

A Work Project, presented as part of the requirements for the Award of a Master's degree in Management from the Nova School of Business and Economics.

REMOTE WORKING, TECHNOSTRESS AND WELL-BEING DURING COVID-19:

A Gender Perspective

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Abstract

Using the JDR-model as a theoretical foundation and surveys as a practical foundation, this paper explores remote work characteristics, technostress, and employee well-being in the context of Covid-19. Gender differences within measures are highlighted in the individual contribution. An analysis of existing gender gaps in work contexts and gender norms during a crisis, demonstrate the topic's relevance. Significant differences were found in previous remote work experience (N= 425), with women having lesser compared to men, and professional isolation (N=407), with women feeling more professionally isolated. Using the study's findings, recommendations are built and prioritized for companies and employees.

Keywords: Remote work, Technostress, Employee Well-Being, JDR-model, Covid-19 Pandemic, Gender

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List of Abbreviations

CEO	Chief Executive Officer
EU	European Union
ICT	Information and Communication Technology
JDR	Job Demand-Resources
OECD	Organisation for Economic Co-operation and Development
UK	United Kingdom
SD	Standard Deviation
X^2	Chi-Square
r	Correlation Coefficient
p	Significance Level
n	Observations

1. Introduction

The digital transformation during the late 20th century and the beginning of the 21st century significantly changed the common work environment and day-to-day work procedures (Attaran, Attaran, and Kirkland 2019). With the emergence of various information and communication technologies (ICTs), work gradually transformed from being static to dynamic and adaptable activity. The continual implementation and use of ICTs in the job particularly escalated with the proliferation of the global Covid-19 pandemic (Kniffin et al. 2021). As a substantial part of society was forced to stay at home, working remotely has become commonplace and might be the norm of working in the future (Molino et al. 2020). However, while teleworking models entail various benefits such as reduction in office space, fewer travel expenses, and greater flexibility and time for employees, contextual effects to increase productivity and well-being need to be considered. Additionally, the shift towards working outside the office implied a stronger integration of ICTs into everyday work (Wang et al. 2021). Thus, blurring the boundaries between work and leisure, which ultimately can increase the individual perception of stress (Taser et al. 2022). For this reason, it is crucial to understand the multiple conditions enabling a positive and fruitful remote working experience.

One of the major concerns impacting remote work satisfaction is labeled as technostress (Nelson 1990; Ragu-Nathan et al. 2008). As the very first, the psychologist Brod (1984) defined the term as follows “a modern disease of adaptation caused by an inability to cope with new computer technologies in a healthy manner.” The current literature provides comprehensive insights on the psychological and physical interrelations of telework and technostress and job satisfaction (Molino et al. 2020; Grant, Wallace, and Spurgeon 2013; Taser et al. 2022). However, it faces major limitations due to the scarce practice of remote working to date. The number of people regularly working from home in Europe before Covid-19 laid around 2%, and remote work was primarily exercised by employees with leadership functions such as managers, executives, and board members (Parent-Thirion 2017; Desilver 2020).

In the future remote working might be the “*new normal*,” and the determinants of effective technostress management within telework hence gain greater importance (Wang et al. 2021).

With the surge in remote working, the consequences for individual well-being and stress have also become more relevant. Measures such as childcare, fitness studios, subsidized canteens, and direct contact with colleagues and superiors are no longer available. Organizations, therefore, have a responsibility to provide for the well-being of their employees in other ways. Well-being has a direct impact on productivity, turnover rates, sick leave, and absenteeism, so neglecting it could have significant downsides for the employer (Brough and O’Driscoll 2010; Brough et al. 2014). While the relationship between remote work and well-being is gaining ground in the literature (Anderson, Kaplan, and Vega 2015; Molino et al. 2020; Wang et al. 2021), the moderating effect of technostress has been less studied. As digitalization advances, multiple work models will emerge. Remote work and flex work were the pioneers. Therefore, it is even more relevant to set a basic conception of the interdependencies of remote work, technostress, and well-being.

Ultimately the goal of the paper is to take advantage of the unique opportunity created by the Covid-19 pandemic to deepen the existing knowledge on effective remote working conditions. At the same time, we want to gain a better understanding of the links between flexible working conditions and technostress. As we strongly believe that ICTs will continually be embedded into daily work, understanding how to reduce stressors and increase well-being will be necessary. Finally, as working conditions are being strongly disrupted, we want to draw practical implications for organizations and executives on how to effectively approach setting up new work models without risking any depletion in employee productivity or job satisfaction.

For this purpose, we performed a time-series survey with (N= 461 for Time 1), (N=252 for Time 2), and (N=183 for Time 3). First, we lay the theoretical framework regarding the topics of remote work, technostress, and well-being. At the same time, we provide a holistic overview of the most recent literature to apprehend the various contextual factors and interrelations between the stand-alone

subjects. As we provide a strong conceptual framework, the report will add to the themes from a unique perspective, using the data from our survey. Seeing that demographic characteristics impact the several conditions of remote work, technostress, and well-being, we will analyze our sample from three distinct dimensions. This collective report is complemented by three individual reports on: Gender, Generations, and Industries. Finally, results will be merged, and integrated and in-depth practical implications will be drawn. To firstly present current literature as well as our findings, an overview of our methodology and sample is needed.

2. Method and sample

2.1 Participant and Procedure

Three surveys were carried out in order to investigate potential impacts and implications for remote working conditions during the Covid-19 pandemic. Data was collected from a sample of participants who experienced remote working during the Covid-19 pandemic and were obtained through personal, professional, and social media networks. The participants were ensured that their data would be analyzed anonymously and gave their consent to participate in the surveys. In the first survey, demographical data from the participants was collected, such as gender, age, education, tenure of employment, and industry.

The three surveys were sent, each with a waiting period of at least seven days between them. This firstly allowed for time to send out multiple reminders to the participants and also ensured that common method bias was minorized. However, since the three surveys were sent staggered, a decrease in the return rate from each survey stage was to be expected. Thus, the sample of the first survey consisted of 461 participants, followed by a 45% decrease in the second survey with 252 participants, and lastly, a 27% drop in the return rate with 183 participants. It is noteworthy that in some cases, participants didn't complete the entire survey. However, they were considered in the sample as they still contribute valuable data to some variables being tested. Nonetheless, a sufficient sample was collected in order to significantly test each of the variables measured.

2.2 Demographics of the sample

For demographics, we are analyzing gender, age, nationality, marital status, household composition, level of education, and most recent employment status. When looking at gender, the sample was represented by a higher number of females than males (see appendix 1). The average age in the sample was 29.39 years ($SD=9.07$), with a range from 19 to 77 years (see appendix 2). Regarding nationality, the survey included people from 44 different nationalities, and most of the participants (approx. 63%) were from Germany and Brazil (see appendix 3). The marital status is mostly composed of people who are single or never married and people who are married or in a domestic partnership (see appendix 4). Looking at the household composition, the largest group (32.1%) is made up of people who live with one adult and no children. Furthermore, there is a balance between participants who live alone and participants living with a minimum of two adults and no children. The smallest group is made up of people who live with young children (see appendix 5). Looking at the level of education, most of the participants (43.1%) have a bachelor's degree and participants with master's, MBA, or Doctorate Degree (39.3%) (see appendix 6).

2.3 Firmographics

To understand the characteristics related to employment, the survey analyzed the most recent employment status, industry, type of organization, time in the current employer, and time working with the current supervisor/manager.

The most recent employment status of the survey is represented by a higher number of participants that are working in a full-time job and participants in an internship (see appendix 7). Participants that have been working in the company for less than one year represented 41.6% of the sample (see appendix 8), and 51.6% of the sample have been working for less than one year with the current supervisor/manager (see appendix 9). When looking at the industry and type of organization, most of the participants are working in private companies (see appendix 10), and the industries are well distributed over the sample (see appendix 11).

3. Remote working during Covid-19

3.1 Conceptualizing stress in the workplace

According to the European Agency for Safety and Health at Work, stress is the second most frequent health problem in the workplace in Europe (EU-OSHA 2014), and the Occupational Safety and Health Administration of the US Department of Labor has even declared it as a workplace hazard (Rigó et al. 2020). Uncontrolled, prolonged periods of stress will have negative psychological, cognitive, and behavioral consequences on an individual and will also have consequences for the workplace as it increases healthcare costs and absenteeism as well as decreases job performance and work-life conflict (Ohu, Laguda, and Ogunyemi 2018). Due to the rapid transformation of labor markets, such as the restructuring of work organizations and globalization, there is the belief that work stress has been rising (Rigó et al. 2020). This belief could be verified through the recent work of Rigó et al. (2020) using the European working conditions surveys from 1995-2015, which confirm an increasing long-term trend in job strain during the last 20 years (Rigó et al. 2020). According to the authors, this increase in stress is mainly driven by the increase in psychological demands, such as the intensification of competitive pressure and the increasing use of information and communications technology (ICT) (Rigó et al. 2020). ICTs are commonly associated with high levels of stress, especially in the work environment, which can partially be explained through the intensification of work pace, the increased complexity of work and requirements to learn and adapt, as well as the invasion ICTs have on an individuals' life.

The JD-R model is one of the most common theories used to understand occupational stress in terms of work design and can be used to improve well-being and performance in different work contexts (Demerouti et al. 2001; Bakker and Demerouti 2007). According to Bakker, Demerouti, and Schaufeli (2003), the JD-R model gives a perspective that, although each organization has its factors associated with work stress, health and motivation can be compromised by two general sets of working conditions: job demands and job resources.

Job demands refer to “the physical, social, or organizational aspects of the job that require sustained physical or mental effort and are therefore associated with certain physiological and psychological costs” (Demerouti et al. 2001, pg. 501). Job demands can be exemplified as work pressure, exhaustion, poor work environment. Job resources refer to the “physical, psychological, social, or organizational aspects of the job that are either/or: (a) be functional in achieving work goals; (b) reduce job demands and the associated physiological and psychological costs; (c) stimulate personal growth, learning, and development.” (Bakker and Demerouti 2007, pg. 312). Bakker and Demerouti (2007) emphasize that job demands will only harm health and turn into job stressors if they are not balanced with job resources. According to the JD-R model, job resources are not only used to assist employees in accomplishing job demands (Mäkikangas et al. 2020), but they also have a motivational potential (Bakker et al. 2007). Digitalization has increased the usage of use of information and communication technologies (ICTs) in the workplace, and today it can be seen as both a demand and a resource, depending on how it is used. The JD-R framework of stress will serve as a fundament while analyzing the implication of Covid-19 on remote work characteristics, technostress, and well-being.

3.2 Implications of COVID-19 on remote work characteristics

In the past several decades, the use of remote working as a new model of work has increased as the capabilities of ICTs advanced (Wang et al. 2021). The term “remote work” is often used as a synonym for telework, telecommuting, distributed work, or flexible work, and although their characteristics are often overlapping, they each embody different conceptualizations of work (Allen, Gloden, and Shockley 2015). For example, telecommuting can be seen as a work practice where members of an organization substitute a portion of their work hours to work away from their central workplace, using technology to interact with others (Allen, Gloden, and Shockley 2015). Meanwhile, in literature, the term flexible work, which is also often used as a synonym for remote working, encompasses telecommuting but often includes flexible work programs such as compressed workweeks (Allen, Gloden,

and Shockley 2015). Typically, these definitional challenges also pose obstacles when reviewing scientific findings, as the terminology is used interchangeably (Allen, Gloden, and Shockley 2015). However, this isn't considered a challenge for the present report since remote working is generally considered broader than telecommuting and "can denote any form of work not conducted in the central office" (Allen et al. 2015, pg. 44). The authors Di Matrino and Wirth (1990, pg. 530) define remote-working as "a flexible work arrangement whereby workers work in locations, remote from their central offices or production facilities, the worker has no personal contact with co-workers there but is able to communicate with them using technology."

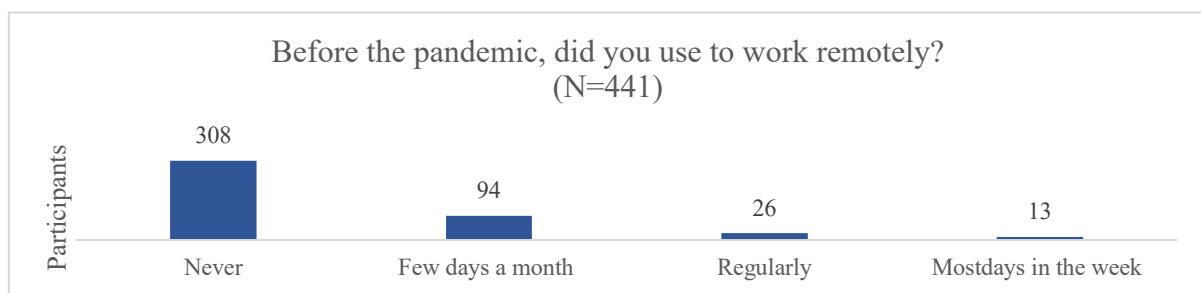
In early 2020, the Covid-19 pandemic somewhat accelerated the shift to remote working using ICT's due to social distancing policies (Eurofound 2020). Organizations are even considering further implementing remote working during the aftermath of the pandemic, potentially making it the new norm of work (Taser et al. 2021). This can be exemplified by the tech giant Meta, formerly known as Facebook, which stated people in eligible roles would be able to apply for full-time remote work post the pandemic. The company states that remote work is "the future," and Mark Zuckerberg even predicted that 50% of their employees could be working remotely within the next five to ten years (Nanji 2021). However, this development doesn't mean that offices have already become obsolete (PwC 2020). In the PwC US Remote Work Survey (PwC 2020), 73% of respondents stated that they would like to continue to work remotely after the pandemic, but for one or two days a week.

Remote working was not a widely used practice prior to the pandemic (Kossek and Lautsch 2018). According to Eurofound (2017), a mere 2% of employees teleworked from home in 2015. Similarly, although an increase of US employees working from home could be detected between 2005-2017, it still only made up 2.9% of the workforce. Desilver (2020) even points out that prior to the pandemic, remote working was a luxury for the relatively affluent. According to Desilver (2020), most of the workers who had access to a flexible workplace in the US were largely highly paid managers and so-called knowledge workers, who generally do their work on computers. Thus, many companies and

workers were unprepared for the sudden shift, turning the crisis into a massive natural experiment in using technologies that enable remote work (Oksanen et al. 2021).

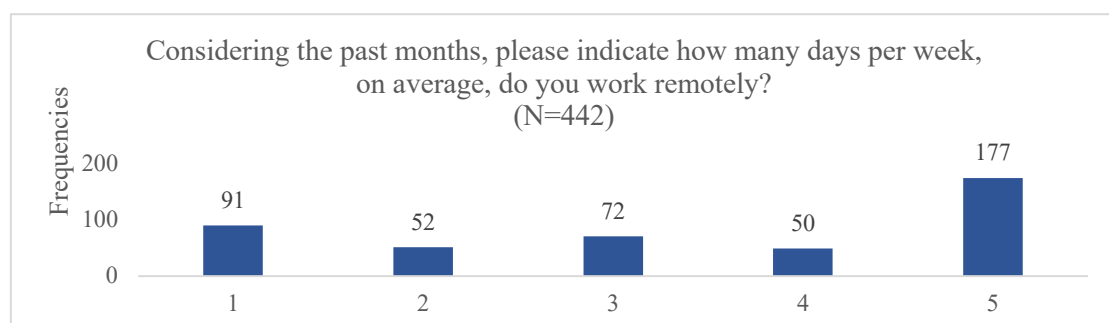
To gain a better conceptual understanding of the participants' remote working situation in our survey, the variables "remote work prior experience" and "remote work intensity" were analyzed. Remote work previous experience was measured using 1 item (see fig. 1) and a 4-point scale with 1= Never, two = Few days a month, 3= Regularly, 4= Most days of the week.

Figure 1: Remote work previous experience



The result from our survey demonstrates very limited prior experience in a remote working setup. Over 400 participants never worked or worked just a few days a month from outside the office. That's in line with previous research emphasizing that remote work is primarily conducted by executive personnel. Thus, limiting research on remote work. To see if the shift to remote working has accelerated through the pandemic, the remote work intensity was analyzed from participants. Remote work intensity was measured using one item (see fig. 2) and a five-point scale, representing the number of days, respectively.

Figure 2: Remote work intensity

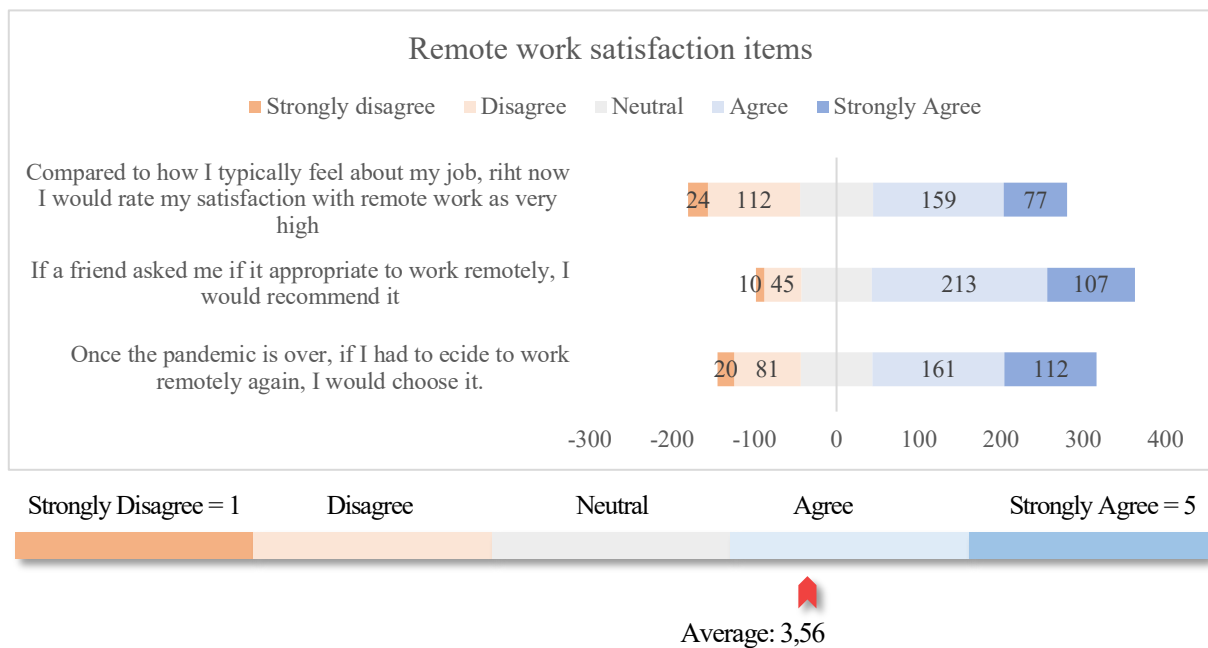


In contrast to the implementation of remote working models prior to the Covid-19 pandemic, the adoption during the pandemic skyrocketed. Almost 70% of our sample worked three or more days remotely. Thus, enabling us to draw more sophisticated and detailed knowledge on the conditions and characteristics of remote work conditions.

There has been a plethora of studies related to the remote working experience, which already demonstrate that it can result in both positive and negative effects for employees such as enhanced autonomy as well as work intensification (Hoeven and Van Zoonen 2015). However, knowledge about remote working accumulated prior to the COVID-19 crisis might lack contextual relevance, as it was generated in a context where remote work was infrequently and largely voluntarily practiced by those who had access in the first place (Wang et al. 2021). In their analysis of the COVID-19 crisis and digital stressors at work, the authors Oksanen et al. (2021) were able to demonstrate an advantage in terms of stress caused by technology and work exhaustion, for employees with prior remote working experience and technological skills, by testing their “well-prepared” hypothesis. Thus, previously identified positive and negative effects of remote working might only apply to those who intrinsically want to or were able to engage in remote working prior to the pandemic (Kaduk et al. 2019).

Remote work satisfaction was also analyzed as a measure in our survey using three items (see fig. 3), adapted from (Toscano and Zappalà 2020). The measure was assessed using a 5-point Likert scale from 1= strongly disagree to 5= strongly agree, and the responses achieved internal consistency (Cronbach’s alpha = 0.86).

Figure 3: Remote work satisfaction



As our sample showcased a significant surge in remote working, our focus lied on understanding the various drivers of effective remote work. Therefore, we first tried to understand the perception of telework by our sample. Our findings testify a strong favour for remote work. In particular, the paper demonstrates that 273 out of 442 (62%) participants would decide to continue working remotely after the pandemic is over.

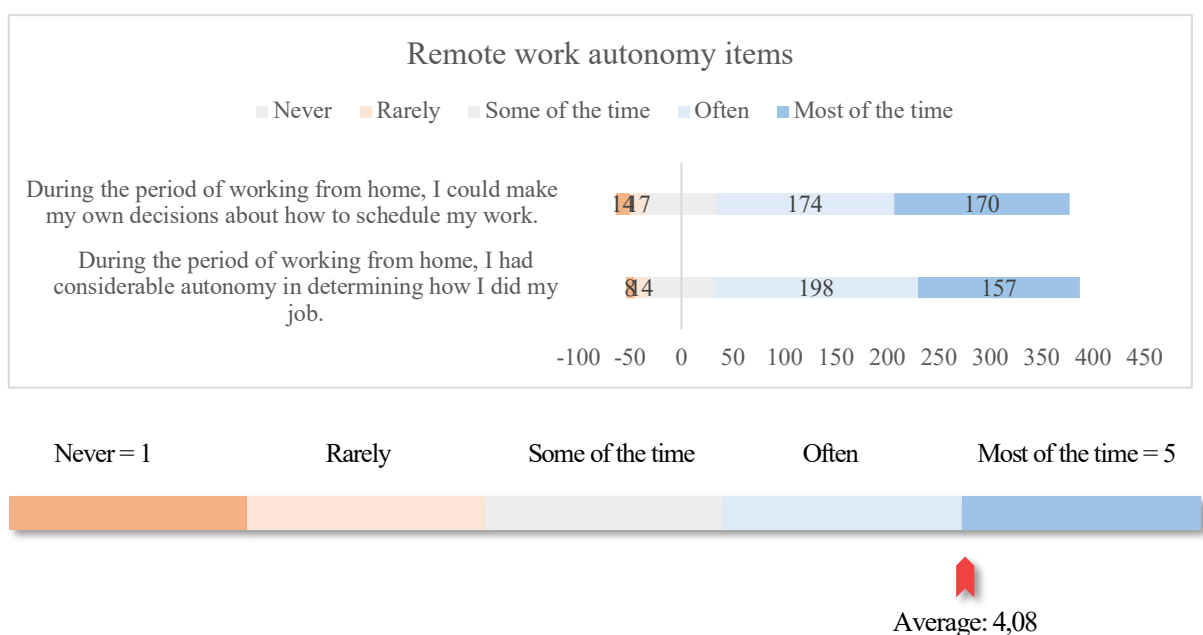
Therefore, in a situation where the mandatory order of remote work becomes the “new normal,” the authors' Wang et al. (2021, pg. 18) suggest a shift in the focus in research from “understanding whether or not to implement remote work to understanding how to get the most out of remote working.” To achieve this shift, the authors build their analysis on the theoretical perspective of work design. As previously mentioned, stressors can be derived from working conditions within a working design and can negatively impact an employee’s wellbeing (see chapter 5). The JD-R model (see chapter 3.1) can again serve as a theoretical framework in order to identify which working conditions, categorized into resources and demands, affect the remote working experience and, therefore, employee wellbeing

(Galanti et al. 2021). Using the JD-R model, the authors Galanti et al. 2021 integrate existing research on remote work during the COVID-19 into their own quantitative analysis.

