



**An-Najah National University**

**Faculty of Graduate Studies**

**THE IMPACT OF TELEWORK ON  
EMPLOYEE PERFORMANCE DURING  
COVID-19 CRISIS: THE CASE OF IT  
COMPANIES IN WEST BANK**

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## **Dedication**

I dedicate my dissertation work to my family and many friends. A special feeling of gratitude to my loving parents, who have always loved me unconditionally, and whose words of encouragement and push for tenacity ring in my ears. My sisters and brothers have never left my side and are very special.

I also dedicate this dissertation to my many friends who have supported me throughout the process. For all the people in my life who touch my heart, I dedicate this research. I will always appreciate all they have done.

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I would like to express my gratitude to all my professors for their efforts during my studies.

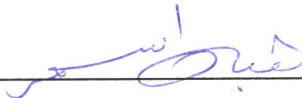
## Declaration

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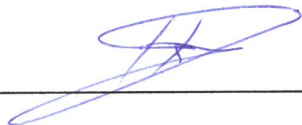
### **THE IMPACT OF TELEWORK ON EMPLOYEE PERFORMANCE DURING COVID-19 CRISIS: THE CASE OF IT COMPANIES IN WEST BANK**

I declare that the work provided in this thesis, unless otherwise referenced, is the researcher's own work, and has not been submitted elsewhere for any other degree or qualification.

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\_\_\_\_\_ 23/6/2022

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## **Abstract**

**Background:** During the COVID-19 pandemic in 2020, enterprises were forced to go into telework mode. This shift was a big challenge for companies and employees to maintain the required level of performance due to a lack of telework experience. So, the purpose of this research is to study the impact of mandatory telework on employees' performance by checking organizational support and teamwork especially by examining technology as a mediator factor. To the best of our knowledge, there is no empirical evidence of the effect of mandatory telework on employees' performance in the literature, and no such study has ever been conducted in Palestine as a developing country. Besides, no previous study has examined the effect of technology on telework performance as a mediator variable.

**Objectives:** Therefore, this research seeks to answer the following research questions: first, "How is the effect of teamwork, organization support, and technology on telework performance?" and second "Does technology mediate/improve the relationship between teamwork, organization support, and telework performance?".

**Methodology:** Thereby, this research undertakes a thorough literature review and proposes a conceptual model tested on software employees in IT companies in West Bank. A questionnaire was used as part of the methodology containing 21 questions based on a literature study and previous research on the topic. Partial Least Squares analyzed the result–Structural Equation Modeling (PLS-SEM) statistical software. The effective response rate is 58.28%.

**Results and Conclusions:** The obtained results based on a sample of 176 software employees show that organizational support, teamwork, and technology affect telework performance positively.

Furthermore, results confirm that technology is a significant mediator in the relationship between organizational support, teamwork, and teleworking performance. This thesis contributes to the extant theory of telework performance in developing countries and how organizational support, teamwork, and technology as mediating factor affect employees' performance. In practice, this study helps software companies to implement telework and obtain high-performance indicators from employees by exploiting the best technological and administrative resources, thus, facilitating the successful implementation.

**Keywords:** Telework, COVID-19, Pandemic, Performance, Teamwork, Technology, Organizational Support, PLS-SEM.

# **Chapter One**

## **Introduction**

### **1.1 Chapter overview**

The first part of the thesis is an introduction about “The Impact of Telework on Employee Performance During COVID-19 Crisis,” which describes the general background of the study to aid in understanding the fundamental idea of this thesis, as well as the research challenges, objectives, and significance to practice and theory. The thesis' research field of telework studies is introduced in Section 1.2. The research problem is presented in Section 1.3. The motivation for the study is explained in Section 1.4. The significance of the research is described in Section 1.5. The research objectives are mentioned in Section 1.6. The research question is stated in Section 1.7. Finally, section 1.9 demonstrates the thesis' structure.

### **1.2 Research area**

In recent years there have been many environmental changes, and the pandemic epidemic of COVID-19 poses unparalleled health, economic and social challenges which have significant consequences for the way people work and live worldwide. Information and communication technologies (ICTs) have played a key role in preserving social relations between societies and families in this time of turmoil and maintaining work continuity for companies (World Health Organization, 2020). With this crisis and the new disease, governments and companies have ordered workers to work from home to stay safe. As a direct consequence of the epidemic, the spread of nervousness and stress in the general public has reached 29.6%(Chang et al., 2021a). It is hard to determine the duration of the disease outbreak and people face several challenges in their everyday lives besides numerous workplace challenges. People worldwide have pursued proactive responses to mitigate the possible harm (Chang et al., 2021a).

The COVID-19 problem has suddenly hit companies and the entire business sector. The source of the fundamental change in the conditions of economic activity was social segregation. During the worst periods of the crisis, retail outlets, hotels, restaurants, cafes, sports facilities, stores, and cinemas were closed with no prospect of reopening shortly. The manufacturing sector reduced its output because it was required to tighten sanitary standards and reorganize operations, which shifted to employees' homes to a significant

degree. Organizations have attempted to incorporate and utilize the internet environment's possibilities into their work structures. COVID-19 has highlighted the urgent need to take advantage of the online environment's capabilities in the business world and respond directly to the changing of customers and staff. To control a crisis is to deal with change, and the human component plays a critical part in organizational change, as it is the factor of success or failure in implementing decisions, communication methods, and management reach in a pandemic (Jankelová et al., 2021a).

The business and education sectors were developing and generating new ways to perform work remotely from home. One of these ways is telework, which is the organization and arrangement of work and does not require the employee's physical presence in the organization's workspace (Almonacid-Nieto et al., 2020). Increased organizational diversity, changing motivational preferences, rapid technological advancements, and the emergence of the learning organization have all affected the structure, behavior, and work relations. Consequently, businesses are adopting less conventional organizational frameworks and job arrangements (Mukherjee et al., 2012). These days, the word telework is more commonly used to refer to people who work in some facility outside of the employer's physical premises. It involves those who work remotely from home and the employees who work from coffee shops, libraries, hotel rooms, and client offices (Mello, 2007).

The COVID-19 epidemic has not only resulted in several societal upheavals that many people see for the first time in their life. It has also pushed the world into recession and produced a lot of problems for people in numerous ways. Also, as some researchers have stated, the global economic condition will be even worse than the financial meltdown of 2008 (Nicola et al., 2020). According to Prasad and Prasad (2022), COVID-19 is still a threat and would necessitate a significant increase in commitment and collaboration through local and global organizations. As a result, the pandemic will have a long-term effect on health care investments and delivery strategies. Employee engagement has been one of the top priorities for human resource departments and managers in organizations due to the current business condition during the COVID-19 outbreak (Kou, 2012).

Telework working conditions change dramatically in many sectors, industries, offices, and homes. The number of employees who work remotely is getting increased. Remote

work practices are continuing to spread to new classes of employees, and employers are growing to let work out of sight and share control (Thulin et al., 2019). New technologies, smart devices, internet technologies, and virtual offices are in concept and principle, allowing the employees in the service and IT sector to access and enable employees to perform work anytime and anywhere (Gottman et al., 1998). These interconnected developments pose concerns about whether there is a transformation of many of the frequently predicted telework outcomes.

The controversy over telework began in the 1970s when the first surge of ICT adoption inside organizations enabled new work modes due to the widespread implementation of new technical possibilities. Despite constant technological advancements and their adoption through the following years, teleworking from home and remote work more broadly did not extend around the same rate. The situation remained largely unchanged until 2020, with the beginning of the COVID-19 epidemic, when measures of economic lockdown and social distancing were imposed to transition to telework in most European Union member states (Fana et al., 2020).

Individuals were forced to participate in what has been known as an adjustment to a modern job situation and procedures, as described by the Theory of Work Adjustment (Rounds et al., 1987). Companies' ability to manage business processes and achieve business stability before the COVID-19 pandemic crisis was heavily reliant on workers' ability to adapt to the transition from conventional work to increasingly technological performance. Modifying new job environments entails adjusting to new environmental requirements resulting from shifts in the work environment and personal relations (Carillo et al., 2020). Researchers found that a high degree of IT efficiency, control systems, coordination of output-oriented, familiarity with flexibility in working hours, firm size and sector of operation, worker education levels, and situation all play a role in determining teleworking adoption during this pandemic (Tokarchuk et al., 2021). As a result of the actions to prevent people from COVID-19 virus disease, telework has seen a growth in popularity (COVID-19). To prevent employees from congregating in the same place, many governments proposed that businesses allow teleworking at the start of 2020. For example, the Spanish Health Minister, Mr. Illa, requested companies to encourage telework as a strategy to fight the COVID-19 virus, and many guidelines were

released to help businesses in their telework implementation (Belzunegui-Eraso & Erro-Garcés, 2020).

Teleworking benefits consumers and businesses but can also include a different and more sustainable approach to restructuring communities at a system level. Most companies were forced to embrace teleworking methods due to the COVID-19 outbreak. The enforced use of teleworking due to the COVID-19 crisis can aid in developing a defensive strategy to deal with the challenges modern cities face, such as traffic congestion and negative environmental, societal, and financial consequences (Tokarchuk et al., 2021).

Recently, remote work imposed during COVID-19 has received much attention in the academic literature. While most studies have approached this problem from a corporate and human resource point of view, there is little evidence of the impact of this type of forced labor on employees (Wong et al., 2021).

The resource-based approach of the company is used as a conceptual framework in the research on teleworking factor (Vance, 2012). Materials or skills are the most common definitions of resources. The company owns and controls resources, which might be tangible or intangible. Abilities are intangible collections of skills and experience. The determinants of teleworking usage include resources and skills, which can be divided into three categories: technological, human resources-related, and corporate (Pérez et al., 2004).

Previously, there was little interest in technology investing and strategies management that allow employees to telework. Still, evolving work environments and crisis circumstances such as COVID-19 have made it imperative to telework as businesses face unprecedented challenges.

In this study, the goal is to find the degree of the effects of teamwork and organization support on the performance of the home-based telework of IT companies in the West Bank in Palestine. It will focus on the factors that affect teamwork, organization support, and technology. The researcher chooses the software sector because this sector allows employees to work remotely and is technically qualified to perform remote work during the COVID-19 lock down period. Despite the readiness of this sector, the total

transformation of unplanned telework has put these companies and their management in unprecedented challenges.

### **1.3 Research problem**

Many governments and companies have been compelled to embrace teleworking due to the emergence and rapid spread of COVID-19. Telework is one solution to prevent demand deflation and stagnant production in all sectors. However, companies that use inadequate teleworking methods and practices in their tasks and activities are more likely to experience incremental deterioration or loss of personal relationships, affecting employee efficiency and productivity (Belzunegui-Eraso & Erro-Garcés, 2020).

Although telework has become a well-known method of work, there is a lot of interest in researching this subject from the standpoint of both practitioners and researchers all worldwide regarding the new issues and weaknesses occurring over time. Companies must develop their capabilities and implement the Information and Communications Technologies (ICT) that help them achieve their goals during this crisis.

Palestine is a developing country trying to cope with this crisis, and the Palestinian government has taken appropriate measures to contain the spread of the virus to meet the necessity for health protection and imposed a lockdown (Reddy, 2020). Thus, some companies with the capabilities resorted to making their employees work from home and many sectors developed their abilities to continue the work. As a result of not knowing what the consequences of this crisis will be in the future and when this epidemic will be eliminated, there is a need to explore and provide empirical evidence regarding the telework results (Bhattacharya & Mittal, 2020).

The researchers recommended studying and conducting comprehensive research on what affects the performance level of employees while teleworking due to the gradual exhaustion of the boundaries between work and home due to changing jobs and work culture and because people are increasingly working from places that are not related to work (Bhattacharya & Mittal, 2020).

Several studies have previously studied the relationship of job satisfaction with telework. Still analysis was limited to specific cultures and information technology companies only. The results may reflect the workplace experience of this country and these cultures, which

may limit the generalization of the results; also, the future results will be different depending on the contexts of a particular sector or country (Suh, 2017). Specifying the various modes of communication and interactive technology and potentially connecting them to the job performance-related results would be beneficial for future studies. Researchers recommended paying close attention to how teleworkers deal with the challenges faced by technology-induced stressors (Suh, 2017).

Moreover, Kim mentioned in his study that there is still a lack of empirical studies that discuss issues about the effect of telework on employees and organizational performance (Kim et al., 2021). However, because very few previous studies on telework were conducted during a period when the work was conducted on a large scale during the outbreak, and because of the requirements at this time in the current COVID-19 crisis, the researchers recommended studies into how will affect based on the experiences and performance of telework (Wang et al., 2021).

The revised literature emphasizes the importance of better understanding the effect of organizational support on teleworking performance. Due to the pandemic, studies are needed that have thoroughly examined telecommuting, organizational support, the factors that influence success, and failure to learn more about how to handle and manage this new approach to working. However, there is a scarcity of information about the results of such a work process, and the findings have been inconclusive. For a better understanding of the phenomenon, further experimental and quasi-experimental research, as well as observational research and mixed methods research, are needed (Contreras et al., 2020). Consequently, where there is a need for studies and analysis specific to Palestine concerning studying the factors affecting the performance of workers during remote work, this study tries to make a practical contribution by investigating and exploring the factors that help in the success of this way of work in service and IT sectors.

