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Reducing Technostress: The Role of the Digital Mindset

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Completed Research

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Abstract

Organizations invest lots of effort and costs in reducing technostress, as it harms their employees' well-being and reduces their work performance. Therefore, it is imperative to mitigate technostress. We suppose each individual has a unique digital mindset, a malleable factor describing their specific ways of thinking and awareness, which guides how to react to techno-stressors. We build on the transactional model of stress and survey 151 employees to test the role of the digital mindset. Our results show that individuals with a strong digital mindset respond less strongly to techno-stressors with reduced job performance, reduced job satisfaction, and increased turnover intention. We contribute to research by carving out how individuals react to techno-stressors in line with their digital mindset, reflecting that digital mindset might buffer that techno-stressors have adverse impacts on individuals and organizations.

Keywords

Digital Mindset, Technostress, IS Use Stress, Techno-Stressors, Turnover Intention.

Introduction

Current statistics show that individuals receive about 120 emails per day (Dube, 2017), and 50 percent of employees receive calls during their free time (Coleman and Coleman, 2016). The bad news behind those numbers is that these include stressors for individuals and let them react with low job satisfaction (Coleman and Coleman, 2016), poor job performance (Cambridge, 2018), or let them search for a new employer (Milenkovic, 2019). However, there is also good news: not all individuals react similarly to those stressors (Maier et al., 2019). This knowledge carves out the need to identify what influences why some individuals react to stressors that bad.

Relevant research that tackles this topic is grounded in the stream of technostress (Califf et al., 2020). Based on the transactional model of stress (Lazarus and Folkman, 1984), technostress is a transactional process consisting of stimulating conditions, called techno-stressors, and users' reactions to perceived techno-stressors, called techno-strain (Stich et al., 2019). Existent research has explained that external factors, such as the pace of digital technology change (Ayyagari et al., 2011) or facilitating employee involvement and pieces of training (Tarafdar et al., 2015), influence techno-stressors. Further, we also know that broad personality traits of employees influence the effect of techno-stressors on techno-strain (Srivastrava et al., 2015). Nonetheless, the latest technostress research has revealed that malleable factors have a more substantial impact on techno-stressors than broad traits (Maier et al., 2019). Therefore, we assume it is valuable to study how malleable factors influence the relationship between techno-stressors and techno-strain. One recently studied malleable factor that gained interest is the digital mindset (Hildebrandt and Beimborn, 2022). Research values the digital mindset as a fundamental factor that supports individuals in interacting with digital technologies (Nambisan, 2017). The digital mindset enables individuals, based on previous knowledge and experiences, to cope with challenges arising from digital technologies (Beimborn

and Hildebrandt, 2022). Individuals with a strong digital mindset see disruptive potential when solving complex tasks or combining different digital technologies to solve problems or create new opportunities. This might support employees in managing challenges, such as techno-stressors, so let them avoid reacting adversely. Therefore, we consider the digital mindset as moderating factor on the influence of perceived techno-stressors on techno-strain and ask the following research question:

How does the digital mindset influence the effect of techno-stressors on techno-strain?

We answer our research question by integrating logic from the literature on technostress and the transactional model of stress (Lazarus and Folkman, 1984). We theoretically develop hypotheses explaining the moderating effect of the digital mindset on techno-stressors and techno-strain, i.e., job satisfaction, job performance, and turnover intention. We empirically test the hypotheses through a structural equation model (SEM) on survey data from 151 employees. The paper is structured as follows. We present theoretical background on the transactional model of stress, technostress, and the digital mindset. Afterward, we develop our research model, present the methodological approach, and elaborate on our hypotheses. Then we present our results and discuss our findings and consider the implications and limitations of our study.

Theoretical Background

Transactional Model of Stress and Technostress

The Transactional Model of Stress supposes stress as a transaction that depends on external *stressors*, which are demands encountered by the individual that creates *strain* (Lazarus and Folkman, 1984). Strain refers to stressors' behavioral and psychological consequences, such as job dissatisfaction, lower task performance, and turnover. It is also assumed that *situational factors*, such as social support and assistance (Weinert et al., 2020), might change the impact of stressors on strain. Research has considered.

Prior research shows that digital technologies lead to adverse outcomes and cause a new source of stress, called technostress (Ragu-Nathan et al., 2008). In line with the Transactional Model of Stress, technostress is a transactional process consisting of stimulating conditions, called techno-stressors, and employees' reactions to perceived techno-stressors, called techno-strain (Tarafdar et al., 2017).

While research thus far has identified many techno-stressors (Eckhardt et al., 2013; Stich et al., 2019), in this paper, we focus on the five techno-stressors that seem to be more commonly discussed in technostress research (Ragu-Nathan et al., 2008). *Techno-overload* relates to situations in which the IT forces employees to work faster and longer or process more information simultaneously. *Techno-invasion* represents the invasive effect of digital technologies in situations where employees can be reached anytime and anywhere and feel the need to be constantly connected, thus blurring the line between personal and work-related matters. *Techno-complexity* refers to situations where the complexity of digital technologies leads to feelings of lacking adequate skills and the need to invest time and effort in learning and understanding digital technologies. *Techno-insecurity* relates to situations where employees feel threatened about losing their jobs due to the automation of digital technologies or other employees' better understanding of digital technologies. *Techno-uncertainty* refers to contexts where continuous changes and upgrades related to digital technologies result in employees' uncertainty as they are constantly forced to adapt and educate themselves about new digital technologies.

