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VIRTUAL WORK: A LITERATURE REVIEW

by

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A Dissertation

Submitted to the Department of Information Systems and Business Analytics

Iowa State University

In Partial Fulfillment of the Requirements

For the Degree of Masters of Information Systems

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Abstract

As the digital world keeps involving, the trend of virtual work has always been growing. However, when the global pandemic hit, the rate of remote work skyrocketed. This global pandemic has brought unprecedented events and incalculable impacts on global health and economics.

Crisis brings uncertainties and fears; it also inspires reforms and innovations. COVID-19 has accelerated digital transformations and also disrupted the traditional workspace environment in many companies. According to Global Workplace Analytics, 69% of U.S. employees worked remotely at the peak of the pandemic in 2020 while 82% of U.S. employees want to continue working remotely at least once a week after the pandemic.

Remote work has altered traditional communication, social relations, achievement recognition, and work-life balance. Both remote workplaces and traditional workplaces have their merits and downsides. Technologies break the restrictions on locations and time zones. It enables employees to work wherever and whenever with a variety of colleagues, including those who they have never had a previous connection with. Researchers have also found virtual work leads to blurry boundaries between work and personal life, leading to low work productivity and potential burnout. Remote workers also feel a lack of connections and recognition from colleagues and leadership teams.

In the post-pandemic era, many jobs will remain remote. After a long year of virtual work, companies and employees have found ways to transition to a new mode of work. Hybrid work mode, where employees alternate their work week between their homes and their offices, will be the dominant mode companies adopt. In this new work mode, the leadership team plays a significant role in keeping productive and healthy virtual teams. Identifying corporate goals, redefining company policies, and providing regular employee check-ins are all good steps to take to ensure that the virtual team remains successful.

Research Statement, Overview, and Methods

Research Statement and Overview

For my creative component, I researched Covid-inspired virtual workplaces. As an MSIS student, I am interested in learning both the business side and the technology side of current workplace issues. I want to know how Covid-inspired remote work has shaped the workplace environment and employees' well-being as well as what will remain in the post-pandemic era.

Research Questions and Methods

This paper looks at six key research questions: 1) What is the difference between before-Covid and post-Cold workplaces? 2)How do companies operate before Covid and after Covid? 3) Which function/area companies have dramatically changed their way of operating since Covid?

4) What technologies do companies have been using during the pandemic? 5)What are the benefits and disadvantages of virtual work? 6)The future of the workplace: what will remain and what will be gone after covid?

To help address my research questions, I identified several articles, research papers, and surveys on Google Scholar and the general internet. This paper uses 40 sources for a few different reasons. One, because this paper examines the workplace during Covid and the psychology regarding the virtual work environment, it is critical to look at a considerable amount of literature to get a wide array of information to identify themes. Second, 40 was a sustainable number given the scope of this project. Third, 40 sources provided me with the materials necessary to make confident assessments.

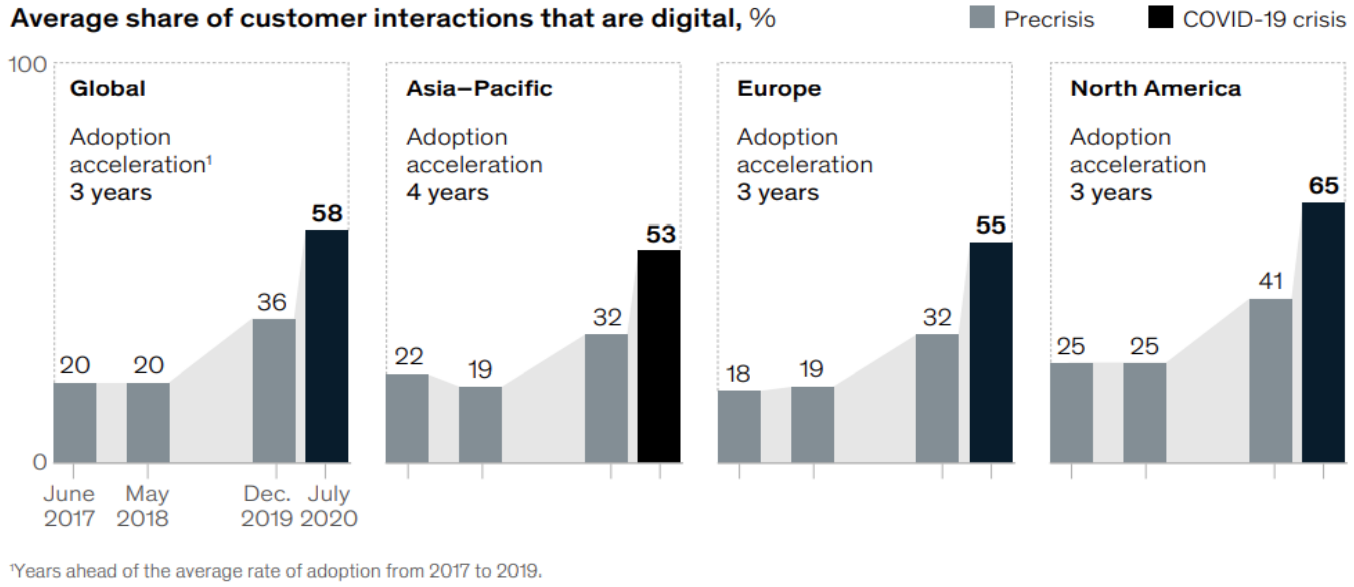
After the articles were collected, read, and analyzed, I consolidated the information, and then predicted the future workplace with technologies to help address the research questions listed above.

Introduction

On March 11, 2020, the World Health Organization (WHO) officially declared COVID-19 a Global Pandemic. According to the WHO, there are more than 239 million confirmed cases around the globe, and more than 4.8 million people have died from the disease. This highly contagious disease continues to affect every aspect of people's lives today.