#### **1.4 Research motivation**

Telework has been widely embraced as a means of ensuring company continuity due to the COVID-19 epidemic (Mihalca et al., 2021). Teleworking under normal conditions differs from during COVID-19 in that the earlier is a voluntary employee activity that is often marketed as an advantage, while the latter is a mandated full-time activity that is imposed "overnight" (Wang et al., 2021). Teleworking has been critical for business

sustainability during the epidemic. However, its impact on essential employee outputs, including work job performance and organizational performance, is unknown (Mihalca et al., 2021).

The relevance of available knowledge on the pros and cons of telework in the particular conditions of the COVID-19 epidemic could be questioned because it was created in a situation where telework was only occasionally employed (Wang et al., 2021). Most particularly, due to the required type of teleworking during COVID-19 and the special obstacles connected with this sort of labor (e.g., pandemic-related anxiety and blurring work-family boundaries) (Chang et al., 2021b), in the case of an epidemic, several of the previous studies on the advantages and pitfalls of telework may no longer be valid (Mihalca et al., 2021).

Therefore, this thesis focuses on measuring employee performance considering this pandemic and these forced changes to the work style. Most companies are concerned with maintaining the performance of their employees and wish to sustain performance even under tough working practices like those forced by the epidemic, learning how to get the most out of telework during COVID-19 and, especially, how to help employees effectively transition to this new situation of work is essential (A. Kramer & Kramer, 2020).

### **1.5 Research significance**

This study aims to assist in telework performance during the COVID-19 pandemic, specifically in the presence of several other factors that need attention to the extent of their impact on the performance of telework. Although previous studies provided assessments related to telework, a lack of studies focused on evaluating teleworking performance (Tavares et al., 2020). Moreover, according to the literature reviewed, no research has previously studied the effect of technology as a mediating factor and the extent to which it affects the performance of remote work. Consequently, this study will provide empirical evidence regarding the factors that will help companies in the services and information technology sectors to continue working in this crisis and achieve the highest productivity and performance of employees as well as given the future of the world, we could expect that telework will be a more common part of everyday life.

Most Palestinian companies are the same as other companies worldwide in facing the difficulty of lacking the basic knowledge of how to work remotely during crises and evaluate employees' performance. They need to implement and apply technology to help and facilitate the job and increase productivity. This study may serve as a basis for familiarizing companies with the basic requirements and obstacles they must grasp.

Everyone is familiar with teleworking. Some people are more efficient at home, while others cannot work without their offices or coworkers. People moved all their correspondence online to remain healthy and safe throughout the global crises. For some people, the transformation was simple, but for others, it has resulted in more difficulties and worries. Consequently, this study aims to examine how global lockdown and mandatory telework will impact performance.

### **1.6 ICT and Software companies in Palestine**

The information and communication technology (ICT) notion has been used in academic research since the 1980s (Melody, 1985). Khan and Santos described the ICT sector in his study as a growing sector principally engaged in the production of intangible goods or services, or the provision of technologies required to process, receive, or transmit data (Khan & Santos, 2002).

ICT firms and organizations currently supply software, hardware, the internet, telecommunications, application, and support services, which make up the ICT sector (W. J. W. Kramer et al., 2007). In developed and industrialized economies, ICT is a critical driver of economic growth. ICT aids economic development by boosting productivity, fostering innovation, and facilitating development through new delivery methods (Palvia et al., 2018). Moreover, ICT is expected to contribute to economic recovery by providing relevant solutions to the current world crisis (Morrar et al., 2019).

Palestine is afflicted by political unrest and is heavily influenced by the colonial limits imposed by Israel's rule. It imposes limits on both domestic and international trade between the West Bank, Gaza, and Jerusalem. Palestinian manufacturing and agriculture sectors are the most impacted by the politics and the restrictions placed by Israeli occupation, when it compared to the service sector, due to its tremendous flexibility, it is the least affected by the political situation in compared to other sectors (Shaheen, 2016).

The ICT sector is one of Palestine's most vital industries, and it is also hampered by Israeli restrictions. For example, Israel continues to prohibit Palestinian telecommunications businesses from adopting fourth generation mobile services (Shaheen, 2016). Nevertheless, ICT in Palestine is seen as more resilient than many other sectors in the difficult political and economic conditions imposed on all sectors (Industrial et al., 2006).

The direction of investing in the ICT industry is going to develop it, allowing Palestine to participate in one of the fastest expanding knowledge-based economic sectors in the twenty-first century (Shaheen, 2016). Furthermore, the number of individuals employed in the ICT sector has expanded, as has the number of ICT enterprises. The National Strategy of IC in Palestine stated in 2005 that the ICT sector has a base within Palestinians, implying that the digital revolution in Palestine is not starting from scratch (Khoury-Machool, 2007).

In compared to the manufacturing and agriculture sectors, Palestine's service industry has grown rapidly during the last two decades. The service sector's contribution to Gross domestic product (GDP) has continuously increased, from 50% in 1995 to 60% in 2009, and it now employs more than 65 percent of the workforce (Morrar et al., 2019). In the latest period, Palestine has seen a steady increase in the use of ICT at the corporate level, particularly in terms of PCs, cell phone subscriptions, networks, and Internet Wi-Fi. This is primarily due to Palestine's rapid expansion in the ICT sector over the last few years. When compared to sectors that are less ICT-intensive, the performance of service sectors that employ more ICT is likely to grow faster (Morrar & Gallouj, 2016).

According to indicators, Palestine's ICT sector has grown in recent decades. Each year, roughly 2500 Palestinians graduate from eleven Palestinian universities and five other higher education institutes. Graduates have the ability to compete in local, and global markets. Because of its direct implications on all other sectors of development, the ICT industry is regarded as a national major priority development sector (Khatib, 2013).

## **1.7 Research objectives**

The aim of this thesis is to:

1. Identify the effect of teamwork, organization support, and technology on telework performance in software companies.

2. Investigate the relationship between technology and teamwork, organization support, and telework performance, as well as the relationship between technology and the other factors mentioned, is a mediator or not.

### **1.8 Research questions**

Based on the researches and literature discussed previously, this study come to answer to the following questions:

1. How is the effect of teamwork, organization support, and technology on telework performance?
2. Does technology mediate/improve the relationship between teamwork, organization support, and telework performance?

To answer these questions, this study will provide empirical evidence for the impact of teamwork, organization support on the telework performance of an employee in the company, also explore if technology has any effect on these relations through the proposed conceptual model and associated hypothesis, mentioned in the next section.

### **1.9 Thesis structure**

This thesis is structured in the following pattern: Chapter 2 reviews a substantial literature review for telework, including definitions, aspects, benefits, drawbacks, limitations, research gaps, and the specific subjects addressed in this thesis. The concept of the research model, it's theoretical underpinning, and the presented hypotheses are all also detailed in Chapter 2. The argument and the logic for the methodology used in this thesis are explained in Chapter 3. Lastly, the analysis of the data and the findings are discussed and described in Chapter 4. Moreover, chapter 4 reviews the previous chapters and exhibits the thesis' accomplishments; it also offers useful recommendations for practitioners and identifies possible future studies for scholars in this field.

## **Chapter Two**

### **Literature Review and Theoretical Framework**

#### **2.1 Chapter overview**

The rapid development of technologies, associated with the widespread introduction of virtual communications into our existence, affects all areas of life and makes people adapt to new conditions, connected with the increased use of virtual communications in our daily lives, it has an impact on many aspects of life and forces people to adjust to new circumstances. Our daily activity has transferred to the internet as a result of the expansion of the internet and the engagement of social media. Almost all of the work can be done from the comfort of your own home. Teleworking is well-known and thoroughly researched in practically every country.

The main objective of this chapter to review studies on the impact of telework on employee performance during the COVID-19 crisis, how businesses used to work online, how the pandemic COVID-19 affected them, and how they were forced to contend with new norms and conditions.

#### **2.2 Telework during COVID-19**

Telework or telecommuting also known as telework/ICT mobile work or T/ICTM. , often known as telework, is a comparatively new type of flexible employment situation(Baruch, 2000). It was, however, initially developed in the 1970s (Nilles, 1975).

Even though this notion extends back to the 1970s, once the oil crisis prompted a reconsideration of working practices, which became overly dependent on employees' transportation to and from work, there is still no agreement on its precise meaning. The many words used to describe it: telework, telecommuting, remote work, work-from-home, intelligent working, e-work, and so on, indicate this. Telework was described by the European Framework Agreement on Telework in 2002 as a process of managing and/or achieving work utilizing information technology in the context of an employment contract/relationship in which work that could otherwise be conducted at the organization based that done on a regular basis away from those facilities. Also, a teleworker definition according to the International Labor Organization (ILO), is any ICT-using employee who

works from outside the business office at least once a month to complete job duties (Buomprisco et al., 2021).

Due to the reality that many researchers concentrate on the definition that connects telework with the concept of working from home, telework simply includes working outside of the company premises with the help of ICTs, and thus it could perhaps occur from a lot of different places (home, office, and other places) and with multiple frequencies. The Statistical Indicators Benchmarking the Information Society (SIBIS) established four types of telework in 2003: mobile telework, telework from home, freelance telework in SOHOs (small office/home office), and telework in shared facilities outside of companies and the house (Belzunegui-Eraso & Erro-Garcés, 2020).

Following the COVID-19 outbreak was designated a worldwide health emergency and categorized as a pandemic by the World Health Organization. As governments have implemented steps to prevent the spread of the novel COVID-19 virus, such as forced quarantine, millions of individuals and organizations worldwide have been forced to work from home under these conditions (Campo et al., 2021). As a result, one of the unanticipated effects of the epidemic was the effectiveness and responsiveness in which enterprises transitioned to telework. One of the most significant changes in the work environment has been the increased usage of technology for meetings like Zoom were practically unknown at the beginning of 2020 but have now become a commonplace element of employees' life, thus, managers are learning new skills in handling workloads, continuing to support, and trying to engage their teams in telework (Williams, 2021).

Even though it was previously suspected to be a passing trend, by early 2021, the majority of individuals were still working from home, as 93 percent of them lived in several countries whose business closures were still in effect (ILO, 2021). Furthermore, companies have understood that the transition to telework could be a long-term or permanent transformation, and they are determining the best method to deploy it as a routine model work following the epidemic (Campo et al., 2021).

Many studies have revealed favorable impacts of teleworking under ordinary situations on work performance, performance of employees, work engagement, and efficiency (Martin & MacDonnell, 2012). Workers and businesses benefit from telework because of enhanced flexibility and autonomy, lesser work conflict, fewer interruptions, improve

teamwork, and increased attention, among other things (Allen et al., 2015). There is also proof of the disadvantages of telework, like professional and social isolation, job stagnation, low performance, and greater family-work conflict as a result of the gray areas among work and personal life (Gajendran & Harrison, 2007). As a consequence of these special practices of teleworking during COVID-19, employees working from home may have performance and job issues, and even a drop in their pleasure with this work type (Chang et al., 2021b). Just some few researchers have examined into the obstacles that employees face while teleworking in COVID-19, the effect on actual work outputs (e.g., work performance), and the characteristics that assist teleworkers handle with all these challenges effectively (e.g., Mihalca et al., 2021; Carillo et al., 2020).

### **2.3 Organizational Support**

Organizational support is defined as employees' confidence in the organization's initiative to give them proper required telework-related services when they work from home, like timely information, information technology (IT) support, relevant materials for work, and the authority of decision-making (Chong et al., 2020). Based on the literature, organizational loyalty and commitment represent workers' views of the essence of their relationship with their employer. This viewpoint, however, tends to be very close to the notion of perceived organizational support (Shore & Tetrick, 1991).

Employees' overall ideas about how much the company views their people were concerned regarding their well-being are referred to as perceived organizational support, which is an independent resource of coping (Eisenberger et al., 1986). Workers evolve universal beliefs about the degree to which the company values their efforts and cares about their luxury, as per Eisenberger et al. (1986). Employees suggested these views, in order to imply the organization's ability and readiness to reward work output and effort. Furthermore, organizational support theory (OST) states that in order to evaluate the advantages of enhanced work activities and to fulfill the needs of the socio-emotional necessity, workers shape a general understanding of the organization's values, contributions, and concern for their quality of life. Employees' emotions of obligation to assist the organization in achieving its goals, their expectations, and their loyalty to the company may increase significantly of perceived organizational support, leading to improved performance (Iqbal & Saif-Ur-Rehman, 2014).