3.3 Job resources and demand during the Covid- 19 pandemic

In terms of job resources, Galanti et al. (2021) argue that positive effects of job autonomy can be observed or even accentuated during enforced remote working and is positively associated with productivity and engagement. Job autonomy is one of the most prominent remote job resources (Bakker and Demerouti 2017) and refers to the control an employee has over their work schedule, work location, and the use of communication technology (Hoeven and Van Zoonen 2015). Job autonomy was also identified as a positive work characteristic by Wang et al. (2021), who states that employees with higher levels of autonomy can choose the most productive ways to do their work as they can balance work and rest. They also identify that job autonomy can be beneficial for work-family balance. Remote work autonomy was measured, making use of the two-item scale adapted from Wang et al. (2021), and assessed using a 5-point Likert scale from 1= strongly disagree to 5= strongly agree. Responses had internal consistency (Cronbach’s alpha = 0.78). Results indicate elevated autonomy means (see fig. 4).

Figure 4: Remote work autonomy

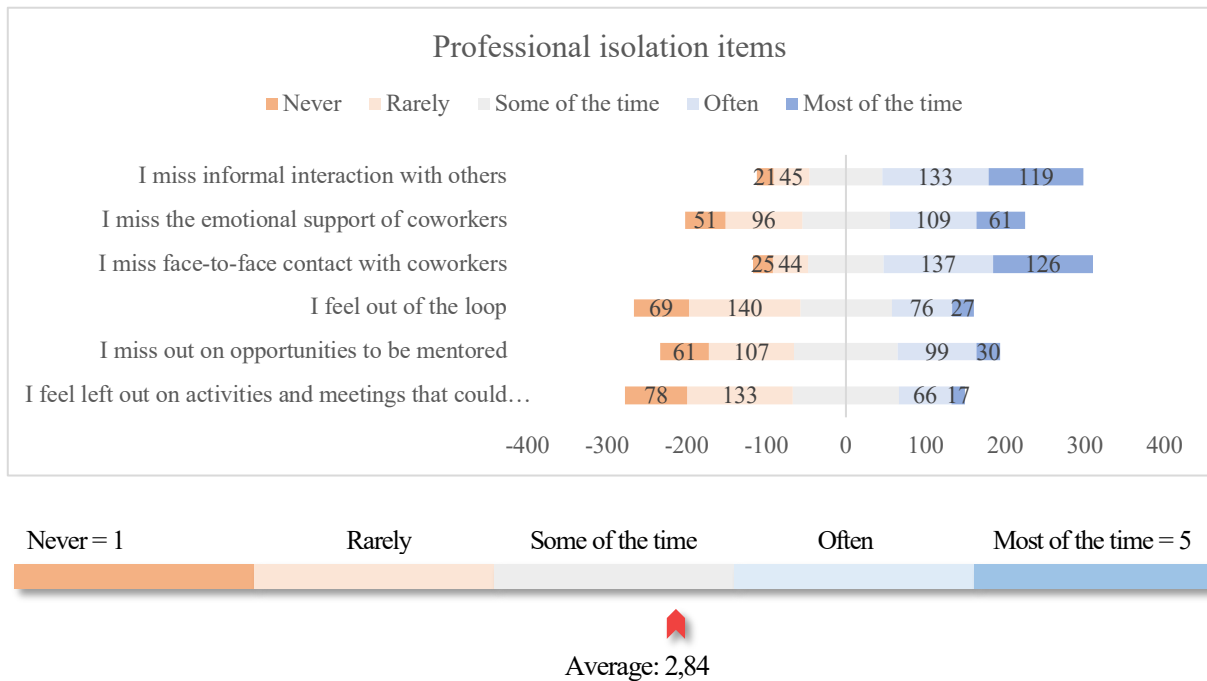


Our results may be a further indication that the sudden shift caused by the pandemic led to an increase in job autonomy due to the application of remote working models. This is in line with findings by Nicks et al. (2021). Looking further at job demands in remote working, Galanti et al. (2021) considered and significantly tested the characteristics: lack of social context related to the perception of being isolated and the difficulty of creating a suitable workstation at home.

Through social confinement and no in-person contact with employees, Galanti et al. (2021) see social isolation as the second demand. This is based on the findings of previous research, which show that the use of ICTs to communicate only partially mitigate employees' feelings of loneliness, compared to the social interactions usually experienced in the workplace or when meeting friends (Fonner and Roloff 2012). Isolation can be defined as "the perception of a lack of availability of support and recognition, missed opportunities for informal interactions with co-workers, and not being part of the group" (Van Zoonen and Sivunen 2021). Professional isolation has been recognized as a potential obstacle to the effectiveness of remote working (Golden, Veiga, and Dino 2008) and can be defined as the belief that one is out of touch with other employees (Diekema 1992). As the feeling of professional isolation rises, so does the reduced sense of belonging and frustration (Lewandowski 2003). In their study, Golden and, Veiga and Dino (2008) define professional isolation as missing face-to-face interactions and social support from co-workers, as well as feeling left out of career-enhancing activities and opportunities to be mentored. Furthermore, the authors were able to identify a significant negative relationship between professional isolation and job performance.

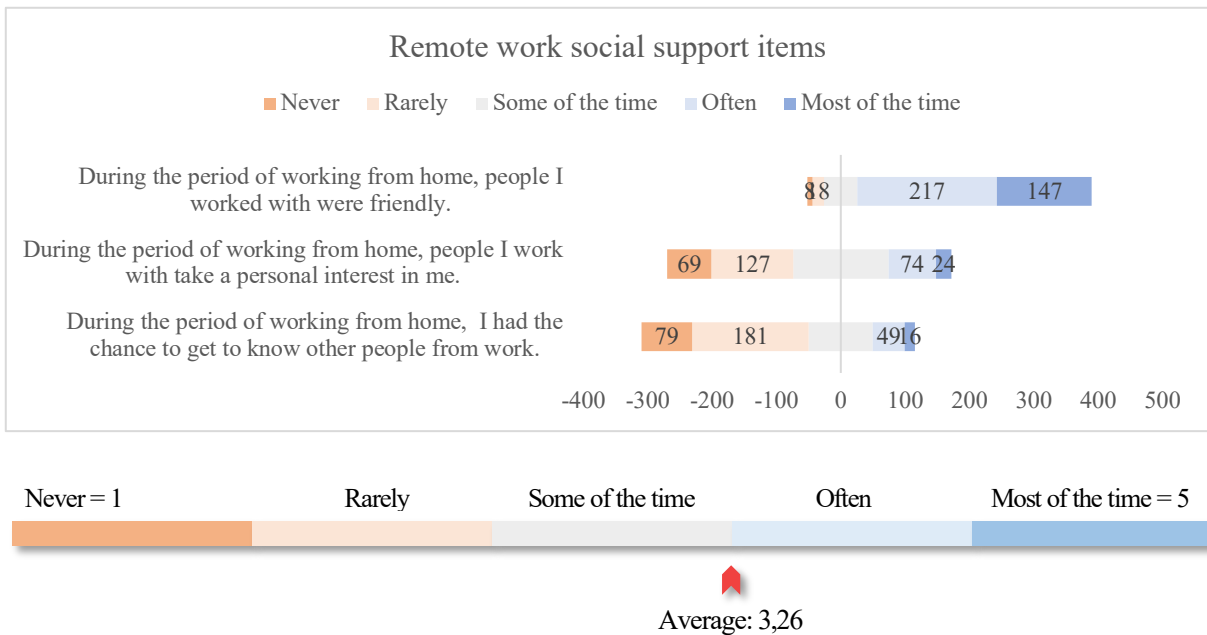
Professional isolation, in the form of reduced collaboration, was tested as a measure in our study. In accordance with the authors Golden and, Veiga and Dino (2008), professional isolation was measured using seven items (see fig.5). The items were measured using a 5-point Likert scale from 1= rarely to 5= most of the time, and the responses show internal consistency (Cronbach's alpha = 0.87).

Figure 5: Professional isolation



Our sample demonstrates great contrasts when it comes to perceived professional isolation. Although many of the participants state they are missing the emotional support and informal interactions with their co-workers, they mostly don't feel out of the loop or miss out on important career development opportunities. In line with Golden, Veiga and Dino's (2008) findings and Galanti et al. (2021) identification of social isolation being a remote job demand, Wang et al. (2021) identify social support as a necessary resource to accomplish tasks and combat loneliness in remote work, through their qualitative research. In addition to this, their empirical research showed social support to be the most powerful work design factor in terms of impact and is negatively associated with loneliness. The social support received during remote working was also measured in our survey. Remote work social support was measured using three items (see fig.6) items, which were adapted from Wang et al. (2021). Participants answered the items using a 5-point Likert scale from 1= never to 5= always. Responses had internal consistency (Cronbach's alpha = 0.62).

Figure 6: Remote work social support



Looking at the received social support during the crisis, an understanding towards the favor, but also the reluctance towards remote work can be gained. While our sample mostly agreed on people being friendly in a remote working setup, the lack of networking and mutual interest is clearly recognizable.

The third work demand that the authors identify, the difficulty of creating a suitable workspace from home, is directly related to the current pandemic, as employees must share their workspace with family and can easily become distracted (Galanti et al. 2021). They base this demand on prior studies, which suggest that the quality of the workspace, such as control over light and acoustics, as well as sufficiently separated work- / living space, are associated with a positive full-time remote working experience (Raguseo, Gastaldi, and Neirotti 2016).

The last notable demand of remote working during the pandemic is the sudden digital leap that many employees were forced to take. Due to the new remote working situation, which was imposed onto employees, the dependency on ICTs grew, as work meetings and information sharing primarily took place online (Oksanen et al. 2021). The way in which technology acts as a demand within work design will be discussed in the form of technostress in the next chapter.

4. Technostress

4.1 Defining Technostress

ICTs, such as collaborative applications and connectivity tools, have not only become fully integrated into our personal but also in our professional lives. Through the use of ICTs, employees are exposed to an increased amount of available information to process as well as constant connectivity (Molino et al. 2020). The development of new ICTs is limitless, however, an individual's capacity to process new information is limited (Salazar-Concha et al. 2021). Thus, employees are often exposed to more information than they can efficiently manage (Fisher and Wesolkowski 1999). This leads to a common negative feeling among ICT users of not having enough time to complete tasks and making the constant effort to be efficient (Molino et al. 2020).

The term "Technostress" was first coined in the 1980s as "a modern disease of adaptation caused by the inability to cope with new technologies in a healthy manner" (Brod 1984). Technostress can be seen as a managerial issue that organizations are facing as they become more dependent on technology (Hung, Chen and Lin 2015). From an organizational perspective, technostress is caused by the individual struggle and attempt to keep up with constantly evolving ICTs, and, therefore, changing cognitive, physical, and social requirements which are related to their use (Tarafdar et al. 2007). The authors of one of the most cited articles of technostress, Tarafdar et al. (2007), state that it is a phenomenon caused by a combination of demands which lead to stress.

4.2 Technostress creators

Technostress creators or techno-stressors can be seen as technology-related job demands that provoke technostress, in accordance with the JD-R model (Molino et al. 2020). Two main techno-stressors have already been mentioned in the definition of technostress above, namely information overload and constant availability (La Torre et al. 2019). In this project, we will focus on two widely accepted techno-stressors: techno-invasion and techno-overload. These stressors can impact an individual on both a private and organizational level (Brivio et al. 2018). Techno invasion encapsulates constant

availability and connectivity (Brivio et al. 2018). Without the boundaries of space and time, an employee's work-life balance can be affected as work-related tasks spill over in their personal lives due to techno-invasion (Tarafdar et al. 2007). Techno overload can be understood as a situation where the use of ICT forces an employee to work faster and longer (Tarafdar, Tu and Ragu-Nathan 2010). Techno overload can also be seen as communication information overload, which results from an individual receiving information from multiple channels simultaneously (Brivio et al. 2018). Individuals could struggle to prioritize or to decide how to best use the information received, making it hard to manage (Tarafdar et al. 2007).

Ragu-Nathan, Tarafdar and Ragu-Nathan (2008) point out two contributing factors of technostress that are notable. The first factor has already been mentioned, namely, the fatigue and discomfort that can result from multitasking, as the use of ICTs may demand more tasks to be completed in a lesser amount of time. The second factor is the lack of support that employees may be receiving during the testing, implementation, and daily use of the ICTs (Ragu-Nathan, Tarafdar and Ragu-Nathan 2008).

4.3 Technostress in the Covid-19 pandemic

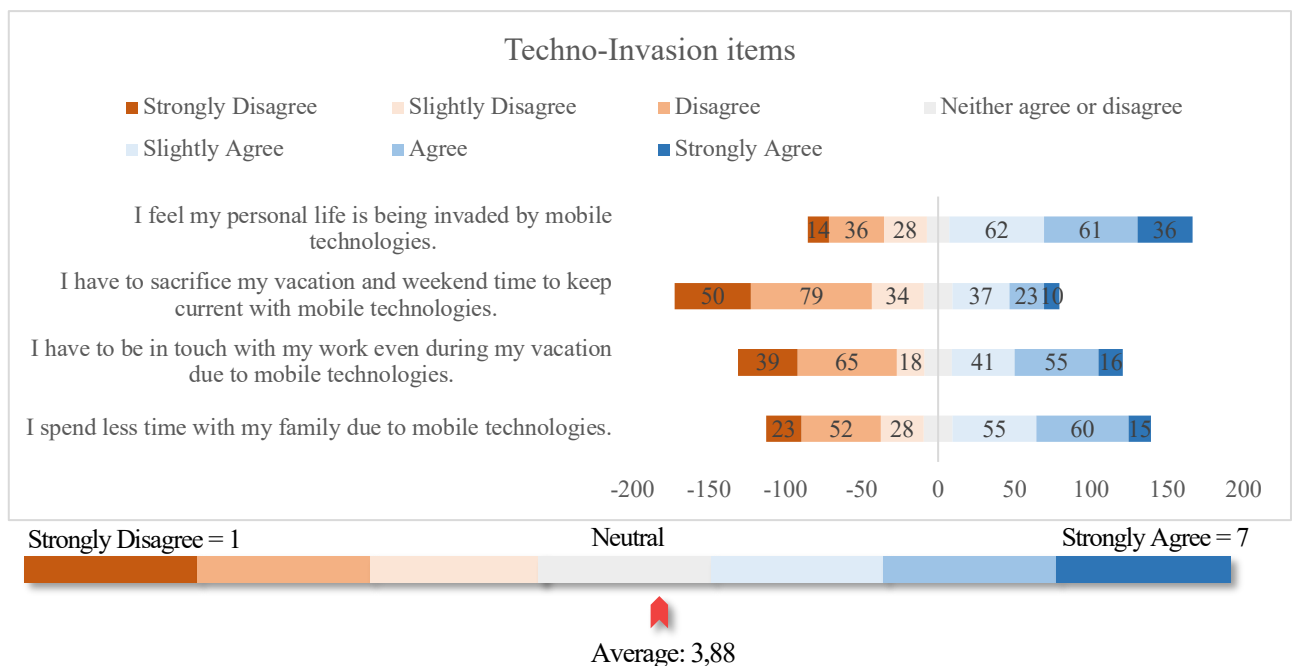
The use of ICTs was accelerated in remote working (Taser et al. 2021), and as previously mentioned, an additional work demand was created as employees were forced to take a digital leap. Intensive exposure to ICT can negatively impact physical and mental health, leading to technostress, especially due to the absence of boundaries between work activities and non-work activities (Taser et al. 2021). The authors Oksanen et al. (2021) found a substantial increase of technostress during the pandemic in 17% of their sample, while 69% reported little or no change. The research conducted through Taser et al. (2021) during the COVID-19 pandemic was also able to confirm that remote work has a negative correlation with technostress (Suh and Lee 2017).

In a recent meta-analysis of 96 empirical studies (N= 34,350), Gerdiken, Reinwald, and Krunze (2021) identified some of the most prominent technostress effects on employees within a working

context. The authors found that technostress had the strongest effects on employee health measures, followed by attitudinal and behavioral measures. For example, Gerdiken, Reinwald, and Krunze (2021) found a significant negative relationship between technostress and job satisfaction and a positive relationship between technostress and job burnout, as well as turnover intentions.

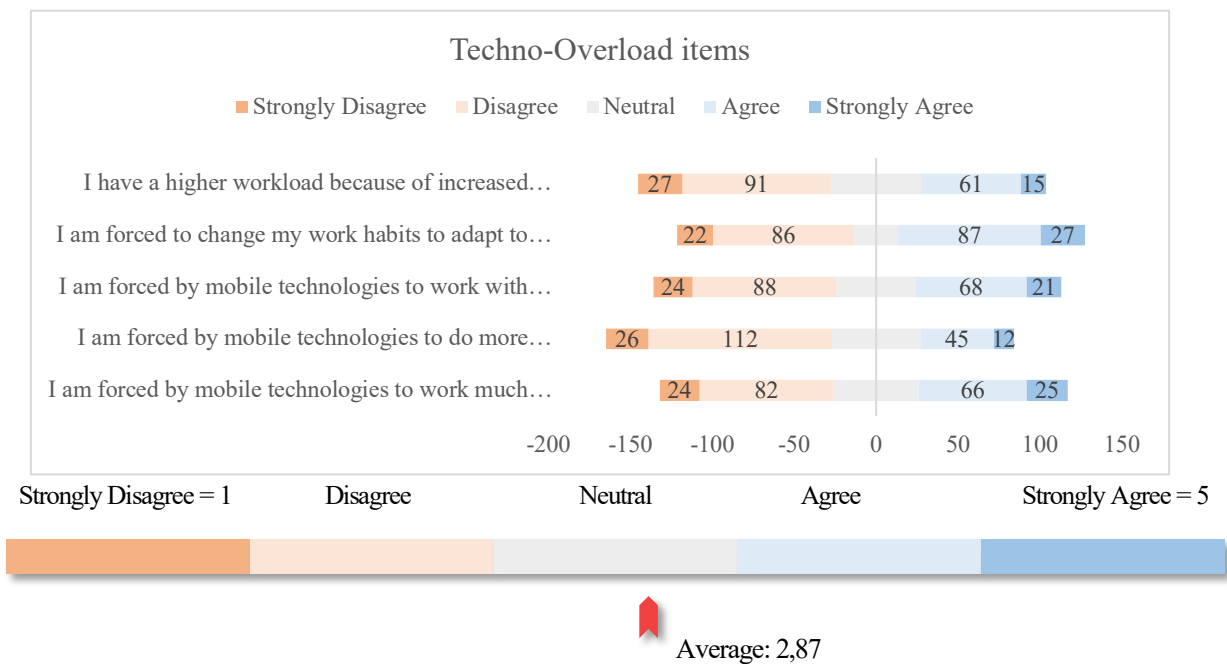
In our survey, the participant’s individual perception of their level of technostress was analyzed by measuring techno-invasion and techno-overload. Based on the works of Ragu-Nathan, Tarafdar, and Ragu-Nathan (2008), techno-invasion was measured using three items (see fig. 7). Participants answered using a 7-point Likert scale from 1= strongly disagree to 7= strongly agree. Internal consistency was achieved in the responses (Cronbach’s alpha = 0.74). Looking at the technostress creator techno-invasion, one may clearly see great contrasts within the sample.

Figure 7: Techno-Invasion



Techno-overload was measured using five items (see fig. 8) and a 5-point Likert scale, from 1= strongly disagree to 5= strongly agree. The items are also adapted from Ragu-Nathan, Tarafdar & Ragu-Nathan (2008). Responses had internal consistency (Cronbach’s alpha = 0.87). The sample provides similar results for techno-overload. Although almost half of our participants stated that they are not experiencing any overload due to ICTs, the other half clearly demonstrate increased strain.

Figure 8: Techno-Overload



Incorporating new work models and the intense use of ICTs demands employees' preparation and adaptation to ensure a successful transition (Allen, Golden and Shockley 2015). In accordance with this, organizations need to provide formal processes and procedures which will more likely lead to positive outcomes (Wheatley 2012). According to Van Zoonen and Sivunen (2021), several factors need to be considered for a successful transaction, such as commitment, satisfaction, productivity, the equilibrium between work and personal demands, and the effective management of distance that remote work creates between workers (Raghuram et al. 2001). For this reason, companies should ensure the right transition to facilitate a better work-life balance and well-being when working remotely (Galanti et al. 2021).

5. Well-being

Well-being, initially coined as “eudaimonia” or “quality of life,” was regarded as the ultimate art of living and the highest form of individual character. Portraying timeless contentment with life and oneself (Bauer, McAdams, and Pals 2008). Nowadays, well-being is extensively explored in literature, and multiple subdisciplines emerged (Ryff 1989; Headey, Holmström and Wearing 1984). In the context

of this paper, we will focus on well-being at the workplace and the several implications for the individual and the organization. With the social, technological, and demographic shift in the nineteenth to the twenty-first century, the work and well-being of employees gained significant attention. As researchers discovered the positive implications of happiness and job satisfaction on productivity and task performance, organizations made an effort to create a positive working environment in the office (Cooper and Robertson 2001). Especially with the emergence of large conglomerates, stress and risk of losing jobs shifted from blue-collar to white-collar workers. That's why well-being is increasingly regarded as a performance indicator of organizations and thus implemented in HR policies (Baptiste 2008; Grant, Christianson, and Price 2007).