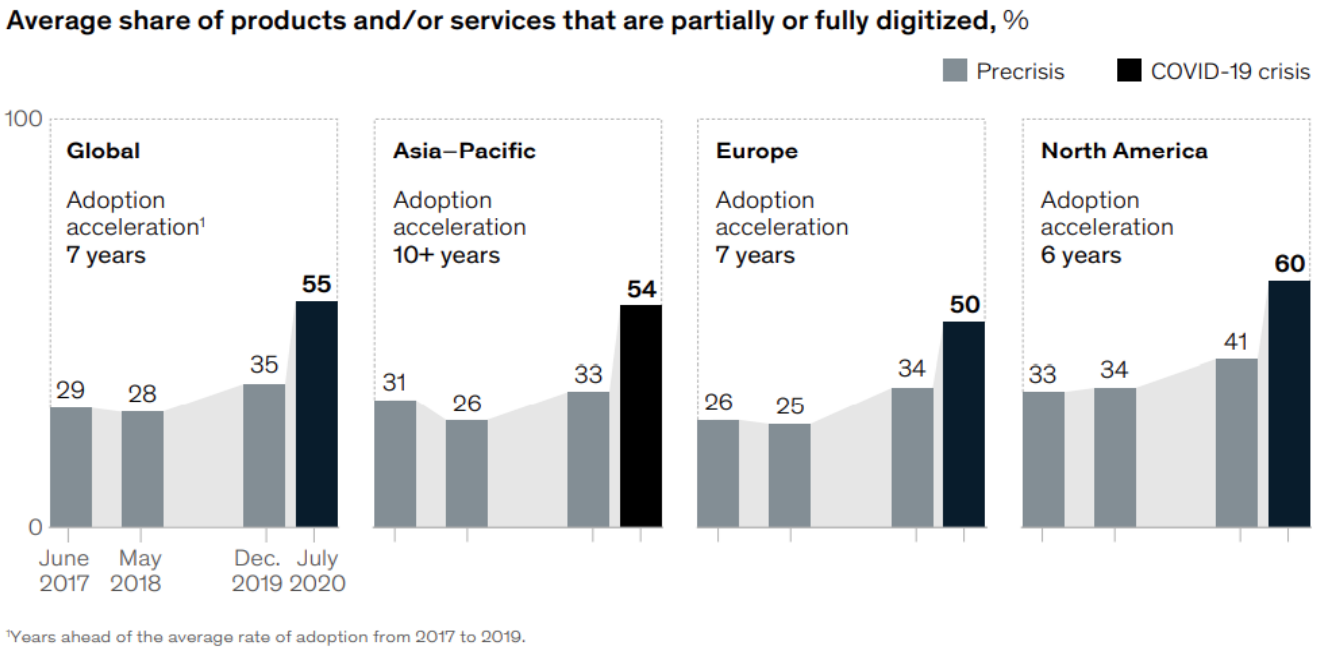
Before Covid, digitalization had been a hot topic at many industry forums, meetings and discussions. Many companies already had a plan to slowly adapt technologies in their business operations. The unexpected black swan event, like the Global Pandemic, has forced companies to embrace technologies faster than anticipated. According to a new McKinsey Global Survey of executives, their companies have accelerated digitalization by three to four years. And the share of digitally empowered products in their portfolios has sped up by seven years. McKinsey visualized their findings on a digitalization survey based on regions. As Exhibit 1 and Exhibit 2 show, the COVID-19 crisis has accelerated the digitalization of customer interactions and business operations by several years globally. Among those regions, the Asia-Pacific region has seen the biggest change in digital transformations.

The COVID-19 crisis has accelerated the digitization of customer interactions by several years.



(Exhibit 1)

Across business areas, the largest leap in digitization is the share of offerings that are digital in nature.



(Exhibit 2)

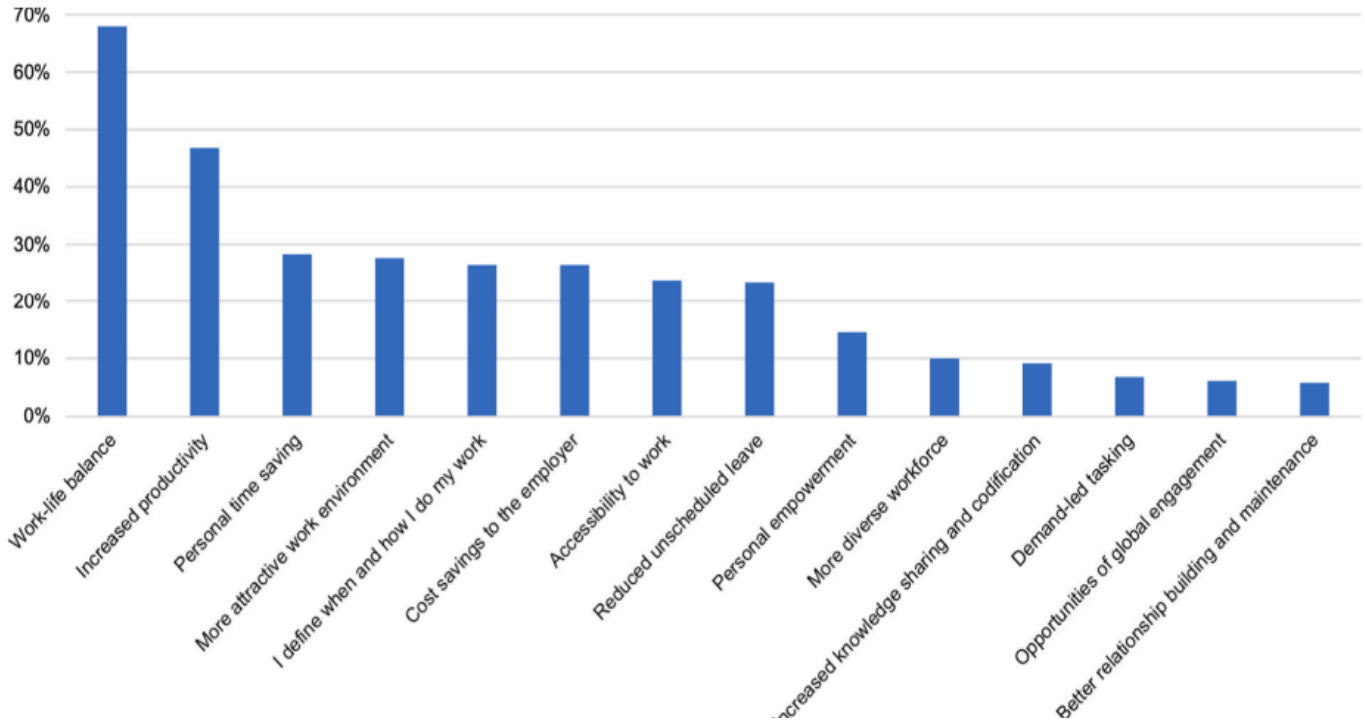
S&P Global Market Intelligence reported that U.S. corporate bankruptcies reached the highest levels in decades in 2020. According to data provided by Epiq AACER, there were 32,506 commercial bankruptcy filings in 2020. As COVID-19 continued to unfold its effects worldwide, more companies started to realize that digitalization was vital to keep their competitiveness in industries. People began to see an increasing number of advanced automation and technology used in the supply chain, daily business operations, and workplace.