Perceived organizational support, according to social exchange theory, enhances workers' perceptions that the company will compensate extra efforts, driving them to work harder to achieve the organization's objectives. Moreover, employees' requirements for appreciation and satisfaction are met by perceived organizational support, which builds a good emotional tie with the company. Perceived organizational support supports top management commitment and increases job performance, according to various researchers (Chiang & Hsieh, 2012). Nevertheless, studies on perceived organizational support is typically undertaken in businesses under normal conditions, and employees' perceptions of organizational support during the COVID-19 epidemic could be different (Zhou et al., 2021). This theory is a social-exchange application theory related to the employer–employee relation. As a result, according to OST, employees trade effort and loyalty to their company for tangible rewards like compensation and benefits packages, as well as socio-emotional incentives like esteem, caring, and acceptance, depending on the reciprocity standard (Baran et al., 2012). The impact of perceived organizational support may lead to a variety of benefits including improved performance and reduced absenteeism. The exchange ideology is the driving force behind this, which places a high value on offering rewards in exchange for work and effort, this comes from the principle of reciprocity, which states that any assistance provided to a person should be followed up with action (Aban et al., 2019).

Workers' socio-emotional needs are fulfilled once they experience strong and good organizational support, and they are more likely to rate favorable job attitudes, including job performance and productivity. Employees will also want to compensate their organization for the support they receive by thinking for the company and doing their work well, depending on the reciprocity norm. Nonetheless, when employees don't receive support from their organizations, will refuse to give effort (leading to lower degrees of performance) and show more negative work behaviors. Previous studies have found a significant positive relationship between perceived organizational support and work performance (Cullen, Edwards, Casper, & Gue, 2014). Discretionary and successful organizational actions, according to both research and theory, improve worker perceptions of organizational support to the degree that they express praise, acceptance, and positive assessments of the employee. The logic would also indicate that allowing

workers to work remotely as a result of organizational strategies and supervisory actions would be a gesture of praise, acceptance, and constructive evaluations (Desrosiers, 2001).

Even if mental health is always crucial, the employee feelings and emotions must be considered, particularly true during this crisis's situation. In general, human resource management can increase individual quality of life, and perceived organizational support can lower work-related health risks (Mariappanadar, 2020).

Consistent communication is suggested to give employees trust, stability, and hope amid the crisis. Managers should deliver updates to keep staff informed of new changes, statistics, or new policy decisions(Gigauri, 2020). On the one hand, the communication between staff and managers can assist companies in ensuring worker safety, while on the other side, staff can promptly notify their managers if they require assistance (Gigauri, 2020).

Communication should be based not just on the satisfaction of staff, but also on what is conveyed and who is communicating it, per the crisis resilient workforce concept. Since before the epidemic, many governments were grappling with issues including as insufficient work hours, pay, and working environment(Gigauri, 2020). Due to the impacts both the business and the economy, this has an influence on job quality, which is an essential aspect of the human resource management plan and organization support(Gigauri, 2020).

Rules of employment shows that the core of employment are the relationships and pay job. They address a wide range of themes and concerns, including working hours, rest intervals, and work commitments, as well as mentally and physically requirements in the job(ILO, 2021). Organizational working circumstances have been substantially altered as a result of the COVID-19 pandemic. Most companies have switched to telework, forcing their staff to work from home, in order to maintain their continuity of the work(Covid- et al., 2020).Google, for example, announced that its employees are able to shift to telework till at minimum August 2021, while Twitter staff are able to work remotely eternally(Leonardi, 2021).

Employees must continue to work well in order to keep the organization afloat during a crises like COVID-19. Nevertheless, it appears that the COVID-19 epidemic has

influenced overall organizational management. According to several researchers, most companies were so confused with COVID-19's obstacles, such as assessing job performance and disrupting achievement pay, that they curtailed and perhaps even abandoned performance management owing to the pandemic's complication (Hamouche, 2021).

According to Reeves et al. (2020), the most crucial areas for businesses to manage in COVID-19 crises are communication and employee demands, as well as diversity and redundancy, both of which aid in the development of resilience. Also, communication is indeed a critical activity in COVID-19 pandemics; organizations must demystify the condition for employees, as well as support and convey optimism for the staff. While we're on the subject of communication, another important aspect of good communication throughout a pandemic is transparency. Transparency aids in the development of a trust-based team atmosphere, and confidence is a critical ingredient in the development of team spirit and strong and clear relationships among team members that support the performance for the organizations (Jankelová et al., 2021a).

## **2.4 Teamwork**

The term "teamwork" refers to a collaborative process that enables ordinary people to attain exceptional outcomes and great success (Scarnati, 2001). Often, when the team has a shared purpose or mission, team members may form productive, cooperative relationships in order to achieve the team's objectives. Teamwork depends on people operating along during cooperative surroundings to attain common team objectives through sharing skills and information. One of the most important aspects of a team, according to the literature, is its emphasis on a shared objective and a specific intent (Luca, 2011).

Teamwork can be precisely defined as a group of people who work together and collaboratively to accomplish a particular task or objective. This skill has been appreciated by the introduction of special assessments by many large companies to assess the ability of their workers to work in teams. Thus, the ability to work together has become an important skill that any employee should have in order to be accepted at work. Teamwork is an accurate organizational indicator that reveals several various features across all forms of organizations including profit and non – profit (Sanyal & Hisam,

2018). For the smooth running of a company, teamwork is an essential aspect. Owing to advances in technology, most organizational operations are complicated, so teamwork is a primary focus of several companies. One study has concluded that in all kinds of organizations, teamwork is important and significant to success (Manzoor et al., 2011). In general, teamwork is thought to reinforce worker autonomy and discretion. On the opposite hand, multiple team membership allows staff to acquire diverse experience from a variety of perspectives, as well as build and deploy a variety of skills, create cross-border networks, and gain a better understanding of their workplaces (Chen & McDonald, 2015). Consequently, this would improve job performance (Gottman et al., 1998).

Teams are substituting individuals as the fundamental building blocks of any company. The capability of teamwork has been introduced as an important educational principle in schools in this century so that students are taught how to acquire knowledge and skills as part of the learning method. Managers are increasingly defining critical knowledge and skills like conflict resolution, collaboration, teamwork, and positive interpersonal engagement as essential requirements for the workplace. As a result, managers and employers are constantly on the lookout for people who can communicate and work in groups as a vital skill in any workplace (Sanyal & Hisam, 2018). Research conducted in the healthcare sector indicates the impact of teamwork on performance has medium size. The results of the moderators' research revealed that teamwork affects performance regardless of the team's or task's characteristics. Inputs, processes, and outputs (IOP) are frequently used to define team performance. Outputs are affected by teamwork procedures such as decision-making, communication, or coordination. Moreover, numerous inputs such as team members' knowledge, task difficulty, time constraint, and more influence these processes (Schmutz et al., 2019).

A remote team's capacity to share information is hampered by a lack of informal contact. This is a crucial construct since a remote team's survival may be jeopardized leading to a shortage of information exchange between team members. However, due to the intellectual power a virtual team achieves in its scattered knowledge and capacity to integrate varied experiences, information sharing may succeed. Cultural differences and misunderstood expectations can sometimes cause communication problems (AlZaabi et al., 2021).

Participation and responsiveness are two major issues that virtual team members may encounter (Rehman et al., 2021). Employee engagement is defined as a person's behavioral, cognitive, and physical state that is geared toward achieving organizational goals. Around 16% of all employees feel connected and committed to the organization, according to studies, and this number is even lower for remote workers. The importance of employee engagement in a teamwork cannot be overstated, since maintaining your staff involved has numerous benefits, including increased productivity, improved quality of performance, and increased trust. Important difficulties like weak employee engagement have arisen as a result of remote team development and the absence of face-to-face meetings. Every employee believes that their contributions will not be recognized (AlZaabi et al., 2021).

Furthermore, because communication is limited to electronic techniques in a virtual environment, offering feedback or being responsive is difficult. Employees develop a sense of lack of confidence or a psychological breakdown as a consequence of the decreased degree of communication and response (AlZaabi et al., 2021). Employee participation at a good degree in remote teams aims to improve organizational performance and employee productivity (Fathima Shaik & Pushpak Makhecha, 2019). As a result, staff must be fully informed and involved in the achievement of the organization's aims and objectives on a frequent basis. Moreover, one of the key tasks of leadership and management is to recognize and connect with all employees of the organization, keeping in mind that each employee is essential. As a consequence, staff performance and efficiency will improve in order to meet the company's goals (Rehman et al., 2021).

The pandemic management team's performance is determined by the employees' competencies, as well as scenario evaluation, communication, and teamwork. The members of the team in any crisis, according to Coombs (2007), should have decision-making responsibility. Furthermore, crisis management is a group decision-making process. Human factors and team practices are also important in improving team members' reaction time, reliability, and performance (Jankelová et al., 2021a).

Teleworkers are expected to spend less time in the office or workplace and less communication with colleagues in formal and informal meetings than non-teleworkers.

Those behaviors area unit is renowned to form issues, together with isolation at work and hindrance to cooperation by reducing time for interaction (Park & Cho, 2020).

Based on Jankelová et al. (2021) even during acute period of the emergency, teamwork as a kind of organizational structure is a supporting aspect of employee performance. Throughout a crisis, teamwork fosters a better environment for questions, mutual performance feedback, improved coordination, and cooperative search for solutions to crisis difficulties. According to the research of Jankelová, being able to lead employees throughout a crisis entails building an environment conducive to teamwork (cooperation), which in turn entails delegating and enhancing autonomy.

## **2.5 Technology**

Information Technology (IT) is the most imperative component that affects performance and productivity in an organization. The definition of IT according to (Thong & Yap, 1995) is the use of computers and software applications to support business operations, decision-making, strategies, and management in organizations. Bharadwaj, Bharadwaj, & Konsynski, (1999) mentioned that the value of evaluating IT assets in deciding a firm's competitive health and potential for business success. Management teams, specialists, and financial analysts are increasingly looking at a company's IT capital and skills while assessing its long-term viability. Moody, (2020) defined IT as computers and associated digital and electronic communication technology, having a wide range of applications in communications and processing of data.

COVID-19 is a global epidemic unlike any other, with comparisons to the Second World War, the Depression Of the 1930s, and the 1918 Spanish Flu in case of personal behavior. Physical separation and restriction were required to suppress the COVID-19 outbreak. Numerous sorts of social behavior (e.g., shopping, teaching, continuing to work, having to meet, and enjoyable) started shifting from traditional to digital in terms of meeting this authority while attempting to preserve the status quo, deriving in an expedited diffusion of technological solutions between several common people, while the information technology between citizens with and without access to the technology solutions widens(Vargo et al., 2021).

Technological advancements, especially in the areas of processing information and networking, have significantly increased and expanded the availability of telework to organizations and employees. The growing portability of both computing and data files, electronic mail delivery capabilities, Video features that enable real-time video conferences without requiring all attendees to be physically present in the same space, as well as computer systems and data lines networking, and ability to participate in online interactive "chat" conversations with colleagues and/or clients are all new technological advancements that have helped support telework (Mello, 2007).

Information and communication technology (ICT), especially the use of the Internet to act business over the Internet, is quickly evolving the conventional way of operating within mortal organizations. With the powerful waves of liberalization and globalization sweeping the globe, ICT is widely regarded as being the most cost-effective weapon for businesses to expand their businesses and increase the competitiveness of corporations in attracting consumers to their services, goods, and information. This is due to the inherent advantages of the internet, including ease of use, speed, wide accessibility, and low cost which have enabled electronic access (Tan et al., 2009). As maintained to the technology acceptance model (TAM), the perceived usefulness of new technology (e.g., home-based telework) explain by its perceived simplicity of use. The TAM is a generally accepted conceptual model because of its simplicity, and previous studies have shown that it has greater explanatory power than alternative models like the theory of reasoned action or the theory of planned behavior. Employees regard home-based telework as a solution that allows them to manage work and family obligations without wasting time commuting. For organizations, it is the approach of human resource management that assists organizations in attracting and retaining the most dedicated employees. According to the technology–organization–environment (TOE) paradigm, technological advancements, corporate culture, and environmental factors can all help with ease of use (Ollo-López et al., 2020).

ICT is an important part of operations for companies of all types and sizes, and it has the ability to improve business efficiency significantly. Information and communication technology systems and expertise must adapt to the changing needs of the market in an ever-changing business world. As a result, for organizations to make efficient use of ICT resources, skilled IT employees are needed (Morrison et al., 2019).

ICT is leading today's competitive job development, with networking sites allowing users to connect via innovation. Even so, according to factors like entrepreneur innovation and creativity, which improve how technology advancement affects firm performance, ICT adoption and implementation differ. The researcher found that the results indicate technological advancement has a positive impact on firm efficiency. To improve the efficiency of businesses, entrepreneurs should devise novel strategies. Government action should focus on improving ICT infrastructure, supporting the technical impacts of small and midsize enterprises (SMEs), and developing ICT resource centers to assist SME performance (Chege et al., 2020).

## **2.6 Telework Performance**

Telework – conjointly usually referred to as telecommuting – was originally outlined as operating aloof from a typical workplace or at home. Later definitions were extended to incorporate the employment of data and communication technology and virtual work. The definition of telecommuting as an alternate work arrangement in which workers conduct tasks that would normally be performed in a primary or central workplace elsewhere for at least a portion of their work schedule while interacting with others within and outside the organization through electronic media. (Gajendran & Harrison, 2007). Alternative networking and information-sharing systems are used in telework. Furthermore, teleworking can be done from a remote office, at home, or while traveling. Employees can telework part-time or full-time, in addition to more traditional work arrangements (Coenen & Kok, 2014).

