdom have moved to remote working over the period (Valero, 2020) During COVID-19, 55 percent of SMEs surveyed in Brazil cite improvements in customer relationships, process agility, and customer acquisition as key benefits of digitalization (Zdnet, 2020) and 72 percent of online small business owners interviewed in Canada believe ecommerce is now required for a successful business (Paypal, 2020) Many organizations, on the other hand, lack the time or expertise required to properly manage this transformation – to choose the correct digital systems, improve digital skills, build the appropriate safeguards and security, and completely customize and comprehend the potential of these new tools. The transformation is not yet complete for these businesses, and it is fraught with dangers.

One important concern is that hackers would have more opportunities to exploit SME's lack of readiness. Scams and phishing campaigns linked to the Coronavirus are on the rise

(OECD, 2019) and the US Federal Bureau of Investigation has witnessed a fourfold increase in cybercrime complaints filed to its Internet Crime Complaint Center since the start of the COVID-19 epidemic. A breach may cost a small business a lot of money, and it's typically way beyond the ordinary entrepreneur's capital reserves.

While faster adoption of digital tools may be a silver lining to the crisis, there will always be a need for counsel, support, and direction from reputable sources to help solidify the change, handle dangers, and maximize the potential of the new technologies.

4.2.3   Research question 3

Research question 3: How does technostress affect employees in their daily life? Is there a correlation between gender and how technostress is perceived?

As first step we will test the correlation the two variables using Chi-Square test using SPSS.

Crosstab

Count

		I.am.forced.to.change.my.habits.to.adapt.to.new. technologies			
		FALSE	TRUE		Total
Gender	F	7	37	34	78
	M	40	42	7	89
Total		47	79	41	167

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	40.719[a]	2	<.001
Likelihood Ratio	44.547	2	<.001
N of Valid Cases	167		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 19.15.

Figure 10- Chi-Square test results for technostress factors and gender

H0: There is no correlation between gender and changing of habits because of new technologies.

H1: There is a correlation between gender and changing of habits because of new technologies.

Since p value is less than our chosen significance level (α = 0.05), we do reject the null hypothesis H0 and conclude that there is a correlation between gender and changing of habits because of new technologies.

Same logic is applied for all factors of technostress included in the survey. For all of them, H_0 is rejected. Full results can be found in Appendix 2.

Rapid technology advancements have put employees under a lot of stress. Organizations force employees to learn new technology in a short amount of time, and many women are unable to manage time, leading in techno stress.

I am forced by technology to do more work than I can handle.			I feel my personal life is being invaded by this technology.		
	F	M		F	M
FALSE	40	42	FALSE	19	47
TRUE	38	28	TRUE	52	9
I am forced to change my habits to adapt to new technologies.			I do not find enough time to study and upgrade my technology skills.		
	F	M		F	M
FALSE	37	42	FALSE	14	39
TRUE	34	7	TRUE	48	21

I have a higher workload because of increased complexity of technology			I felt drained from tasks requiring me to do my work remotely.		
	F	M		F	M
FALSE	28	39	FALSE	38	18
TRUE	40	15	TRUE	24	57

Table 20 - Correlation between gender and how technostress is perceived

To draw visually conclusions from the contingency a side-by-side graph will be used.

As shown from the graph, there is a high gap between males and females when rating the question "I feel drained from tasks requiring me to do my work remotely". The results of this thesis concede with other prior studies where it was shown that women prefer to work from home more that man. According to FlexJobs survey, the fact that they didn't have to get dressed for work was cited by 70% of women as a positive. 60% of women preferred having more control over their work schedules. (Pelta, 2021) While the epidemic has been difficult for working women, particularly mothers, it has also sparked new workplace discussions about childcare, a burden that women bear disproportionately. After the pandemic has passed, more mothers are beginning to see telecommuting as a flexible approach to balance work and family life.