Virtual work, or work-from-home, is one of the derivative products of digitalization. It started as an action to protect employees' safety and stop the spread of COVID to avoid overloading the health care systems. As people gradually adapted to COVID-19's new norms, more companies started to think about making work-from-home permanent.

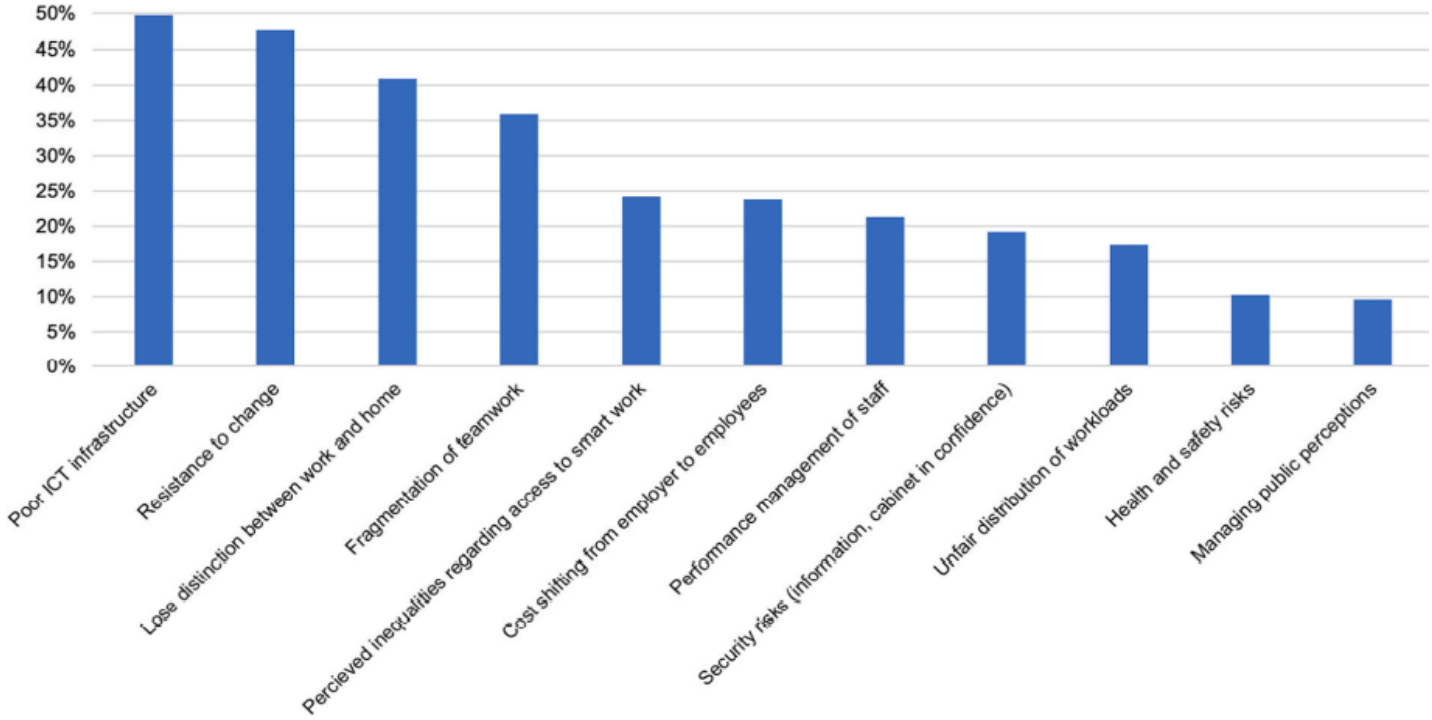
Virtual Work Environment

COVID-19 forced companies to rethink the traditional working environment, which involves collaborative physical space. As an opposite to the traditional workspace, a virtual workspace environment is not tied to any geographical restrictions. There is no physical office building involved. Employees and managers are connected through internet and telecommunication tools like phone, Skype, Zoom, etc.

The success of remote work has reshaped managers' thinking on how and where to get corporate work done. People hold different opinions on a virtual work environment. Some prefer going back to the office to work, while some prefer to work virtually. Richard Hu conducted an online survey with 300 responses in total to investigate the practice and perception of smart work (Hu, 2020). Exhibit 3 and Exhibit 4 show people's positive and negative attitudes toward the virtual work environment. People who prefer virtual work enjoy the flexibility and work-life balance that it brings. People who do not as strongly prefer virtual work have higher resistance to changes and face IT infrastructure challenges.