Telework and telecommuting, expressions that are usually hired interchangeably, are job roles and arrangements that include working regularly from home or off-site instead of working entirely from a major, established work site. Although previous studies were contradictory on the effects on employee satisfaction and efficiency of telework. The recent empirical work shows that telework typically boosts worker satisfaction and productivity (Chen & McDonald, 2015).

Performance is a measure of how well a company does its job. It is related to efficiency, and productivity. As a result, it differs from productivity in that it is not output-oriented and is measured in different factors. It's usually calculated in terms of judgment, quality

of outcomes, leadership, job knowledge, creativity, teamwork, and target setting, among other things (Martin & MacDonnell, 2012).

Lack of understanding and good practices for using technology can be one of the key obstacles for virtual teams as technology is believed to be the core aspect of communicating virtually, to ensure good communication and maintain employee performance. All business and its employees currently communicate with one another via technology like as email, shared workspaces, and shared databases. Despite the fact that traditional and online teams engage in the same ways, conventional members of the team will interact more frequently than virtual team members. Informal communication among conventional team members aids in the establishment of trust among team members, develops a sense of belonging to a cohesive group, and aids in the providing of corrective assessment. As a consequence, teamwork' social interactions may improve employee performance(Webster & Wong, 2008).

At the firm level, the connection between telework and performance has yet to be identified. Improved productivity, job satisfaction, and company loyalty are also at the forefront of teleworks benefits lists (Martínez-Sánchez et al., 2008). When evaluated separately, teleworkers are more efficient than office workers, according to the result of a case study for (Collins, 2005). When it comes to managing teleworkers, experts recommend moving away from traditional behavior-observation-based monitoring, and instead focusing on results (outputs or outcomes), assigning teleworkers to projects with easily measurable consequences. Here, output-based (or results) controls relate to a manager's assessment of a teleworker's performance based on the output, deliverables, or outcomes of the job, rather than the method or behaviors involved in generating the output(Kim et al., 2021). Moreover, abrupt changes in work habits (e.g., transitioning from in-office to remote work with little to no planning) might result in a drop in work performance. Emotional exhaustion, among other things, could be a significant component in the detrimental impacts on work performance. Workers may be less willing to perpetuate personal resources to achieve work-related obligations if they are emotionally exhausted, according to the conservation of resources theory (Abdel Hadi et al., 2021).

## **2.7 Theoretical gap**

As previously stated, teleworking during COVID-19 has many characteristics, including stress created by health and career ambiguity in the context of the global epidemic, limited access to child-care assistance because of the closures of school and child-care facilities, conflict of family-work, and social isolation (Wang et al., 2021;Mihalca et al., 2021). Employees who work from home may have performance and job issues, and even a drop in overall satisfaction with this type of working, as a result of these particular elements of teleworking during COVID-19 (Carillo et al., 2021). Just a few studies have looked into the obstacles that employees are facing while teleworking during COVID-19, including the effect on individual work outputs(job performance), and the characteristics that assist teleworkers to handle some of these challenges effectively (Mihalca et al., 2021;Chang et al., 2021b). It's inferred that the subject is fresh, relevant, and important. Consequently, additional research and confirmation using quantitative approaches is required for related investigations.

Furthermore, there is still a lack of empirical studies that discuss problems about the impact of telework on individual and organizational performance (Kim et al., 2021). Even so, because very few of the earlier studies on telework were performed during a period when working was conducted on such a massive scale as during the disease outbreak, and because of the specific requirements at this period, in the present COVID-19 problem, some of the previously gathered expertise about teleworking may be out of date. At the least, the studies should look into how this background has influenced distant telework experiences and performance(Wang et al., 2021).

In this framework, there is few research examining the impact of COVID-19 on telework performance, its challenges, and possibilities for organizations to improve performance, despite the fact that managers and HRM professionals require data that support them navigate this pandemic efficiently and effectively, provide assist to their staff members, and keep their business afloat. In actuality, most businesses are not well equipped to handle with pandemic when it occurs.

## **2.8 Hypothesis development and research model**

Combined with the findings of past empirical research, the research model was built based on the lack of literature that reviewed the effect of teamwork and organizational support

on job performance while teleworking, also the relationship between organization practices, telework, workplace flexibility, and firm performance has not been studied or reviewed by any published research of which we are aware, also looking into whether or not technology has a substantial impact on these relationships.

The conceptual model for this study, Figure 2.1, consists of four variables: organizational support, teamwork, technology as a mediator, and remote work performance. Activation of the conceptual model, Table 2.1.

Telework setup necessitates telework-enabling facilities and technology, such as virtual desktops, internet connections, and electricity to set up an office at home. As a result of the crisis, workers all around the globe have been forced to follow teleworking practices, and their attitudes, performance improvements, productivity changes, and perceptions through telework have created new fields of research (Bhattacharya & Mittal, 2020). Since there is a paucity of literature and knowledge about teleworking during a pandemic (Tavares et al., 2020), this research aims to learn more about how to do teleworkers' performance better than office workers, and which aspects affected it.

Job success and efficiency are often influenced by psychological factors. According to previous studies, they find that four factors, optimism, namely efficiency, flexibility, and hope, have major positive effects on success and performance (Kazekami, 2020). The combination of these four factors will be more effective for performance and satisfaction than the individual ingredients. Thus, this study deals with whether the factors of teamwork, and organizational support during telework improve work performance. The literature reviewed did not study the effect of satisfaction and teamwork on job performance while teleworking, and the relationship between organization practices, telework, workplace flexibility, and firm performance has not been studied by any published study of which we are aware. On the contrary, this study proposes a hypothesis that teamwork, and organizational support increase work performance, and investigates this hypothesis.

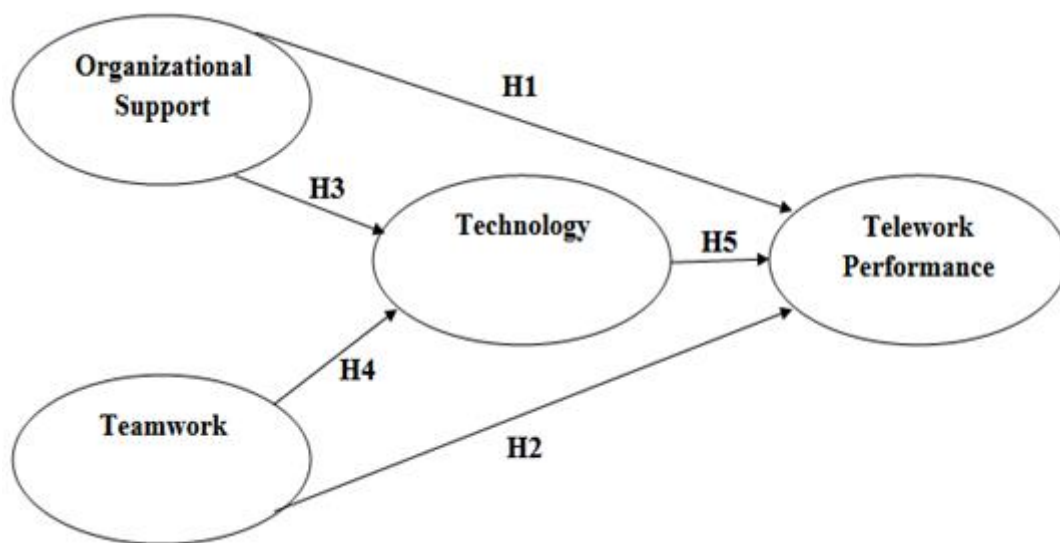
## 2.9 Model Variables and Hypotheses

The following model is proposed in this research, as shown in Figure 2.1. It comprises of four constructs: organizational support, teamwork, technology, and telework performance. There are certain reflected indicators in each construct.

Technology moderates the relationship between organizational support and telework performance and between teamwork and telework performance.

**Figure 2.1**

*Research model and proposed hypotheses*



### 2.9.1 Organizational Support and Teleworking Performance

In this study, companies faced difficulties in the workplace during the COVID-19 crisis, so the administration started looking for solutions and alternatives to maintain the continuity of work, whether from home or by reducing the number of employees in the workplace to maintain a safe distance between employees, so it resorted to the rotation work system for teleworking and work from office among the employees. Management recognized the importance of communicating with employees and considering reasonable workplace modifications.

As a result, the environment of telework agreements reached by management and workers mirrored a psychological contract in which management anticipated people to work at the same level as if they performed exclusively at the offices, and employees anticipated management to behave them with the same respect, and fairness as they would if they

worked in a typical office. The psychological contract concept is concerned with a person's opinion or impression that a commitment has been issued. For example, management will formalize an alternate telework option strategy in exchange for a guarantee to fulfill specific obligations, so at the distributed work site, the employees will accomplish their responsibilities successfully. Psychological contracts include both explicitly and implicitly pledges, such as written or verbal commitments and faithfulness or fairness (Hunton & Norman, 2010).

Managers who are aware of the inherent advantages of teleworking, their views toward it will improve. Management and teleworkers could benefit from training to better comprehend the advantages, become more efficient, and handle issues faster. Support from management in the form of training is also a key component of telework success. When upper management engages with employees, training is both accessible and successful. Organization and teleworkers could both benefit from such training. A wide variety of topics could be covered in training, including how to use the technology, conferencing manners, and remote troubleshooting procedures (Ober, 2010). Jankelová confirmed in his study that organizational support and motivation have a significant effect on teamwork performance during the phase of the COVID-19 crisis. Employees are engaged in the company's recovery, they are proud of their own efforts, and the crisis boosts the morale of employees. Employee performance depends on autonomy, communication, and space for critical thought (Jankelová et al., 2021b).

According to the study by (Contreras et al., 2020), successful management fosters teleworking performance by reducing the gap between the organization and its employees, support, and bringing the company and its teleworkers closer together using high technology. Similarly, the studies revealed that managers increase employee work engagement by effectively utilizing resources and adopting a development and support mindset. Therefore, the first hypothesis of antecedent variable is as follows:

**H1:** Organizational support has a significant effect on teleworking performance in service and IT sectors.

### **2.9.2 Teamwork and Teleworking Performance**

The epidemic necessitated high degrees of adaptability in businesses, particularly among teams, as well as reactive changes in operations and behaviors in order to deal with the situation. Organizations had to change their working environment (from the office to the home), time management (from fixed to flexible working hours), and how they interacted with technology to adapt to a new style of working (Klostermann et al., 2021).

This study assumes is that organizations needed to focus on teamwork processes to adjust to this non-routine scenario for an effective virtual context adaptation. Teams will employ mostly action processes to complete essential work in order to manage the changes caused by COVID-19 and to respond to this particular incident. The optimal teamwork method, according to Hageman and Kluge (Hagemann & Kluge, 2017), is based on complex problem-solving. The latter is essential for teams dealing with non-routine, dynamic, and opaque conditions, as three skills are required for teamwork: coordination, cooperation, and communication in order to address difficult problems.

Effective coordination of expertise through cross-border integration, job sharing, communication through accurate and timely exchange of information, and information sharing is an advantage of teamwork. While these two factors are met, teams have the potential to improve treatment, learning, and high performance(Mayo, 2020).

Trust is expecting benevolent behavior from others, as well as compliance with being vulnerable to others(Breuer et al., 2016). The evidence reveals that among members of the team, trust is a strong predictor of work performance. Moreover, as virtuality increases, the importance of trust gets increasingly more vital, and developing and keeping trust becomes more difficult due to a potential lack of communication(Kilcullen et al., 2021).

Telework has been considered a beneficial and strategic management tool in telework projects. On the other hand, existing research appears to concur that telework has a negative impact on teamwork cooperation, in the lack of face-to-face contact between managers and their teams, performance and personnel concerns develop to be worse(Green & Roberts, 2010).While (Andrei, 2021) demonstrates how the COVID-19 outbreak's forced telework policy has disrupted teamwork for a few of the teams that had

created a transactive memory system while working from the office during the pre-pandemic period and this has hampered the performance of telework. The research of Jankelová showed that teamwork fosters better questioning, mutual performance support, greater coordination, and a collective search for solutions to crisis situations (Jankelová et al., 2021b). Even during the phase of the COVID-19 crisis, teamwork is a kind of work organization and supporting aspect for the performance of employees. Therefore, the following hypotheses was formulated:

**H2:** Teamwork has a significant effect on teleworking performance in service and IT sectors.

### **2.9.3 Mediating Role of Technology and Teleworking Performance**

Telework is a sort of work that has become more feasible to live in thanks to technological advancements. It was impossible for several years without the need for a personal computer, internet connections, or the hefty expenditures associated with them. The majority of individuals now have accessibility to and expertise in ICTs (Medina-Rodríguez et al., 2020). Technology advancement is the practice of merging and rearranging knowledge in order to create new ideas; quick technological advancement will have an effect on business success (Martínez-Caro et al., 2020). There are technological advancements that result from internal development, and internal advancement is based on the abilities of employees. The advancement of technology and the performance of employees are inextricably linked based on the research conducted on the rural banks in Bali during the COVID-19 pandemic (SAPTA et al., 2021).