In (2012) a study by the Canadian Statistics Authority on mental health at the workplace illustrated the hazard of neglecting well-being. The study estimated a loss of approximately \$50 billion due to the mismanagement of employees' mental health conditions. Thus, boosting stress, depression, and anxiety which leads to higher levels of absenteeism, turnover, and lower productivity (Cooper and Robertson 2001). A similar study in the US found out that illnesses within the national workforce cost around \$576 billion. Of that amount, \$227 billion is attributed to presenteeism. A condition where an employee is not absent from work, however, does not perform to his usual standards due to limiting conditions such as stress, fear, and a general lack of the ability to focus on work (Japsen 2012). Although well-being is influenced by a complex set of parameters, we will set our focus on the relationship between technostress and remote working. Already in (2008), Ragu-Nathan established that technostress has a deleterious effect on job satisfaction and commitment. According to common stress models such as the job demand resources model (Bakker and Demerouti 2007), these conditions are triggered by a disparity of perceived ability and required resources. This results in stress and dissatisfaction, which in turn reduces individual well-being (Pfaffinger, Reif, and Spieß 2020).

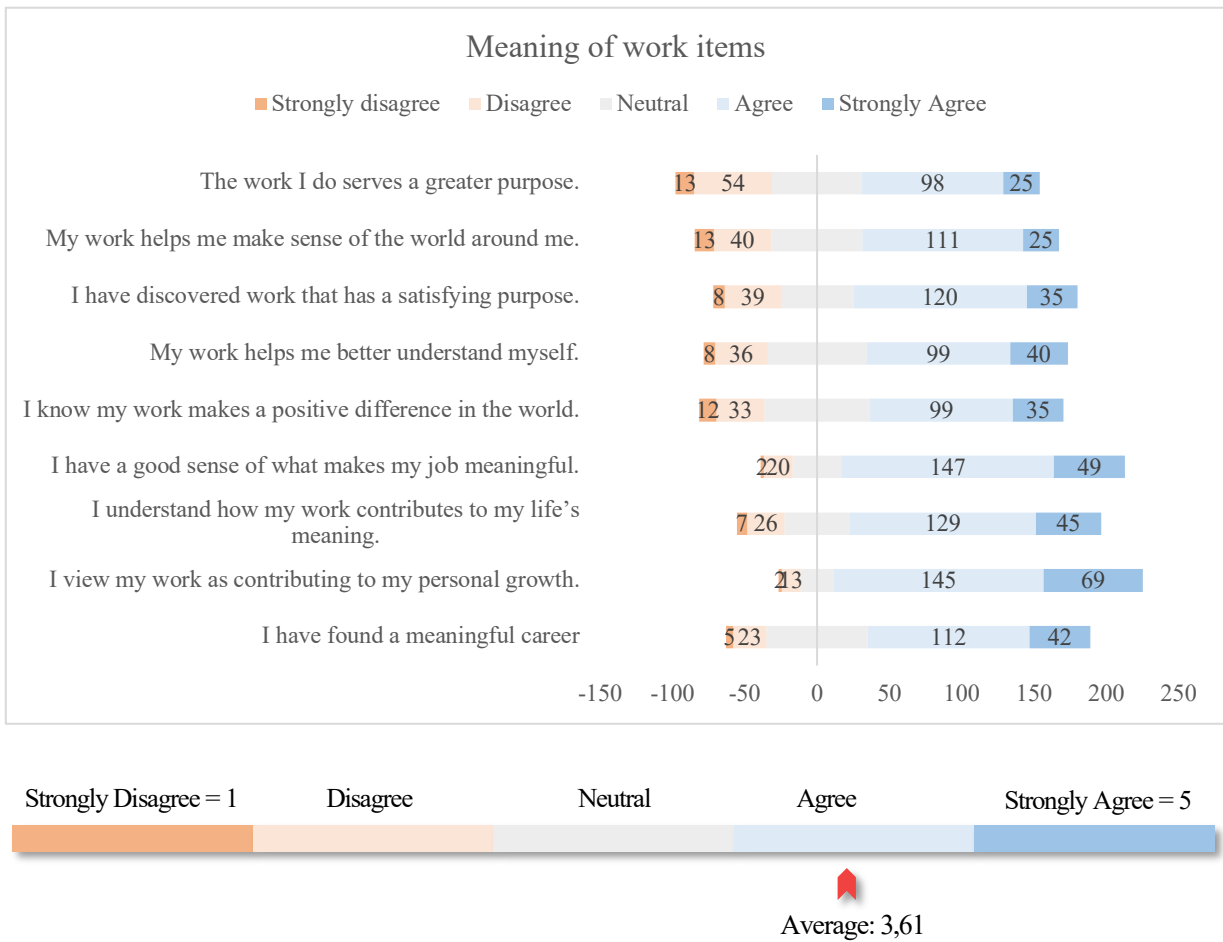
In addition, Santuzzi and Barber (2018) explored within their survey of 234 full-time employees the effects of ICT stress on physical and mental conditions. In the paper, the authors state that

technostress and tele pressure can cause detachment from work, sleep problems, and increased fatigue. In particular, techno-invasion does arise from the advancing interference and lack of separation of daily work (Tarafdar et al. 2007). This has increased tremendously during the Covid-19 pandemic (Molino et al. 2020). However, the consequence of the matter for individuals was a decline in detachment from work, leading to negative effects on individual's well-being (Sonnentag and Fritz 2015).

According to (Seligman 2011) model of well-being, the term consists of five distinct elements. Positive emotions, engagement, relationships, meaning, and achievement represent PERMA, the means of achieving sustainable life satisfaction and well-being. For this paper, we will focus on the pillar of meaning in life and work. Purpose or meaning can be described as an overarching life goal, where limited resources are focused on achieving specific goals and making decisions guided by that vision. Meaning and purpose are often envisioned as the logical reasoning of everyday actions (McKnight and Kashdan 2009). In his pioneering paper, (Frankl 1985) highlighted the importance of meaning in life to increase productivity while also improving satisfaction. In this report, we will study the perception of purpose while conducting daily work and see whether it is associated with the experience of remote work, technostress, and well-being. whether it is associated with the experience of remote work, technostress, and well-being.

In our survey, the meaning of work was measured using nine items adapted from Steger, Dik, and Duffy (2012), the (see fig. 9) and a five-point Likert scale from 1=strongly disagree to 5= strongly agree. Internal consistency was given in the responses (Cronbach's alpha = 0.90).

Figure 9: Meaning of Work



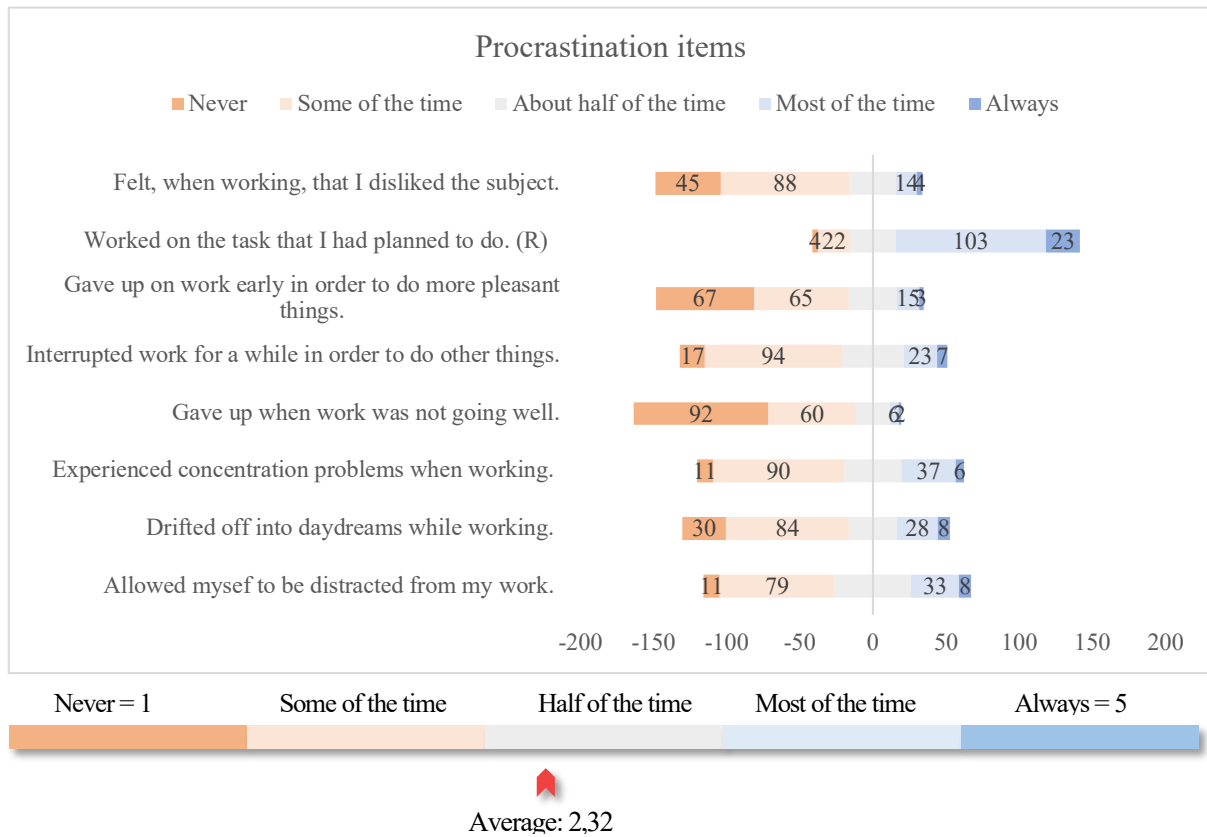
The mean level of meaning of work is fairly high, with 3.61 on a scale of 1-5. Once again, the feeling of a greater purpose at work might be an indicator of the great remote work satisfaction within our sample.

Another phenomenon directly affecting well-being is procrastination. The purposeful and unnecessary delay of an important or immediate task being aware of negative consequences is called procrastination (Krause and Freund 2014). A study regarding the interrelations of procrastination, self-esteem, and well-being (Duru and Balkis 2017) examined the negative implications for self-esteem by failure and non-achievement of goals due to procrastination. That, in turn, can decrease optimism, motivation and increase anxiety, directly impacting well-being.

Procrastination was measured in Time 2 with six items developed by (Schouwenburg 1995) and (Krause and Freund 2014). Example items are: “Drifted off into daydreams while working” and

“Worked on the task that I had planned to do” (Reversed). Responses had internal consistency (Cronbach’s alpha = 0.85).

Figure 10: Procrastination



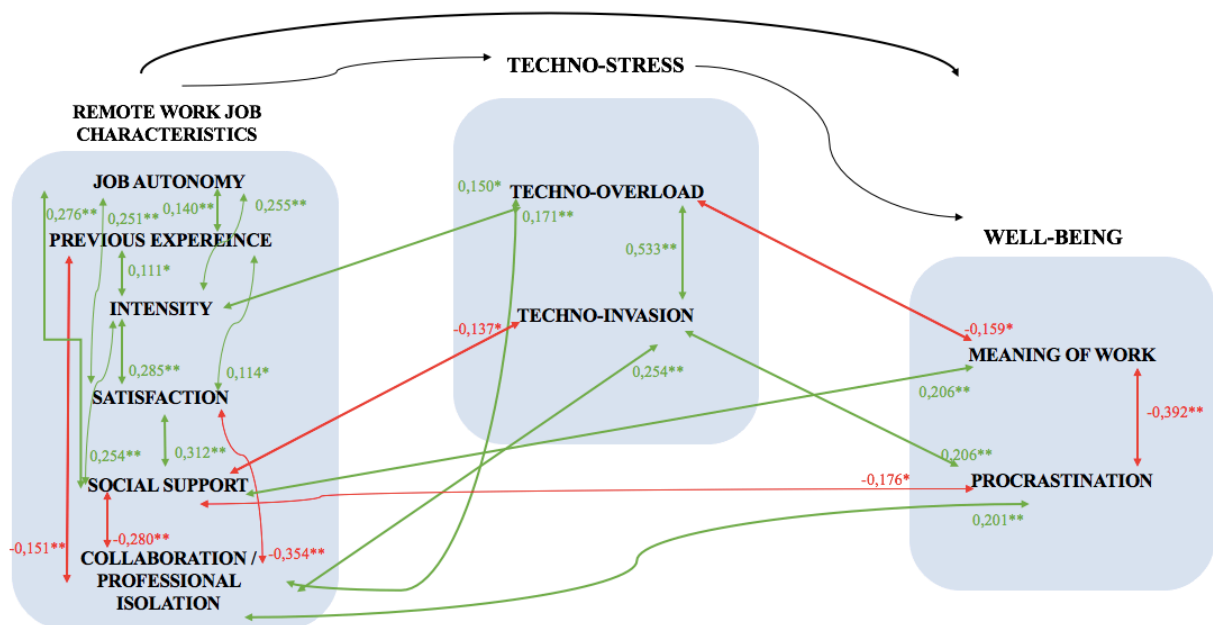
Though it is apparent that procrastination occurs within our sample (see fig. 10), the extent to which it appears is minor. The majority dislikes tasks are being interrupted or delays tasks some of the time. The next chapter will shed light on the subgroup differences through the isolated lens of gender, generations, and industries. The initial descriptive overview gave a first well-rounded impression concerning the opposites and similarities within the large sample.

6. Relationship between measures of remote work characteristics, Technostress and Well-being

Throughout the theoretical foundation of this paper, it becomes apparent that job demands, and resources have changed due to the sudden shift to remote working during the pandemic. As previously mentioned in the overview of the JD-R model, an imbalance of job demands and resources within remote working characteristics can negatively impact an individual’s well-being. Similarly, due to the

shift to remote working, the enforced digital leap which many employees were forced to take represents a demand which may lead to higher levels of technostress, which in turn may negatively impact well-being. A model of the three overarching themes of this paper, namely remote working conditions, technostress, and well-being, as shown in the following graph, along with the measures analyzed in relation to each theme and any significant correlations.

Figure 11: Model of significant correlation between measures



Measures related to remote working conditions, technostress, and well-being were analyzed in the survey. Experience with remote working prior to the pandemic, the intensity of remote working during the pandemic, job satisfaction during remote work, perceived social support, and professional isolation in terms of collaboration are measured in relation to remote working conditions. The measures analyzed in relation to technostress are techno-invasion and techno-overload. Lastly, the meaning of work and procrastination were analyzed as measured related to well-being.

Demonstrated in the graph above (see fig. 11) and in the table below (see appendix 12), prior experience with remote working positively correlates with remote work intensity ($r = 0,11$; $p < .05$), as well as remote job satisfaction ($r = 0,11$; $p < .05$), and negatively correlates with professional isolation ($r = -0,15$; $p < .01$). Although the correlations are significant, they are low. Remote work intensity

moderately, positively correlates with remote work satisfaction ($r = 0,29$; $p < .01$) as well as remote work social support ($r = 0,25$; $p < .01$), and positively correlates to techno-overload ($r = 0,15$; $p < .05$) to a low degree. As can be seen in the graph, in addition to the table below, remote work satisfaction positively correlates with social support ($r = 0,31$; $p < .01$) and negatively correlates to collaboration ($r = -0,35$; $p < .01$). The correlation found between the measures is moderate. Looking at the measure social support, a low negative correlation can be found with techno-invasion ($r = -0,14$; $p < .05$), collaboration ($r = -0,28$; $p < .01$) and procrastination ($r = -0,18$; $p < .05$), as well as a positive correlation with meaning of work ($r = 0,21$; $p < .01$). In addition to the correlations found with social support, techno-invasion also shows a strong positive correlation with techno-overload ($r = 0,53$; $p < .01$) as well as a moderate positive correlation with procrastination ($r = 0,21$; $p < .01$) professional isolation ($r = 0,25$; $p < .01$) in terms of collaboration. Techno-overload negatively correlates with the meaning of work ($r = -0,16$; $p < .05$) to a low degree and positively correlated to professional isolation ($r = 0,17$; $p < .01$), also to a low degree. Additionally, meaning of work moderately, negatively correlates with procrastination ($r = -0,39$; $p < .01$). Lastly, professional isolation in terms of collaboration correlates positively to procrastination ($r = 0,20$; $p < .01$). The following section of this paper will focus on individual sub-groups of our sample, starting with analysis of potential differences in the measures from a gender perspective.

1. Relevance of the Gender variable: Gender Gaps

Gender gaps in the workplace, as well as at home, continue to exist as women are still paid less, receive fewer promotions, are underrepresented in leadership positions, and spend more time on domestic tasks – when compared to men (Feng and Savani 2020). Putting, for instance, the gender pay gap into context, working women in the EU earned 14% less per hour compared to men in 2019, according to the European Parliament. One cause for this gap can be attributed to the fact that on average women carry out more unpaid work such as childcare, leaving less time for paid work. The pay gap can also be linked to the underrepresentation of women in leadership positions, as less than 10% of CEOs from top companies are women (EU Monitor 2021). Gender gaps can also be found in the impacts of the Covid – 19 crisis, which differed between men and women (Rozman et al. 2021), thus having individual implications on work satisfaction and wellbeing.

According to the OECD (2021), compared to men, women are more exposed to hardships associated with the economic fallout from the pandemic. For example, more women have lost their jobs and have experienced more work disruptions due to childcare increases in comparison to men (ILO-OECD 2020). Recent statistics from the United Nations Conference on Trade and Development show that globally, women's employment fell by 4,2% compared to the 3% drop in men's employment, as sectors, in which women tend to work more in, such as tourism, were more heavily impacted by restrictions (UNCTAD 2021). As mentioned, prior to the pandemic women were already carrying the majority of unpaid care work which encompasses housework, child-care as well as the care of a dependent adult. The sudden shift to remote working during the pandemic can blur the line between workplace and home, giving rise to more house- work seeing that all family members are staying home (Feng and Savani 2020). As domestic care and schools fall out, this additional burden is likely to fall on women, amplifying their unpaid work (Rozman et al. 2021).

The reason why gender inequalities may worsen or emerge during a crisis can be linked back to long standing gender role beliefs (Fisher and Ryan 2020). The conventional female gender role portrays

women to be highly communal, taking over the role of a caregiver within the home and having a lower status in society, as they display traits such as warmth and concern for others (Eagly and Wood 1999). Meanwhile, conventional male gender roles prescribe men to be highly agentic, taking over the role of being the provider and having a higher status in society, as they display traits such as strength. This can also be described as the gender role theory which states that society defines the family care role to be central to a woman's identity but not to a man's (Bem 1993). More women than ever are working outside the home, rapidly expanding women's roles beyond the home, while men's roles have remained stable over time (United Nations 2020). However, gendered expectations still remain the same as women are still expected to take over most of the domestic and care work, while still remaining to be productive at work (Feng and Savani 2020). The Covid -19 pandemic disrupted the lives that people were used to, causing high levels of uncertainty (Rosenfeld and Tomiyama, 2021). According to evolutionary and social psychology theories, this kind of uncertainty can be perceived as threatening, especially when paired with the risk of an infectious disease, has the high potential of making people more traditional and socially conservative (Rosenfeld and Tomiyama 2021).

In line with this theory, during times of uncertainty and job insecurity, higher earners in dual income households are less likely to reduce their work hours, most often applicable to men (Craig and Churchill 2020). According to a study carried out by Nicks et al. (2021) women were carrying out around seven hours more of care work before the pandemic compared to men. This gap increased to approx. nine hours, during the early lockdown phase but then decreased to around four and a half hours in later lockdown phases (Nicks et al. 2021). This gap decrease was driven by mothers reducing their care time, as fathers increased their care work compared to before the lockdown with an extra 3.5 hours. It is important to note, that changes in the care gap were only found with participants who have children, as the care gap for non-parent men and women stayed the same. In line with the gender role theory, mothers carried out a far greater share of care work at all time points, almost double the amount of time, on making their capacity for overtime limited. Consequently, Nicks et al. (2021) also found a one-hour

gender gap of working over- time in their sample, with men working more than women. According to the authors, this raises a concern for work- place equality as long working hours are rewarded disproportionately, meaning women could experience poorer career outcomes (Nicks et al. 2021.). Possible impacts of gender gaps during the pandemic have already been documented, as authors consider the effects that gender inequalities can have on factors such as job satisfaction or productivity (Feng and Savani 2020). Starting with the sample, the following section of this chapter will present the findings of our study alongside current findings in literature.

2. Overview of the sample

The total sample consists of 461 people, of which 183 (38.8%) were men and 243 were female 51.6%. However, due to the fact that not all participants completed all three surveys, the sample size may vary between measures. The sample was also analyzed taking the factors “household composition” and “marital status” into account, as these may have implications for more traditional gender roles as well as care work. Unless mentioned in the specific measure, these factors did not influence the significance of the test. Household composition was composed by the sub-groups “I live alone”, “I live with one adult, no children”, “I live with a minimum of two adults, no children” and “I live in a household with young children”. Marital status was composed by the sub-groups “single never married”, “married or domestic partnership” and “separated, divorced or widowed”. No significant differences were found in the distribution of men and women in the sub groups for household composition ($X^2(4, N = 425) = 6.13, p = .190$) (see appendix 14) and marital status ($X^2(2, N = 425) = 5.13, p = .077$) (see appendix 15).

3. Measures and literature findings

3.1 Findings of remote working measures

3.1.1 Remote work Intensity and prior experience

Looking at the characteristics of remote working, Nicks et al. (2021) found that prior to the pandemic there was a remote working gap in favour of men which, on average, remained unchanged during lockdown. They found that when controlling for industry, women who could work remotely did

so slightly more, however women were more likely to work in an industry with lower access to remote working. Thus, over-all in their sample of 4500 UK workers, men worked slightly more remotely when compared to women which was also the case prior to the pandemic (Nicks et al. 2021).

In our sample of 425 participants, a significant difference between men and women was found in prior

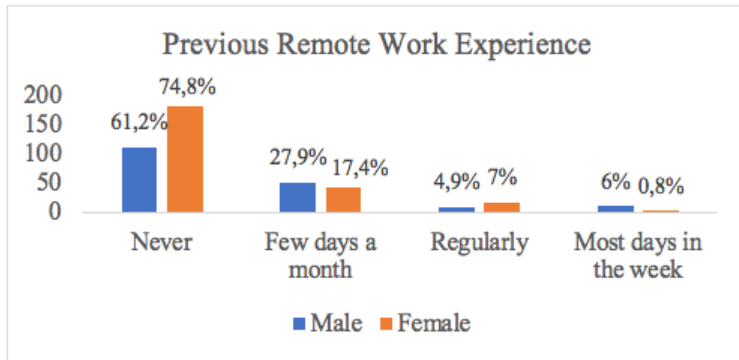


Figure 12: Gender difference in Remote work prior experience

remote work experience ($\chi^2 (3, N = 425) = 17.968, p < .001$). In line with the research done by Nicks et al. (2021), our finding show that more women never used to work remotely prior to the pandemic,

compared to men. In total, 38,8% of men had remote work experience prior to the pandemic compared to 25,2% of women, indicating a gender gap. Significant difference can also be found when controlling for marital status ($\chi^2 (20, N = 425) = 57.803, p < .001$) (see appendix 16) and household composition ($\chi^2 (32, N = 425) = 48.607, p < .05$) (see appendix 17). Since no relevant pattern in the significant differences is explainable by our variables, they are further excluded from the analysis.

