

The DATA BASE for Advances in Information Systems

Unintended Consequences of Technostress Mitigation: An Employee Perspective on the Effectiveness of Mitigation Measures

Lea Reis

University of Bamberg

Christian Maier

LMU Munich School of Management, Ludwig-Maximilians-Universität München

Katharina Pflügner

University of Bamberg

Tim Weitzel

University of Bamberg

Date of Acceptance: 4/26/2023

This file is the unedited version of a manuscript that has been accepted for publication in *The DATA BASE for Advances in Information Systems*. Feel free to distribute this file to those interested in reading about this forthcoming research. Please note that the final version that will be published in press will undergo a copyediting and technical editing process that will result in minor changes to the file. To view the final version of this manuscript, visit the publication's archive in the ACM Digital Library at <http://dl.acm.org/citation.cfm?id=J219>.

Please cite this article as follows:

Reis, L., Maier, C., Pflügner, K., & Weitzel, T. (Forthcoming). Unintended consequences of technostress mitigation: An employee perspective on the effectiveness of mitigation measures. *The DATA BASE for Advances in Information Systems*, In Press.



Unintended Consequences of Technostress Mitigation: An Employee Perspective on the Effectiveness of Mitigation Measures

Lea Reis

University of Bamberg

Christian Maier

LMU Munich School of Management,
Ludwig-Maximilians-Universität München

Katharina Pflügner

University of Bamberg

Tim Weitzel

University of Bamberg

Acknowledgments

The project is part of the Bavarian Research Association on Healthy Use of Digital Technologies and Media (ForDigitHealth), funded by the Bavarian Ministry of Science and Arts.

Abstract

The continuous use of IT, even beyond regular office hours, is considered a cause of technostress, which impairs the health and performance of employees. To mitigate technostress, European countries have established the right to disconnect, and many organizations are struggling to identify and implement other effective measures. Based on a qualitative study with 23 IT workers, five managers, and two CIOs, this study identifies eight technological, social, and cultural measures to mitigate common techno-stressors. By focusing on the employees' perspective, the results reveal the extent to which the measures actually work, showing that well-intended countermeasures, such as email restrictions, might have unintended negative and even harmful side effects. Our analysis shows that mitigation measures seldom work in isolation and without spillover effects. We conclude that although technostress mitigation is complex and mitigation measures adopted in isolation can fail and sometimes cause additional harm, employees still appreciate the effort.

Keywords: Technostress; Technostress Reduction; Interventions; Qualitative Study; Applicability Check.

Introduction

An increasing number of employees report being stressed by the continuous use of information and communication technology (ICT) (Bruijn, 2021), which is called technostress. Technostress can substantially negatively impact employee well-being, satisfaction, and performance (Maier et al., 2019; Maier et al., 2022; Maier, Laumer, Tarafdar, et al., 2021). For example, employees experiencing technostress are often overwhelmed by their work and perceive that their private life has been invaded by ICTs (Tarafdar, D'Arcy, et al., 2015). To protect employees' health (Richter, 2019), European countries have established the right to disconnect (Eurofound, 2021), which, basically guarantees the right of employees to disengage from work and refrain from engaging in work-related electronic communications, such as emails or other messages, during non-working hours (Eurofound, 2021). This law illustrates the need for organizations to implement further measures to mitigate technostress, such as banning or disabling after-work email traffic (Koch, 2014).

However, previous research has not established to what degree various mitigation measures actually work. In fact, there are indications that such measures might backfire and increase technostress levels the next work day (Russell & Woods, 2020). Such findings complicate the broader controversy about whether the mitigations associated with the right to disconnect fulfill

the goal of fostering employees' mental health by reducing technostress (Akanabi, 2021; Earwaker, 2021)

Therefore, in order to reduce technostress among employees, organizations must identify which mitigation measures are most effective and which possible unintended consequences must be avoided. Following suggestions in the literature to target specific techno-stressors with specific mitigation measures (Salo et al., 2017; Valta et al., 2021; Weinert et al., 2020), this research focuses on techno-invasion, such as being interrupted after working hours by work topics that creep into one's private life due to ICTs, and techno-overload, such as the feeling of being overwhelmed by ICTs such as emails or electronic messages, as the techno-stressors most related to the right to disconnect, asking:

Which organizational mitigation measures effectively reduce techno-invasion and techno-overload, and how do employees experience these organizational mitigation measures?