Technology can contribute to enhanced productivity or performance improvement. When integrated with other resources by human resources, or when used efficiently, and employing technology ethically and productively (Singh et al., 2020). According to findings from educational studies in Indonesia, teachers are stepping up their efforts to mitigate the crisis's harmful impacts by implementing advanced pedagogical and technical tactics targeted at guaranteeing that pupils in exam classes are sufficiently prepared for exams. It is also widely believed that the implementation of the science curriculum will be hampered because the curriculum is expensive to implement through the use of software and applications, technology, and that the state of the national economy following COVID-19 will not be strong enough to support these strategies (PRAMONO et al., 2021).

During the social distance, crisis fears are realized and exacerbated. The digital age has pushed management science research in new directions, including themes that are relevant to business management and practices. Scientific research penetration and applied evaluation are management concerns with far-reaching effects. Change management, the development of digital competency, the creation of new business strategies, the inferred effects of business models, and employee qualification are common examples. Many scientific studies, such as change management, have focused on employee engagement of change, which focuses on timely communication and engagement (Sinčić Ćorić et al., 2020). The ability to capture massive data in an unstructured and structured format, keep it safe, interpret it, and use it effectively is a digital era competency. Focusing on the technological, operational, and human components of the firm when developing digital competency is essential (Jankelová et al., 2021b).

In recent years, a number of studies have been done in an attempt to better understand the possible benefits and drawbacks of teleworking. Gajendran & Harrison (2007), found teleworkers had better job satisfaction, performance, autonomy. Furthermore, according to a study by Martin & MacDonnell (2012), telework has a beneficial impact on organizational outcomes such as perceived productivity, increased retention and organizational commitment, and enhanced performance for teleworkers. However, research reveals that not all telework arrangements are effective, and that in some cases, negative results are recorded (Bentley et al., 2016).

Telework is most commonly done at home, but it can also be done on the road, in a co-working space, a smart center, or a digital work hub, or in other remote locations. In most circumstances, the teleworker is physically separated from their employer, generating questions regarding how teleworkers interact with their coworkers and employers, as well as how effectively to promote teleworker engagement, wellness, security, and performance (Bentley et al., 2016). According to the findings of Klostermann's study, creating trust, guaranteeing communication and teamwork, and providing technical and technological working practices that are suited to the team's tasks are all good ways to prepare organizations for non-routine situations. The insights learned from the COVID-19 epidemic can assist make a successful team and management modifications, not a result of luck but proof formulations in today's uncertain world of work, where employment is almost no longer a possibility but a requirement for organizational survival

(Klostermann et al., 2021). Few researchers have examined at the obstacles that teleworkers face during COVID-19 pandemic and its impact on work performance, or even the variables that enable teleworkers deal effectively with these difficulties, such as technology and teamwork (Mihalca et al., 2021). Therefore, the following hypothesis were formulated:

**H3:** Technology mediates the relationship between organizational support and teleworking performance.

**H4:** Technology mediates the relationship between teamwork and teleworking performance.

**H5:** Technology has a significant effect on teleworking performance in IT sectors.

**Table 2.1***Operationalization of the conceptual framework*

Construct	Items	Reference
Organization support	Appreciate any extra effort	(Ober, 2010), (Eisenberger et al., 1986)
	Attention to employee complaints	(Ober, 2010), (Eisenberger et al., 1986)
	Rewards	(Ober, 2010), (Eisenberger et al., 1986)
	Attention to employee satisfaction	(Ober, 2010), (Eisenberger et al., 1986)
	Ability to ensure effective communication	(Ober, 2010), (Eisenberger et al., 1986)
	Managers support	(Park & Cho, 2020)
Teamwork	Interdependence	(Luca, 2011)
	Clarity of roles	(Luca, 2011)
	Open communication and positive feedback	(Luca, 2011)
	Interpersonal skills	(Luca, 2011)
	Appropriate team composition	(Luca, 2011)
Technology	Ability to do the job	(Chen & McDonald, 2015)
	Ease of use of information technology	(Carillo et al., 2020)
	Learning to use information technologies	(Carillo et al., 2020)
	Right tool stack to enable telework	(Carillo et al., 2020)
	Remote work tools hinder work	(Tokarchuk et al., 2021)
	Working from the office is more efficient	(Tokarchuk et al., 2021)
Teleworking performance	Fulfill all responsibilities	(Chang et al., 2021b)
	Failure to perform duties	(F. Manzoor et al., 2019)
	The effect of telework on morale	(Manzoor et al., 2019)
	Efficiency	(Tsai et al., 2010)
	Appreciate any extra effort	(Tsai et al., 2010)

**2.10 Chapter summary**

Previous studies showed the trend and correlation in the results, where the studies differed and studied the different environments and the different effects caused by this crisis with how to adapt in companies in which an encouraging factor is adopted to study the performance of employees in Palestine during this crisis by studying the impact of

technology as a mediating factor. A review of these studies showed that they were concerned with the behavior of companies and their interest in the performance of their employees to teleworking and providing them with the appropriate environment and organizational support.

## **Chapter Three**

### **Research Methodology**

#### **3.1 Chapter overview**

This chapter discusses the research's methodology, including the study design, demographic and sample size, data collection, and analysis methodologies.

#### **3.2 Research Purpose**

Research has three basic types: exploratory, explanatory, and descriptive (Saunders et al., 2019). This thesis is explanatory research, and the purpose is to test hypotheses and investigate the links between various constructs: the effect of teamwork, organization support, and technology on telework performance. The relationship between technology and teamwork, organization support, and telework performance, as well as the relationship between technology and the other factors mentioned, is a mediator or not, based on existing literature's theoretical and empirical evidence.

#### **3.3 Research paradigm**

The research paradigm was defined as a set of frequently held views and assumptions concerning ontological, epistemological, and methodological problems within a research field (Johannesson & Perjons, 2014). Paradigms are broad perspectives, models, or frameworks that outline how to perceive and comprehend something (Khaldi, 2017).

Saunders et al. (2016) also infer that positivism and interpretivism are the most popular research paradigms. Positivism assumes that reality exists independently of human behavior, arguing that observation and experimentation are the only ways to gain objective evidence about societies and that experiments and questionnaires are the best study methods. Furthermore, interpretivism presumes that society is reliant on human practices and claims that the only way to gain a thorough knowledge of the phenomenon is to participate actively in it with the relevant parties; additionally, interpretivism favors case studies, action research, and ethnography as research methods (Johannesson & Perjons, 2014). As a result, by relying on the aforementioned examples, this thesis adheres to the positivist viewpoint.

### **3.4 Research approach and methodology**

There are three types of research methodologies: qualitative, quantitative, and mixed methods (qualitative and quantitative methods combined) (Ishtiaq, 2019). The first type of research is qualitative research, which tries to investigate people's or groups' opinions of a problem or phenomenon in its natural setting by gathering data and deducing generalizations from specifics. This method is an advocate of the inductive approach (Cresswell et al., 2014, Alase et al., 2017).

The second type of research is quantitative seeks to evaluate ideas by looking into links between constructs that can be quantitatively quantified and statistically tested, resulting in generalizable and replicable results; this technique supports the deductive process (Cresswell, 2014). Using the previous explanation as a guide, this thesis takes a quantitative approach.

Based on the previous studies in the literature review, it is completely obvious that the forced change to remote work as a result of the pandemic demonstrated the need to investigate how telework has evolved and how it affects employee performance. Performance is one of the key problems of telecommuting, thus it's important to pay attention to it. As a result, the study's goal is to investigate these transitions in employee performance using technology as a mediating element.

According to Saunders et al. (2019), a questionnaire is among the most widely utilized surveying instruments. It's also a quick and easy approach to get responses from a huge group of people. It is important to note that the look of the questionnaire can have an impact on the outcome and data reliability.

Given the nature of the RQs, this study follows a quantitative approach. And since the objective of this study to investigate the relationships between the variables then the survey method would be appropriate too to collect the data.

The technique starts with establishing the study problem and scope, then moves on to conduct an in-depth assessment of the literature for the study, filling in the gaps and determining the need for the study, and finally formulating research questions and hypotheses. The second phase is to begin gathering qualitative and quantitative information. The next phase is to choose a suitable sample. Questionnaires are distributed

to employees of IT companies in the West Bank. In addition, after collecting the data from the previous stage, they were analyzed to test hypotheses. The last step is to determine the effects of organizational support and teamwork during the crisis on employee performance by testing technology as an intermediary work, and finally providing recommendations and future studies related to work.

### **3.5 Research philosophy**

Research philosophy is the structured method taken by a researcher, and it is thus the foundation of any study that determines the research approach and methodology chosen. Moreover, determining the research paradigm is critical because it connects the study's environment with the understanding and the study's goal (Saunders et al., 2019).

In general, there really are two techniques for testing hypotheses and drawing conclusions: induction, which is based on empirical evidence, and deduction, which is based on logic (Ghauri et al., 2020). Furthermore, there is an abduction strategy, which is a hybrid of inductive and deductive reasoning. To summarize, the inductive technique begins with observations, supported by analysis and discoveries to develop a theory, whereas the deductive method relies on logic and reasoning to offer assumptions from published literature, which are then tested to derive conclusions (Ghauri et al., 2020).

According to this discussion, this study begins with a surveying of the existing literature about telework during the COVID-19 crisis, the influences that resulted from this mandatory type of work, the impact of telework on the performance of employees during this period, and other related aspects. Then, this study established a research model based on the surveyed literature to investigate the relationships between organizational support for companies, teamwork and telework performance during the telework period and to test relevant hypotheses based on primary data collected from employees in software companies. Also, technology hypothesis testing as a mediating factor. Consequently, this study drew findings from the results of the empirical evidence. Thus, this thesis follows the deductive approach.

### **3.6 Data collection**

This study aimed to investigate the impact of telework on employee performance during the COVID-19 Crisis in Palestine software companies. This study relies on the descriptive

and analytical method because it is the most appropriate approach for the study's topic since it uses description, investigation, analysis, and assessment to obtain conclusions that bring value to knowledge and science. Furthermore, primary and secondary data were employed to collect the necessary information and data for this study. Primary data is collected using a questionnaire constructed specifically to examine the study's variables, while secondary data is a review of existing literature linked to the study's topic to create the conceptual framework.

The questionnaire is the most effective approach for evaluating the impact of telework on employee performance during the COVID-19 crisis for this thesis (Raišiene et al., 2020). Thus, a structured and balanced (five-point Likert-scale) questionnaire will be created for this research. The purpose of the questionnaire is to collect data as the main source in order to assess the research model's premise. Therefore, this thesis employed PLS-SEM software as a data analysis tool to test hypotheses.

### **3.6.1 Questionnaire design**

The questionnaire used in this study is a five-point Likert scale of 1 (Strongly disagree) to 5 (Strongly agree) directed to the employees of IT companies in West Bank and to the managers. To evaluate the study model's hypotheses, a web-based questionnaire was created using Google Forms. The questionnaire was divided into five sections. The initial survey instrument requested the respondents for demographic characteristics such as age, marriage, employment status, and education degree. The other parts contain the basic variables include organizational support, teamwork, technology, and telework performance. Many factors influence the measurement of each variable. There are 24 questions in total in the survey, these questions were based on references shown in Table 2.1. The data were analyzed using mean values, standard deviation, and correlation.

### **3.6.2 Research population and sample size**

The study is conducted in the West Bank and the population of the study consists of 1400 employees to evaluate the study. The sampling frame for this study was given by personnel from the software project team in Palestine. On software projects, there are around 1400 employees. The number of employees was approximated because there are no recent statistics indicating the number of employees. There are approximately 70 Palestinian software companies in the West Bank, and their size ranges from a small to

medium-sized company, with an average of 20 employees (Palestinian Central Bureau of Statistics, 2021). The questionnaire was sent via LinkedIn, and in-person visits to the companies. The method of distribution of questionnaires to employees and companies was in random way.

This study will go through many stages in order to investigate the relationship between organizational support, teamwork, and technology as a mediating variable, using a target population drawn from software project teams. Surveys will be used to collect data, which will then be examined using the statistics technique.

### **3.6.3 Data Collection and Response Rate**

For the relevant respondents, an opening statement describing the aim of the survey and the targeted respondents was given, as well as a survey link with a brief introduction to the study. The sample size for this study was calculated according to Cochran's formula (Sugden et al., 2000). According to Cochran's formula, the sample size is equal to 302.

In total, 302 questionnaires were sent to different software companies and employees in West Bank Palestine that returned 176 complete responses. For online surveys, a response rate of 25% to 40% is considered acceptable (Petchenik & Watermolen, 2011). A total of 176 replies were gathered as part of the sample. The effective response rate is 58.28 percent, which is deemed satisfactory for the purposes of the analysis.