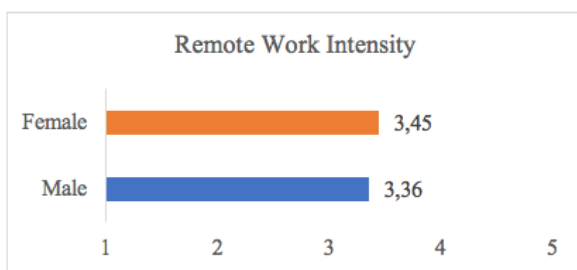


Figure 13: Gender differences remote work intensity

No significant different in remote work intensity was found as both men and women worked between three and four days remotely, on average.

3.1.2 Remote work satisfaction

Through their research on dual career -parents, the authors Feng and Savani (2020) were able

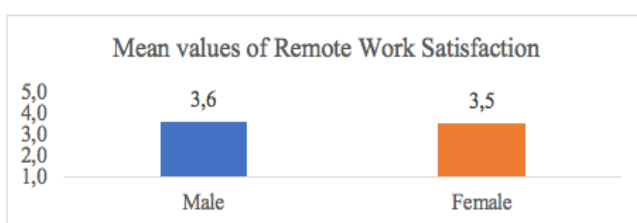


Figure 14: Gender difference in remote work satisfaction

to identify a significant difference in job satisfaction during the lockdown, with women being less satisfied than men (Feng and Savani, 2020). The increase in care work during the

lockdown as well as structural roles taken over by women, has intensified their workload and has caused a role conflict, or family – work conflict, and lead to a lower job satisfaction (Feng and Savani, 2020). Rozman et al. (2021) were also able to find a significant difference in job satisfaction in their sample of 785 employees in Slovenia. When testing the item “Due to changes in working conditions during the COVID-19, my work satisfaction declined.”, women agreed more strongly, than men. Even though changes of satisfaction during remote work have been documented, Nicks et al. (2020) found that both men and women indicated, that they wanted to continue to work remotely to a certain extent after the pandemic, with an average preference of 3.2 days a week. Based on our sample of 425 responses, no significant differences were found in the remote work satisfaction between men and women ($F(1, 423) = .832, p = .351$). Our findings don’t support those of Feng and Savani (2020), however this could be due to the fact that our sample included many of participants without children. Both men and women reported a high level of satisfaction with their jobs during remote work, and our findings indicate that both genders would choose to work remotely in the future.

3.1.3 Remote work social support

As previously mentioned, social support from colleagues and managers is a key work characteristic in the context of Covid – 19. The importance of receiving social support from work becomes even more apparent, as social distancing policies severely limit employees’ opportunities to obtain it from other social connections (Wang et al. 2020). Current literature on remote work experience during the pandemic do not indicate gender differences in terms of perceived social support from work. An example can be seen by Pulido Martos, Cortés-Denia, and Lopez Zafra (2021) who measure social support during remote their analysis of the relationship of personal resources and work modalities. The authors used items such as “The people I work with take interest in me” to measure social support. Their findings show that gender was not significantly related to any of the variables in the study. Similar findings can be found in the results from our study.

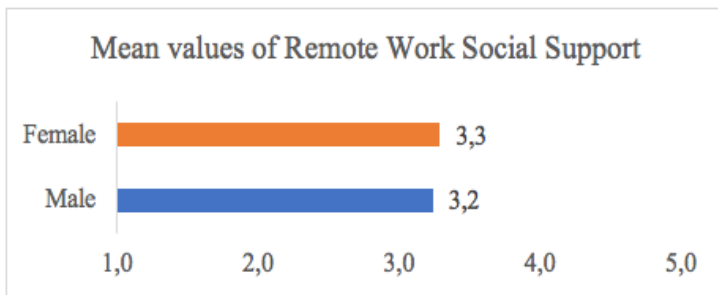


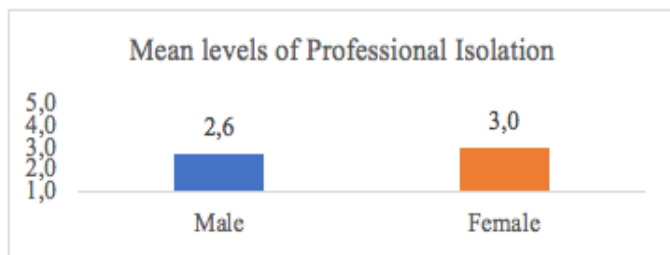
Figure 15: Gender difference in remote social support

Our data from a sample of 425 participants shows no significant difference in the perceived amount of social support in remote working ($F(1, 423) = .434, p = .51$). These findings are in

line with current literature. Both men and women reported that some of the time they had the chance to get to know their colleagues, their colleagues took a personal interest in them and that they were friendly.

3.1.4 Professional isolation

According to Spilker and Breaugh (2021), there has been little theoretical discussion as to why demographic variables, such as gender, could be linked to the feeling of professional isolation. Furthermore, the authors state that the few studies considering demographic variables suggest that there is no link between them. In their own study no correlation between gender and professional isolation was found. This was also the case in the studies carried out by Golden et al (2008) and Ozcelik and Barsade (2018). A survey carried out by Flexjobs (Pelta 2021) on remote work experience showed that 26% of men in their sample feel like their professional skills suffered during the pandemic, compared to 17% of women. Similarly, in their sample, more men (20%) and women (13%) feel that remote work has hurt their chances of a promotion. However, Ibarra, Gillard and Chamorrow-Premuzic (2020) from the Harvard Business Review point out that even in non-remote working environments, women find it harder to gain career benefits which can come with easy and informal contacts predominately male decision makers. As informal conversations naturally reduce through remote working, it is likely that women will struggle more with opportunities for face-to-face networking.



In our sample of 409 respondents, significant differences in the mean levels of professional isolation were found ($F(1, 407) = 14.45, p < .001$). Men were in-between

Figure 16: Gender differences in professional isolation

feeling that they “rarely” or “some of the time” felt that they missed out on collaboration during remote work. Women were more likely to indicate that “some of the time” they miss out on opportunities to be mentored, miss face to face contact and emotional support from coworkers and feel left out on activities that could enhance their career. Significant differences were also found when marital status was considered ($F(5, 402) = 8.957, p < .001$). Both single men and women experienced higher levels of professional isolation compared to participants who were married or in a partnership. In addition to this, single females reported higher levels of professional isolation, compared to single men (see appendix 18).

3.1.5 Job Autonomy

Women have been found to experience lower levels of job autonomy (Sjögren and Kristenson 2006). Gender differences in job autonomy have been attributed to individual attempts to combine family obligations and employment, occupational and labor market structures, power relations or individual characteristics (Adler 1993). Individualistic explanations for a gender gap in job autonomy are often attributed to gender differences in authority and occupational segregation, meaning that women tend to work in job positions which inherently offer lower levels of job autonomy (Adler 1933). As previously mentioned, even today women are underrepresented in leadership positions, making up less than 10% of CEOs from top companies which further supports the explanation of occupational segregation and lack of authority (EU Monitor 2021). In one of the most cited papers researching job autonomy, Adler (1993) found male respondents to have significantly higher average job autonomy scores compared to females. The author also found that men were more likely to be policy makers and supervisors and are less likely to work part time which inherently indicated higher levels of job autonomy. Even while

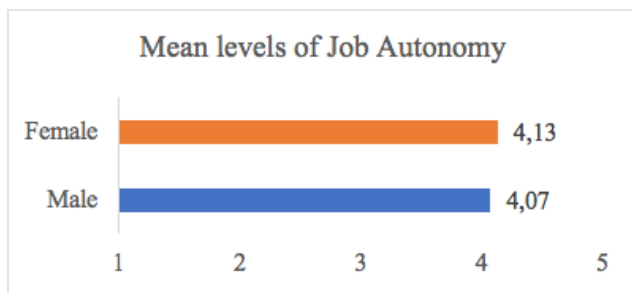


Figure 17: Gender differences in job autonomy

testing. Even when testing for levels of autonomy within occupational categories, men had more job autonomy than women in managerial, white-collar and semi- and unskilled occupations. Through her research, Adler (1993)

significantly tested that major gaps in job autonomy is due to authority position rather than occupational segregation. This contradicts prior findings where gender effects were eliminated through occupational segregation (Jaffee 1989). Both Adler (1993) and Jaffee (1989) found that the higher occupational prestige and education the higher the levels of job autonomy in both men and women. Looking at more recent studies, Jaworek and Dylag (2015) also found women to have a lower sense of perceived autonomy in the workplace which can be a barrier to women’s potential in the case of care work rising. This being the case during Covid-19, the results of Rozman et al. (2021) show a significant difference in the satisfaction of the level of self-regulation of work speed which was enabled during Covid-19, with men being more satisfied. Our findings differ from those previously presented. In our sample of 425 participants, no significant differences in perceived job autonomy were found between men and women ($F(1, 424) = .536, p = .464$). Both genders “often” felt that they had considerable autonomy in determining how they did their job and that they could “often” make their own decisions on how to schedule their work. Overall, in our sample both men and women had a high level of job autonomy.

3.2 Findings of Technostress measures

3.2.1 Techno – Invasion and Techno – Overload

Empirical findings on gender differences of technostress are contradictory and to an extent, inconclusive. Studies indicate that men have lower levels of anxiety and more positive attitudes towards the use of computers, compared to women (Huffman et al., 2013). In accordance with this, the authors Çoklar and Sahin (2011) were able to identify higher levels of techno stress with women, however so distinction between techno-invasion and techno-overload is made. Higher levels of technostress were found

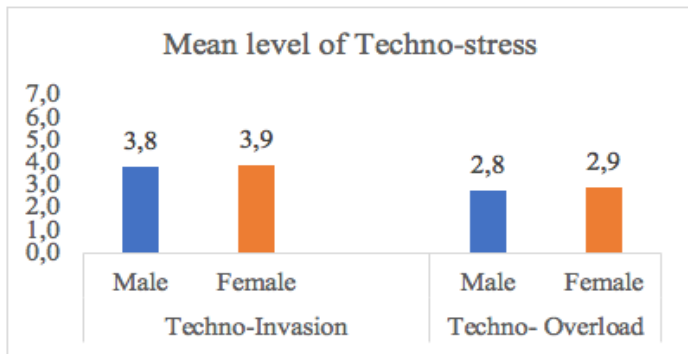


Figure 18: Gender differences in Techno-stress

with men by both Tarafdar et al. (2011) and Ragu-Nathan et al. (2008), but again distinctions between technostress creators were made. In their study, Marchiori, Mainardes and Rodrigues (2019) found that men reported higher levels of techno-

invasion and techno-overload while women reported higher levels of techno-complexity and techno-invasion. They relate these findings to evidence which suggests that women tend to value the ease of use of technology while men place a higher value on utility, such as the impact on performance. Using a sample of 245 participants, no significant differences in the mean levels of techno-invasion ($F(1, 243) = .154, p = .695$) and techno-overload ($F(1, 243) = 1.236, p = .26$) between men and women were identified. Our data shows that for the entire sample, the perception techno-invasion and techno-overload differed. In terms of techno-invasion, on average, both men and women neither agreed or disagreed that they were spending less time with their families or being in touch with work during vacations, due to the use of mobile technologies. Looking at techno-overload both men and women tend to “slightly disagree” with the statements, that mobile technologies force them to change their work habits, work faster, more than they can handle, and with a very tight time schedule.

3.3 Findings of Well-Being measures

3.3.1 Meaning of work

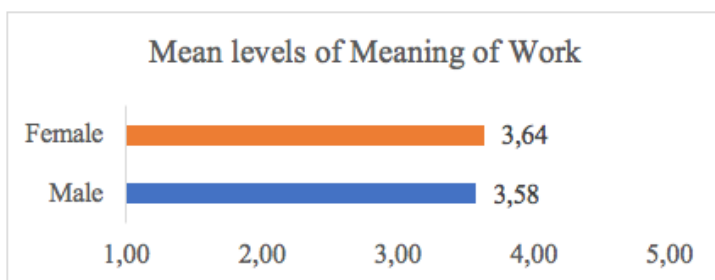


Figure 19: Gender differences in meaning of work

In our sample of 245 participants, no significant differences were found in men’s and women’s perception of their meaning of work ($F(1, 243) = .396, p = .350$). Both men and women

slightly agree that they have found a meaningful career and that their work serves a greater purpose.

Similar items were tested by Rozman et al (2021) while analyzing work engagement during Covid- 19. The authors describe employee engagement as the extent to which employees feel deeper about their work. Two of their items are comparable the items we used to test meaning of work, namely “I do my work with passion during the Covid – 19” and “I feel that my work and job are important”. Contrary to our results, Rozman et al. (2021) found a significant difference in the first item, meaning that women felt less passionate about their work during the pandemic when compared to men. Regarding the second item, the authors found no significant differences meaning that both men and women felt their jobs were important, which is more consistent to our findings.

3.3.2 Procrastination

Situational procrastination has mainly been studied in the field of academia and only recently, in the context of work (Hen, Goroshit, and Viengarten 2021). Thus, previous findings on procrastination in the workplace (Metin, Peeters, and Taris 2018), and therefore remote working, are scarce. Looking at the research of gender differences in academic procrastination, findings seem to be inconclusive, as some researchers report higher levels in men than women (Mandap 2016), whilst other researchers find female students to procrastinate more than males (Rodarte-Luna, and Sherry 2008). Looking further at the limited findings of work-place procrastination, Wan, Downey and Stough (2014) found no differences between men and women, in their study on non-work presentism. Similarly, the authors Beutel et al. (2016) found no significant differences in procrastination between men and women, in their representative study.

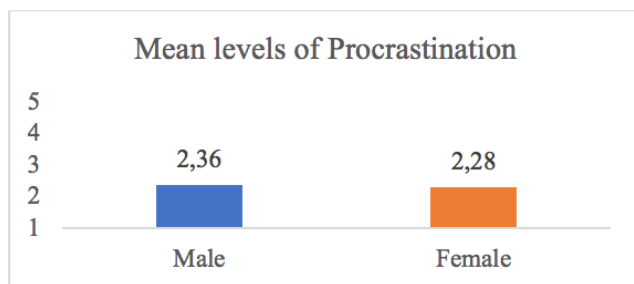


Figure 20: Gender differences in procrastination

Looking at our sample of 178 participants, no significant differences in procrastination between men and women were measured ($F(1, 176) = .594, p = .442$). However, our sample shows high levels of procrastination as both

genders state that between “some of the time” and “about half of the time” they allow themselves to be

distracted while work, have difficulties concentrating and giving up on work in order to do more pleasant things.

In the following chapter, the measures related to remote work characteristics, technostress and well-being will be analyzed through a generational perspective, followed by an industry perspective. Collectively the three different perspectives will build the foundation of the upcoming recommendations.

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5. Appendix

Appendix 1: Graph of gender distribution

Appendix 2: Graph of average age distribution

Appendix 3: Graph of nationalities distribution

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Appendix 10: Graph of industry type distribution

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Appendix 12: Table of significant correlations between measures

Appendix 13: Variables Cronbach Alpha

Appendix 14: Gender differences in household composition

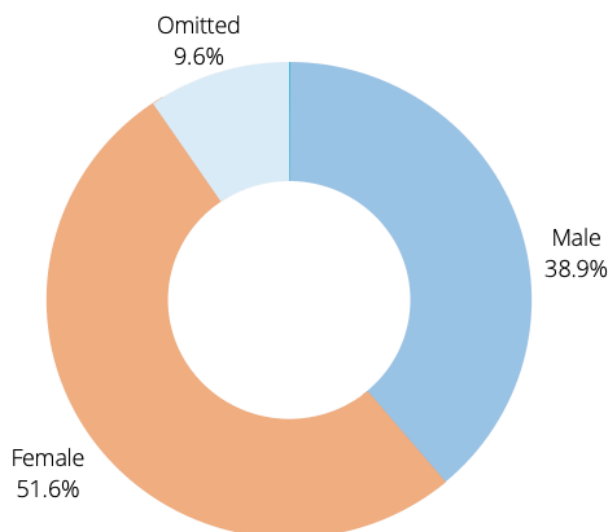
Appendix 15: Gender differences in marital status

Appendix 16: Previous remote work experience looking at gender and marital status

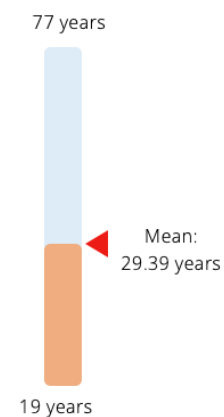
Appendix 17: Previous remote work experience looking at gender and household composition

Appendix 18: Mean levels of professional isolation looking at gender and marital status

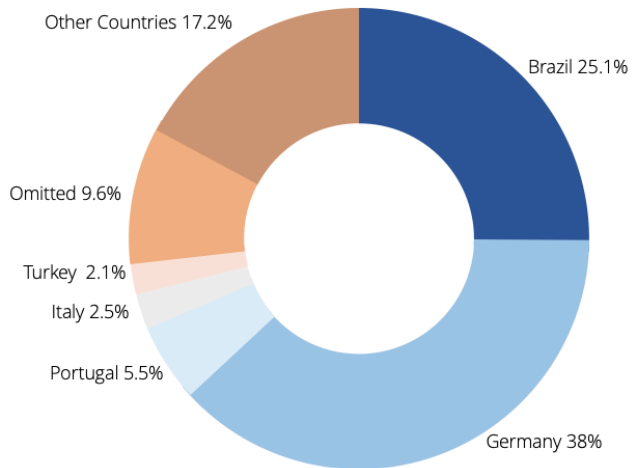
Appendix 1: Graph of gender distribution



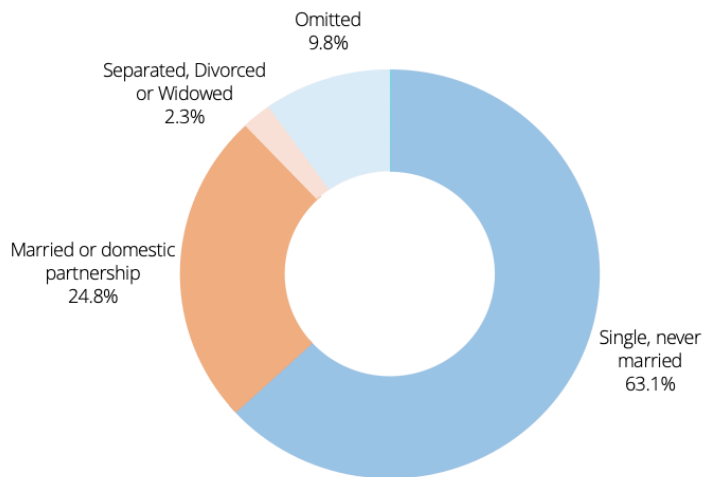
Appendix 2: Graph of average age distribution



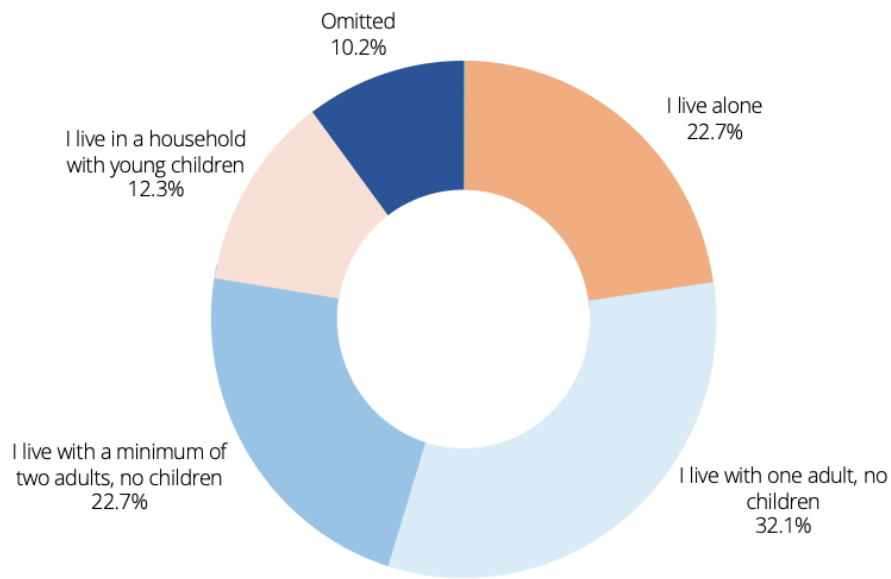
Appendix 3: Graph of nationalities distribution



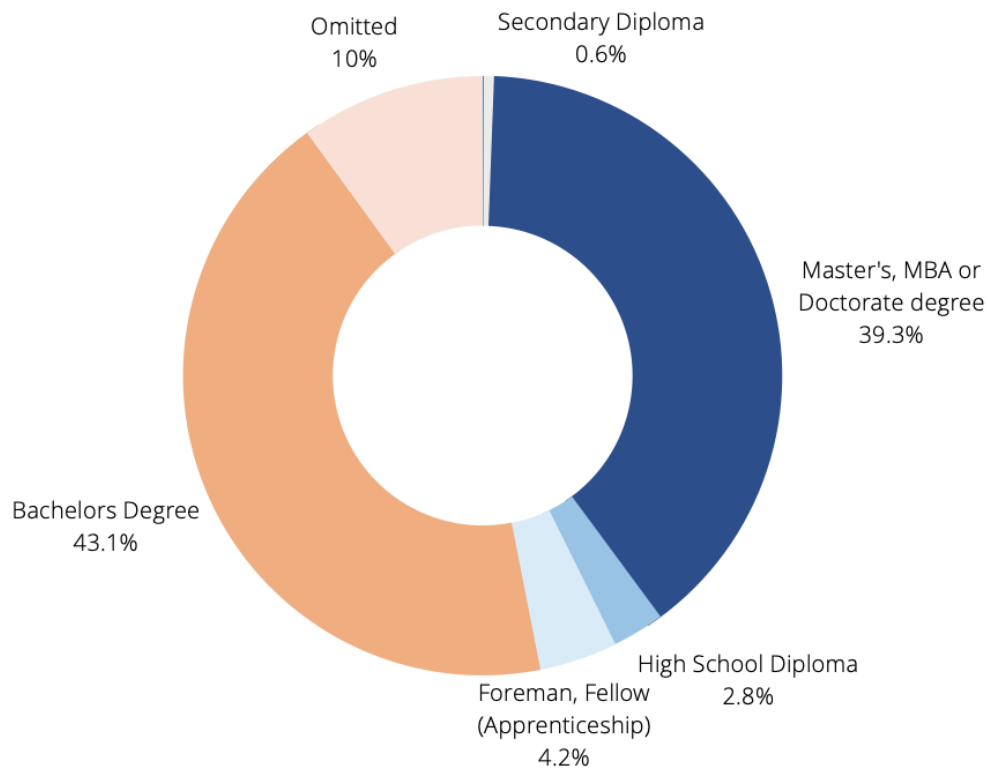
Appendix 4: Graph of marital status distribution