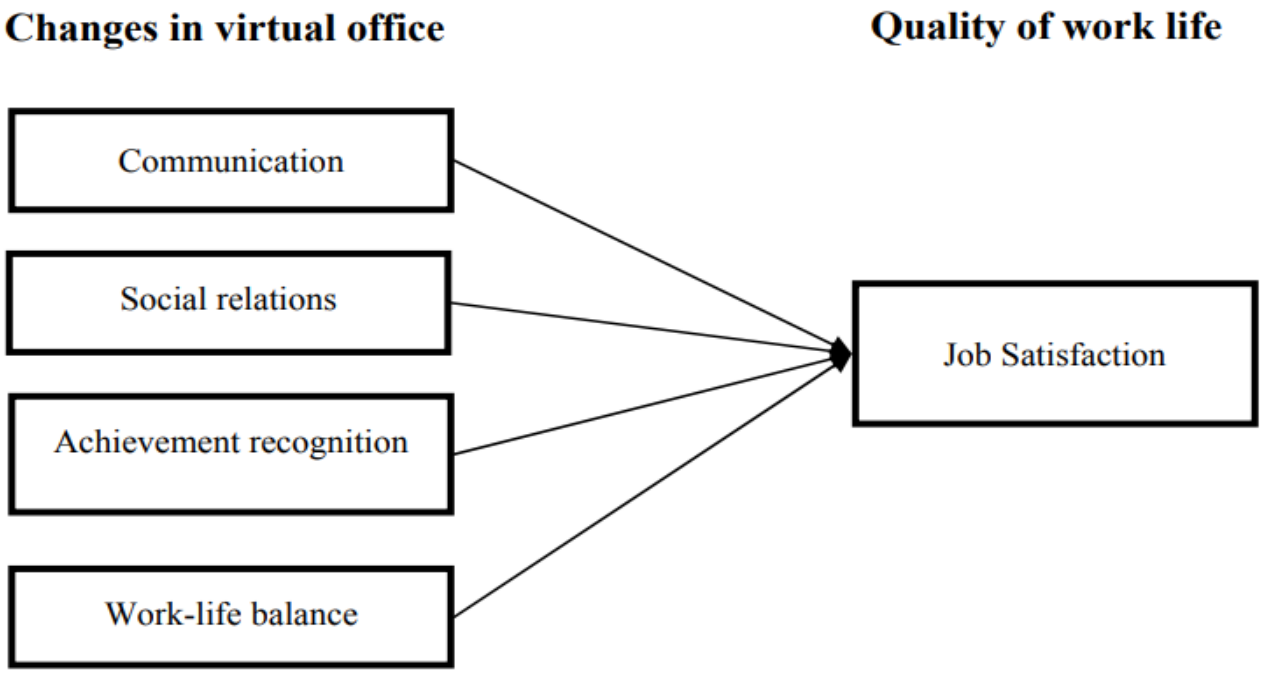
(Exhibit 3: Positive Attitudes Toward Virtual Work)



(Exhibit 4 Negative Attitudes Toward Virtual Work)

Factor Affect Virtual Collective Creativity

With the rising competition globally, companies are continuously embracing creativity and innovations (Magadley & Birdi, 2009). Technologies have been a great help to break geographical boundaries and bring people together to exchange knowledge and information. However, there are still several major factors that could significantly affect the quality and efficiency of virtual work. Zhang's study that published by Canadian Center of Science and Education aimed to explore influences on employees' job satisfaction in the telecommunication environment. Dahlstrom (2013) found that job satisfaction significantly affects an individual's job performance, decision-making, and level of organizational commitment. In Zhang's study, there are four main changes in the virtual work environment: communication, social relations, achievement recognition, and work-life balance (Zhang, 2016). Figure 5 below shows the framework of Zhang's study.



(Figure 5)

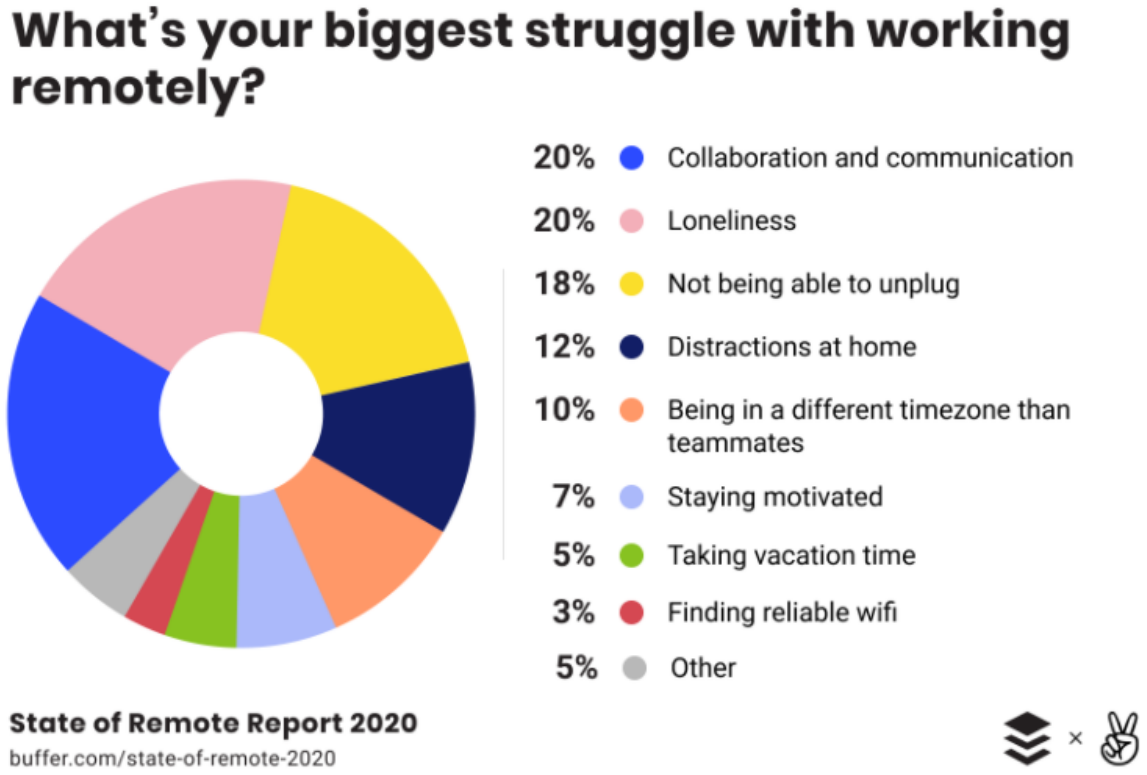
Virtual Work Environment1: Communication

Effective communications at all levels are critical to an organization's success and employee relations (Fidler & Johnson, 1984)). Before Covid, face-to-face communication was the norm among corporations. Face-to-face communications allow visual cues and social presence. However, it can also be costly and difficult to arrange (Heller, 2010). Since Covid, virtual

communication has replaced normal communication in most industries. Virtual communication is when people interface with each other without being in the same room or in physical contact.