Techno-stressors lead to techno-strain. These can be psychological, e.g., lower job satisfaction, exhaustion, and job burnout (Srivastava et al., 2015; Pflügner et al., 2021) or behavioral, e.g., low job performance or turnover intention (Califf et al., 2020; Ragu-Nathan et al., 2008).

Noteworthy, we know that different factors influence technostress. These include technological factors, such as the pace of digital technology change (Ayyagari et al., 2011), organizational factors, such as involvement facilitation (Tarafdar et al., 2015) or mutual support (Valta et al., 2021), and individual factors, such as personality traits (Pflügner et al., 2020). With our focus on the individual level, two essential aspects stand out. First, individual differences explain how and why individuals transfer techno-stressors into techno-strain (Srivastava et al., 2015). Second, research has focused on general, broad traits and suggests that malleable factors are more helpful to understand whether an individual perceives techno-stressors (Maier et al., 2019). So, we next focus on the digital mindset, which represents an individual malleable factor that can be modified or strengthened by training, experiences, or conversations.

Digital Mindset

The digital mindset is frequently issued as a vital factor in human interaction with digital technologies (Nambisan, 2017) and compromises ways of thinking based on previous knowledge and experiences, and supports humans to cope with the use, application, and consequences of digital technologies. The digital mindset characterizes different thinking patterns, evolved and shaped through the characteristics of digital technologies and the resulting changing environment.

Thinking Pattern	Description
Exponential Thinking	Recognition and awareness of scalable and exponential characteristics of digital technologies. It includes technological predictions and visions.
Generative Thinking	Thinking that fosters procrastinated binding and solution exaptation typically for digital solutions by integrating abstraction and modularity during development.
Combinatorial Thinking	Constantly integrate the combinatorial characteristics of digital technologies in solution finding to broaden the potential solution space by creatively combining independent digital technologies.
Disruptive Thinking	Constantly questioning existing solutions and imagination of how digital technologies could induce alternative scenarios that include fundamental pivots, e.g., how problems are solved in the first principle.

Table 1. Thinking patterns of the digital mindset

Extant knowledge and experience regarding digital technologies change how people see the world and act like a superordinate filter for individuals or change how people evaluate problem-solving methods and their potential outcomes. The digital mindset (Table 1) and its corresponding thinking patterns integrate different psychological perspectives on mindsets and previous narrower conceptualizations of the digital mindset (Hildebrandt and Beimborn, 2022). It consists of generative, combinatorial, exponential, and disruptive thinking patterns that support humans when dealing with impacts caused by digital technologies' generative, combinatorial, exponential, and disruptive nature (Yoo et al., 2010).

Research Model and Hypotheses Development

The transactional model of stress (Lazarus and Folkman, 1984) lays the theoretical foundation, which has been widely used in technostress literature. Figure 2 shows the research model.

Prior technostress research shows that techno-stressors cause psychological reactions, such as job satisfaction (Tarafdar et al., 2010). Job satisfaction describes an employee's positive emotional feeling toward their job (Doll and Torkzadeh, 1989). This job satisfaction is grounded in many factors. For instance, due to techno-stressors, employees receive more information than they can effectively use for their job. As a result, employees need to evaluate all that information to respond with low job satisfaction (Fisher and Wesolkowski, 1999). We, therefore, propose the following hypothesis:

H1: Perceived techno-stressors lead to low job satisfaction.

Techno-stressors also lead to behavioral reactions, including lower job performance and turnover intentions. Job performance describes the degree employees improve their work efficiency using digital technologies, e.g., to increase their productivity or task efficiency (Torkzadeh and Doll, 1999). We align with research that job performance is influenced by techno-stressors (Maier et al., 2019). Among others, techno-stressors force employees to work with several digital technologies simultaneously, which leads to hurrying and ineffective information processing (Fisher and Wesolkowski, 1999) and continuous interruptions (Addas and Pinsonneault, 2018). Further, techno-stressors require employees to constantly work with new and updated digital technologies, which leads to job-related insecurity and lower self-confidence. These outcomes impair employees' performance using digital technologies (Tarafdar et al., 2010).

Turnover intention describes the conscious and deliberate willingness to leave the organization (Egan et al., 2004). Techno-stressors cause employees to perceive their work as too complex and overwhelming. These negative perceptions cause employees to evaluate whether to continue working for this organization and lead to a deliberate willingness to turn away from the organization. Employees may only avoid these perceptions if they quit their job (Maier et al., 2015). Based on that, we hypothesize:

H2: Perceived techno-stressors lead to low job performance.