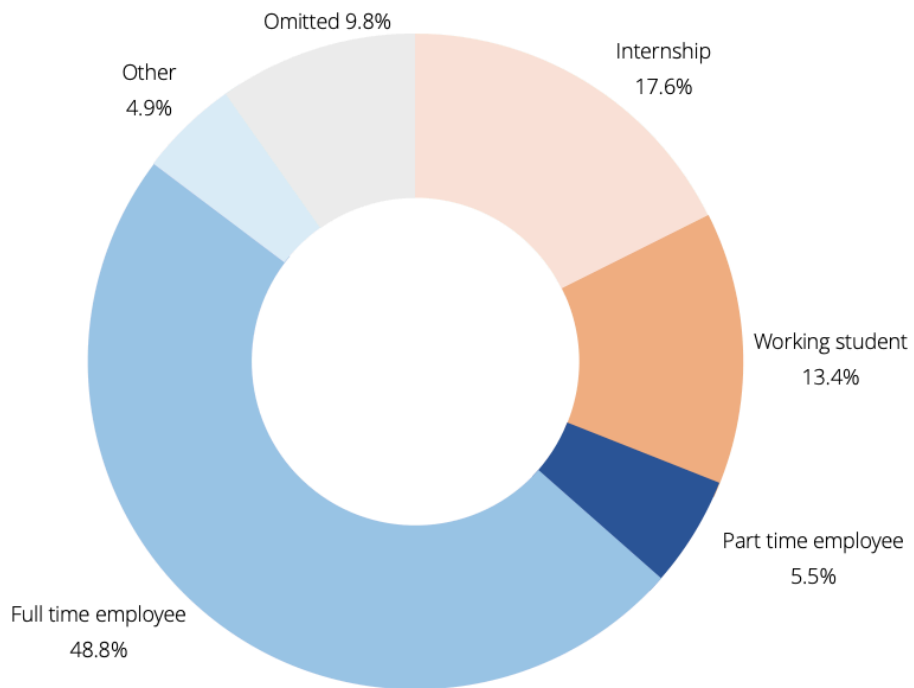
Appendix 5: Graph of household composition distribution



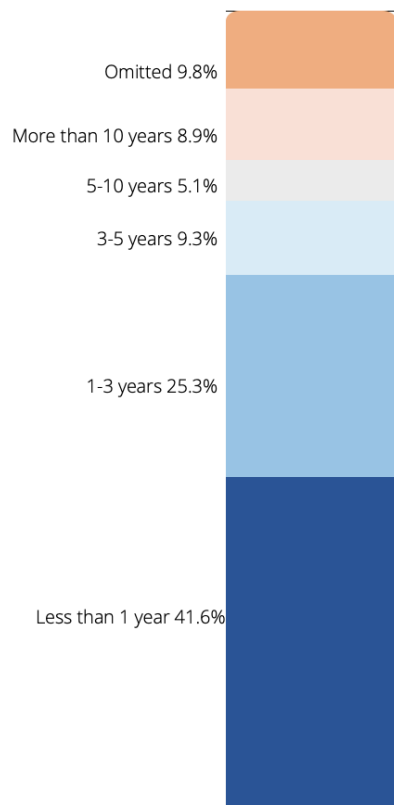
Appendix 6: Graph of education distribution



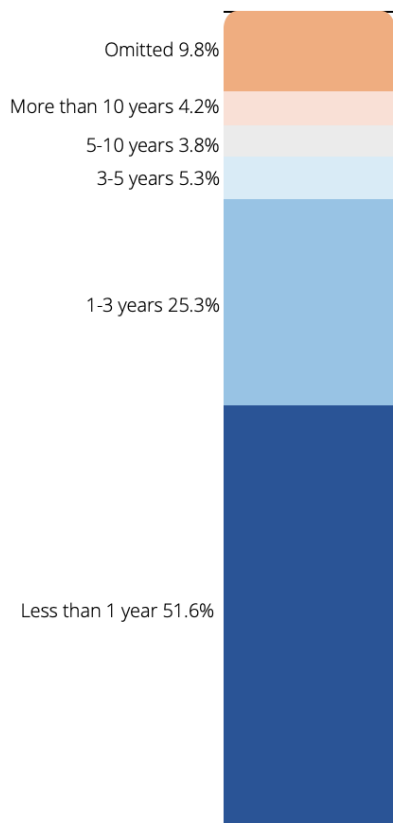
Appendix 7: Graph of most recent employment status distribution



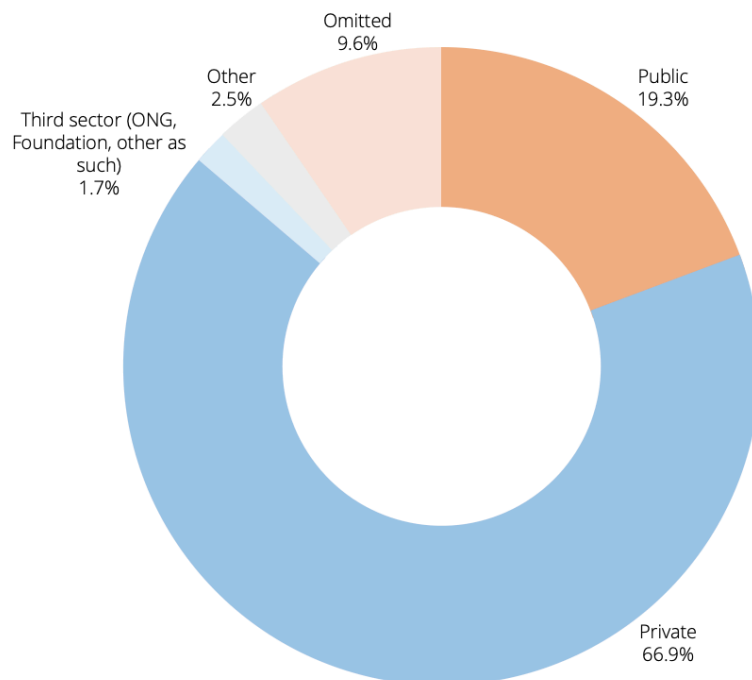
Appendix 8: Graph of time in current employment distribution



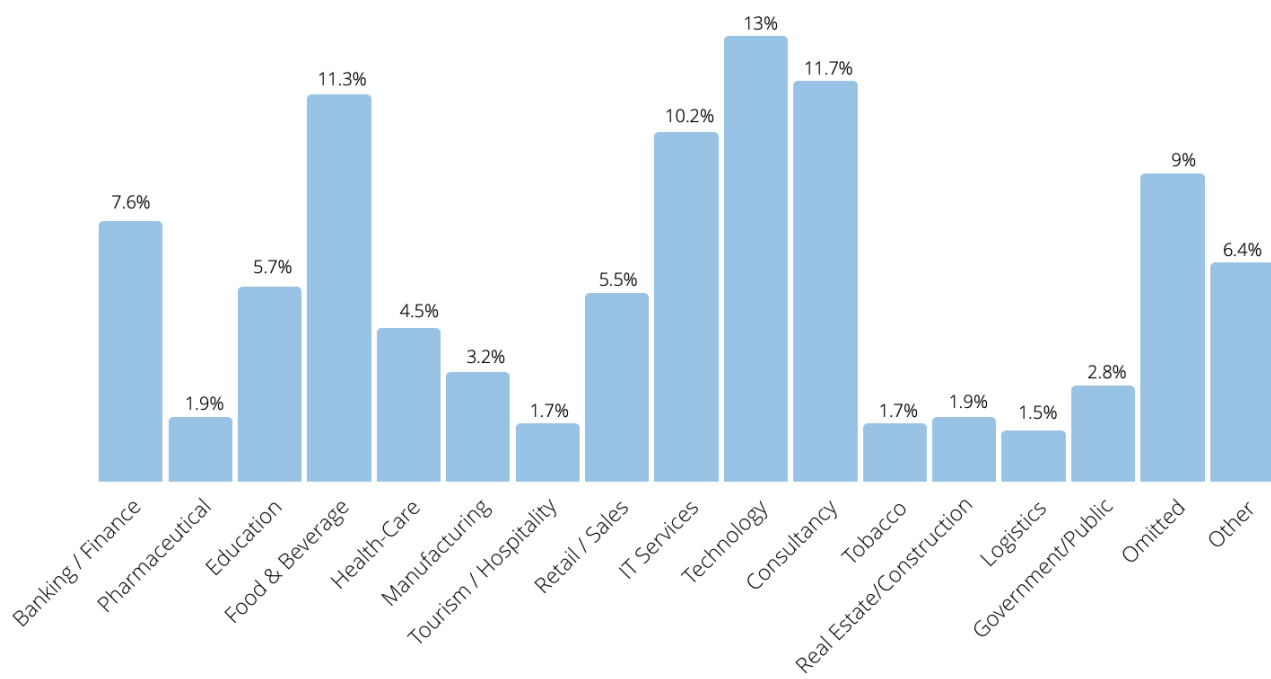
Appendix 9: Graph of time working with current manager/supervisor distribution



Appendix 10: Graph of industry type distribution



Appendix 11: Graph of industries distribution



Appendix 12: Table of significant correlations between measures

	Prior experience	Remote Work Intensity	RWSatisfaction_t1	RWSocialSupport_t1	TI_t2	TO_t2	MW_t2	COL_t1	PC_t3	RWAutonomy_t1
Prior experience	Pearson Correlation	.111*	.114*	.041	-.037	-.022	-.002	-.151**	.110	.140**
	Sig. (2-tailed)	.020	.017	.385	.561	.733	.978	.002	.144	.003
Remote Work Intensity	N	442	442	442	245	244	245	411	178	442
	Pearson Correlation	.111*	.285**	.254**	.053	.150*	-.092	-.084	.021	.255**
RWSatisfaction_t1	Sig. (2-tailed)	.020	.000	.000	.405	.153	.088	.785	.000	.000
	N	442	442	442	245	244	245	411	178	442
RWSocialSupport_t1	Pearson Correlation	.114*	.285**	.312**	-.125	-.055	.053	-.354**	-.110	.251**
	Sig. (2-tailed)	.017	.000	.000	.051	.395	.409	.000	.143	.000
TI_t2	N	442	442	442	246	245	246	411	178	442
	Pearson Correlation	.041	.254**	.312**	1	-.137*	-.007	.206**	-.280**	-.176*
TO_t2	Sig. (2-tailed)	.385	.000	.000	.032	.909	.001	.000	.019	.000
	N	442	442	442	245	244	245	411	178	442
MW_t2	Pearson Correlation	-.037	.053	-.137*	1	.533**	-.110	.254**	.206**	-.041
	Sig. (2-tailed)	.561	.405	.032	.000	.081	.000	.000	.008	.523
COL_t1	N	245	245	245	252	249	252	231	165	245
	Pearson Correlation	-.022	.150*	-.055	.533**	1	-.159*	.171**	-.100	-.014
PC_t3	Sig. (2-tailed)	.733	.019	.395	.000	.012	.909	.009	.203	.829
	N	244	244	245	244	249	249	230	164	244
RWAutonomy_t1	Pearson Correlation	-.002	-.092	.206**	-.110	-.159*	1	-.128	-.392**	.080
	Sig. (2-tailed)	.978	.153	.409	.001	.012	.000	.052	.000	.214
RWSocialSupport_t1	N	245	245	246	245	252	249	231	165	245
	Pearson Correlation	-.151**	-.084	-.354**	.254**	.171**	-.128	1	.201**	.038
TI_t2	Sig. (2-tailed)	.002	.088	.000	.000	.009	.052	.000	.009	.443
	N	411	411	411	231	230	231	411	167	411
TO_t2	Pearson Correlation	.110	.021	-.176*	.206**	.100	-.392**	.201**	.167	-.137
	Sig. (2-tailed)	.144	.785	.143	.019	.008	.203	.009	.009	.067
MW_t2	N	178	178	178	165	164	165	167	183	178
	Pearson Correlation	.140**	.251**	.276**	-.041	-.014	.080	.038	-.137	.1
COL_t1	Sig. (2-tailed)	.003	.000	.000	.523	.829	.214	.443	.067	.000
	N	442	442	442	245	244	245	411	178	442

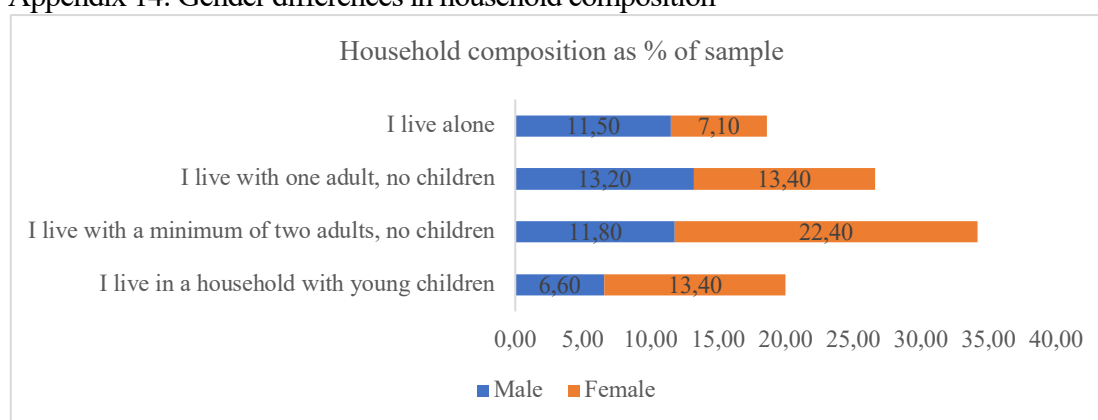
* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

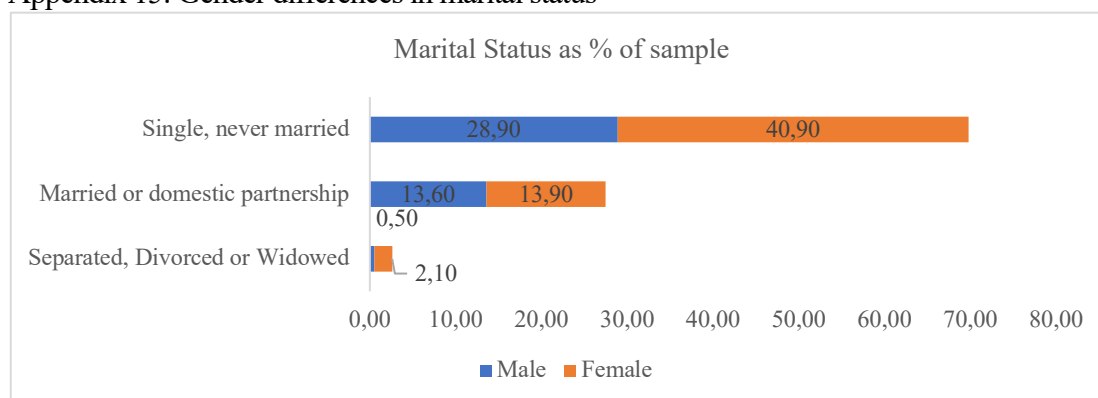
Appendix 13: Variables Cronbach Alpha

Variables	Cronbach Alpha	Number of Items
Remote Work Previous Experience	-	
Remote Work Intensity	-	
Remote Work Satisfaction	0.862	3
Remote Work Social Support	0.624	3
Remote Work Autonomy	0.779	2
Professional Isolation	0.869	6
Techno-Invasion	0.740	4
Techno-Overload	0.867	5
Procrastination	0.846	8
Meaning of Work	0.904	9
Total	0.310	10

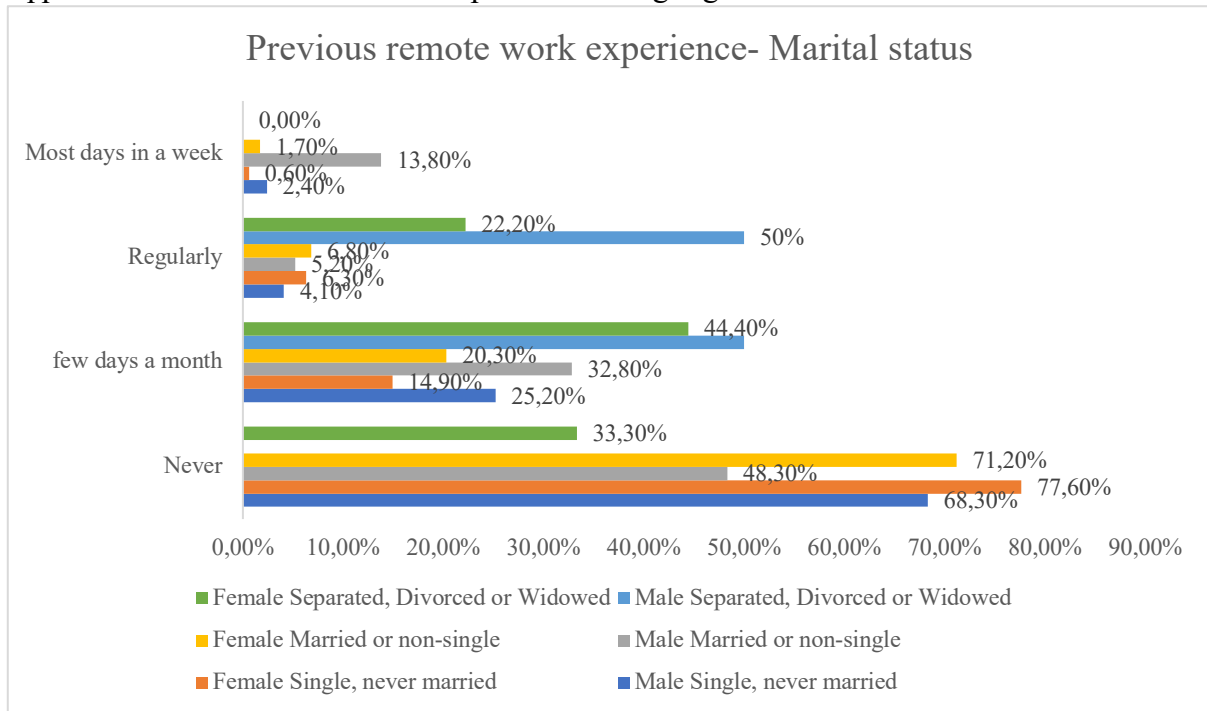
Appendix 14: Gender differences in household composition



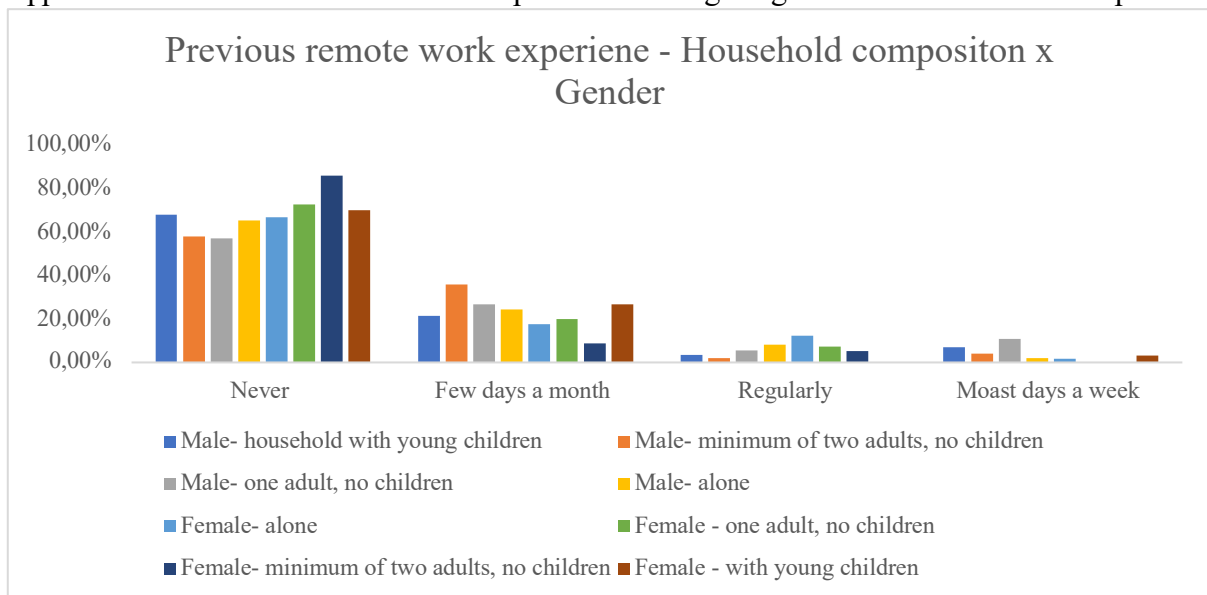
Appendix 15: Gender differences in marital status



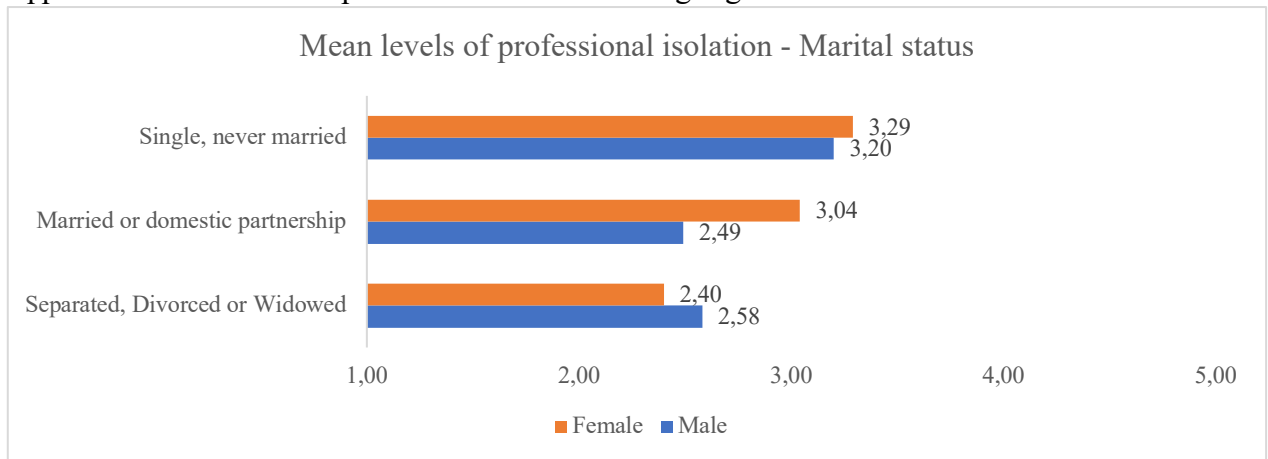
Appendix 16: Previous remote work experience looking at gender and marital status



Appendix 17: Previous remote work experience looking at gender and household composition



Appendix 8: Mean levels of professional isolation looking at gender and marital status



A Work Project, presented as part of the requirements for the Award of a Master's degree in
Management from the Nova School of Business and Economics.