Thanks to the advance in technologies, organizations can use a number of tools to conduct task-oriented meetings within different groups across the globe (Manheim & Belanger, 2021). It brings convenience and efficiency. One individual may be involved in different work groups and work on different tasks at the same time. According to Kier (2020), virtual meeting through tools like Zoom and Webex promotes more direct and open communications. The leadership team seems more approachable as employees can make direct meeting appointments with them. Employees have the chance to share a glimpse of their everyday lives- pets, kids and all. In addition, video meetings support connections between a variety of groups to solve a task. The breakout room function affixed in the electronic meeting tools creates a small-group atmosphere for easier interactions, and makes large events feel smaller and more engaging. Cloud-based tools like Google Docs allow multiple users to edit the same file simultaneously. Online meetings can be transcribed, recorded, and shared for a later discussion or permanent storage purpose (Blanchard, 2021).

Despite the positive alterations that technology brings to communication, there are downsides related to it as well. In 2020, Buffer and AngelList collaborated and completed a remote work survey. There were over 3,500 participants, consisting of remote workers from around the world. The results from this survey suggest that the common biggest struggle for remote workers is collaboration and communication (Figure 6)



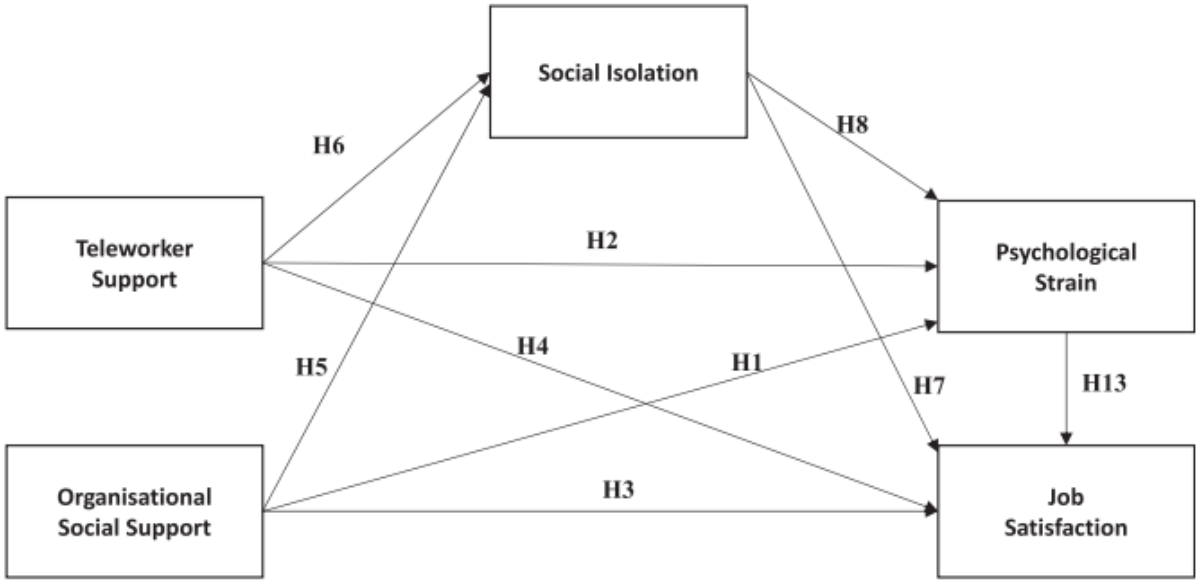
(Figure 6)

There are a number of challenges related these issues. One of the challenges of virtual communication is time zone differences. As the adoption rate of virtual work increases, the involvement of different time zones increases. That brings meeting schedule issues and worktime shrinkage (Bergiel & Balsmeier, 2008). For example, as team members are scattered around the globe, one's work time can be one's dinner time. Technology issues are another problem derived from virtual work. Telecommunication work is still new, so not everyone is well equipped with the appropriate hardware and software. In addition, there is a lack of efficient training to assure effective technology navigations (Heller, 2010). Besides technology issues, virtual communication eliminates the formation of cohesion and trust among teams due to the lack of non-verbal cues (Heller, 2010). According to *Theories of Computer- Mediated Communication and Interpersonal Relations,* it takes longer to identify each other and make a decision during the virtual group setting than fact-to-face meetings (Walther,1995). Telecommunications make nonverbal cues harder to be identified, such as humor and sarcasm. Without a social presence, misunderstandings and wrong assumptions can be easily made among teams (Bergiel & Balsmeier, 2008). Particularly, Strk and Bierly (2009) found that groups with high levels of virtuality came with higher levels of interpersonal conflict.

Virtual Work Environment 2: Social Relations

The sense of belonging is essential to the well-being of humans and is hardwired into our brains. A recent MIT study in 2020 found that after isolation, people felt lonely and craved social interactions. Another research group shows similar findings: "Midbrain regions showed selective activation to food cues after fasting and to social cues after isolation: these responses were correlated with self-reported craving". (Tomova, Wang, Thompson, Matthews, Takahashi, Tye, Saxe, 2020). An additional study done by Macdonald and Leary (2005) highlights that social exclusion triggers physical pain in our system. Nevertheless, a study done by the University of British Columbia stated that "feeling excluded is significantly more likely to lead to job dissatisfaction, quitting and health problems".