The opposite disproportion it is noted in the question "I have higher workload because of increased complexity of technology". Employees must regularly update their technical skills in order to stay up with the rapid growth of new ICTs, as well as endure the constant strain of a more complicated system and higher productivity goals. Employees in many firms endure ICT-related technical stress as a result of this. Females experiencing more technostress is a conclusion backed up by many studies like (Weil, 1997) , (Muthuswamy, 2021) and (Berger, 2016)

Technological stress has a negative impact on employee performance, health, and behavior. Businesses should establish strategies for preventing and adopting efficient techno stress

management, according to this survey. Using a transparent appraisal process will help you prevent frustration. Organizations must create realistic targets and goals. To welcome new and innovative technologies and ensure that staff are continually learning new skills, organizations might build up technology-based training programs. Before implementing new technology, managers must create a positive work environment, increase employee awareness of it, and persuade people to accept and accommodate it. When a company tries to implement technology, it must first gain employee acceptance. Workshops, seminars, and other certification programs can help employees broaden their knowledge. (Muthuswamy, 2021) Workplace culture, on the other hand, is complicated and flexible, making it difficult to define and influence. The important markers of an organization's success in creating accommodating working environments will not be the policies and practices that it implements, but the employee experiences that result. New technology has made it possible to have more flexible work schedules and share information more quickly. Future research could concentrate on the working environment, adoption mechanisms, and training methods, as well as a comparative study with other countries. Women's stress can be reduced by focusing on coping technology and employing new approaches.

Organizations that provide more relevant skill training to their employees create an environment where women can advance more swiftly. Just over half (56%) of female employees questioned by Accenture said their companies provide necessary skills training. This number jumps to 70% among women on the fast track to leadership. (Shook, 2018)

5 Results and Discussion

5.1 Results

Technological breakthroughs are causing unprecedented transformation in organizations. Employees are navigating a diverse technical tool, inadequate processes, and an organizational culture that doesn't support digital work in the midst of it all. Within the next decade, the nature of employment will change substantially as businesses face increasing pressure to use technology as effectively as possible in order to satisfy changing client expectations and greater competition. Organizations must handle both possibilities and problems presented by a digital workplace and digital workplace technologies, starting with new methods of working, evaluating and renewing old procedures, and eventually adopting a completely new digital organizational culture.

The main objective of the research is to analyze impacts of workplace digitization on employees' perspective via exploratory data analysis and cross-tabulation analysis.

The findings show that while businesses see digital technology and a digital workplace as strategic potential for growth, their execution and implementation aren't always in line with the goals. Furthermore, there is a lack of appropriate evaluation of how digital tools influence current processes, resulting in ineffective tool use. Employees in general see the value of the new tools but are unclear if they are fully utilizing them. The findings suggest that the tools were introduced with little regard for user acceptance, mutually agreed-upon working methods, or the evaluation and adjustment of existing procedures.

This research demonstrates that the foundation for digital change during COVID-19 is robust. Individuals see the epidemic as an accelerator of digital transformation since it has increased the number of people working remotely. Furthermore, people believe that their experience with the epidemic has made them more willing to operate completely digitally,

particularly those who believe the virus has resulted in quick change. In addition, the value of digital employment as a reliable source of revenue has grown. Job satisfaction is similar for persons who work remotely and those who continue to work at their current location; however, personal income has a significant impact.

The findings suggest that COVID-19 causes people to perceive a shift in the relevance of various work types. According to the responses, it appears that more individuals are willing to go from a job that is solely digital to a position that is solely digital. Based on the responses and the promotion of digital transformation, it appears that more individuals are eager to make the transition from going to work to living solely off of digital labor. Although the findings support the impact of the COVID-19 epidemic on the pace of digital transformation, further research is needed in the long run to back up this claim.

5.2 Limitations

The adoption of a significantly changing workplace or a real digital workplace is still in its early phases. The genuine notion of a digital workplace is often misunderstood in the marketplace.

Many firms mistakenly assume that email and social media skills are all that is necessary for a digital workplace. There are three limitations to this study that should be taken into account when deriving conclusions from the findings. The data was first gathered through social and online media sites. Also, convenience sampling was used, thus the results may be biased and not representative. Even though the majority of respondents do not list crowdsourcing as their primary source of income, it is reasonable to conclude that they have some familiarity with digital employment.

Second, the information was gathered during the later phases of the COVID-19 epidemic. The pandemic was at various levels of dissemination in the nations where surveys were

taken. Furthermore, the steps implemented by the governments of these countries differed significantly.

Third, 55% of the participants of the study were young, with an average age of 18–25 years, which may have affected their acceptance of digital work forms and desire to use them in their life.