H3: Perceived techno-stressors lead to high turnover intention.

Prior research indicates that job satisfaction influences job performance (Tarafdar et al., 2010). High job satisfaction reflects that employees are satisfied with their work, and so they are willing to work extra hours, fast, and efficient. All that improves the quality of their work (Blili et al., 1998). Thus, we hypothesize:

H4: Job satisfaction leads to high job performance.

Employees who experience positive feelings and are satisfied with their job do not feel the psychological need to change but preserve the current situation in their working environment (Tett and Meyer, 1993). Employees who are satisfied at work are less willing to quit their job (Boyer-Davis, 2019). We hypothesize:

H5: Job satisfaction leads to low turnover intention.

Previous research indicates that the digital mindset supports employees in managing stressful situations (Warner and Wäger, 2019). Techno-stressors require employees to manage complex information and find appropriate solutions quickly. Due to digital technologies' high complexity and combinatorial properties, many possible solutions to solve a problem increase. With corresponding generative and combinatorial thinking, employees find practical or new applications of different digital technologies more easily (Yoo et al., 2010). Further, employees with a stronger digital mindset and, therefore, awareness of exponential characteristics of digital technologies may be able to anticipate appropriate solutions better to handle or avoid stressful situations (Bonchek, 2016). This ability to find and anticipate solutions more easily may lead to a positive perception of digital technologies when performing daily tasks. In turn, such a positive perception reduces the effect of perceived techno-stressors on techno-strain (Pirkkalainen et al., 2019). Employees with a strong digital mindset may be less affected by techno-stressors and find successful solutions to resolve them, leading to less time and energy they need to spend on stressful situations and overall higher job satisfaction (Doll and Torkzadeh, 1989). We therefore hypothesize:

H6: The digital mindset moderates the effect of perceived techno-stressors on job satisfaction, such that employees with a stronger digital mindset who perceive techno-stressors show higher job satisfaction.

Through a digital mindset and its dimension of disruptive thinking, employees are not discouraged from taking on complex and uncertain challenges and reframing problems to identify new unknown solution approaches (Allen, 2020). Fluent product boundaries and possible combinations of digital technologies provide tremendously increased opportunities for practical solutions to solve challenging situations (Yoo et al., 2010). Employees with a strong digital mindset in terms of combinatorial and generative thinking patterns may integrate combinatorial and generative characteristics of digital technologies more effectively (Hildebrandt and Beimborn, 2022). Therefore, they may find more accessible and better solutions while working with digital technologies while facing techno-stressors, leading to higher efficiency and innovativeness and higher job performance. This led us to the following hypothesis:

H7: The digital mindset moderates the effect of perceived techno-stressors on job performance, such that employees with a stronger digital mindset who perceive techno-stressors show higher job performance.

Individuals have different mitigation mechanisms to deal with stressful situations. One possibility is avoidance. Employees stressed by digital technology develop the need to turn away from it, thus leaving the company (Boyer-Davis, 2019). In stressful situations, exponential thinking supports the development of long-run strategies that emphasize courage and patience to overcome situations where results are not materialized sufficiently or are uncertain (Bonchek, 2016). Additionally, employees with disruptive ways of thinking may face stressful situations differently, seeking new ways to approach the situation, exceeding their limits, and preventing avoidance (Márquez and Ortiz, 2021). Accordingly, mitigation mechanisms like avoidance when facing stressful situations may be reduced through a strong digital mindset, including ways of thinking that address uncertainty and a change of perspective. Therefore, we hypothesize:

H8: The digital mindset moderates the effect of perceived techno-stressors on turnover intention, such that employees with a stronger digital mindset who perceive techno-stressors show lower turnover intention.

Method

Our sampling strategy was to survey people where techno-stressors are likely to exist. Therefore, we focused only on currently employed people who regularly use digital technologies in their daily work. Our sample was not limited to a specific sector, business area, or educational level. We summarize the sample characteristics of 151 US employees in Table 2.

Age (years) M = 39.9 STD = 11.38	<18 18-30 31-40 41-50 51-60 > 60	0.0 22.9 39.6 20.8 9.7 7.0	Working hours per week M = 40.11 SDT = 10.81	<16 16-25 26-35 36-45 46-55 >55	4.1 3.2 20.6 49.1 16.5 6.5
Gender	Female Male Diverse	49,3 50.0 0.7	Digital technology use (hours per week) M = 22.27 STD = 7.99	<1 1-9 10-19 20-29 30-39 >39	0.0 1.3 24.5 52.4 18.6 3.2
Level of education	Less than High School High School Bachelor's Degree Master's Degree Doctoral Degree	0.0 3.3 49.7 44.4 2.6			

Table 2. Sample Characteristics (N = 151; M = mean; SD = standard deviation; in percent)

We collected our data via Amazon Mechanical Turk (MTurk), an online crowdsourcing market. Technostress research has used MTurk, and the results are comparable with data collected within an organization (Maier et al., 2019)[1]. Our survey measures are based on widely used measures that have been validated in previous research. For techno-stressors (Ragu-Nathan et al., 2008), job satisfaction (Ragu-Nathan et al., 2008), job performance (Li et al., 2013), and turnover intention (Khatri et al., 2001), we used a seven-point Likert scale to measure the items ranging from 1 ("strongly disagree") to 7 ("strongly agree"). DeVellis and Thorpe (2021) developed items and provided thinking pattern descriptions for measuring the digital mindset. The items were content validated by 6 researchers and 5 practitioners with a background in digital innovation and statistically pilot-tested with 147 participants considering reliability, correlations, and factor loadings with Cronbach's Alpha values above 0.7 as acceptable (Gliem and Gliem, 2003).