In 2016, Bentley et al did a study on job satisfaction of virtual workers. The study was conducted among 28 New Zealand companies with a sample size that consisted of 804 participants. Among the 804 participants, 53% were male and 47% were female. The majority of the participants were aged in their early thirties, married, and worked full-time in a virtual capacity. Bentley et al's study supported that workers' experience in a virtual environment depended on the level of organizational support. Based on the collected data, Bently et al. (2016) concluded that "if a worker feels valued and their social, personal, and technical needs are met, there is a higher probability the worker will enjoy a sense of autonomy instead of struggling to overcome the perception of social or professional isolation" (Marice, 2016). The Path Model "illustrates the predicted influence of two antecedents, organisational social support and teleworker support, on social isolation, psychological strain and job satisfaction" (Bently et al. 2016). Figure 7 shows that social support is the only variable with direct and indirect effects on teleworkers' wellbeing.



H9. Social Isolation mediating Social Support → Psychological Strain
H10. Social Isolation mediating Social Support → Job Satisfaction
H11. Social Isolation mediating Teleworker Support → Psychological Strain
H12. Social Isolation mediating Teleworker Support → Job Satisfaction
H14. Different path relationships for low and hybrid telework sample

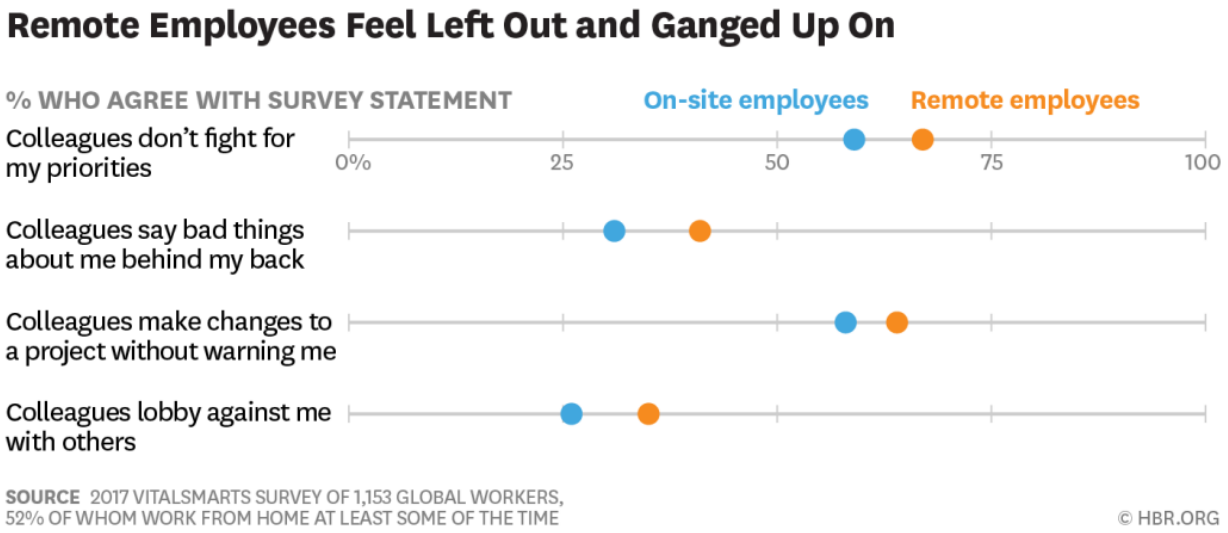
(Figure 7)

All of the studies listed above prove that the sense of belonging is crucial to a human's overall wellbeing in life and at work. While the internet opens another realm where people can communicate and build relationships without being restricted by geographical locations, it has its limits. One of the main challenges in a virtual work setting is the feeling of isolation (Mulki & Jaramillo, 2011). Research conducted by Lee et al.(2011) stated that internet communication could not enhance the quality of life, while face-to-face communication can. That is also why one of the major problems derived from virtual work is the feeling of isolation (Crandall & Gao, 2005). Employees feel socially isolated because virtual offices can't provide the normal simple interactions with colleagues as in the physical office. For example, they can't have informal chats, unplanned discussions, and meetings around the employee break rooms (Cooper, Kurland, 2002). Virtual communication also eliminates the formation of cohesion and trust among teams due to the lack of non-verbal cues (Heller, 2010). Without social presence, misunderstandings and wrong assumptions can be easily made among teams (Bergiel & Balsmeier, 2008). Particularly, Strk and Bierly (2009) found that groups with high levels of virtuality came with higher levels of interpersonal conflict.

Virtual Work Enrironment 3: Achievement Recognition

One of the types of isolation that virtual works often feel is workplace isolation. For instance, a study states: "Workplace isolation is a two-dimensional construct that represents individuals' perceptions of isolation from others at work and includes perceived isolation from both colleagues and the company's support network"(Marshall, Michaels, Mulki, 2007). They tend to feel their achievements and efforts are not recognized, and the chances for promotion are smaller compared to being in the traditional office setting (Cooper, Kurland, 2002). This feeling is dangerous because it brings negative impacts on organizations' operations. Abualrub et al. did a study on the relationships between job stress and recognition of performance on 206 Jordanian staff nurses. The study found that recognition has a significant effect on nurses' job performance. The nurse who got positive recognition felt less stressed at work, and intended to stay with the organization longer (Abualrub et al, 2008)

What exactly is recognition? Recognition is positive feedback based on performance. It can be done in two ways: formal or informal. Formal recognition can be a raise and a promotion; Informal recognition can be a verbal appreciation and a thank you note (Robbins, 2019). Not long ago, almost every team worked physically together and also lived in the same cities. In the post-covid world, one individual will most likely work with colleagues they have never met face-to-face. In such settings, relationships and trust are harder to build and lead to less chance of recognition. Frenny and Maxfield (2017) did a survey on 1,153 employees, and 52 % said they felt left out when working virtually (Figure 8). Nevertheless, another study conducted by Stanford Graduate School of Business in China in 2015 found that it was harder for remote workers to get a promotion. The main reason is that virtual workers are easily forgotten or ignored because they are out of sight, therefore out of mind. (Bloom et al, 2015). Cristea and Leonardi's paper (2019) concluded that being observed by others while at work brings positive outcomes because people, especially the leadership teams, can see they are committed to their job and responsibilities. Supervisors can see their employees at work, see their thoughts and struggles, and thus assume employees are working hard (Cristea & Leonardi, 2019).