5.3 Recommendation for future research

Although the transition to a digital workplace has begun, there are few instances of the business benefits of a genuinely digital workplace achieved by leading-edge organizations, thus impacts are generally informal and, more importantly, are seldom adequately evaluated. We identified few publications published in peer-reviewed academic journals or as academic working papers analyzing the benefits and drawbacks of businesses utilizing workplace digital technology throughout our research. Future study should examine the enabling and restricting impacts of digital technologies, as well as look for additional empirical evidence of effective digital workplace deployments in a variety of enterprises. There is a need for more research into the drawbacks of using digital technology in close relationships and efficient teamwork. During the literature research, some questions occurred that would be interesting to investigate further.

There remains the question if there are other parameters besides company size and company industry influencing the implementations of digital workspaces.

Furthermore, it would be useful to analyze what sorts of attitudes people have now when handling enormous amounts of data in the digital world, which was not achievable due to time limits in this study.

6 Conclusion

A digital workplace focuses on creating a better online work environment for remote employees, making it simple for them to access technology and systems that will help your firm achieve its goals and maintain its chosen culture. Businesses who haven't implemented digital workspace strategies aren't taking use of the internet marketplace's full potential.

Our survey concluded that employees perceive "Tools and Processes" and "Real time Collaboration" on top list because companies and employees both benefit from such priority. Also, tools and processes are in constant change, requiring more focus from companies compared to Governance risk and compliance for example.

Our findings suggest that there is a strong connection between company industry and adoption of digital workplace strategies. The same stands for company size and maturity of digital workspace strategies. The bigger the company, the more mature the digital workplace strategy. The smaller the company, the lower the maturity level of the digital workplace. The same hypothesis stands for the company size and the difficulty level of gaining new skills. Our survey concluded, the employee working for small companies face difficulty in gaining new skills required for the job. On the other side, employees in big companies have it easier to find resources and gain new skills.

Another parameter considered when analyzing the employee perception on digital workplace was technostress. This study found that the majority of the assumptions were correct, indicating that technostress had a detrimental influence on employees in a negative way. Technological stress has a negative impact on employee performance, health, and behavior. Conclusions from this study suggest that businesses should establish strategies for preventing and adopting efficient techno stress management, according to this survey. Gender wise women are more affected from technostress compared to man.

7 References

Allen, T. D., 2015. How Effective Is Telecommuting? Assessing the Status of Our Scientific Findings. *Sagepub,* 16(2), pp. 38-42.

Alosaimi, M., 2018. *The role of knowledge management approaches for enhancing and supporting education.* [Online] Available at: https://tel.archives-ouvertes.fr/tel-01816021/document [Accessed 12 02 2022].

Alves de Oliveira et al., 2020. The Home Office in Times of COVID-19 Pandemic and its impact in the Labor Supply. *General Economics,* p. 13.

Amankwah-Amoah, J., Z., K., G., W. & G., K., 2021. COVID-19 and digitalization: The great acceleration.

Anita Bregenzer, Paulino Jimenez, 2021. Risk Factors and Leadership in a Digitalized Working World and Their Effects on Employees' Stress and Resources: Web-Based Questionnaire Study. 23(3).

Attaran, M., 2019. The Need for Digital Workplace: Increasing Workforce Productivity in the Information Age. January, 15(1), pp. 1-23.

Autor, D., 2015. Why Are There Still So Many Jobs? The History and Future of Workplace Automation. *Journal of Economic Perspectives,* 29(3), pp. 3-30.

Avanade, 2013. *Global Survey: Companies are unprepared for the arrival of a true digital workspace,* s.l.: Avanade.

Bandura, A., 1982. Self-efficacy mechanism in human agency. *American Psychologist,* 37(2), pp. 122-147.

Banerjee, D. & Rai, M., 2020. Social isolation in Covid-19:The impact of loneliness.

Benerjee et al., 2020. *Emerging Trends in Disruptive Technology Management for Sustainable Development.* NY: CRC Press.

Berger, R., 2016. MEDIA USE AND TECHNOSTRESS. *Education and Development,* 10(1), pp. 1-16.

Biron, M. &. v. V. M., 2016. When control becomes a liability rather than an asset: Comparing home and office days among part-time teleworkers.. 37(8).

Carroll, N. & Kieran, C., 2020. Normalising the "new normal": Changing tech-driven work practices under pandemic time pressure..

CAZAN, A.-M., 2020. The digitization of working life: Challenges and opportunities.

Cazan, A.-M. C. E. ,. C. I. M., 2016. Computer anxiety and attitudes towards the computer and the internet with Romanian high-school and university students,.