Results

We analyzed the questionnaire results using partial least squares (PLS) and SmartPLS (Ringle et al., 2014).

Self-reported data may be subject to common method bias (CMB), which distorts correlations between variables in a research model (Podsakoff et al., 2003). To determine the extent of CMB, we used Harman's single factor test. The results show that only 27.3% of the variance is explained by a single factor, which is below the threshold of 50% (Podsakoff et al., 2003), i.e., no observable signs of CMB influence.

To ensure the validity of our measurement model, we focus on content validity, indicator reliability, construct reliability, convergent validity, and discriminant validity (Bagozzi, 1979). We ensure content validity as we either use items that have been validated in prior research or have been validated by experts. We ensure indicator reliability as each item in our analysis has a loading higher than 0.707 (Carmines and Zeller, 2008; Table 3 in Appendix). We ensure the construct reliability as the average variance extracted (AVE) of all constructs is above 0.50, and the composite reliability (CR) is above 0.70 (Fornell and Larcker, 1981; Table 4 in Appendix). We ensure convergent validity because items of the same construct are highly correlated and discriminant validity since the items are more highly on their intended construct than on other constructs (Cook and Campbell, 1979). We attest that the data passes reliability and validity evaluation.

[1] We followed the guidelines suggested by previous research, including only workers who have completed a high number of tasks and a high acceptance rate (95%), are from the US (Jia et al. 2017) and answered trap questions correctly (Lowry et al. 2016).

We evaluate the structural model using the determination coefficient (R^2), the significance levels of each path coefficient, and provide information about the model fit using the standardized root mean square residual (SRMR). Our results (see Figure 2) show that techno-stressors and the digital mindset explain 18.4% of the variance in job satisfaction. Further, techno-stressors, the digital mindset, and job satisfaction explain 53.5% of the variance in job performance and 56.8% of the variance in turnover intention.

All of the path coefficients in our research model are significant ($p < 0.05$). Our results indicate that perceived techno-stressors have a negative influence on job satisfaction (ß = -0.239; $p < 0.001$; H1 supported) and job performance (ß = -0.217; $p < 0.01$; H2 supported). In addition, techno-stressors have a positive influence on turnover intention (ß = 0.482; $p < 0.001$; H3 supported). Job satisfaction has a positive influence on job performance (ß = 0.621; $p < 0.001$; H4 supported) and a negative influence on turnover intention (ß = -0.234; $p < 0.01$; H5 supported). Further, the digital mindset moderates the effect of perceived techno-stressors on job satisfaction, such that employees with a stronger digital mindset who perceive techno-stressors show higher job satisfaction (ß = 0.153; $p < 0.05$; H6 supported), higher job performance (ß = 0.108; $p < 0.05$; H7 supported) and lower turnover intention (ß = -0.115; $p < 0.05$; H8 supported). Concerning the model fit, we used SRMR. The SRMR is an absolute measure of fit, which indicates the standardized difference between the observed and the predicted correlation. SRMR is 0.086 and less than the recommended threshold of 0.10, resulting in a proper model fit (Hu and Bentler, 1999).