(Figure 8)

Virtual Work Environment 4: Work-Life Balance

The public has stressed many advantages of remote work giving the reasons of saving commute time, more cost efficient, and more flexibilities. One the one hand, remote employees argue that they have flexible hours, they don't have to deal with unpleasant colleagues, and they have more time with family (Bellnabb, 2020). On the other hand, there are a number of arguments that remote work connects to lack of productivity, lack of motivation, and an unhealthy lifestyle (Bellnabb, 2020). Among those arguments and counterarguments, finding the balance between work and life has been the buzzword.

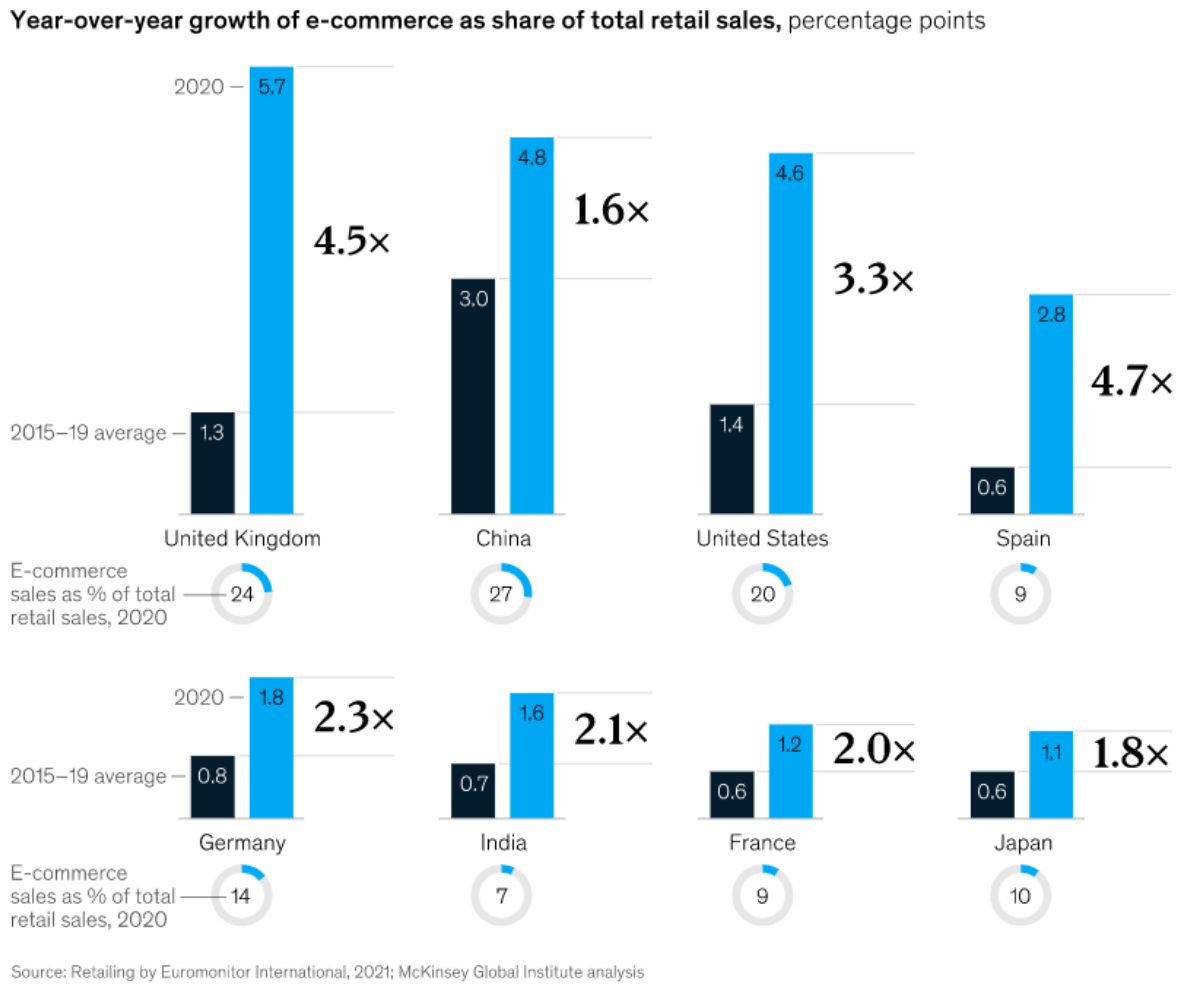
Robert Half, a Los Angeles-based staffing firm, did a survey on its 2,800 remote workers. The survey shows nearly 70 percent of professionals who transitioned to remote work because of the pandemic say they now work on the weekends, and 45 percent say they regularly work more hours during the week than they did before (Maurer, 2020). Renee Zung, the vice president of career service at career management firm Keystone Partners, made a comment regarding the findings. She expressed "It is easier to unplug when you work onsite at an office. Leaving your office at the end of the workday creates a natural boundary and traveling home provides the time you need to unwind and decompress. It is hard to set up boundaries if your office is in your bedroom or at the kitchen table. It is easy to check one more e-mail, add more details to a presentation or return a few phone calls to colleagues." Companies now expect employees to use technologies like phone and computers to keep in touch with colleagues and projects. Within the global time zones where different time zones are involved, work contacts may be required at all times of day and night (Vernon, 2005).

Work-life balance is an important aspect of one's professional life and company's operations. Not being able to draw boundaries between work and personal life leads to long working hours. Constantly working over hours is one of the main reasons employees feel burned out. Burnout is a state of physical and mental exhaustion when a person's ability to work is drained (Eurofound, 2017). Burnout can cause negative effects on our body, such as fatigue and mood swings. (Kohll, 2018). According to Harvard Business Review, burned-out employees cost American companies an estimated $125 billion to $190 billion a year in healthcare spending (Garton, 2017).