Cham, S. et al., 2019. Digital Addiction: Negative Life Experiences and Potential for Technology-Assisted Solutions..

Choudhury, P. F. C. a. L. B., 2019. Work-from-anywhere: The Productivity Effects of Geographic Flexibility..

Chui, M., 2020. *Mckinsey.com.* [Online]
Available at: https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/the-social-economy
[Accessed 10 3 2022].

Cijan et al., 2019. HOW DIGITALIZATION CHANGES THE WORKPLACE. *Dynamic Relationships Management Journal,* May, 8(1), pp. 3-12.

David A, H. I., 2017. *Entrepreneurship and Entrepreneurial Skills in Europe: Examples to Improve Potential Entrepreneurial Spirit..* Opladen: Barbara Budrich Publishers.

Davis, B., 1989. User Acceptance of Computer Technology: A Comparison of Two Theoretical Models.. *Management Science,* 35(1), pp. 982-1003.

Deloitte, 2011. *The digital workplace: Think, share, do.* CA: Deloitte & Touche LLP and affiliated entities..

Dillon, A., 1996. User acceptance of information technology: Theories and models.. *Annual Review of Information Science and Technology,* 31(1), pp. 3-32.

Emma Pietrafesa et al., 2019. DIGITAL TRANSFORMATION IN ORGANIZATIONS:THE IMPACT ON WORKING LIFE QUALITY AND NEWRISK FACTORS. *International Conferences ICT, Society and Human Beings,* July.Volume 1.

Experian, 2016. *experian.com.* [Online] Available at: According to Experian, 85% of SMEs are hampered in their efforts to enhance their workforce's skills. Manufacturing enterprises encounter the biggest barriers to talent development (90%) whereas retail organizations face the fewest (74 per cent). [Accessed 21 02 2022].

Foerster-Metz, U. S., Marquardt, K. & Golowko, N., 2018. Digital Transformation and its Implications on Organizational Behavior.

Fredstrand, V. & Hanna, Y., 2021. Remote Work - Redefining the workplace through the lense of change management.

Fry, R., 2018. Millennials are the largest generation in the U.S. labor force.

Gigliotti, L., 2014. *Does Age Matter? The Influence of Age on Response Rates in a Mixed-Mode Survey.* South Dakota: Human Dimensions of Wildlife.

González-López, Ó., Buenadicha-Mateos, M. & Sánchez-Hernández.M, I., 2021. Overwhelmed by Technostress? Sensitive Archetypes and Effects in Times of Forced Digitalization.

Guenther, J., 2018. Designing Digital Workplace Environments - An Agile Framework for Large-Scale End-User Participation. *IEEE International Conference on Engineering,* 1(1), pp. 239-246.

Hong, S., 2016. Why firm size matters: investigating the drivers of innovation and economic performance in New Zealand using the Business Operations Survey. 11(1), pp. 5379-5395.

ILO, 2018. *Non-standard employment around the world,* Geneva: International Labour Office.

Kang, M. S., 2015. THE MEANING AND MEASUREMENTS OF THE UTAUT MODEL: AN INVARIANCE ANALYSIS. *Thirty Second International Conference on Information Systems,* 1(1), pp. 1-17.

Kissmer, T., Knoll, J., Stieglitz, S. & Groß, R., 2018. Knowledge Workers' Expectations Towards a Digital Workplace.

Klaus, P., 2013. Towards a Better Measure of Customer Experience. *International Journal of Market Research,* 55(2), pp. 227-246.

Lagus, M., 2020. Implementation of a digital workplace from the perspective of employees. *International Business Management,* p. 62.

Larcker, D., 1980. Perceived Usefulness of Information: A Psychometric Examination. *Decision Sciences,* 11(1).

Lin, C., 2019. Applying the UTAUT Model to Understand Factors Affecting the Use of E-books in Fujian, China. *University of Boras,* 1(1), p. 90.

Mähler V., Westergren U.H., 2018. Working with IoT – A Case Study Detailing Workplace Digitalization Through IoT System Adoption..

McFarland, D., 2006. Adding contextual specificity to the technology acceptance model.. *Computers in Human Behavior,* 22(3), pp. 427-447.

Mette Fuglseth et al., 2014. The effects of technostress within the context of employee use of ICT. *Computers in Human Behavior,* 40(1), pp. 161-170.