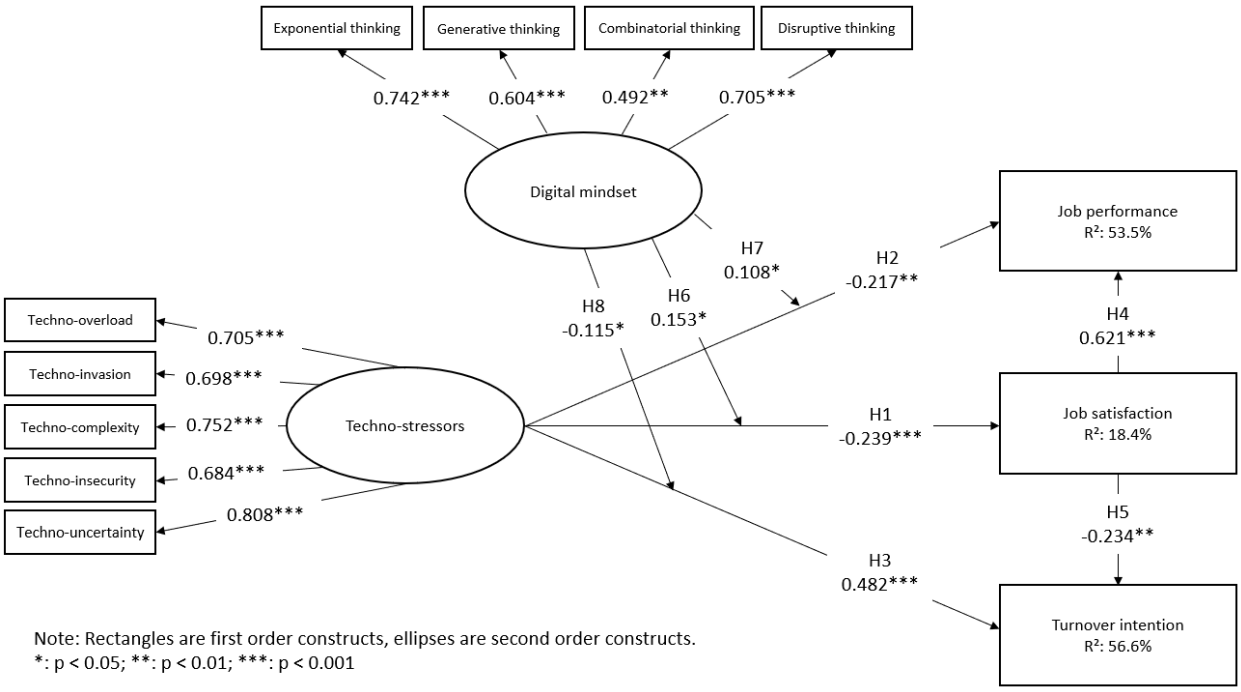

Figure 1. Results of the Structural Model.

Discussion

It is in the interest of both employees and organizations to know why some react more strongly to techno-stressors than others. We suppose and provide empirical evidence that the digital mindset of employees influences the impact of techno-stressors on techno-strain.

Our results contribute to technostress and digital mindset research. Existing technostress literature states that different factors influence techno-stressors and techno-strain (Tarafdar et al., 2015; Srivastrava et al., 2015). Our results extend these findings and advance the technostress discourse by revealing significant moderating effects of the digital mindset as a changeable individual factor. In addition to that, we highlight the importance of individual influence factors to understand why techno-stressors result in techno-strain. We complement earlier findings (Srivastava et al., 2015) that have shown that broad traits, such as

neuroticism, influence the relationship between techno-stressors and techno-strain by carving out that also malleable factors influence that relationship. We are in line with research emphasizing the importance of malleable factors when studying technostress (Maier et al., 2019).

Additionally, we contribute to the new research stream of the digital mindset. The concept of the digital mindset has been well-conceptualized (Allen, 2020; Hildebrandt and Beimborn, 2022) but leaves room for studying how the digital mindset influences users. Our results offer first insights that the digital mindset has positive effects for users, as it reduces that techno-stressors are translated into adverse reactions. The results extend the existing perspective on the digital mindset as a success factor. Therefore, the digital mindset is a factor that reduces the negative consequences for users. Our findings advance and underpin the user's discourse as a central success factor for digitalization and indicate that further research on the effects and influence factors of the digital mindset should be conducted.

Our study indicates that health managers should develop programs to foster and stimulate the digital mindset. This might occur via mentoring programs supporting employees to understand better digital technologies' exponential, generative, combinatorial, and disruptive characteristics. Employees might more easily find appropriate solutions during stressful situations and thus develop fewer adverse reactions.

There remain limitations in our findings. First, we collected our data using a self-rating questionnaire. Therefore, the answers depend on participants' perceptions and personal insights. Further research could validate our results through more objective assessments such as physiological changes in stress hormones or more neutral, unbiased measurement scales. Second, we used a reduced conceptualization of the initial developed digital mindset adapted to the concept of technostress. Therefore, integrating other thinking patterns may lead to different moderating effects. Third, despite being careful to adhere closely to the guidelines for MTurk samples, there are residual risks associated with convenience sampling, such as the insufficient representation of the population or "professional" survey respondents respective to MTurk. We tried to reduce such biases by applying the filter of full-time employment and excluding unemployed participants. There are various fruitful points of contact for further research. Next to our investigation of the impact of the digital mindset on techno-strains, further studies regarding the impacts of the digital mindset on specific techno-stressors could reveal valuable findings on how people's perceptions change with adapted thinking patterns. Specifically, single thinking patterns could be investigated and mapped explicitly onto different techno-stressors to uncover how specific ways of thinking shape the overlaying mental filter through which techno-stressors are perceived.

Conclusion

As stressful situations in everyday life and work-life increase steadily, it is necessary to understand how digital technologies influence how we perceive stressful situations. This study identifies the digital mindset as a decisive factor in mitigating techno-stressors, thereby increasing job performance and satisfaction and reducing employee turnover. These findings contribute to research by unveiling the digital mindset as a new individual and changeable factor to mitigate technostress. Practitioners may use our findings for shaping individuals' digital mindsets to ensure a healthy way of living in a digitalized work environment.