## **Chapter Four**

### **Results and Discussion**

#### **4.1 Chapter overview**

This chapter provides a detailed overview of the sample obtained, as well as an in-depth study of the inner and outer models and a discussion of the results. Also, it summarizes the thesis' findings and offers numerous helpful insights and recommendations related to the study's topic. The statistical tool used to evaluate and validate the research model is described in Section 4.2. The inner model is explained in terms of reliability and validity in Section 4.3. The outer model and the results are explained in Section 4.4. The findings are discussed in Section 4.5. The conclusions of the analyzed data are summarized in Section 4.7. The relevance of this thesis to theoretical and practical aspects is discussed in Sections 4.8 and 4.9. The thesis' limitations are discussed in Section 4.10. Section 4.11 discusses possible study topics.

#### **4.2 Sample characteristics**

Based on the descriptive statistical analysis of the collected responses, the characteristics of the collected sample are as follow.

The results indicate that 64.4% of the sample are male, while 35.6% are female. Then, according to the ages of the respondents, the bulk of the respondents was from the youth group 20-29 their percentage was 74.6%, followed by the age group 30-39 percentage was 23.7%, and the percentage for the ages 40 and over. was 1.7%.

Moreover, the level of education respondent's results indicates that 91.5% of the sample have a bachelor's degree and 8.5% have a master's degree. Also, the results were for employment status 89.3% full time, 6.2% contract, and 4.5% other.

#### **4.3 Testing and validation of the research model**

PLS-SEM was able to obtain suitable solutions despite the limited sample size, several constructions, and a large number of indicators used (Hair et al., 2017). PLS-SEM is a strong technique for evaluating causal links in theoretical and conceptual models, by maximizing the explained variance of the independent variable (Hair et al., 2011).

Actually, the PLS-SEM technique allows by computing measurement and structural model associations separately rather than concurrently, which is a technicality. Furthermore, the approach uses distinct ordinary least squares regressions to generate partial regression links in the measurement and structural models. Due to the obvious small sample size and the logic of PLS. This study employs the PLS-SEM approach, which includes two rounds of examination and analysis, first, the measurement model is evaluated, which includes reliability and validity analysis; second, the structural model has evaluated and the model fit, which includes path analysis and parameter estimates (Hair et al., 2019). The Smart PLS 3 program was used to analyze the data.

#### 4.4 Measurement model: Reliability and validity analysis

If the study model includes reflective indicators, the constructs' validity and reliability must be assessed before the structural model can be evaluated (Hair et al., 2017). The internal consistency of the replies connected to each questionnaire is evaluated by Cronbach's Alpha ( $\alpha$ ) and composite reliability, and the validity of the questions is evaluated using convergent and discriminant validity tests (Hair et al., 2019).

**Table 4.1**

*Results of reliability and validity analysis*

<b>Construct</b>	<b>R<sup>2</sup></b>	<b>Cronbach's Alpha (<math>\alpha</math>)</b>	<b>Composite Reliability</b>	<b>AVE</b>
Organizational Support		0.831	0.876	0.541
Teamwork		0.841	0.887	0.612
Technology	0.444	0.776	0.849	0.533
Telework Performance	0.472	0.771	0.845	0.524

Cronbach's alpha is a common test to assess the internal consistency and composite reliability coefficients are used to double-check the internal consistency of the constructs and can be used to measure Reliability. The explanatory study that depends on known measures must have a reliability of 0.70 or higher because this suggests that the construct explains more than 50% of the variance in the indicator, implying that item reliability is acceptable.(Hair et al., 2017). As demonstrated in Table 4.1, all of Cronbach's Alpha values are above the acceptable value of 0.7. Organizational support ( $\alpha = 0.83$ ), Teamwork ( $\alpha = 0.84$ ), Technology ( $\alpha = 0.78$ ), and Telework Performance ( $\alpha = 0.77$ ). As a result, the test confirms the constructs' internal consistency and reliability.

On the other hand, Cronbach's Alpha assumes that all of the constructs' outer loadings are the same and are dependent on the number of indicators and correlations among them; consequently, the composite reliability test should be used in conjunction with Cronbach's Alpha (Hair et al., 2012). In this context, the double test for internal consistency and acceptable values is the composite reliability test and the acceptable values are 0.7 and above (Hair et al., 2019). Composite reliability is a much more accurate measure than Cronbach's Alpha because it sets priority values for evaluating the model method rather than presuming the same value for all indicators (Hair et al., 2011). Table 4.1 shows that the constructions' composite reliability values are more than 0.7: Organizational support ( $\alpha = 0.88$ ), Teamwork ( $\alpha = 0.89$ ), Technology ( $\alpha = 0.85$ ), and Telework Performance ( $\alpha = 0.85$ ). Thus, the test confirms the constructs' internal consistency and reliability.

Following that, a validity test is performed to confirm that the model's constructs are reliable; convergent validity and discriminant validity assessments are used to assess and analyze each construct and indicators in the model, and check the relationship between every construct's indicators (Hair et al., 2019). Convergent validity is a test that shows how the items are connected to their construct and how each element is related to the other factors in the same construct (Hair et al., 2011). The average variance extracted (AVE) for all variables on all constructs is the metric used to assess a construct's convergent validity. The AVE is computed by squaring the loading of each indicator on a construct and computing the mean value. The AVE rule of thumb is that it should be 0.50 or higher. This signifies that the construct explains 50% or more of the variance in the variables that make up the construct, indicating that it is valid (Hair Jr. et al., 2017). The results presented in Table 4.1 show that all AVE values are more than 0.5: Organizational support ( $\alpha = 0.54$ ), Teamwork ( $\alpha = 0.61$ ), Technology ( $\alpha = 0.53$ ), and Telework Performance ( $\alpha = 0.52$ ). Therefore, this test emphasizes convergent validity.

The degree to which a construct's indicators are connected with those of other constructs in the conceptual model is measured by discriminant validity, to verify the test, compute the square root of the AVE for all of the components, where the correlations within each construct should be greater than the correlations with the other constructs (Rönkkö & Cho, 2022). Table 4.2 shows that the correlation values between constructions are higher than the correlation values between the other constructs, indicating that discriminant validity is acceptable.

Furthermore, the Heterotrait-Monotrait (HTMT) ratio is an extra test to double-check discriminant validity; it is also a preferred measure because of its sensitivity; the range of permissible values is 0 to 0.9 (Ab Hamid et al., 2017). Although scores between 0 and 1 are acceptable, values less than 1 indicate high reliability (Franke & Sarstedt, 2019). According to Table 4.3, this study's HTMT values are less than 0.9, indicating that discriminant validity is acceptable.

**Table 4.2**

*Discriminant validity check (Square root of AVE is shown on the diagonal in bold)*

<b>Construct</b>	<b>Organizational Support</b>	<b>Teamwork</b>	<b>Technology</b>	<b>Telework Performance</b>
Organizational Support	<b>0.736</b>	0	0	0
Teamwork	0.610	<b>0.782</b>	0	0
Technology	0.633	0.551	<b>0.730</b>	0
Telework Performance	0.565	0.527	0.641	<b>0.724</b>

**Table 4.3**

*HTMT values*

<b>Construct</b>	<b>Organizational Support</b>	<b>Teamwork</b>	<b>Technology</b>	<b>Telework Performance</b>
Organizational Support	0	0	0	0
Teamwork	0.714	0	0	0
Technology	0.773	0.664	0	0
Telework Performance	0.687	0.635	0.817	0

Table 4.4 shows the estimation of the measurement model using PLS-SEM. The factor loadings of the reflective indicators are equal to or larger than 0.7, the outer model's validity is assumed to be acceptable. In reflective measurement models, outer loading refers to the estimated correlations (which arrows from the latent variable to its indicators) compute the absolute contribution of an item to the defined construct, However, all indications with a factor loading value of 0.4 or below should be avoided, and the impact on AVE and composite reliability will be evaluated. A reflecting indicator should be

removed if these increases exceed the threshold. Reflective indications must also be preserved (Cepeda-Carrion et al., 2019). Therefore, if the items are newly theorized, values of 0.5 and above are acceptable (Hulland et al., 2018). The numbers in Table 4.5 show that all of the items have appropriate values, indicating that indicators are dependable and properly loaded into their constructs.

**Table 4.4**

*Estimation of the outer model*

<b>Construct</b>	<b>Indicators</b>	<b>Outer Loading</b>	<b>T-Value</b>
Organizational Support	Appreciate any extra effort	0.763	18.517
	Attention to employee complaints	0.697	10.790
	Rewards	0.763	20.770
	Attention to employee satisfaction	0.733	14.584
	Ability to ensure effective communication	0.731	17.458
	Managers support	0.725	17.394
Teamwork	Interdependence	0.809	22.121
	Clarity of roles	0.849	31.385
	Open communication and positive feedback	0.809	26.539
	Interpersonal skills	0.686	10.164
	Appropriate team composition	0.748	20.057
Technology	Ability to do the job	0.802	23.295
	Ease of use of information technology	0.757	16.061
	Learning to use information technologies	0.746	15.534
	Right tool stack to enable telework	0.744	17.696
	Remote work tools hinder work	0.580	7.764
Telework Performance	Working from the office is more efficient	0.595	9.688
	Fulfill all responsibilities	0.810	17.950
	Failure to perform duties	0.795	17.383
	The effect of telework on morale	0.690	12.639
	Efficiency	0.709	12.998

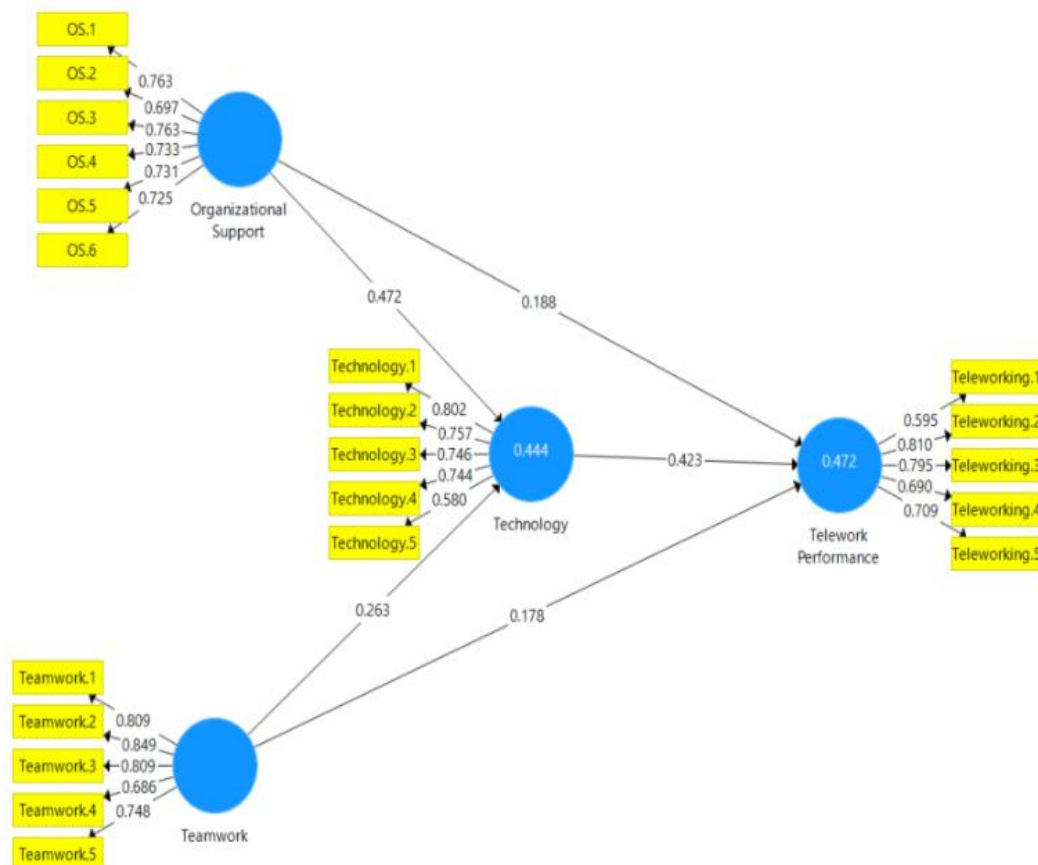
The importance of the outer loadings is also confirmed if their values are more than 1.96 or less than -1.96 at a 0.5 significance threshold (Hair et al., 2020). Outer loadings are highly significant, according to Table 4.4.

## 4.5 Structural model

The coefficient of determination,  $R^2$ , is a statistical metric that measures how much variance in the dependent variable is explained by the independent variables in the conceptual model, with acceptable values ranging from 0 to 1 (Hair et al., 2020). Referring to Figure 4.1,  $R^2$  of telework performance is 0.47, meaning that 47% of the variance in “Telework performance” is explained by the three latent variables “Organizational support”, “Teamwork”, and “Technology”. The inner model proposes that “Technology” has the strongest effect on “Telework Performance” (0.423), followed by “Organizational support” (0.188), and “Teamwork”(0.178).

**Figure 4.1**

*PLS path-modeling estimation of the research model.*



Following this, the path coefficient values and their significance for the conceptual model must be verified (AlBallat & Al-Araby, 2019). Verification is accomplished by confirming that the standardized path coefficient, or B-value, is at least 0.1 or greater, regardless of sign, in order to fully describe the relationship (Cepeda-Carrion et al., 2019).