Miller, P., 2019. *Digital Workspace Business Case: What is the financial value of investing in digital working?,* s.l.: DWG.

Moussa, M., 2015. Monitoring Employee Behavior Through the Use of Technology and Issues of Employee Privacy in America. *SAGE,* 10(1), pp. 1-13.

MSCI, 2020. *Global industry classification standard (GICS) methodology,* s.l.: MSCI.

Muthuswamy, V. V., 2021. An Empirical Analysis on Techno Stress Among Women Employees in Saudi Arabia. *REVIEW OF INTERNATIONAL GEOGRAPHICAL EDUCATION,* 11(12), pp. 1-8.

Noel Carroll , Kieran Conboy, 2020. Normalising the "new normal": Changing tech-driven work practices under pandemic time pressure. *International Journal of Information Management,* December.Volume 55.

OECD, 2018. *BRIDGING the digital gender divide: Include, Upskill, Innovate.* [Online] Available at: https://www.oecd.org/digital/bridging-the-digital-gender-divide.pdf [Accessed 13 02 2022].

OECD, 2019. *OECD ICT Access and Usage by Businesses Database,* s.l.: OECD.

OECD, 2020. *The Digital Transformation of SMEs,* s.l.: OECD.

Ok-Kyu Choi, E. C., 2019. he mechanism of trust affecting collaboration in virtual teams and the moderating roles of the culture of autonomy and task complexity,. Volume 91.

Osberg, S., 2007. Social Entrepreneurship: The Case for Definition. *Standford Social Innovation Review,* 1(1), pp. 1-8.

OWL-Labs, 2021. *State of remote work in 2021,* NY: Global Workspace Analytics.

Paypal, 2020. *Pandemic Fast-Tracked Digital Transformation for Canadian Small Businesses, PayPal Canada Survey,* Canada: Newswire.

Pelta, R., 2021. *Survey: Men & Women Experience Remote Work Differently,* s.l.: FlexJobs.

Perry, J., 2018. Stress in remote work: Two studies testing the Demand-Control-Person model..

Pietrafesa, E., 2019. DIGITAL TRANSFORMATION IN ORGANIZATIONS:THE IMPACT ON WORKING LIFE QUALITY AND NEWRISK FACTORS..

Rocha, A. A., 2018. INFORMATION LITERACY IN THE DIGITAL WORKSPACE: THE EMPLOYEE'S PERCEPTION AND THE IMPORTANCE OF PROMOTING INFORMATION LITERACY IN THE DIGITAL ERA. *Åbo Akademi University,* p. 127.

Savage, 2005. Workplace Strategy: What is and why should care.. 7(3).

Schillerwein, S., 2011. The Digital Workplace: Redefining productivity in the Information Age.. *Infocentric Research AG,* 1(1), pp. 33-47.

Schwarz, M. S. A. H. C. H. J. B. A. &. N.-J. A., 2020. COVID-19 and the academy: It is time for going digital.

Schwarzmüller, T. B. P. D. D. &. W. I. M., 2018. How Does the Digital Transformation Affect Organizations? Key Themes of Change in Work Design and Leadership..

Shook, E., 2018. *When she rises, we all rise: Getting to equal and creating a culture where everyone thrives. ,* s.l.: Accenture.

Stickley, A. &. K. A., 2016. Loneliness, common mental disorders and suicidal behavior: Findings from a general population survey..

Stieglitz, S., 2018. Knowledge Workers' Expectations Towards a Digital Workplace.

Sven Dittes, S. R. A. R. S. S., 2019. *Toward the workplace of the future: How organizations can facilitate digital work.* Hagen: Business Horizons.

Teichmann, M. M. J. &. V. G., 2019. You are to Old (Not) to Learn" - A Critical Reconsideration of "older Employees"..

Thornhill, A., 2012. *Research Methods for Business Students.* s.l.:Financial Times Press.

Toffler, A., 1970. *Future Shock.* US: Random House.

Torales, J. O. M. C.-M. J. M. &. V., 2020. The outbreak of COVID-19 coronavirus and its impact on global mental health..

Valero, A., 2020. The business response to Covid-19: The CEP-CBI survey on technology adoption. *Centre for Economic Performance,* 9(1), pp. 27-35.

Vendramin, N. & Nardelli, G., 2020. Virtual work challenges experienced by knowledge workers in organizations.

Venkatesh, V., 2003. User Acceptance of Information Technology: Toward a Unified View. *Management Information Systems Research Center,* 27(3), pp. 425-478.