Appendix

Techno-overload (Ragu-Nathan et al., 2008), Cronbach's α = 0.907	
I am forced by IT to work with very tight time schedules. (0.818) I have a higher workload because of increased IT complexity. (0.820)	I am forced by IT to work much faster. (0.905) I am forced by IT to do more work than I can handle. (0.807) I am forced by IT to change my work habits to adapt to new technologies. (0.877)
Techno-invasion (Ragu-Nathan et al., 2008), Cronbach's α = 0.902	
I spend less time with my family due to IT. (0.898) I have to be in touch with my work even during my vacation due to IT. (0.812)	I have to sacrifice my vacation and weekend time to keep current on new IT. (0.846) I feel my personal life is being invaded by IT. (0.900)
Techno-uncertainty (Ragu-Nathan et al., 2008), Cronbach's α = 0.794	
There are always new developments in the technologies we use in our organization. (0.715) There are constant changes in IT software in our organization. 0.781)	There are constant changes in IT hardware in our organization. (0.729) (There are frequent upgrades in computer networks in our organization.) (0.679)*

Techno-insecurity (Ragu-Nathan et al., 2008), Cronbach's α = 0.891	
(I feel constant threat to my job security due to new IT.) (0.649)* I have to constantly update my skills to avoid being replaced. (0.716)	I am threatened by coworkers with newer IT skills. (0.764) I do not share knowledge with coworkers for fear of being replaced. (0.741) I feel there is less sharing of knowledge among coworkers for fear of being replaced. (0.738)
Techno-complexity (Ragu-Nathan et al., 2008), Cronbach's α =0.917	
I do not know enough about IT to handle my job satisfactorily. (0.712) I do not find enough time to study and upgrade my IT skills. (0.733)	I find new recruits to this organization know more about IT than I do. (0.823) I need a long time to understand and use new IT. (0.714) I often find it too complex for me to understand and use new IT. (0.780)
Job satisfaction (Ragu-Nathan et al., 2008), Cronbach's α = 0.753	
I like doing the things I do at work. (0.758) I feel a sense of pride in doing my job. (0.784)	My job is enjoyable. (0.768)
Job performance (Tarafdar et al., 2010; Li et al., 2013), Cronbach's α = 0.876	
IT helps to improve the quality of my work. (0.754) IT helps to improve my productivity. (0.780) IT helps me to accomplish more work than would otherwise be possible. (0.758) IT helps me to perform my job better. (0.747) (IT helps me to identify innovative ways of doing my job.) (0.671)* My use of IT is now a normal part of my work. (0.730)	I have discovered new uses of IT to enhance my work performance. (0.772) I have used IT in novel ways to support my work. (0.732) (I have developed new applications based on IT to support my work.) (0.668)* My use of IT has been incorporated into my regular work practices. (0.738) My use of IT is pretty much integrated as part of my normal work routine. (0.723) IT helps me to come up with new ideas in my job. (0.808)
Turnover intention (Khatri et al., 2001), Cronbach's α = 0.942	
I intend to quit my actual job. (0.892) I think about leaving my actual employer. (0.946)	I think often about quitting my job at my current employer. (0.911)
Exponential thinking (Own development), Cronbach's α = 0.931	
I am aware of the high growth potential of IT. (0.747) I often think of potential exponential scaling of IT. (0.912)	I consider the long-term exponential developments of IT when considering alternative courses of action. (0.816)
Generative thinking (Own development), Cronbach's α = 0.786	
I regularly imagine potential use cases of IT that go beyond the intended application. (0.743) I often think about what alternative functions IT could perform in addition to the intended ones. (0.741)	I enjoy developing or using IT that is generic and versatile. (0.731) (When developing or using IT, I make sure that they have as much freedom as possible in terms of possible uses.) (0.685)*
Combinatorial thinking (Own development), Cronbach's α = 0.813	
(I often think about how IT can be combined in a way similar to a modular IT). (0.563)* I enjoy recombining IT from existing components of a variety of technology fields to create new things. (0.742)	I often notice problems that could be solved by combining different IT. (0.882) When solving problems, I think about how the combination of existing IT could help me do that. (0.732)
Disruptive thinking (Own development), Cronbach's α = 0.894	
I often think about how IT that solves problems in a fundamentally new way could replace pre-established solutions. (0.734) I often think about how IT could solve problems in unconventional and new ways. (0.740)	I often think about disruption potential in existing problems and solutions created through IT. (0.721) I regularly think about how the business model of my company/employer could be replaced by a more effective unexpected IT. (0.755)
Note: Items indicated with * were dropped due to low loadings.	