REMOTE WORKING, TECHNOSTRESS AND WELL-BEING DURING COVID-19:

A Generational Perspective

RAFAELA LAWISCH SAMPAIO

Work project carried out under the supervision of:

Filipa Castanheira

17-12-2021

Abstract

The quick change to remote work during the Covid-19 crisis increased technology usage, impacting employees' well-being. The collective report analyzes the relationship between remote work, technostress, and well-being during Covid-19 using the JDR-model. The present report will explore the same variables through a generational perspective as intergenerational characteristics can influence the individual's responses to historical events. Using three surveys, the 426 participants were divided into four generations based on their current age. Significant differences were found, especially between the younger generations. The findings show the importance of closer analysis between generations to avoid stereotype biases and promote better organization management.

Keywords: Remote Work, Technostress, Employee Well-Bing, JDR-model, Covid-19 Pandemic, Generations.

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1. Relevance of Generations

Different generations compose the workforce nowadays, and the understanding of its differences allows managers and companies to deal with intergenerational differences related to attitudes, desires, values and have a better understanding of the dynamics across them (Lyons & Kuron 2014; Van Rossem 2018). Authors suggest that misunderstanding the differences between generations can lead to problems concerning working relationships, satisfaction, productivity, well-being, and difficulty adapting to innovation (Becton, Walker & Jones-Farmer 2014).

Studies can analyze generational theories from different perspectives (Rudolph & Zacher 2017). The most common generational theories are based on two main perspectives: social and cohort. From a social perspective, generations are represented by a multidimensional and inter-related group of individuals who share the same historical process in time. From the cohort perspective, generations are defined by individuals born in similar periods (Lyon & Kurn 2014). The theory of Mannheim is one of the most used theories because it embraces both dimensions: the biological process of aging and the effects of social and historical events (Lyon & Kurn 2014).

On his theory, Mannheim (1952) defines generations from the same cohort as "individuals with a common location in the social and historical process, and thereby limit to a specific range of potential experiences, predisposing them for a certain characteristics mode of thought and experience and a characteristic type of historically relevant action" (Mannheim 1952 pg. 291). According to Joshi, Dencker & Franz (2011), the theory also brings a second important dimension that, defining generation as a group of individuals sharing the same social and historical process, results in a conscientious process of each social cohort trying to adapt to existing traditions and social patterns. The result of this process brings social changes that shape future generations. These specific events and experiences also result in a collective memory that can be used as a basis for behaviors and attitudes in the future (Lyons & Kuron, 2014).

Despite his theory being one of the most used for generations definitions, it's important to highlight that not all people from the same generation will be influenced equally (Van Rossem 2018). Cultural, regional, and even personal differences can influence individuals' behaviors, and these distinctive characteristics between intergenerations can also impact the workplace (Twenge & Campbell 2008; Lyons & Kuron 2014; Parry 2014).

Generations that compose the workforce nowadays can be defined in four categories: Baby Boomers, Gen X, Millennials or Gen Y, and Gen Z. Baby Boomers were born between 1946 and 1964. This generation was influenced by historical events such as Vietnam War, the civil rights movement, Kennedy and King assassinations, and sexual revolution (Adams 2000; Dixon, Mercado & Knowles 2015). This generation tends to be achievement oriented and competitive for resources and opportunities (O'Bannon 2001; Lancaster & Stillman 2002; Becton, Walker & Jones-Farmer 2014). They also respect authority, value conventional traditions, and are loyal to organizations (Leslie et al. 2021; Mintel 2019; Berezan et al. 2018; Becton, Walker & Jones-Farmer 2014).

Gen X, born between 1965 and 1979, experienced economic uncertainty and recession, inflation, and high unemployment rates (Kupperschmidt 2000; Becton, Walker & Jones-Farmer 2014; Lyons, Duxbury, and Higgins 2007). They are known as independent, with low organizational loyalty and a high focus on work-life balance (Dixon, Mercado & Knowles 2015; Eisner, 2005; Becton, Walker & Jones-Farmer 2014).

Millennials or Gen Y is represented by individuals born between 1980 and 1995. These individuals were influenced by historical events such as 9/11, terrorist attacks, and natural disasters. They are known as the first high-tech generation (Downing 2006; Dixon, Mercado & Knowles 2015), born during globalization and intensive mediatization (Liesem 2017; Leslie et al. 2021). Some authors suggest that this generation prioritizes family and prefers working in a meaningful job, distrusting organizations (Ryan 2000; Becton, Walker & Jones-Farmer 2014).

Gen Z is the last generation present in the workplace. They were born between 1996 and 2009, and they're known as the first generation of digital natives, focusing on achieving goals (Mintel 2018; Leslie et al. 2021). Regarding their values, some authors suggest that they prefer to work in companies with social impact (Marron 2015; Singh & Dangmei 2016; Kirchmayer & Fratirová 2018; Leslie et al. 2021).

Companies have an increasing age diversity. While Gen Z is now entering the workplace, Baby Boomers are starting to retire. Historical events, such as Covid-19, followed by social isolation and new work arrangements, can impact them differently. Age-based stereotypes can influence biases about specific generations and create adverse outcomes for organizations and performance (Urick 2021). For this reason, the next chapter will analyze how individuals from different generations respond to remote work, technostress, and well-being during the Covid-19 pandemic.

2. Sample Information

As mentioned in the collective report, the sample size consists of 461 participants. However, 35 participants omitted their demographic information. For this reason, we are considering only the 426 participants that answered the information regarding the demographics for the generation sample. The participants were divided into four different generations based on their current age. Baby Boomers represent 2.6% of the sample with 11 participants, Gen X 8.0% with 34 participants, Gen Y or Millennials 32% with 139 participants, and Gen Z 56.8% with 242 participants. Considering that not all the participants answered the three surveys, the number can vary between the variables.

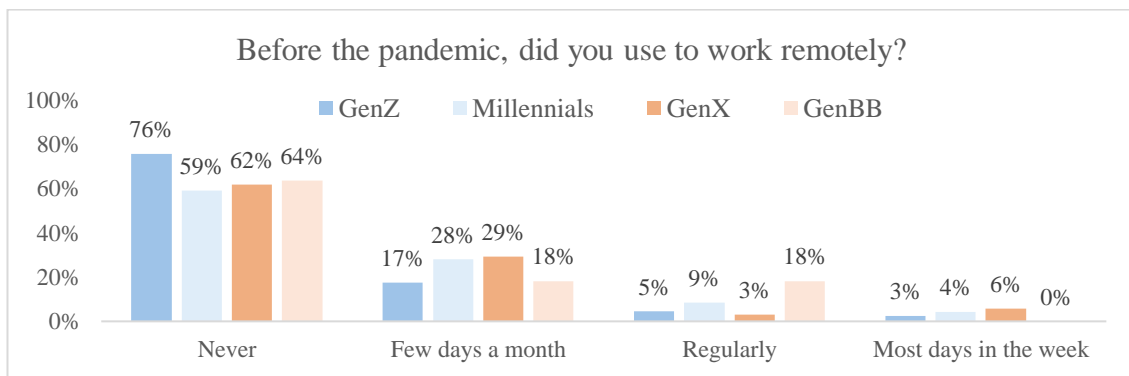
3. Main Findings and discussion

3.1 Remote work

According to Eurostat 2020, the percentage of individuals from the four different generations (between 15 and 64 years old) employed in the European Union in 2019, only 5.4% usually worked from home. The percentage of older people who usually work remotely is slightly higher than younger individuals. The Deloitte Global Millennial Survey 2020 also shows that 45% of the Millennials and

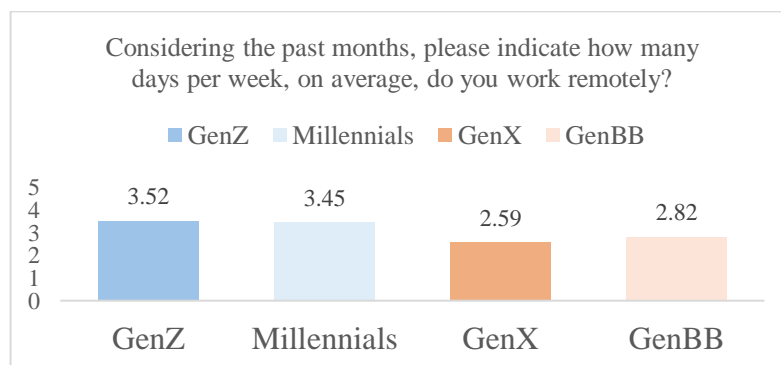
Gen Z have never worked remotely before the pandemic. In our survey, we were able to confirm that most of the individuals from all four generations had never experienced working from home before the pandemic (see figure 21). However, we were not able to find a dependency of remote work prior experience on generations (Chi-square test) $\chi^2(12, N = 426) = 18.6, p = 0.098$. The individuals that regularly or most days of the week work remotely before the pandemic represent only 18% of the Baby Boomers, 13% of Millennials, 9% of Gen Z, and only 8% of Gen Z.

Figure 21: Generational differences in remote work prior experience



We can observe a significant increase in remote work after the pandemic when looking for the same group of individuals. Through an ANOVA test, we can see that the intensity of days working remotely is dependent on the generation ($F(3, 422) = 4.15, p = 0.007$). Post hoc analysis shows that a significant difference between Gen Z and Gen X, and Millennials and Gen X. Gen Z (average = 3.52) and Millennials (average = 3.45) are reporting more days working remotely after the pandemic compared to Gen X (average = 2.59) (see figure 22).

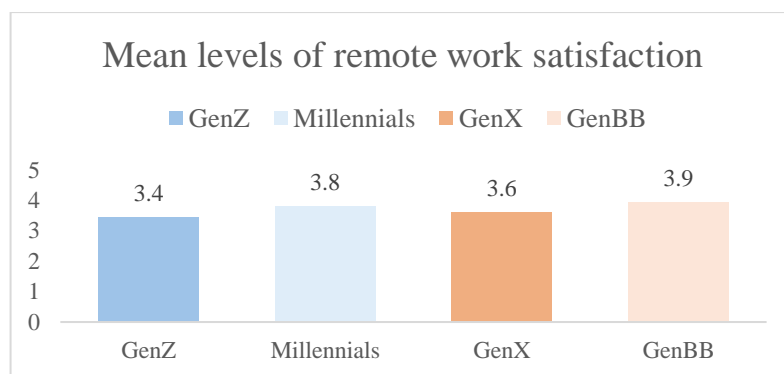
Figure 22: Generational differences in remote work intensity



The rapid transformation to virtual workplaces can generate more significant challenges inside organizations (Oksa et al. 2021). When looking at remote work satisfaction, social support, professional isolation, and autonomy, the current literature diverges about those specific topics related to generations during the pandemic. Some research shows that Millennials and Gen Z tend to adapt better to technology than older generations because they were born during digitalization. However, when it comes to crises situations, older generations have an advantage despite their beliefs in traditional conventions (Oksa et al. 2021).

The global research conducted by the Center for Generational Kinetics (2020) shows that Gen X and Millennials have a better experience working remotely. They communicate better and have a better experience trusting their co-workers and managers. The same research also showed that Gen Z, compared to the other four generations, is struggling more with remote working. When looking at our data of remote work satisfaction, the ANOVA test indicates that remote work is also dependent on generations ($F(3, 422) = 4.91, p = 0.002$). Post hoc analysis reveals that a significant difference between Gen Z and Millennials. Gen Z presents lower levels of satisfaction (average = 3.43) compared to Millennials (average = 3.81) (see figure 23).

Figure 23: Generational differences in remote work satisfaction



The recent study conducted by Microsoft (2021), the Microsoft 2021 Work Trend Index, also showed that Gen Z is struggling more than other generations with new work arrangements, mainly because they're now starting their careers. The absence of previous experience working inside companies results in difficulty creating networking, bringing new ideas, and getting the word during

meetings, resulting in higher levels of professional isolation. The Society for Human Resources Management (2020) highlights that the same way historical events as 11/09 impacted the Millennials, the Covid-19 pandemic is affecting Gen Z, and the impact is even more prominent as they are in formative years. In our survey, we were able to find that professional isolation is dependent on generation through an ANOVA test ($F(3, 406) = 7.31, p < 0.001$) (see figure 24). Our data shows, though a post hoc analysis, a found a significant difference between Gen Z and Millennials and Gen Z and Baby Boomers related to professional isolation. Gen Z reported the highest levels of perceived professional isolation (average = 3.00) compared to Millennials (average = 2.66) and Baby Boomers (average = 1.96). This indicates again that younger workers feel more the negative impact of remote working in activities that could enhance their careers, opportunities to be mentored, and social interaction levels with coworkers.

Regarding social support, according to Mariano et al. (2021), the balanced use of technology can be associated with higher levels of social support due to the possibility of technological tools corroborate with relationships through online interactions. For this reason, digital natives and generations born into technology can have an advantage. Before the pandemic, the research conducted by Vilas-Boas et al. (2017) identified significant differences regarding social support and generations. The study results show that younger generations tend to perceive higher social support levels than older generations. However, the study conducted by Shimura et al. (2021) during the pandemic showed no significant differences in social support and generation. An ANOVA test in our sample revealed a dependency on generation ($F(3, 422) = 5.21, p = 0.002$). Through a Post hoc analysis, we found a significant difference between Baby Boomers and Gen Z, Baby Boomers and Millennials and Baby Boomers and Gen X. In sum, we can conclude that Baby boobers are the ones that felt more the impact of remote work, presenting lower levels of social support (average = 2.37) in their social job resources compared to the other three generations (see figure 25).

Figure 24: Generational differences
in remote work professional isolation

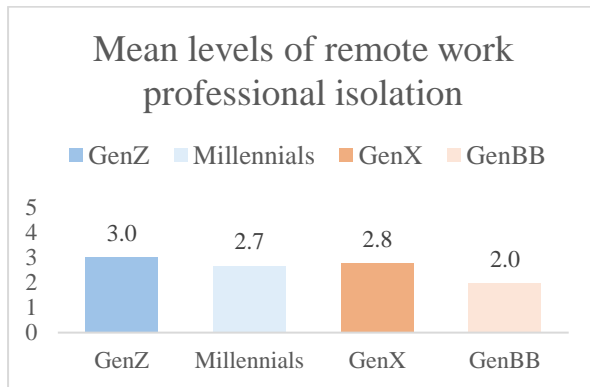
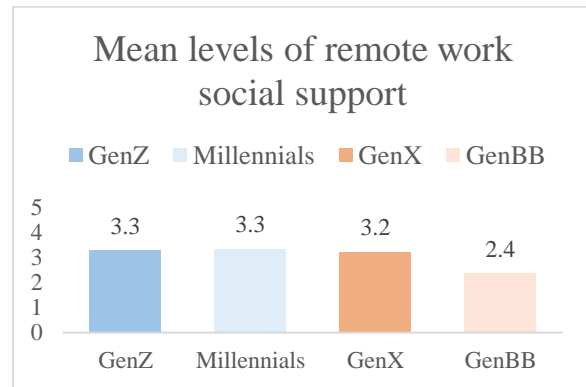


Figure 25: Generational differences
in remote work social support



As remote working can influence levels of perceived autonomy, the study conducted by Heyns & Kerr (2018) evaluated the levels of autonomy across generations. The results have shown that compared to other generations, Millennials reported a higher sense of autonomy. However, all four generations presented higher levels of perceived autonomy. In our sample, we were not able to find a dependency in autonomy on generations in remote working ($F(3, 422) = 1.68, p = 0.170$). All four generations presented higher levels of autonomy when working remotely (see appendix 1).

3.2 Technostress

As mentioned before, organizational demands to adapt to new technologies can lead to technostress if not well balanced (La Torre, De Leonardis, and Chiappetta 2020). The current literature about technostress and the relation with generations also diverge. Nimrod (2018) suggests that older individuals perceive more technostress because, unlike the digital generation of Gen Z and Millennials born into technology, older individuals introduced to the usage of technology at a later age, having more difficulty adapting to the use of ICTs (Nimrod, 2018).

In contrast to this research, the study conducted by Hauk, Göritz, and Stefan Krumm (2019) showed that older individuals perceive a lower level of technostress than younger coworkers. They suggest that older individuals tend to have less maladaptive behaviors toward technology when experiencing stress. Ragu-Nathan (2008) also found higher technostress levels in younger users than old coworkers. Oksa et al. (2021) emphasize that despite some studies are showing that young

generations have a positive attitude toward technology, the increasing usage of ICTs is destroying the barriers between work and non-work activities. Thus, individuals work overtime, negatively impacting organizational satisfaction and productivity.

In our study, using a ANOVA test, we were able to find a dependency of techno-invasion on generation ($F(3, 441) = 3.08, p = 0.028$), however no dependency regarding on techno-overload and generation was found ($F(3, 440) = 1.62, p = 0.184$) (see figure 26). The Post hoc analysis shows a significant difference between Gen Z and Baby Boomers regarding techno-invasion (see figure 27). Baby Boomers tend to disagree that they are having an impact due to the usage of ICTs (average = 1.9). In contrast, the younger generation Gen Z tend to feel more the impact of techno-invasion (average = 4.0).

Figure 26: Generational differences in Techno-Overload

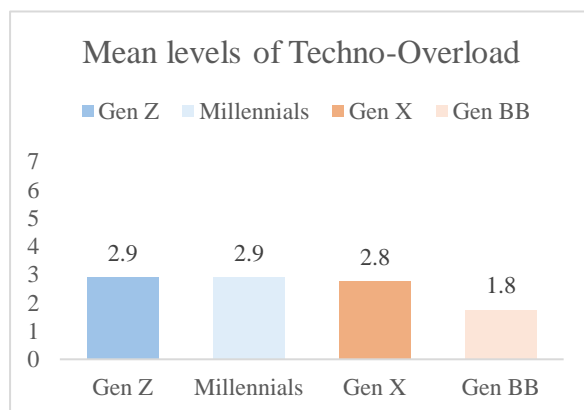
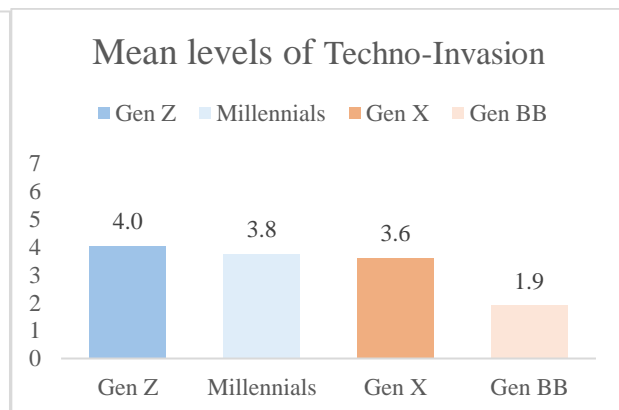


Figure 27: Generational differences in Techno-Invasion



3.3 Well-being

As described in chapter 1, some specific characteristics can be found in each generation. According to the literature, Millennials tend to prefer to work in meaningful jobs. Gen Z wants to find opportunities with social impact, Gen X seeks work-life balance, and Baby Boomers prefer to look for opportunities and achieve goals.

Meaning of work is one of the main characteristics associated with well-being. The recent survey conducted by Korolevich (2021) showed that Gen Z is the generation facing more work-life balance problems, followed by Baby Boomers. The study also showed lower levels of finding the

meaning of work in both generations. In contrast, Millennials are the most fulfilled with their work, and 60% of the participants affirm that they could find meaning and purpose in their jobs. The research conducted by Magni & Manzoni (2020) also showed that Millennials tend to expect more regarding the meaning of work from their jobs compared to other generations.

In our data, using an ANOVA test, we were able to find a dependency of the meaning of work on generation ($F(3, 441) = 4.35, p = 0.005$). A significant difference between Gen Z and Millennials was found through a Post hoc analysis. Millennials tend to present higher work meaning levels (average = 3.78) than Gen Z (average = 3.47) (see figure 28).

Other characteristics, such as procrastination, can also influence the well-being of employees (Yang, 2021). The research conducted by Beutel et al. (2016) revealed that higher levels of procrastination were found across the younger generation (between 14 and 29 years old) and declining compared to the old ones. In our data, through an ANOVA test, we were able to find a dependency of procrastination on generation ($F(3, 174) = 4.51, p = 0.004$). The Post hoc analysis shows a significant difference between Gen Z and Gen X, and Gen Z and Baby Boomers. In accordance with the research conducted by Beutel et al. (2016), the youngest generation presents higher levels of procrastination compared to the oldest generations (see figure 29).