Venkatesh, V., 2003. User Acceptance of Information Technology: Toward a Unified View.. *MIS Quarterly,* 27(3), p. 425.

Vuori, V. H. N. &. O. J., 2019. Digitalization in knowledge work: the dream of enhanced performance.

Wang, Q., 2013. Modelling human performance within an automotive engine assembly line. *The International Journal of Advanced Manufacturing Technology,* 1(4), p. 68.

Weil, M., 1997. Coping with technology @work @home @play.. *Wiley.*

White, M., 2012. Digital Workplaces: Vision and Reality. *Business Information Review,* 29(4), pp. 205-214.

Wolf, F., 2011. *Social intranet—The new role of the intranet for the digital workplace.* Munchen: Hanser Fachbuchverlag.

Zdnet, 2020. *Brazilian SMBs accelerate tech adoption amid pandemic,* s.l.: Zdnet.

8 Appendix

8.1 Survey Data

A digital workspace, often known as a virtual workspace, is a combination of emerging technologies that centralize application and desktop management and delivery. It allows employees to securely access business resources and work from anywhere in the world using any device. This is true regardless of whether the programs and desktops are hosted on-premises or in the cloud.

This survey aims to gather data on the current status of digital workplace, what are the challenges and what is the impact of Covid19.

Please note all answers are anonymous and questions are made in such a way that cannot identify individuals. Data will be you used for research purposes only.

Introduction Data

Please specify your gender:

- Female
- Male

Please select the group age you belong to:

- 18-25
- 26-39
- 40-49
- 50-59
- 60+

Company Data

What is the size of the company you work for?

- 1-100 employees
- 100- 500 employees
- 500-2000 employees
- 2000-5000 employees

- 5000-10000employees
- 10000-50000 employees
- 50000+ employees

Which industry best describes the company you work for?

- Aerospace Industry
- Transport Industry
- Computer Industry
- Telecommunication industry
- Agriculture industry
- Construction Industry
- Education Industry
- Pharmaceutical Industry
- Food Industry
- Health care Industry
- Hospitality Industry
- Entertainment Industry
- News Media Industry
- Energy Industry
- Manufacturing Industry
- Music Industry
- Mining Industry
- Information Technology

Does your company have an established digital workplace program?

- Yes
- No

How does the digital workplace rank in terms of your company's priorities?

- 5- Extremely important
- 4-Very important
- 3-Important
- 2-Somehow important
- 1-Not important

How would you rate the maturity of the digital workspace in your company?

- Mature phase
- Mid-way
- Early phase
- Not started
- I have no information

Digital culture

Do you have frequent trainings on how to use IT tools of your company?

- Yes
- No

When you need to contact colleagues, managers, client do you use only IT tools:

- Teams / Skype / Zoom
- Mail
- Phone

Is there any collaboration software, such as MS SharePoint, that the company uses for communication and document exchange?

- Yes
- No

How simple is it for you to locate the information you require and deliver prompt service or work along with customers and coworkers?

- Very easy
- Relatively easy
- Somewhat difficult
- Very difficult
- Impossible

How easy is it for you to gain new skills and expand your knowledge as a natural part of your job via e-learning with flexibility, real-time access to experts and experience, communities of practice, best practices, lessons learned?

- Very easy
- Relatively easy
- Somewhat difficult
- Very difficult
- Impossible

Digital workspace

According to your opinion, what are your companies top 3 priorities of digital workspace? (multi-choice question)

- ☐ Mobile services and adoption

- ☐ Intranet effectiveness
- ☐ Enterprise social / Real-time collaboration
- ☐ Employee experience
- ☐ Culture and change
- ☐ Ideation tools & processes
- ☐ Performance management
- ☐ Governance, risk and compliance
- ☐ Learning & development
- ☐ Smart office / Physical and digital workplace alignment
- ☐ Digital self-service
- ☐ Search & information findability
- ☐ Unified communications and related tools
- ☐ Employee journey (recruitment to retirement)
- ☐ Enterprise service / app store
- ☐ Knowledge management
- ☐ Other (please specify)

According to your opinion what are your company's top 3 challenges of digital workplace? (multi-choice answer)

- ☐ Limited technical staff expertise
- ☐ Limited business staff expertise
- ☐ Limited cross-functional alignment
- ☐ Limited operational processes
- ☐ Limitations of current platforms/technology
- ☐ Limited employee data accessibility
- ☐ Lack of cross-departmental collaboration
- ☐ Lack of strategic direction
- ☐ Lack of executive support
- ☐ Competing initiatives or departments
- ☐ Budget constraints
- ☐ Other (please specify)

How important are to you the following tools as part of the digital workspace?