Table 3. Measurement Items and Loadings

	1	2	3	4	5	6	7	8	9	10	11	12
1 Techno-overload	0.741											
2 Techno-invasion	0.556	0.746										
3 Techno-uncertainty	0.251	0.339	0.755									
4 Techno-insecurity	0.180	0.222	0.177	0.729								
5 Techno-complexity	0.345	0.299	0.174	0.351	0.734							
6 Exponential thinking	-0.187	-0.179	-0.201	-0.176	-0.197	0.727						
7 Generative thinking	-0.292	-0.297	-0.317	-0.213	-0.235	0.368	0.716					
8 Combinatorial think.	-0.207	-0.193	-0.275	-0.174	-0.241	0.402	0.344	0.746				
9 Disruptive thinking	-0.312	-0.281	-0.267	-0.197	-0.190	0.412	0.387	0.371	0.756			
10 Job performance	-0.228	-0.301	-0.276	-0.144	-0.210	0.188	0.132	0.140	0.147	0.742		
11 Job satisfaction	-0.243	-0.276	-0.224	-0.079	-0.196	0.267	0.236	0.178	0.191	0.539	0.716	
12 Turnover intention	0.522	0.548	0.389	0.213	0.394	-0.302	-0.398	-0.272	-0.354	-0.302	-0.281	0.914
Mean	4.31	4.34	4.83	3.15	3.78	4.84	4.75	4.91	4.86	5.14	5.36	3.75
Standard Deviation	1.44	1.35	1.41	1.28	1.30	1.29	1.34	1.08	1.13	1.14	1.04	1.74
Composite Reliability	0.931	0.890	0.906	0.828	0.901	0.945	0.949	0.956	0.934	0.879	0.759	0.939
AVE	0.549	0.556	0.570	0.531	0.539	0.528	0.512	0.556	0.572	0.550	0.513	0.836

Table 4. Mean, Standard Deviation, Composite Reliability, and Average Variance Extracted (AVE), square root of AVE on the diagonal

REFERENCES

Addas, S., & Pinsonneault, A. 2018. "Email interruptions and individual performance: Is there a silver lining?". Mis Quarterly, (42:2), pp. 381-406.

Allen, S. J. 2020. "On the cutting edge or the chopping block? Fostering a digital mindset and tech literacy in business management education", Journal of Management Education, (44:3), pp. 362-393.

Ayyagari, R., Grover, V., Purvis, R. 2011. "Technostress: Technological antecedents and implications", MIS Quarterly (35:4), pp. 831-858.

Bagozzi, R. P. 1979. "The role of measurement in theory construction and hypothesis testing: toward a holistic model", Conceptual and Theoretical Developments in Marketing, (15), p. 32.

Blili, S., Raymond, L., and Rivard, S. 1998. "Impact of task uncertainty, end-user involvement, and competence on the success of end-user computing", Information & Management, (33:3), pp. 137-153.

Bonchek, M. 2016. "How to create an exponential mindset", Harvard Business Review.

Boyer-Davis, S. 2019. "Technostress: An antecedent of job turnover intention in the accounting profession", Journal of Business and Accounting, (12:1), pp. 49-63.

Califf, C. B., Sarker, S., and Sarker, S. 2020. "The Bright and Dark Sides of Technostress: A Mixed-Methods Study Involving Healthcare IT", MIS Quarterly, (44:2).

Cambridge, M. 2018. "Research Reveals Employees Switch Apps Over 1,100 Times a Day", https://www.pega.com/about/news/press-releases/research-reveals-employees-switch-apps-over-1100-times-day.

Carmines, E. G., and Zeller, R. A. 2008. "Reliability and validity assessment", Sage Publications.

Coleman, J. and Coleman, J. 2016. "Don't Take Work Stress Home with You", https://hbr.org/2016/07/dont-take-work-stress-home-with-you.

Cook, M., and Campbell, D. T. 1979. "Quasi-experimentation: Design and analysis issues for field settings", Boston: Houghton Mifflin.

DeVellis, R. F., and Thorpe, C. T. 2021. "Scale development: Theory and applications", Sage publications.

Doll, W. J., and Torkzadeh, G. 1989. "A discrepancy model of end-user computing involvement", Management Science, (35:10), pp. 1151-1171.

Dube, D. 2017. "This is how much time you spend on work emails every day, according to a Canadian survey", https://globalnews.ca/news/3395457/this-is-how-much-time-you-spend-on-work-emails-every-day-according-to-a-canadian-survey/.

Eckhardt, A., Hsieh, J. J., Chan, A., Maier, C., Chuk, T., Siao, J., and Buettner, R. 2013. "Objective measures of IS usage behavior under conditions of experience and pressure using eye fixation data.", In Proceedings of the 34th International Conference on Information Systems (ICIS).

Egan, T. M., Yang, B., and Bartlett, K. R. 2004. "The effects of organizational learning culture and job satisfaction on motivation to transfer learning and turnover intention", Human resource development quarterly, (15:3), pp.279-301.

Fisher, W., and Wesolkowski, S. 1999. "Tempering technostress", IEEE Technology and Society Magazine, (18:1), pp. 28-42.

Fornell, C., and Larcker, D. F. 1981. "Evaluating structural equation models with unobservable variables and measurement error", Journal of Marketing Research, (18:1), pp. 39–50.

Hildebrandt, Y., and Beimborn, D. 2022. "A Cognitive Conveyor for Digital Innovation-Definition and Conceptualization of the Digital Mindset", Wirtschaftsinformatik 2022 Proceedings, 12.