Figure 28: Generational differences in meaning of work

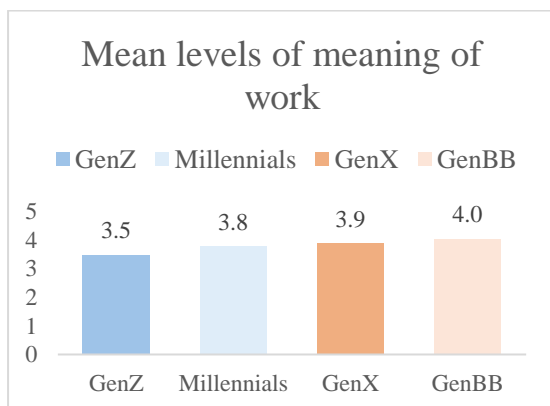
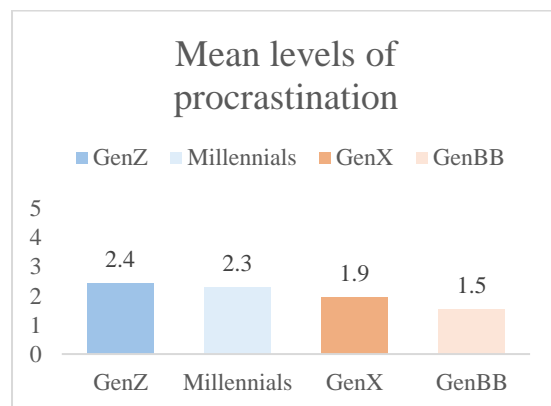


Figure 29: Generational differences in procrastination



The following paper will focus on the impact of remote work, technostress, well-being in the third individual sub-group of our sample: industries.

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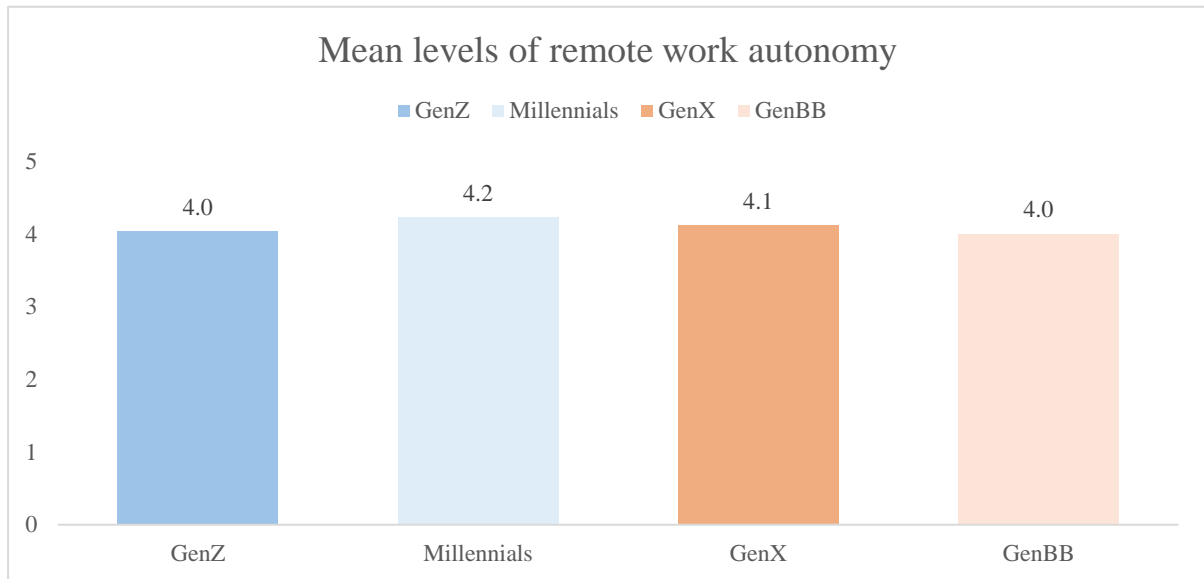
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5. Appendix

Appendix 1: Generational differences in remote work autonomy



A Work Project, presented as part of the requirements for the Award of a Master's degree in
Management from the Nova School of Business and Economics.

Remote Working, Technostress and Well-being during Covid-19 - An Industry Perspective

ERTUGRUL DUBAN

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Joint project in collaboration with Janine Joya Fuchs and Rafaela Lawisch Sampaio

17-12-2021

Abstract

The global Covid-19 pandemic has impacted remote work practices substantially. This had direct implications on the perception of technostress and well-being. To better understand the drivers and interplay of remote work satisfaction, technostress, and well-being, we deployed a survey across three distinct points of time. The JDR-Model was applied as a theoretical framework. Particular focus is laid on measuring the impact of occupations. Our results show a clear favour for remote work in the quaternary industry. The intensity of remote work and social support were significantly higher as well. The perceived level of techno-overload increased with the respective economic sector. Employee well-being had no relationship with industry affiliation.

Keywords: (Remote Work, Technostress, Employee Well-Being, JDR-Model, Covid-19 Pandemic, Industries)

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1. Theoretical Foundation and Relevance of Industry-specific Analysis

In the following section, the subjects remote-work, technostress, and well-being are considered through the lens of specific sectors. To perform this analysis, the survey asked for the present active industry of each participant. Subsequently, the answers were aggregated into economic sectors based on the three-sector model of (Fisher 1939) to allow for broader and more accurate conclusions. Afterward, the single results considering contextual factors like Gender, Generations, and Industries will be merged and compared to draw precise practical implications.

As highlighted in the report's theoretical framework, contextual variables play a significant role in the experience of telework, technostress, and well-being. Frequently current literature pointed out the lack of cross-industry analysis and highlighted the need for it (Atanasoff and Venable 2017; Belzunegui-Eraso and Erro-Garcés 2020; Taser et al. 2021). Especially since the global pandemic has had a different impact on the various sectors, a sector-specific view of the survey results is necessary (European Commission 2021; Demirgüç-Kunt, Pedraza, and Ruiz-Ortega 2021). Beyond that, the technological transformation in the 21st century created an unprecedented sector: The information and knowledge-based sector, which is estimated to rapidly grow in the future and is built upon the usage and implementation of ICTs (Selstad 1990). Comparing this sector with more traditional industries might allow mutual learning and lead to the adoption of best practices.

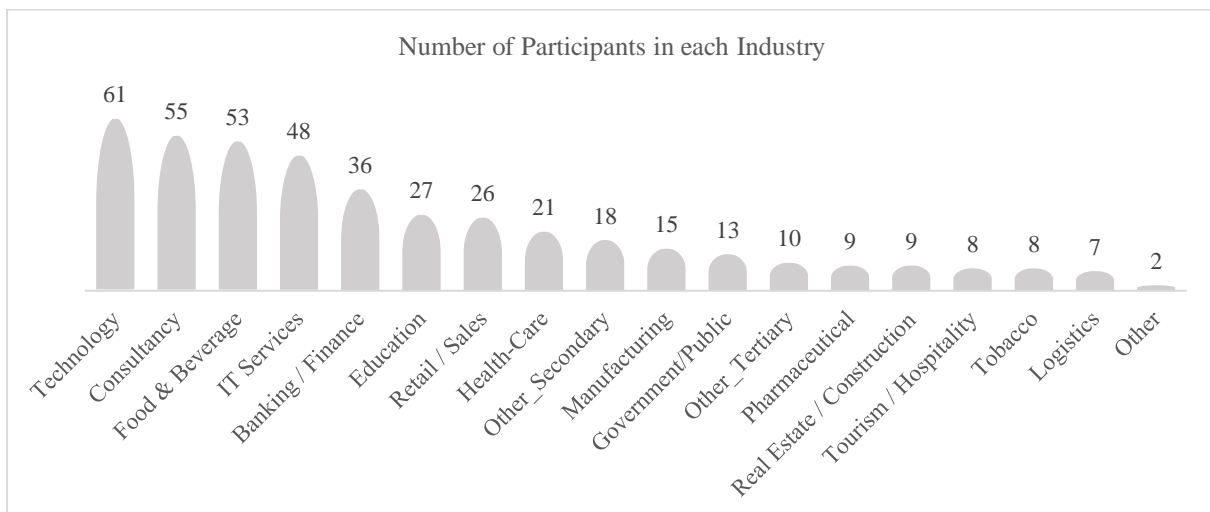
As previously mentioned, the three-sector model (Fisher 1939), is the basis of the following cross-sector analysis. The model divides each economic activity into specific sectors. Activities in the primary sector are concerned with exploiting natural resources like farming, mining, or forestry (Wolfe 1955). However, as the primary sector experienced a major downfall through the post-industrial economic transition, it will not be part of the analysis. The World Bank national account data shows that the sector in 2020 merely accounts for 1.66% of the GDP in the European Union (The World Bank 2020). This is reflected in our sample as well. Due to the low percentage of the workforce in the primary sector, drawing precise conclusions is greatly limited. The secondary sector builds on the activities of the primary sector and mainly involves the further processing of the resources resulting from the

primary sector. Thus, the second sector is associated with producing and manufacturing goods. Industries belonging to the secondary sector are e.g., car manufacturing, chemicals, or food and beverages (Kenessey 1987). Activities in the tertiary sector mainly concern recurring services to individuals and organizations (e.g. logistics, insurance, healthcare, and leisure) (Wolfe 1955; Kenessey 1987). The last sector covered in the analysis is the quaternary sector linked to knowledge or information-based activities such as IT services, design, and artwork, or academic research. The main distinction to the tertiary sector originates from the intellectual rather than repetitive activities and the need for a highly-skilled, innovative, and qualified workforce. Furthermore, it is particularly noteworthy that the quaternary sector is associated with a robust implementation of technologies and thus has particular relevance for the research of techno-related stress (Van Weert 2005).

2. Descriptive Analysis and Study Results for Remote Work, Technostress, and Well-Being

Based on the questionnaire, 15 independent industries were identified. Figure 30 highlights the number of participants for each of the industries. Occupations outside the response options were collected as *others* and assigned to the according economic sector.

Figure 30: Number of Participants according to industry allegiance



It is evident that many industries are only represented by a small number of affiliates. To counteract the possibility of incorrect conclusions from the limited number of participants, the various industries were

aggregated into economic sectors. The aggregation of the industries and participants accounting for each sector are displayed in Appendix 1 and 2.

2.1 Previous Remote Work Experience

Figure 31: Remote work experience across sectors

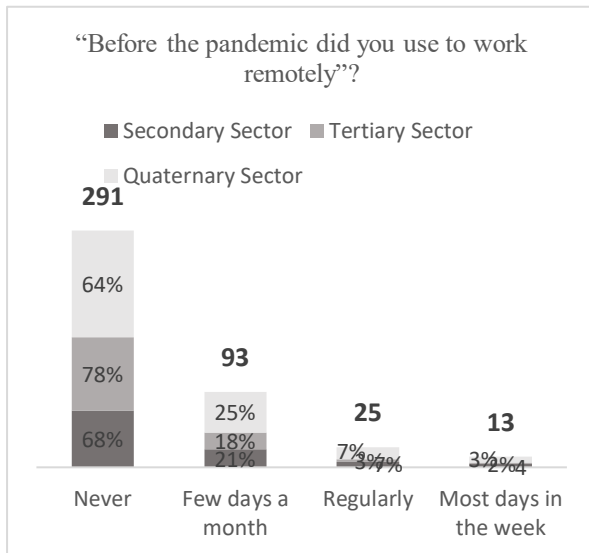


Figure 31 indicates that the practice of remote work prior to the pandemic did not differ significantly between the sectors $X^2(8, N=423) = 8.43, p = .39$. Only a modest number of employees regularly (25) or most days in the week (13) worked outside the office. Even in the quaternary sector, where ICTs are seen as part of everyday work, 64% never worked remotely and 25% only

a few days a month. It was often argued that remote working is technically not feasible as a working arrangement in the past. However, our results illustrate that even in a prominent sector for technology and innovation, telework was not common for our sample. For this reason, we find that the cause for the identically low practice of remote work across sectors pre-covid demonstrates a general uncertainty towards the working method. Indeed, this is in accordance with multiple studies in the past. The society of human resources and WorldatWork conducted several surveys regarding the matter. The latter indicated that teleworking models mainly occur on an ad-hoc basis (83% of participants) (Society for Human Resources Management 2014). Moreover, the results could support the claim that seniority and role in the organization rather predict remote work practice as senior staff is presumed to be more resource-sensitive and productive (Desilver 2020).

2.2 Remote Work Intensity

Figure 32: Remote work intensity across sectors.



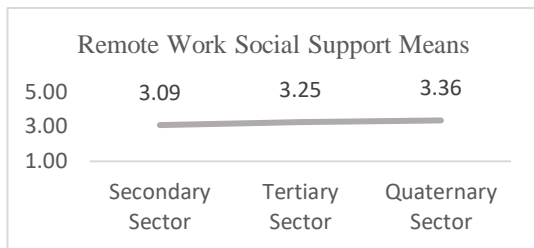
Figure 32 illustrates the adoption of remote work models during the Covid-19 pandemic. The pandemic enforced an abrupt lockdown resulting in new work arrangements for employees and employers (Belzunegui-Eraso and Erro-Garcés 2020). Our study reveal that the implementation of remote work significantly differs per subsample $X^2(8, N=423) = 51.91, p < .001$. The disparities are especially distinct at the extremes.

The secondary sector worked the least remotely, followed by the tertiary industry. In contrast, more than half (51%) of the workforce in the quaternary sector worked the full week outside the office, and merely 9% worked a single day from home. In accordance with a recent McKinsey report (2020) the potential for remote work is rather dictated by tasks and activities than occupation. Physical activities requiring heavy machinery cannot be exercised remotely, while teaching or coding can be performed everywhere. This justifies the varying telework intensities across sectors. Even though some industries are more feasible for flexible work, the specific activity in each case determines the adoption of remote working during the pandemic.

2.3 Remote Work Social Support

In Figure 33, the received social support across industries was measured. Statistical ANOVA means comparison illustrated that the level of social support is dependent on the sector ($F(2,422) = 3.93, p > .05$). Post-hoc testing allowed for detailed insights on the differences. Results showed that the secondary sector (average = 3.06) perceived significantly less social support during the Covid-19 pandemic than the quaternary sector (average = 3.36).

Figure 33: Remote work social support across sectors

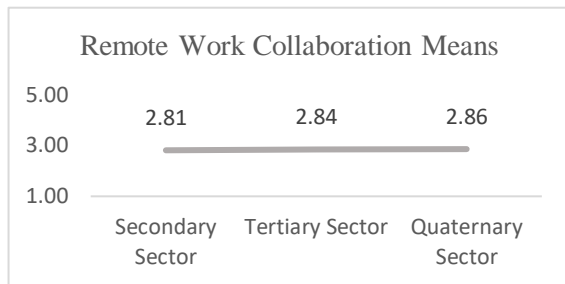


Literature repeatedly highlighted the importance of social support as a job resource to lower job demands (Golden et al. 2008; Galanti et al. 2021). Especially considering the forced shutdown and as a result

decreased social interactions (Wang et al. 2021). As seen in Figure 33, social support was the lowest in the production sector and the highest for the quaternary sector. To assess potential causes of the differences, it is important to consider sectoral characteristics and the sectoral impacts of the Covid-19 crisis. The Covid 19 impact assessment by the European Commission (2021) on the different sectors showed that the information sector was the least affected (less than -10%). In contrast, the secondary and tertiary sector underwent major turmoil (-15% and -19%). Causing increased focus of resources towards continuing operations and cutting costs. Therefore, having limited capabilities for providing the necessary organizational social support for employees. The speed of change in the business environment has led to increased job demands (longer working hours, stress and uncertainty, unknown working methods) without providing the necessary resources for successful remote working (corporate coaching/events, supervisor support) (Accenture 2020). Further, digital exclusion is a crucial driver of social isolation. The information sector, which is accustomed to a digital environment, adapted more effectively and efficiently to the new virtual circumstances. Initially, virtual social events like online lunches, virtual coffee breaks and digital after-work get-togethers were introduced in the industries closely linked to the information/knowledge sector, reducing social isolation (Savage 2021).

2.4 Professional Isolation

Figure 34: Professional isolation across sectors

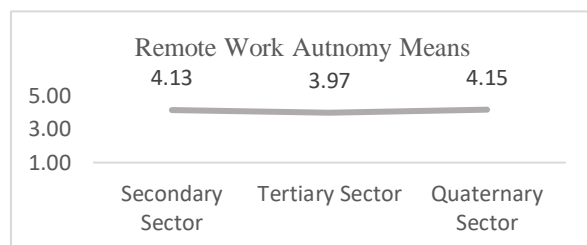


In addition to social support, professional isolation was measured across the sectors. Contrary to social support, results demonstrate collaboration is not dependant on occupation ($F(2,406) = 0.80, p > .05$).

A possible explanation for the result can be the sudden shift towards the new working model across every sector. Even though organizational characteristics such as ICT familiarity, IT-infrastructure were different, the reduction in informal and emotional support by colleagues were similar across industries. Underlining that the rapid transition towards remote working posed a job demand for most of the workforce rather than a job resource. While the quaternary sector established greater social support than the other sectors, professional isolation was still similar across occupations.

2.5 Remote Work Autonomy

Figure 35: Remote work autonomy means across sectors



As recent literature emphasized the importance of autonomy as a job resource to counteract demands occurring from the immediate shift to remote working (Bakker & Demerouti, 2017), we

measured which sectors had the greatest work autonomy. Our results show that the level of perceived job autonomy is not dependent on occupation ($F(2,422) = 1.918, p > .05$). This is contrary to many studies that suggest that job autonomy depends on work routine, creativity, or complexity of performed tasks (Liu, Feils, and Scholnick 2011; Costinot, Oldenski, and Rauch 2011). The authors mention the importance of tacit knowledge for various job tasks, which require adequate employee freedom. Initially, this may lead to the assumption that the quaternary sector would grant the greatest autonomy to the workforce due to the non-routineness and uniqueness in the field of activities. However, Vuong

et al. (2021) accentuated the importance of external environments and uncertainty on organizational processes and job tasks. Our results demonstrate that high levels of autonomy were granted across sectors in light of the pandemic. This may be based on an organizational shift to reduce strain through stiff structures and procedures. Although this might be the case for some industries, it is less likely regarding the great economic downturn. Rather, the possibility of working without the supervisor being present, taking independent breaks, or settling chores at home explains the similarly high perception of job autonomy while working remotely (Savage 2021).

2.6 Remote Work Satisfaction

Figure 36: Remote work satisfaction across sectors

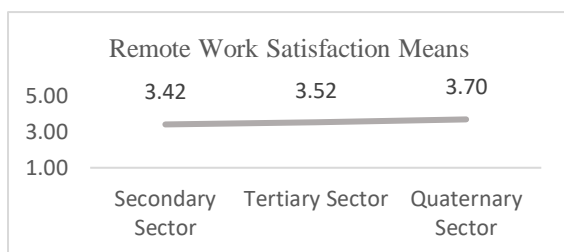


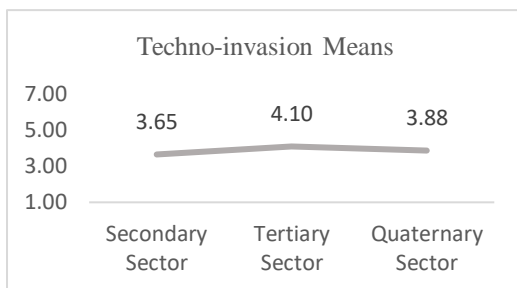
Figure 36 shows the mean level of remote work satisfaction across the three sectors. Statistical testing through an ANOVA ($F(2,422) = 3.21, p < .05$) indicates significant dependence of the sector on

remote work satisfaction. Post-hoc analysis reveals that employees in the secondary sector are on average, (average = 3.42) less satisfied with remote work than employees in the information sector (average = 3.70). A possible explanation for this finding is the sectorial characteristics and culture towards ICTs. It can be argued that the quaternary sector is more satisfied with remote work as it does pose a lesser job demand due to the technology affinity and familiarity of employees in that sector (Tarafdar 2007). A recent study by Gartner (2020) states that 54% of the interviewed HR personal think that infrastructure for remote working was poor during the shift to remote work. Moreover, the workforce of the quaternary sector is alleged to be highly skilled, which reduces the experience of perceiving remote work as a job demand since new IT-related skills can be acquired quicker. Lastly, social support experience is critical for satisfaction with remote work models. Bivariate correlation proofs significant positive linkages between social support and remote work satisfaction ($r = .310; p > .001$). That partly explains the different attitudes towards telework as social support was most intensely

performed in the quaternary sector. In a nutshell, we believe that the sudden shift towards the new work arrangements posed an initial increase in job demands (New technology, work-family conflict, professional isolation). To a greater extent for industries with poor IT infrastructure and familiarity. To counteract, organizations introduced social support measures. These again impacted the remote working satisfaction which was greatest for sectors with the highest social support structures.

2.7 Techno-Invasion

Figure 37: Techno-invasion across sectors

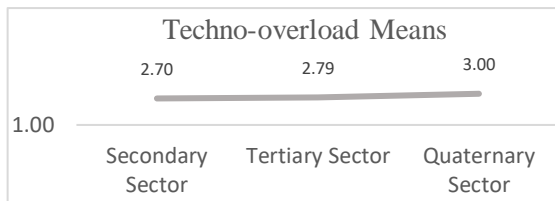


To measure the technostress experiences across sectors, the report considers techno-invasion and techno-overload. Means for techno-invasion are compared through statistical ANOVA testing and included in

Figure 37. Despite some divergence in the means, results show that techno-invasion is not dependent on occupation ($F(2,244) = 1.56, p > .05$). In their paper, Galanti et al. (2020) discovered the effects of the Covid-19 pandemic on productivity and stress the crucial importance of a structured and supported transition towards new communication technologies to limit technostress. Despite some industries being more familiar and educated with ICTs, the unexpected and rapid change towards a virtual working environment was the same for every sector, presumed activities could be performed from home. With the shutdown of the entire social life, work relocated inside the own four walls. Invading privacy and family to a similar extent across industries. Interestingly, no major differences in techno-invasion for the quaternary sector was found. Surely, ICT usage is highest in the sector but apparently, the rapidity of the transition offsets sector specific job resources.

2.8 Techno-Overload

Figure 38: Techno-overload means across sectors

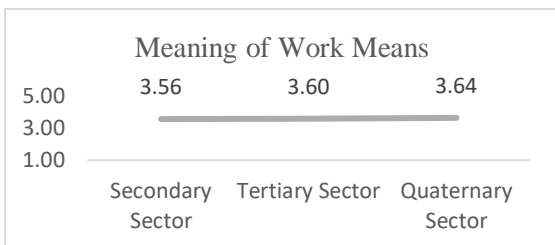


In contrast, the results for techno-overload showed more explicit differences between the subgroups, although ANOVA test indicates that the level of

techno-overload is not dependent on the sector ($F(2,243) = 2.41, p > .05$). One might argue that especially employees working in an environment with various ICTs are experiencing techno-overload to a greater extent. However, they also possess more unique job resources mitigating the strain. Knowledge workers are primarily well trained in computer knowledge and are accustomed to rapid technology changes. However, literature regarding IS professionals states that in a technology-dominated environment, the necessity to adopt quickly to changing technologies, complex user demands, and short deadlines influence work overload, which is directly associated with techno-overload. Moreover, the quaternary sector is linked to job tasks without set routines. In a remote environment, that may lead to longer working hours and therefore increased techno-overload.