	Very Important	Neutral	Not important	Not used
Enterprise Service Store				
Corp Intranet				

Chat / Collaboration Tools				
Mobile Enablement				
Employee Portal				
HR Portal				
Forms and Workflow				
Ideation Management				
Document Management				
Enterprise Search				
Integrated Task Centers				
Unified Communications				
E-Learning / Microlearning				
Knowledge Management				
Mobile Service Availability				

At the current status, is your company using digital workspaces in the cloud?

- Yes, digital workspace is on the cloud
- No, my company will not use cloud
- Cloud is used for the upcoming years.
- Cloud is used as a backup for On-Premise solutions

Covid 19 Impact

Did the pandemic influence any change in digital workplace in your company?

- Yes, we had at least one change in digital workspace
- No, we no changes whatsoever in digital workspace.

Were you working remotely even before the pandemic?

- Yes
- No

Did you work remotely during the pandemic?

- Yes
- No

How adaptable is your company when it comes to reacting quickly to major events such as the pandemic?

- Very flexible
- Relatively flexible
- Moderately flexible
- Not very flexible
- Impossible

If yes, what was your main issue whilst working from home?

- Network connectivity issues
- VPN connectivity issues
- Lack of devices (PC, Laptop, docking stations, printer, etc.)
- Unified communication issues
- Application compatibility issues
- No issues at all

When facing any of the issues above, did you have any problems with troubleshooting?

- Troubleshooting was difficult (no resources and systems available)
- It was somehow easy to troubleshoot the issues.
- It was easy to troubleshoot the issues as our company has resources and systems available.

Do you feel digital workspace has become more important during pandemic?

- Yes
- No

If you worked remotely during the pandemic, do you feel:

- It was successful
- Mixed feeling
- Not successful

Technostress

Please answer the following statements with true or false:

I am forced by technology to do more work than I can handle.

- o True
- o False

I am forced to change my habits to adapt to new technologies.

- o True
- o False

I have a higher workload because of increased complexity of technology

- o True
- o False

I feel my personal life is being invaded by this technology.

- o True
- o False

I do not find enough time to study and upgrade my technology skills.

- o True
- o False

I felt drained from tasks requiring me to do my work remotely.

- o True
- o False

8.2 Chi-Square test results for research question 3.

Count

		I.am.forced.by.technology.to.do.more.work.than.I. can.handle			Total
			FALSE	TRUE	
Gender	F	0	40	38	78
	M	19	42	28	89
Total		19	82	66	167

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	19.926^a	2	<.001
Likelihood Ratio	27.184	2	<.001
N of Valid Cases	167		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.87.

Crosstab

Count

		I.am.forced.to.change.my.habits.to.adapt.to.new. technologies			Total
			FALSE	TRUE	
Gender	F	7	37	34	78
	M	40	42	7	89
Total		47	79	41	167

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	40.719^a	2	<.001
Likelihood Ratio	44.547	2	<.001
N of Valid Cases	167		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 19.15.

Crosstab

Count

		I.have.a.higher.workload.because.of.increased.of. technology			
			FALSE	TRUE	Total
Gender	F	7	40	31	78
	M	40	42	7	89
Total		47	82	38	167

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	37.816[a]	2	<.001
Likelihood Ratio	41.291	2	<.001
N of Valid Cases	167		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 17.75.

Crosstab

Count

		I.feel.my.personal.life.is.being.invaded.by.this. technology			
			FALSE	TRUE	Total
Gender	F	7	37	34	78
	M	40	41	8	89
Total		47	78	42	167

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	38.915[a]	2	<.001
Likelihood Ratio	42.399	2	<.001
N of Valid Cases	167		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 19.62.

Crosstab

Count

		I.do.not.find.enough.time.to.study.and.upgrade.my. skills			
			FALSE	TRUE	Total
Gender	F	0	40	38	78
	M	19	42	28	89
Total		19	82	66	167

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	19.926[a]	2	<.001
Likelihood Ratio	27.184	2	<.001
N of Valid Cases	167		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.87.