Hu, L. T., and Bentler, P. M. 1999. "Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives." Structural Equation Modeling: A Multidisciplinary Journal, (6:1), pp. 1-55.

Khatri, N., Fern, C. T., and Budhwar, P. 2001. "Explaining employee turnover in an Asian context", Human Resource Management Journal, (11:1), pp. 54-74.

Lazarus, R. S., and Folkman, S. 1984. "Stress, appraisal, and coping", Springer Publishing Company.

Li, X., Hsieh, J. P. A., and Rai, A. 2013. "Motivational differences across post-acceptance information system usage behaviors: An investigation in the business intelligence systems context", Information Systems Research, (24:3), pp. 659-682.

Lowry, P. B., D'Arcy, J., Hammer, B., and Moody, G. D. 2016. ""Cargo Cult" science in traditional organization and information systems survey research: A case for using nontraditional methods of data collection, including Mechanical Turk and online panels", The Journal of Strategic Information Systems, (25:3), pp. 232-240.

Maier, C., Laumer, S., and Eckhardt, A. 2015. "Information technology as daily stressor: pinning down the causes of burnout", Journal of Business Economics, (85:4), pp. 349-387.
Maier, C., Laumer, S., Wirth, J., and Weitzel, T. 2019. "Technostress and the hierarchical levels of personality: a two-wave study with multiple data samples", European Journal of Information Systems, (62:1), pp. 1–27.
Márquez, F. O. S., and Ortiz, G. E. R. 2021. "Disruptive Thinking and Entrepreneurship: Fictions and Disenchantments", Global Business Review, 0972150920988647.
Milenkovic, M. 2019. "42 Worrying Workplace Stress Statistics", https://www.stress.org/42-worrying-workplace-stress-statistics.
Nambisan, S., Lyytinen, K., Majchrzak, A., and Song, M. 2017. "Digital Innovation Management: Reinventing innovation management research in a digital world", MIS Quarterly, (41:1).
Pflügner, K., Maier, C., Mattke, J., and Weitzel, T. 2020: "Personaliy Profiles that Put Users at Risk of Perceiving Technostress: A Qualitative Comparative Analysis with the Big Five Personality Traits", Business & Information Systems Engineering (BISE).
Pflügner, K., Maier, C., and Weitzel, T. 2021. "The direct and indirect influence of mindfulness on techno-stressors and job burnout: A quantitative study of white-collar workers", Computers in Human Behavior, (115), 106566.
Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., and Podsakoff, N. P. 2003. "Common method biases in behavioral research: a critical review of the literature and recommended remedies", Journal of Applied Psychology, (88:5), p. 879.
Ragu-Nathan, T. S., Tarafdar, M., Ragu-Nathan, B. S., and Tu, Q. 2008. "The consequences of technostress for end users in organizations: Conceptual development and empirical validation", Information Systems Research (19:4), pp. 417-433.
Ringle, C. M., Wende, S., and Becker, J. M. 2014. "SmartPLS 3", SmartPLS, Hamburg.
Srivastava SC, Chandra S, Shirish A 2015. "Technostress creators and job outcomes: theorising the moderating influence of personality traits", Information Systems Journal (25:4), pp. 355–401.
Stich, J. F., Tarafdar, M., Stacey, P., and Cooper, S. C. 2019. "Appraisal of email use as a source of workplace stress: A person-environment fit approach", Journal of the Association for Information Systems, (20:2), p. 2.
Tarafdar, M., Pullins, E. B., & Ragu-Nathan, T. S. 2015. "Technostress: negative effect on performance and possible mitigations", Information Systems Journal, (25:2), pp. 103-132.
Tarafdar, M., Tu, Q., and Ragu-Nathan, T. S. 2010. "Impact of technostress on end-user satisfaction and performance", Journal of Management Information Systems, (27:3), pp. 303-334.
Tett, R. P., and Meyer, J. P. 1993. "Job satisfaction, organizational commitment, turnover intention, and turnover: path analyses based on meta-analytic findings", Personnel Psychology, (46:2), pp. 259-293.
Torkzadeh, G., and Doll, W. J. 1999. "The development of a tool for measuring the perceived impact of information technology on work", Omega, (27:3), pp. 327-339.
Valta, M., Pflügner, K., and Maier, C. 2021. "Guiding Companies to Reduce Technostress: A Mixed-Methods Study Deriving Practice-Oriented Recommendations", In Proceedings of the 54th Hawaii International Conference on System Sciences, p. 6275.
Warner, K. S., and Wäger, M. 2019. "Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal", Long Range Planning, (52:3), pp. 326-349.
Weinert, C., Maier, C., Laumer, S., and Weitzel, T. 2020. "Technostress mitigation: an experimental study of social support during a computer freeze", Journal of Business Economics, (90:8), pp. 1199-1249.
Yoo, Y., Henfridsson, O., and Lyytinen, K. 2010. "Research commentary—the new organizing logic of digital innovation: an agenda for information systems research", Information Systems Research, (21:4), pp. 724-735.