To answer our research question, we conducted a qualitative study based on 30 semi-structured interviews with white-collar workers, specifically 23 IT professionals, five managers, and two CIOs working in the IT departments of two medium-sized organizations in the German production industry. In the year leading up to our study, both organizations introduced measures to mitigate the negative effects of techno-invasion and techno-overload among employees. We surveyed IT professionals and managers because they are particularly vulnerable to techno-invasion and techno-overload due to their constant connectivity with their work, their high workload, their high degree of responsibility for the organization's infrastructure, the continuous availability of their work IT devices, and their spatial flexibility (e.g., Maier, Laumer, & Eckhardt, 2015; Moore, 2000). Our interviews revealed that the firms initiated eight mitigation measures, four addressing techno-invasion and four addressing techno-overload, which we categorize along three mitigation dimensions: technological, cultural, and social mitigation. We assessed mitigation efficacy and unintended consequences by asking employees how they perceived and experienced the mitigation methods in our interviews with them.

Our results contribute to the literature on technostress and organizational technostress mitigation by identifying and assessing the efficacy of technological, cultural, and social mitigation measures for techno-invasion and techno-overload. We also reveal unintended looping effects between the mitigation of techno-invasion and techno-overload, such that mitigation measures designed to reduce one techno-stressor can increase the other. We also identify

techno-responsibility as an IT-personnel-specific techno-stressor that is intensified when perceiving techno-invasion and techno-overload. We also contribute to practice by providing guidance on implementing organizational technostress mitigation measures effectively.

Theoretical Background

In this section, we outline the theoretical concepts of technostress and techno-stressors and discuss related research on mitigation measures.

Technostress and Techno-Stressors

Technostress is a term used to describe the stress caused by ICT usage (Ragu-Nathan et al., 2008), which encompasses the translation of techno-stressors into techno-strain (Ayyagari et al., 2011). Techno-stressors are stressful demands caused by using ICTs (Ragu-Nathan et al., 2008) that either challenge or hinder the user (Califf et al., 2020). Techno-strain is an adverse reaction to techno-stressors that influences ICT users' performance, satisfaction, and well-being (Pirkkalainen et al., 2019; Srivastava et al., 2015; Tams et al., 2018). While using ICTs, employees encounter various techno-stressors (Fischer et al., 2021; Maier et al., 2022; Maier, Laumer, Eckhardt, & Weitzel, 2015; Ragu-Nathan et al., 2008). Previous literature focuses on five in particular (Pirkkalainen et al., 2019; Srivastava et al., 2015): *Techno-complexity* (feeling incapable of handling intertwined systems), *techno-insecurity* (fearing being replaced by ICTs), *techno-uncertainty* (struggling with one's ICT capabilities due to ever-changing systems), *techno-invasion* (experiencing privacy invasion by ICTs), and *techno-overload* (feeling overwhelmed by the number of requests received through ICTs) (Ragu-Nathan et al., 2008). The last two techno-stressors are closely associated with how employees communicate with each other, the issue of constant connectivity, and the right to disconnect. This study focuses on techno-invasion and techno-overload, which we describe in more detail below.

Techno-invasion is when work-related demands spill over into employees' private lives, even after work hours or when they are on vacation. Techno-invasion blurs the line between personal and work-related matters, leaving employees feeling permanently "connected" to work. A widespread symptom of techno-invasion is when employees think they have to stay in contact with their work and reply to emails even during non-working hours. Employees perceiving techno-invasion feel that ICTs are invading their personal lives (Ragu-Nathan et al., 2008). Techno-overload is when employees perceive that their work ICTs are forcing them to work faster or handle more tasks than they can or are constantly interrupting their

work. An example of techno-invasion is when employees feel the need to use work ICTs to draw on different streams of real-time information from internal and external sources, mobile devices, and collaborative applications, leaving them experiencing information overload (Ragu-Nathan et al., 2008). Both of these techno-stressors have received extensive attention in IS research and are closely related to organizational communication norms and rules (Piszczek, 2017; Srivastava et al., 2015). In the following section, we summarize the findings of extant literature into various strategies and approaches for reducing or mitigating techno-stressors.