If the associated t-value is within the range of (-1.96 - 1.96), at a 0.5 significance threshold, the correlation is significant (Hair et al., 2020). The bootstrapping process examines the t-values with its default parameters of 500 subsamples(Hair et al., 2011). The results of the model fit are shown in Figure 4.2.

The t-value, P-value, and B-value, presented in Table 4.5, indicate that “Organizational Support” have a significant positive impact on “Technology” (B = 0.472) and (t = 5.364), also a significant impact on “Telework Performance” (B = 0.188) and (t = 1.979). Additionally, “Teamwork” has a significant positive impact on “Technology” (B = 0.263) and (t = 2.859), and “Telework Performance” (B = 0.178) and (t = 2.094). At last, “Technology” has a significant positive impact on “Telework Performance” (B = 0.423) and (t = 5.096).

**Table 4.5**

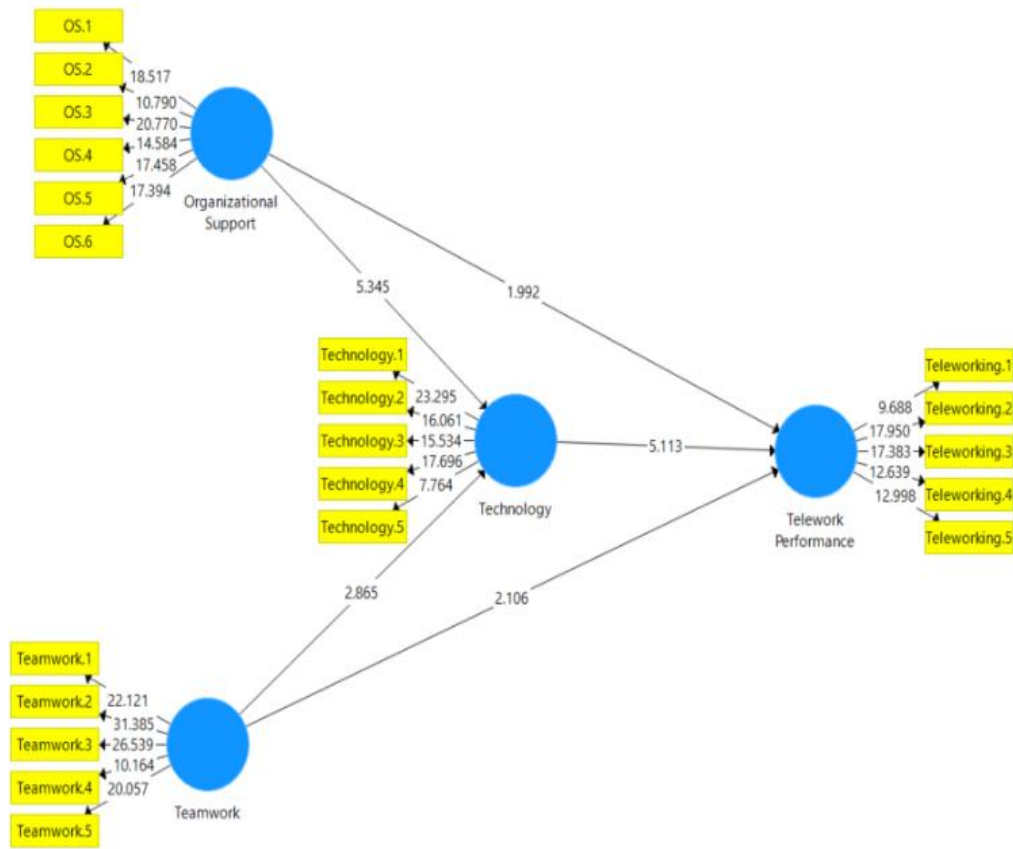
*Results of the model fit and hypothesis testing*

<b>Hypotheses</b>	<b>Original Sample (B-value)</b>	<b>Standard Deviation</b>	<b>T Statistics</b>	<b>P Value</b>	<b>Conclusion</b>
Organizational Support -> Technology	0.472	0.088	5.364	0.000	H3 is supported
Organizational Support -> Telework Performance	0.188	0.095	1.979	0.047	H1 is supported
Teamwork -> Technology	0.263	0.092	2.859	0.004	H4 is supported
Teamwork -> Telework Performance	0.178	0.085	2.094	0.036	H2 is supported
Technology -> Telework Performance	0.423	0.083	5.096	0.000	H5 is supported

Referring to the aforementioned results, the model fit confirms that “Organizational Support”, “Teamwork”, and “Technology” are influential factors and strong predictors of “Telework Performance”. Observing the results given in Table 4.6, the analysis confirms that H1, H2, H3, H4, and H5 are supported.

**Figure 4.2**

*Model fit estimation using the bootstrapping procedure*



**Table 4.6**

*Specific total effects*

Hypotheses	Original Sample (B-value)	Standard Deviation	T Statistics	P Value	Conclusion
Organizational Support -> Technology	0.472	0.088	5.364	0.000	H3 is supported
Organizational Support -> Telework Performance	0.388	0.083	4.675	0.000	H1 is supported
Teamwork -> Technology	0.263	0.092	2.859	0.004	H4 is supported
Teamwork -> Telework Performance	0.290	0.089	3.258	0.001	H2 is supported
Technology -> Telework Performance	0.423	0.083	5.096	0.000	H5 is supported

**Table 4.7***Total indirect effects*

Hypotheses	Original Sample (B-value)	Standard Deviation	T Statistics	P Value	Conclusion
Organizational Support -> Technology					
Organizational Support -> Telework Performance	0.200	0.056	3.572	0.000	H1 is supported
Teamwork -> Technology					
Teamwork -> Telework Performance	0.111	0.046	2.413	0.015	H2 is supported
Technology -> Telework Performance					

The results that appeared in table 4.6, 4.7, and Figure.4.1 indicate that technology improves the relationship between organizational support, teamwork, and telework performance, which means the technology can be determined as a mediating variable on this relation. Also, the results show the direct relationship impact between organizational support and telework performance ( $B = 0.188$ ), while the impact of the indirect relationship between them the presence of technology as a mediating factor was ( $B = 0.200$ ) and the total effect was ( $B = 0.388$ ). This indicates the importance of the indirect relationship for technology as a mediating factor between organizational support and employee performance during telework.

Moreover, the results show the direct relationship impact between teamwork and telework performance ( $B = 0.178$ ), while the impact of the indirect relationship between them the presence of technology as a mediating factor was ( $B = 0.111$ ) and the total effect was ( $B = 0.290$ ). This implies that the effect of the direct relationship between teamwork and telework performance is stronger than the indirect effect of the presence of technology.

#### 4.6 Discussion

This study examines the degree of the effects of teamwork, organizational support, and Technology as a mediating factor and how it affects the performance of remote work in Palestine during the COVID-19 crisis. The empirical results in Table 4.6 show that H1, H2, H3, H4, and H5 are supported, confirming our theoretical assumptions. Regarding technology, (SAPTA et al., 2021) found a significant positive relationship between

Technology and telework performance, which is consistent with our findings H5. This conclusion is similar to previous studies (Jankelová et al., 2021b).

In addition, we also find that organizational support has a significant positive impact on telework performance, which means that organizational support could effectively stimulate employees to practice telework performance; the results of the conceptual model supported H1. According to previous research, organizational support gives employees more motivation. It improves their work autonomy and work engagement (Contreras et al., 2020), and our study also supports these conclusions accordingly. Notably, we find that successful management improves employee's performance by employing advanced technology to bridge the gap between the organization and its employees, provide support, and bring the company and its teleworkers closer together.

During COVID-19 lockdown and telework paradigm, the necessity to remove obstacles and limits may have some favorable benefits in enhancing creative performance (Liu et al., 2021). This result also demonstrates that teleworkers will make full use of the autonomy and technology offered by the business to redesign job content and task boundaries, and improve their work performance by constantly obtaining and altering resources to match the work requirements. It is indicated that technology is considered a mediator in the relationship between organizational support and telework performance because the analysis found that this relationship supports H1, H3, and H5.

Furthermore, H2, H4, and H5 are supported. Indeed, despite researchers having explored several effects on telework performance during COVID-19, the topic of examining the impact of teamwork and the effect of technology as a mediator variable on telework performance is still lacking sufficient evidence (Wang et al., 2021). That explains the disparity in empirical evidence presented by existing studies.

There is a substantial gap in the literature regarding best practices for teamwork, leaving it up to enterprises to decide which guidance to follow. There were produced tips for teamwork making a speedy shift to telework. Organization, individual, and team categories are used to group these recommendations. These recommendations include communication, interaction, leadership, management, supportive methods, norm-setting, adaptability, and performance monitoring. (Kilcullen et al., 2021).

The COVID-19 emergency has forced companies worldwide to move some of their activities to telework where possible. The current research provides an analysis of the impact of telework on the performance of teleworker who was forced to do this type of work due to COVID-19 by Palestinian companies active in the IT sectors. While the study notes several impacts on employee performance during the teleworking period imposed by the COVID-19 crises, their ability to implement telework adoption, as measured by the degree of such adoption, depends on their willingness to work remotely. Our analysis shows that many organizations have embraced remote work to the degree that is adequately supported by their organizational readiness. The results of the current study confirmed the previous findings of the importance of basic information technology infrastructure, organizational support for employees and motivating teamwork, and the managers' ability to manage remote teams to obtain the required level of employees' performance.

#### **4.7 Findings**

Telework is a type of work arrangement that is becoming increasingly popular worldwide, particularly in the aftermath of the COVID-19 pandemic. Teleworking has numerous advantages for both employees and organizations. According to telework it enhances their work-life balance, increases their performance, and gives employees more flexibility and independence. Employees also can minimize company costs and improve efficiency. Furthermore, this type of work arrangement might be suited for a wide variety of occupations and persons of various ages, genders, and health statuses.

In the context of the increasing popularity of teleworking, which is expected to persist long after the COVID-19 pandemic is over, it is necessary to put in place measures to ensure employee performance is maintained and minimize the negative consequences arising from this form of work organization.

The purpose of this thesis was to find the degree of the effects of teamwork, organizational support, and the effect of technology as a mediator on the performance of the home-based telework in Palestine. Specifically, the research has focused on the factors that affect teamwork, organization support, and technology.

To answer the research questions: “*How is the effect of teamwork, organization support, and technology on telework performance?*” and “*Does technology mediate/improve the relationship between teamwork, organization support, and telework performance?*” we conducted a comprehensive literature review to obtain an understanding of what factors influenced telework performance during the COVID-19 crises.

The study must reach the purpose and study how global lockdown and mandatory remote work affect employee performance. For this purpose, we surveyed different software companies and analyzed their responses by PLS-SEM; five hypotheses were examined. In answering the research questions introduced in this study, the results confirm that organizational support significantly influences teleworking performance, which has a substantial role in employee performance. This is consistent with what has been argued in the literature review (SAPTA et al., 2021); once organizations meet workers’ social and emotional needs and have strong and good organizational support, they are more likely to establish favorable job situations, including job performance and productivity. Employees will also want to compensate their organization for the support they receive by thinking about the company and doing their job well, depending on the rule of reciprocity.

According to this discussion and the analysis stated earlier, the vital role played by organizational support in enabling employees to achieve better job performance during teleworking cannot be denied. Hence, organizations should focus on training managers so that they may acquire the proposed skills to assist their employees in managing their work. This will almost always necessitate a shift in how a company is managed and assessed, and a development of trust among managers and workers. This training requirement entails aligning requirements and capabilities to achieve efficiency and performance gains by integrating human skills and management. That’s because, per the social exchange concept, the employee feels compelled to give back to the organization for its management assistance, boosting their work performance.

In addition, the results indicate that teamwork positively effects teleworking performance in the IT sector. Thus, for good telework performance, managers must focus on teamwork methods to respond to this non-routine environment. Furthermore, the results indicate that technology is a significant mediator in the relationship between organizational support

and teleworking performance. Technology moderates the relationship between teamwork and teleworking performance and has the strongest impact on teleworking performance in the IT sector due to adopting modern technology to bridge the gap between the organization and its employees, provide support, and bring the company and its teleworkers closer together enhances employees telework effectiveness. As a result, the organization management should be aware of the prerequisites and issues of implementing the telework process to get high employee performance.

#### **4.8 Theoretical contributions**

As mentioned previously, many types of research have been conducted to investigate how organizational support, teamwork, and the effect of technology as a mediating factor on telework performance during the COVID-19 crisis. However, most of them did not focus on companies in developing countries that lack high-tech resources in most of their companies. As a result, our study contributes to the existing literature in various ways.

Although the literature contains many studies on the factors affecting telework performance, most are qualitative and general regarding company size and sector. Each study specializes in different aspects. In addition, the COVID-19 crisis is recent, and the world has never dealt with such a disaster before. Accordingly, according to our knowledge, this thesis may be the first to examine the factors affecting telework performance and the use of technology as a mediator in the West Bank of Palestine. It is deemed a contribution to the methodologies for analyzing the research model's outside and inner measurements.