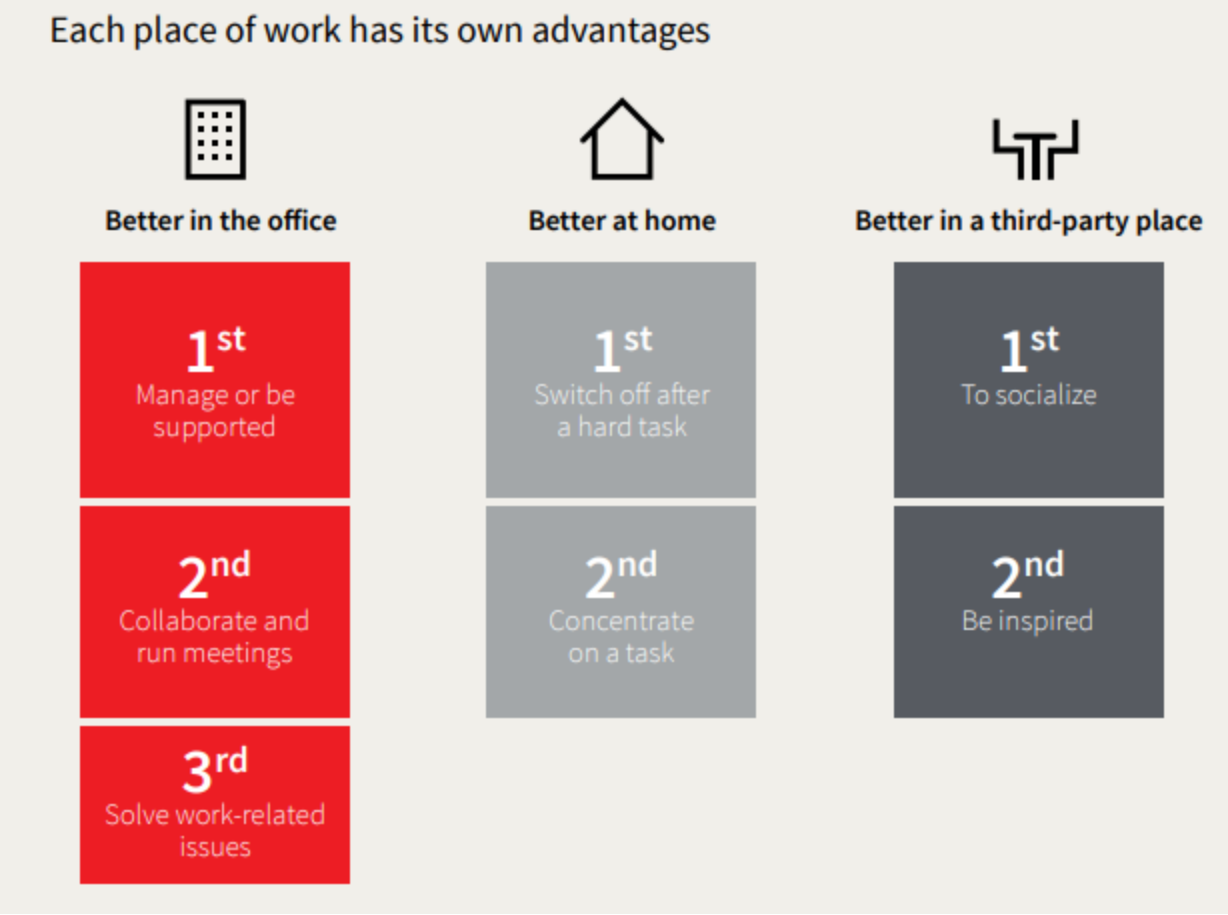
Future Implications

The COVID-19 global pandemic has disrupted the traditional labor markets during 2020. Companies and employees have enjoyed the benefits that virtual work brings. They also experienced the downsides of working with technologies. Most major North American companies have announced plans to either extend the work-from-home period or employees can work remotely long-term (Hadden, Casado, Sonnemaker, Borden, 2020). According to Mckinsey's reports, e-commerce has grown two to five times faster than before the pandemic (Figure 9). The increasing volumes of online transactions and operations indicate that a large number of jobs would remain remote in the post-pandemic era. Companies need to prepare for the future of working. There are benefits and disadvantages of virtual work and face-to-face work setting, according to JLL's Human Experience survey (Figure X). Employees enjoyed the

flexibility that remote work brings, but also suffered from the lack of support and connections (Figure 10) According to JLL's Human Experience survey of 2,000 global office workers, 66% of employees expect to work in a hybrid model post-pandemic. Companies like PwC, Microsoft and IBM are planning on long-term hybrid work models to satisfy their employees (Robinson, 2021).



(Figure 9)



(Figure 10)

From a company's point of view, how can remote workers be successfully managed? According to Wrike's work guide, the first step of ensuring a successful work environment post global pandemic is for employers to define remote working goals. Some of the reasons include: 1) Optimize company costs by reducing office rental fees and utility fees; 2) Increase work productivity; 3) Meets employee's needs of flexibility.

After defining the company's goal, then the leadership needs to redefine remote work policy and practices. Managers should keep workers up-to-date on policy and staffing changes. HR should also constantly provide tips on how to successfully work at home (Gurchiek, 2020). As this report previously mentioned, one of the reasons remote workers feel burned out is working over time. In order to prevent employee's burning out, the management team should help employees build life-balance boundaries, keep track workers' performances, and establish expectations around responding to work-related emails and communications after hours. Daily check-ins, regular on-site meetings, and support groups enhance the connections and trust and prevent the feeling of isolation and ignorance.

In this paper we have discovered that remote work will be the new norm in the future. Technologies have brought convenience to our personal and professional life. It also brought

negative effects on us. Managers and employees have learned how to transit from and work efficiently remotely from this long “experiment”. There are still a lot in the virtual work era to be discovered, but together we can identify strategies in the new hybrid work mode.

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