2.9 Meaning of Work

Figure 39: Meaning of work means across sectors



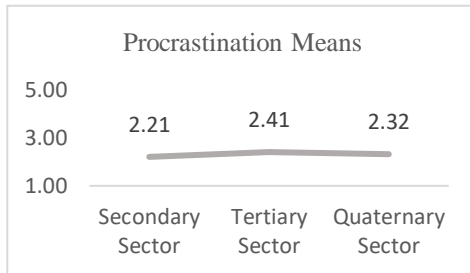
Results indicate that the level of perceived meaning of work is not dependent on the subsample ($F(2,244) = .22, p > .05$). Means for the sectors are illustrated in

Figure 39. In literature, the meaning of work is usually orchestrated through four sources: the self, relations outside and inside work, conduction of work, and spirituality. As the self, others, and religiosity depend greatly on personal characteristics, circumstances, and traits, results appear to not be influenced by occupation (Rosso, Dekas, and Wrzesniewski 2010). Merely the work context enables possibilities to display different levels of work meaning. Especially the design of job-related tasks like job flexibility and autonomy is a crucial driver of the sense of work (Fried and Ferris 1987). Results of our survey indicate considerably high means for the latter. Thus, we tested the possible relationship between job autonomy and meaning of work ($r=0.21, p > .001$) demonstrating a significant correlation between both

variables. The discrepancy of differences about the meaning of work indeed might stem from the fact that this measure is too individual. However, the sudden shift to remote work which facilitated for greater job autonomy might have equalised prior variances.

2.10 Procrastination

Figure 40: Procrastination means across sectors



The second measure of well-being, procrastination, demonstrates no dependence on the sector ($F(2,177) = .93$, $p > .05$). Figure 40 shows similar moderate means across sectors. As with the variable meaning of work,

procrastination is a phenomenon largely determined by several individual factors and circumstances. A variety of researchers indicated differences in procrastination based on occupation (Barrick, Mount, and Li 2013; Ryan and Deci 2000). Mainly the screening and interview process of potential applicants whereby it is attempted to sort out less motivated candidates and supervise or create routines for employees to not create any possibilities for procrastination (Duru and Balkis 2017). To a certain degree, the latter might explain the greater means for the tertiary and quaternary sector compared to the secondary sector.

As we have now considered the topics of remote work, technostress, and well-being through the lens of gender, generations, and industries, we will merge our results to draw practical implications. The next chapter will focus on managerial recommendations to increase remote work satisfaction and well-being while reducing technostress.

7. Recommendations

The results of our previously discussed sample responses lay the foundation to prioritize recommendations. Our sample has high levels of procrastination as they tend to procrastinate "half of the time" (see fig. 10) and also indicate only to receive social support "some of the time". (see fig. 6) and feel professionally isolated (see fig. 5) "some of the time". These findings indicate that

recommendations should firstly focus on reducing procrastination and professional isolation, as well as increasing the levels of social support. Thus, these three variables represent “first-tier” recommendations.

The results from our overall sample show contrast in the perceived amount of both techno-invasion and techno overload, as some participants feel high levels of technostress while others feel lower levels. Due to these contrasting answers, an average that indicates a "neutral" response towards techno invasion (see fig. 7) and -overload (see fig. 8) is inherently created. However, recommendations on reducing levels of technostress are needed for participants who indicated higher levels of such. Seeing that a large part of the sample isn't experiencing technostress, the recommendations for techno-invasion and overload have a secondary priority. Thus, techno-invasion and techno-overload represent "second-tier" recommendations.

Our sample shows overall high levels of remote work satisfaction (see fig. 3), meaning of work (see fig. 9), and job autonomy (see fig. 4), which indicates a lower need for recommendations. Even though there is always room for improvement, recommendations should prioritize more pressing issues of level of procrastination, social support, and professional isolation. Due to this, remote work satisfaction, meaning of work, and job autonomy represent the "third-tier."

7.1 First-Tier Recommendations

7.1.1 Procrastination

Procrastination is a moderate issue in our sample, and, on average, participants tend to procrastinate between "some of the time" and "half of the time." Looking at the three sub-set samples, significant differences in procrastination were found between generations. There is a significant difference between Gen Z and Gen X and Gen Z and Baby Boomers. The youngest generation presents higher levels of procrastination compared to the oldest generations. The analysis on gender and industries did not yield any significant differences. According to our model, procrastination negatively correlates to social support and the meaning of work and positively correlates with professional isolation

and techno-invasion. Thus, decreasing the levels of procrastination may positively impact employees' remote work experience, levels of technostress, and well-being.

Seeing that procrastination correlates with professional isolation, it is to be expected that similar recommendations may apply. If managers create a career plan with their employees and discuss progress steps and possible obstacles weekly, it could motivate employees to stay diligent and procrastinate less. With a set action plan and concrete goals, employees are able to see which impact their work in the present moment can have for their next steps, which may increase their work meaning. This can be extremely important for the younger generation, which is now entering the market and presents higher levels of procrastination. Managers can also implement an accountability partner program within their teams, in which employees who actively want to procrastinate less are paired together, set goals for themselves on a daily basis, and regularly check in with each other. Employees will partially have to take over the responsibility of reducing their procrastination if companies choose not to monitor them constantly, and therefore granting more autonomy. However, managers should equip their employees with the right tools to achieve their desired results.

On an individual level, employees should first define boundaries by creating a designated space in their own home to work in to minimize disruptions and maximize concentration levels. When working on a project, managers should help team members set intermediate milestones and deadlines so that employees know where to start and do not enter a state of avoidance due to a lack of clarity and accountability. Employees should also be aware of their productivity cycles and take advantage of them. For instance, if individuals know that they have greater concentration in the morning, they should start with more complex tasks early. Lastly, managers should inform employees on productivity practices such as the "Pomodoro technique" where workers alternate between scheduled working and resting periods.

7.1.2 Professional Isolation

Due to the sudden shift to remote working and no in-person contact, informal and face-to-face conversations have naturally been reduced, implications for collaboration and perceived professional isolation. Through our analysis, significant gender and generational differences were found in terms of professional isolation. Looking at gender, women were more likely to feel they were missing employee support and face-to-face contact and opportunities to be mentored and be in the loop compared to men. In terms of generations, younger individuals, especially Gen Z, struggle more to adapt to professional isolation. Our general sample shows a medium degree of professional isolation, as the sample perceives it "some of the time."

However, this leaves room for improvement as professional isolation is negatively correlated to social support, remote work satisfaction, and techno- overload, techno- invasion, and procrastination, as seen in our model (see fig. 11). Due to its strong influence on other factors contributing to remote work experiences, technostress, and well-being, the level of professional isolation should be reduced. Farrer (2019) suggests three perspectives that need to be considered to combat professional isolation: resource isolation, opportunity isolation, and development isolation. Resource isolation refers to the overwhelming experience workers may have when they need to find resources virtually, such as a work form or contact, alone in-home office (Farrer, 2019). Firstly, companies could implement cloud-based software for all documents and collaboration tools to ensure that all employees have equal access to resources. However, adequate onboardings on how to efficiently use the software need to be carried out so that employees know how to help themselves, influencing their sense of autonomy and ability to collaborate.

Opportunity isolation embodies the saying "out of sight out of mind," as the lack of visibility and informal conversations in remote work may allow employees to be overlooked for assignments or opportunities (Farrer, 2019). In a remote work setting, managers need to shift their views of productivity measurement since they can't always "see" the work which is being done. Productivity, and therefore means for promotions and opportunities, needs to be tracked using more tangible measurements. Using

KPIs to measure if individual performances are effectively meeting the objectives proposed by the organization and feedback to help employees grow professionally and raise the standard of service quality can also combat opportunity isolation. In line with this recommendation, creating a "career plan" with employees may also help to reduce missed opportunities. Everyone should fill out a form with predefined questions such as "where do you see yourself in 1 year" "what skills do you want to learn", "how do you envision your next steps to get there". Using weekly One on One meetings, this data will serve as the foundation for managers to track progress, support their employees in defining and reaching their goals, as well as increase employees' recognition. Career plans could be especially useful for employees feeling a higher level of professional isolation as a set plan gives an individual more accountability and managers more transparency when it comes to career goals. According to our data, this recommendation is especially useful for females and Gen Z as they are more vulnerable to professional isolation.

Lastly, development isolation needs to be considered to ensure that employees are equally mentored and engaged in the workforce (Farrer, 2019). Building a network is a crucial element of reducing professional isolation since the observation of strategies and success from others may allow inspiration for individual growth. Thus, along with company culture, management should encourage and facilitate building employees' individual networks. This can, for instance, be achieved by implementing "roulette coffee chats" where employees are randomly paired, and each individual is sent the name of the other. Employees need to actively contact each other, meaning they may choose to participate or not. This would give employees the opportunity to network outside their own circle, widening their perspectives. In addition to this, monthly town hall meetings where employees can connect with each other and discuss company strategy, vision, and next steps with higher superiors can be used to improve development opportunities. On a more individual level, mentoring systems provide less experienced or underrepresented employees with valuable insights and guidance, which may help them achieve their career aspirations. Since our data show that women are more likely to feel professionally isolated

compared to men, companies should initiate a “women in leadership” mentoring program, acting as a catalyst to women’s networks and empowering them to widen their access to knowledge and support.

7.1.3 Remote Work Social Support

As mentioned in chapter 3.3, social support is an essential resource during remote working to avoid loneliness, as social support can increase online social interaction and fulfill belonging needs. Also, a fundamental job resource to accomplish tasks during remote working (Wang et al., 2021). Our data show significant differences regarding social support in industries and generations. In industries, we found a substantial difference between the Secondary and Quaternary sectors, being the Quaternary sector the one that is receiving higher levels of social support. When compared to the other three generations, Baby Boomer are receiving lower social support. Our model shows that social support correlates positively with the meaning of work and negatively correlates with techno-invasion, professional isolation, and procrastination.

Social support is a powerful resource when working remotely. Aspects of the workplace need to assist social connections between employees and lead to a better remote working experience. Companies can promote time for social activities while working remotely through online team buildings, increasing the feeling of belonging and trust between colleagues. Also, virtual coffee dates and weekly icebreaker meetings can be implemented. It is an opportunity for chatting between colleagues to create engagement and restore energy inside the team. In remote working, actively celebrating colleagues' accomplishments became extremely important. It is a chance for team members to recognize their co-workers, socialize, and get to know each other, creating a feeling of connection. Buddy systems for new employees inspire a friendly work environment and employee engagement for new and old employees. This can be a specific recommendation for Baby Boomers. It is a chance for them to be buddies of new employees and share their experience and knowledge about the organization. For the industries, we recommend laying a specific focus on digital inclusion. Further, companies need to assess macroeconomic risk factors more precisely to combat any sector-specific turmoil, as we have seen

during the pandemic. Finally, it is essential to highlight that organizational culture also plays a crucial role in facilitating a positive and friendly work environment. The encouragement of communication and social support inspires and motivates co-workers to work together for a mutual purpose.

7.2 Second-Tier Recommendations

7.2.1 Technostress

As mentioned in chapter 4.3, the use of ICTs accelerated through the shift to remote work, potentially blurring the lines between work and non-working activities. Looking at techno-invasion, significant differences were identified between generations, while the subsamples of gender and industries showed no differentiation. In generations, a significant difference between Gen Z and Baby Boomers. Gen Z perceives higher levels of techno-invasion. Our model (see fig. 11) shows that techno-invasion negatively correlates with social support and positively correlates with professional isolation, procrastination, and techno-overload. Techno-overload showed no significant difference in the subsamples gender, generation, or industries. However, a trend of increased techno-overload with each economic sector could be observed. According to our model (see fig. 11), techno-overload negatively correlates to meaning of work and positively correlates to professional isolation, remote work intensity, and techno-invasion. Seeing that techno-invasion and techno-overload have significant overlapping relationships with other variables and influence each other, recommendations on reducing technostress overall may be more efficient.

In order to reduce technostress in the workplace, managers should first educate their employees on what technostress is and how they can identify the negative impacts of technostress. With this awareness, employees are able to take immediate action and seek help before more serious consequences unfold. In order to not be overwhelmed by too much information at once, employees can filter their emails so that the ones which require an immediate response are displayed at the top of the mailbox. Employees can also block incoming messages for a specific time if they know they require total concentration in a task. Technostress may also result from a poor work-life culture, where employees feel that they are not allowed to “unplug”. Thus, managers should continuously encourage employees to set boundaries

or online and offline from work. Employees' screen time could be tracked, and a reminder to "unplug" can be sent once employees exceed a certain guideline. On an even higher level, governmental legislation may help to improve technostress by following Portugal's recent law, which states that companies will be fined if employees are contacted outside of their normal working hours (Minder, 2021). Using such legislation would help enforce a more effective safety culture within a company and avoid unfair advantages for workers who may still choose to stay "connected".

7.3 Third-Tier Recommendation

7.3.1 Remote Work Autonomy

Our survey results indicated the strongest relationship between remote work autonomy and satisfaction. Even though the subsample analysis did not present any differences between gender, generation, and sector, a general recommendation to increase or keep the autonomy at a sufficiently high level is essential to continue to ensure a positive outlook towards working remotely. Here, the corporate culture is, particularly in demand. If strict task supervision is part of the daily work, it should be questioned whether other mechanisms can be introduced that promote greater autonomy for the employee. The first element in increasing autonomy and reducing supervision is handing over greater trust to your workforce. Past studies revealed the immediate effect of trust on employee self-efficacy, which is necessary to accomplish tasks at an above-average level. It enables personnel to improve their individual belief about their abilities to accomplish specific duties. As this belief is significantly related to job performance, trusting your employees and enabling them to experience independent success can lead to enhanced performance and thus boost remote working experience (Varshney and Varshney 2017). The emphasis should be on results and not on the underlying process. Leaving control of the working process to the employees increases autonomy. The leadership understanding of managers must focus on supporting rather than controlling the work. Especially micro-managing employees can lead to remote work exhaustion and decreased job commitment.

7.3.2 Remote Work Satisfaction

Remote work satisfaction significantly affects productivity, performance, and ultimately job satisfaction. Due to the continuous implementation of the working model during Covid-19 and with great certainty beyond, it is of utmost importance to understanding effective telework drivers. Our results showcase varying remote work satisfaction for generations and industries. Generation Z tends to be less satisfied with remote working than older generations. This might be due to the greater experience of decreased social support and professional isolation as employees of Gen Z had to start their careers in a remote setup with limited chances to embed into the organization. Further, our results made differences between occupations apparent. The secondary sector might have lacked critical job resources, which were more common in the quaternary sector. Regardless of the many possibilities of why subgroup differences exist, it is clear that different people have different job resources.

Therefore, highlighting the need for more customized remote work arrangements. In line with that, we see transparency and communication as the pillar for effective telework models. As our survey demonstrated, it seems like there is no one fits them all solution to provide successful remote work. As a result, companies need to listen carefully to their employees' concerns and doubts and integrate them into their decision-making process. One example of this is that companies can conduct surveys on various matters such as remote work setup models or remote work activities. In addition, certain decisions should be left to the employees themselves. How often one can work from home or when one starts working is highly dependent on multiple individual factors. That's why giving the decision autonomy to the workforce while setting up a general framework can significantly increase remote work satisfaction. Moreover, in an uncertain environment, a clear vision from upper management regarding future work models is crucial. While reducing insecurity gives employees a clear idea of what will happen and provides room for adjustments. By doing so, the general anxiety towards change can be reduced, and training or coaching becomes more effective. Finally, we believe a platform where concerns but also ideas regarding improvements of remote working are shared can increase satisfaction. Firstly, it gives the opportunity to stay connected in a disconnected environment, and secondly, it helps

to put troubles into perspective. Often the impression of not being alone and being aware of the issues colleagues are facing can reduce one self's strain and reduce the job demands arising through telework. In view of the sectoral differences in remote work satisfaction, it is certainly also crucial to provide employees with tailor-made training on the use of new ICTs. On the other hand, employees beginning their careers in a remote setup should gain particular attention. Career days, mentorships, and regular virtual gatherings can help in changing the attitudes for the better.

7.3.3 Meaning of Work

Meaning of work is one element presented in the model of well-being and guides individuals to find purpose in their actions. It also gives a feeling that your job is essential to making a difference at the workplace. Our data show high levels of meaning of work, and a significant difference in subsample generation was found. The younger generation, Gen Z, tend to present lower meaning levels at work than Millennials. Our model also shows a negative correlation between the meaning of work and procrastination.

Meaning of work is a crucial feeling for individuals. Thus, companies need to be in line with their employees' purpose. The communication of the company goal is essential to build trust and give a sense of belonging. Also, they should encourage employees to use their skills and have autonomy on the job, increasing their motivation and sense of being part of something bigger. As previously mentioned, social support has a positive correlation with meaning of work, so a friendly environment where employees can inspire each other is also vital for organizations.

8. Limitations and future research

Several limitations need to be acknowledged throughout this paper. Firstly, our sample lacked representativeness in certain sub-groups. Looking at generations, the Baby Boomer subgroup is merely represented by three individuals in the third survey, firstly making it harder to find significant differences and secondly making findings less meaningful. In the case of gender, the sub-group "diverse" had to be excluded from analysis entirely due to its lack of representation with only one

member. In the future, audiences from different sub-groups should be targeted directly as participants in order to ensure a more inclusive analysis. Another limitation in our sample can be attributed to the large proportion of participants (31% in total) who were either doing an internship or were employed as working students (see appendix 7.). This is due to the fact that participants were mainly gathered from our direct contacts where many individuals have not entered full-time employment yet.

The method through which the survey was distributed also posed several limitations. The first limitation is due to the fact that the surveys were sent out at three different time points. Even though this was done in order to minimize the common biased method, it greatly impacted the response rate with each new survey. This led to an overall decrease of around 60% of all participants between the first and second surveys. A contributing factor towards this drop rate may be due to the fact that participants were asked to include their email addresses in order to receive each consecutive survey. Many participants chose not to disclose this information, thus hindering the possibility of completing the complete set. A last limitation of the survey is the risk of participants answering in a socially desirable manner, and thus impacting the reliability of the data, especially since answers could be traced back to a specific email.

9. Conclusion

The goal of our report was to measure the impact of individual and organizational properties towards remote work, technostress, and well-being. Further, we intended to understand the interplay of the topics, which were often regarded as stand-alone subjects. With our novel approach to regard these matters through gender, generations, and industries, we enhanced existing knowledge. Using an unparalleled external event, our goal was to understand the observed topics' drivers better. As many organizations and corporations expect remote work to be the "new normal" in the future, various studies are required to broaden the current knowledge base, especially regarding the forthcoming challenge of designing administrative regulations and work arrangements. Our study revealed that practical implementations need to consider the specific resources of employees. Applying the JD-R model to our

analysis helped us identify emerging job demands and resources more precisely. This can make the implementation of remote work more efficient, reduce technostress and increase satisfaction regarding the working arrangement and thus well-being.

Our study revealed the importance and the need for further actions to address social support and professional isolation in a remote work setup. Moreover, procrastination turned out to be a concern worth examining more profoundly. Technostress indicated direct links to the intensity of remote work and the perception of social support. This should make companies more aware of such a transition's effects on their employees. While finishing the report, the global pandemic shows no sign of ending soon. Thus, we urge research to continuously make efforts to understand the effects of remote work and technostress. Our report indicated divergence for subgroups, further research could add on the findings and work out the root cause of those differences. Furthermore, we believe that besides, gender, generations, and industries far more characteristics impact the topics. Again, researchers could assess more factors such as nationality, corporate function, or hierarchy level. We believe that our report demonstrated the need to investigate implications of remote work, technostress, and well-being in light of different considerations. Finally, we hope that our results and subsequent recommendations can aid managers by defining action plans to increase remote work satisfaction while decreasing technostress.

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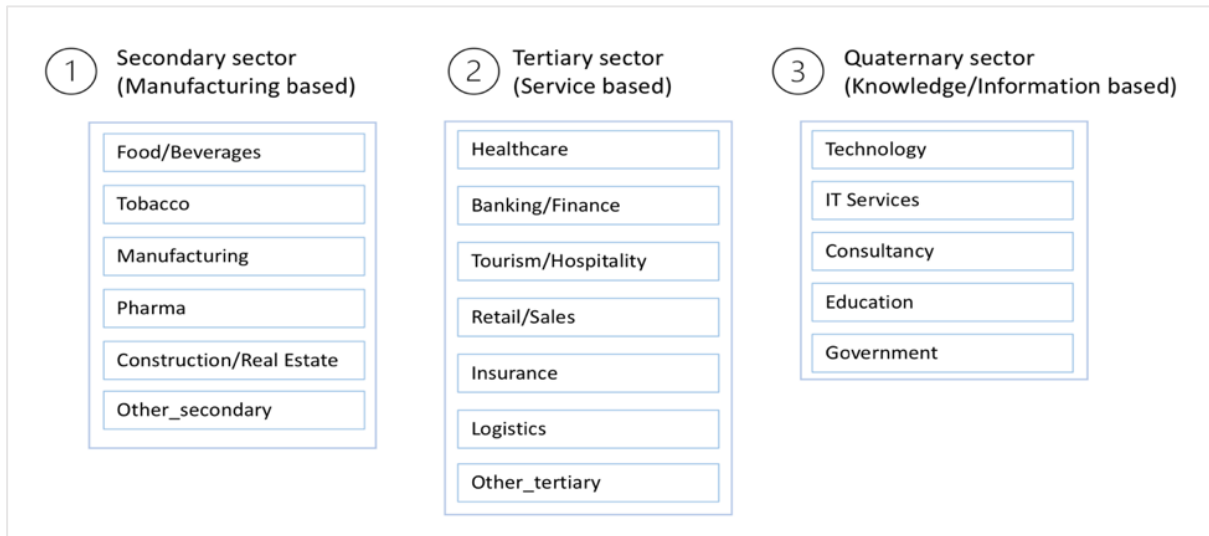
11. Appendix

List of Appendix

Appendix 1: Aggregation of industries according to economic sector

Appendix 2: Employees in each economic sector

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Appendix 2: Employees in each economic sector