#### **4.9 Practical Contributions**

The study's research contributes to exploring how organizational support, teamwork, and technology as mediating factors affect employee performance during the COVID-19 pandemic and mandatory telework. It is still not entirely clear how the pandemic will affect not only humanity as a whole but also specific regions such as developing countries and certain sectors. In practice, this study helps software companies implement telework and obtain high-performance indicators from employees by exploiting the best technological and administrative resources, thus facilitating successful implementation. Other researchers can use this research in the future to assess the outcomes and compare

the results across periods. It may be utilized through performance management this type of study to examine and understand the needs of companies in working remotely.

However, the results of the current study emphasized the important role of organizational support in obtaining the required performance from employees during telework among workers in the software sector by enhancing self-efficacy and communicating with employees and meeting their needs through technological means. The findings highlight the provision of organizational support to workers during remote work during the COVID-19 crisis and similar epidemics in the future.

#### **4.10 Research limitations**

The main limitation of this study was narrowed to examine the effect of organizational support, teamwork, and technology as mediator factors on people with and without experience in telework and lockdown challenges. As a result, they may be quite biased because participants rated their feelings. Also, another constraint is the fact that telework and its types are defined in various ways. This study was for mandatory telework during the COVID-19 crisis. Moreover, a different scenario with the COVID-19 in other locations and nations may influence respondents' answers.

Because the current status of COVID-19 and the new mutants is unclear, the future impact of the COVID-19 virus is also unknown. As a result, there are few investigations into the effects of COVID-19 on remote work in general. Ultimately, this study's limitations should be considered new research opportunities.

#### **4.11 Future research directions**

Many future directions stem from the conclusions and limitations of this thesis so that there is a future research opportunity to identify other factors that may affect the performance of telework. Also, different dimensions of telework performance evaluation can be examined as intermediate factors. In addition, there is an opportunity to research other developing countries and the possibility of working comparison analysis at the sector level. Moreover, future research may examine the differences between pre-and post-pandemic research to better understand of the impact of COVID-19 on employee performance, particularly in the case of a mandatory transition to telework. Since occupational exposure to the COVID-19 outbreak can harm one's mental and

psychological health in the future, it is critical to conduct a long-term study to determine the predicted impacts of management performance and human resources on employees' psychosocial health.

There is also an opportunity for future research that explores the relationships between teleworking and its health impacts. Employees worldwide will face emerging health issues for employees associated with telework, and this study aims to contribute to stimulating research in the field of teleworking, which is becoming increasingly crucial in the future.

## List of Abbreviations

<b>Abbreviation</b>	<b>Meaning</b>
WHO	World Health Organization
GDP	Gross Domestic Product
IT	Information Technology
OST	Organizational Support Theory
IOP	Inputs, processes, and outputs
TAM	Technology Acceptance Model
TOE	Technology–Organization–Environment
SMEs	Small and Medium-Sized Enterprises
PLS-SEM	Partial Least Squares–Structural Equation Modeling
ICT	Information and Communication Technologies
A	Cronbach’s Alpha
AVE	Average Variance Extracted
HTMT	Heterotrait-Monotrait

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# Appendices

## Appendix A

### Questionnaire

#### Section 1 of 3: The Impact of Telework on Employee Performance During COVID-19 Crisis

Dear Participant,

I'm a Master's student at An-Najah National University. I'm doing research about The Impact of Telework on Employee Performance During the COVID-19 Crisis. This questionnaire includes two sections, the first one is about some demographic variables while the second one contains several questions about research variables.

Your response to this questionnaire will be kept strictly confidential. In order to ensure the utmost privacy, we have provided an identification number for each participant.

#### Section 2 of 3: Demographics and participant information

1. Gender:

Male
Female

2. Age:

20-29
30-39
40-49
>50

3. Level of education:

Bachelor's degree
Master's degree
Doctoral degree

3. Marital Status:

Single
Married
Other(Specify)

4. Years working in your position:

1year
2-3years
4-5years
>5years

5. Employment status:

Full time
Contract
Other (Specify )

**Section 3 of 3: Research factors: organizational support, teamwork, technology, and teleworking performance.**

No.	Question	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	I feel my company appreciates any extra effort I do while teleworking.					
2	I think my company doesn't ignore any complaints from the employee during telework.					
3	I feel I am rewarded for my dedication and commitment to the work from home.					
4	I am satisfied with the benefits offered by the Company during telework.					
5	There is good communication from managers to employees in teleworking.					
6	It is easy for me to get input and feedback from my manager while working remotely.					
7	Team members are supportive of each other's roles.					
8	Team members have absolute clarity about their role in the team.					
9	Communication within the team is transparent.					
10	Team members give timely feedback to each other.					
11	There is good alignment between my department and others with whom I need to coordinate.					
12	I am able to do my job from home using technology.					

13	Advanced technology has made it easier for me to do my work from home.					
14	It is easy learning to use information and communication technologies.					
15	My company offers the right tool stack to enable remote collaboration.					
16	Our remote work tools (e.g. VPN, remote work access, communication tools) don't hinder my work.					
17	I can work more effectively when I telecommute than I can when I am at the office					
18	Fulfill all responsibilities required by my job.					
19	Consistently fulfill my obligations to perform for my job.					
20	Working remotely does not negatively impact my work morale.					
21	My expected output and responsibilities are clear to me.					

الاستبيان:

القسم 1 من 3: تأثير العمل عن بعد على أداء الموظفين خلال جائحة كوفيد -19 في شركات تكنولوجيا المعلومات في الضفة الغربية

عزيزي المشارك ،

أنا طالبة ماجستير في جامعة النجاح الوطنية. أقوم بإجراء بحث حول تأثير العمل عن بعد على أداء الموظفين خلال جائحة كوفيد -19 في شركات تكنولوجيا المعلومات في الضفة الغربية. يتضمن هذا الاستبيان قسمين ، الأول عن بعض المتغيرات الديموغرافية ، والثاني يحتوي على عدة أسئلة حول متغيرات البحث.

ستبقى إجابتك على هذا الاستبيان في سرية تامة. من أجل ضمان أقصى درجات الخصوصية ، قمنا بتوفير رقم تعريف لكل مشارك.

القسم 2 من 3: التركيبة السكانية ومعلومات المشاركين

1. الجنس:

ذكر
أنثى

2.العمر:

20-29
30-39
40-49
>50

3. درجة التعليم:

درجة بكالوريوس
درجة ماجستير
درجة الدكتوراة

4. سنوات العمل في منصبك:

1 سنة
2-3 سنة
4-5 سنة
5 سنة >

5. الحالة الوظيفية:

دوام كامل
عقد
أخرى (يرجى التحديد)

القسم 3 من 3: عوامل البحث: الدعم التنظيمي والعمل الجماعي والتكنولوجيا وأداء العمل عن

بعد

الرقم	السؤال	لا أوافق بشدة	لا أوافق	محايد	أوافق	أوافق بشدة
1	أشعر أن شركتي تقدر أي جهد إضافي أقوم به أثناء العمل عن بعد.					
2	أعتقد أن شركتي لا تتجاهل أي شكاوى من الموظف أثناء العمل عن بعد.					
3	أشعر أنني أكافأ على تفاني والتزامي بالعمل من المنزل.					
4	أنا راضٍ عن المزايا التي تقدمها الشركة أثناء العمل عن بُعد.					
5	هناك تواصل جيد بين المديرين والموظفين في العمل عن بعد.					
6	من السهل بالنسبة لي الحصول على مدخلات وتعليقات من مديري أثناء العمل عن بُعد.					
7	أعضاء الفريق يدعمون أدوار بعضهم البعض.					
8	يتمتع أعضاء الفريق بالوضوح المطلق بشأن دورهم في الفريق.					
9	التواصل داخل الفريق بشفافية.					
10	يقدم أعضاء الفريق ملاحظات في الوقت المناسب لبعضهم البعض.					

					11	هناك توافق جيد بين إدارتي والآخرين الذين أحتاج إلى التنسيق معهم.
					12	أنا قادر على القيام بعملية من المنزل باستخدام التكنولوجيا.
					13	جعلت التكنولوجيا المتقدمة من السهل علي القيام بعملية من المنزل.
					14	من السهل تعلم استخدام تقنيات المعلومات والاتصالات.
					15	تقدم شركتي مجموعة الأدوات الصحيحة لتمكين التعاون والعمل عن بُعد.
					16	لا تعيق أدوات العمل عن بُعد (مثل VPN والوصول وأدوات الاتصال) عملي.
					17	يمكنني العمل بشكل أكثر فاعلية عندما أعمل عن بعد أكثر مما أستطيع عندما أكون في المكتب.
					18	الوفاء بجميع المسؤوليات التي تتطلبها وظيفتي.
					19	الوفاء بالتزاماتي باستمرار لأداء وظيفتي.
					20	العمل عن بعد لا يؤثر سلبيًا على معنويات عملي.
					21	إن مخرجاتي ومسؤولياتي المتوقعة واضحة بالنسبة لي.



جامعة النجاح الوطنية

كلية الدراسات العليا

## تأثير العمل عن بعد على أداء الموظفين خلال جائحة كوفيد -19 في شركات تكنولوجيا المعلومات في الضفة الغربية

إعداد

هبة أسمر

إشراف

نضال دويكات

قدمت هذه الرسالة استكمالاً لمتطلبات الحصول على درجة الماجستير في الإدارة الهندسية، الدراسات العليا، في  
جامعة النجاح الوطنية، نابلس - فلسطين.

2022

## تأثير العمل عن بعد على أداء الموظفين خلال جائحة كوفيد -19 في شركات تكنولوجيا

### المعلومات في الضفة الغربية

إعداد

هبة أسمر

إشراف

نضال دويكات

### الملخص

خلفية الدراسة: خلال جائحة COVID-19 في عام 2020، اضطرت الشركات إلى الدخول في وضع العمل عن بعد. كان هذا التحول تحديًا كبيرًا للشركات والموظفين للحفاظ على مستوى الأداء المطلوب بسبب نقص خبرة العمل عن بُعد. لذا، فإن الغرض من هذا البحث هو دراسة تأثير العمل الإلزامي عن بعد على أداء الموظفين، عن طريق التحقق من الدعم التنظيمي، والعمل الجماعي خاصة عن طريق فحص التكنولوجيا كعامل وسيط. على حد علمنا، لا يوجد دليل إلزامي على تأثير العمل عن بعد على أداء الموظفين في الأدبيات، ولم يتم إجراء مثل هذه الدراسة في فلسطين كدولة نامية. بالإضافة إلى ذلك، لم تفحص أي دراسة سابقة تأثير التكنولوجيا على أداء العمل عن بعد كمتغير وسيط.

أهداف الدراسة: يسعى هذا البحث إلى الإجابة على أسئلة البحث التالية: أولاً "ما هو تأثير العمل الجماعي ودعم المنظمة والتكنولوجيا على أداء العمل عن بُعد؟"، وثانيًا "هل تتوسط التكنولوجيا / تحسن العلاقة بين العمل الجماعي الدعم التنظيمي وأداء العمل عن بُعد؟".

المنهجية: يقوم هذا البحث بمراجعة شاملة للأدبيات، بالإضافة إلى ذلك، يقترح البحث نموذجًا مفاهيميًا تم اختباره على موظفي البرمجيات في شركات تكنولوجيا المعلومات في الضفة الغربية. تم استخدام الاستبيان كجزء من المنهجية بحيث يحتوي على 21 سؤالاً، والتي استندت إلى دراسات أدبية وأبحاث سابقة حول

الموضوع. تم تحليل النتيجة بواسطة البرنامج الإحصائي للمربعات الصغرى - نمذجة المعادلات الهيكلية (PLS-SEM). كان معدل الاستجابة الفعالة هو 58.28%.

**النتائج و الاستنتاجات:** أظهرت النتائج التي تم الحصول عليها بناءً على عينة مكونة من 176 موظفًا في قطاع البرمجيات أن الدعم التنظيمي والعمل الجماعي والتكنولوجيا تؤثر بشكل إيجابي على أداء العمل عن بُعد.

علاوة على ذلك ، تؤكد النتائج أن التكنولوجيا هي وسيط مهم في العلاقة بين الدعم التنظيمي والعمل الجماعي وأداء العمل عن بُعد. وتساهم هذه الأطروحة في النظرية الحالية لأداء العمل عن بُعد في البلدان النامية، وكيف يؤثر الدعم التنظيمي والعمل الجماعي والتكنولوجيا كعامل وسيط على أداء الموظفين. تساهم هذه الدراسة في الجانب العملي وتساعد شركات البرمجيات على تنفيذ العمل عن بُعد والحصول على مؤشرات عالية في الأداء من الموظفين من خلال استغلال أفضل الموارد التكنولوجية والإدارية، وبالتالي تسهيل التنفيذ الناجح.

**الكلمات المفتاحية:** العمل عن بُعد ، كوفيد - 19 ، الوفاء ، الأداء ، العمل الجماعي ، التكنولوجيا ، الدعم التنظيمي ، البرنامج الإحصائي للمربعات الصغرى - نمذجة المعادلات الهيكلية (PLS-SEM).