Mitigation of Techno-Stressors

Organizations benefit by reducing the level of technostress among their employees (Pirkkalainen et al., 2019). Traditionally, research into organizational technostress mitigation focuses on reducing overall techno-stressors rather than on strategies for mitigating specific techno-stressors (Valta et al., 2021). Organizationally implemented measures such as providing technical help for users through help desks (technical support provision), facilitating the sharing of technical knowledge (literacy facilitation) and training, and encouraging user involvement (involvement facilitation) have been found to reduce techno-stress levels in general (Tarafdar, Pullins, & Ragu-Nathan, 2015). Moreover, organizations can reduce the strain that employees experience due to techno-stressors by helping them better manage work-home boundaries (Benlian, 2020).

In addition to such general technostress mitigation research, more recent literature also investigates how successfully certain measures mitigate specific techno-stressors (Valta et al., 2021). For example, it has been demonstrated that organizations can help employees better deal with techno-overload in email communication by offering cognitive behavior skills training (Soucek & Moser, 2010). Implementing technical solutions for interruption control lets users decide when to respond to ICT-transmitted information and helps them control techno-overload (Galluch et al., 2015). Identifying contact persons and encouraging mutual support to solve technical problems effectively reduces techno-overload while reducing email traffic is the most effective way to reduce techno-invasion (Gaudioso et al., 2017). These studies show that organizations can introduce measures to mitigate techno-stressors in general and can adopt strategies to reduce specific techno-stressors effectively.

However, previous research indicates that mitigation measures are not equally effective at reducing different techno-stressors, so organizations should implement mitigation measures that target specific techno-stressors (Valta et al., 2021). Based on this

finding, this study thus focuses on the measures organizations can implement to mitigate techno-invasion and techno-overload specifically, by restricting or managing work-related information and communication transmitted via ICTs. For example, such measures to mitigate techno-invasion or techno-overload may include after-work email traffic restrictions, such as those introduced by Volkswagen (Koch, 2014), and communication structures regulating how employees communicate.

Based on our review of extant literature and our practical knowledge, we see three main opportunities to contribute to techno-stressor mitigation research. First, most studies focus on organizationally implemented mitigation measures targeting the ICTs themselves, such as technical solutions, ICT support, or ICT skills (Galluch et al., 2015; Tarafdar, Pullins, & Ragu-Nathan, 2015). As technostress mitigation takes place in rich social contexts, we expect mitigation dimensions other than technological might offer further opportunities to address techno-invasion and techno-overload (Pflügner, 2022). Going beyond a culture of mutual support to mitigate techno-stressors (Valta et al., 2021), we focus on mitigation measures that go beyond the technological dimension to also consider a cultural and social context dimension.

Second, most extant research takes an organizational perspective and focuses on technostress among non-IT professionals (e.g., Tarafdar, Pullins, & Ragu-Nathan, 2015). We expect to gain valuable insights by considering the perspectives of employees, especially IT professionals, who are particularly vulnerable to constant connectivity with their work, blurring boundaries and work-family conflicts due to their specific and ubiquitous work environment (Maier, Laumer, & Eckhardt, 2015; Moore, 2000). For example, IT professionals bear the often increasingly large responsibility for their organizations' digital infrastructure, as more and more employees across the organization rely on virtual workspaces and require support beyond core working hours. Further, IT professionals are scarce resources, and IT departments are often understaffed, causing higher workloads for the remaining team (Maier, Laumer, Joseph, et al., 2021).

Third, we expect that considering the employee perspective will enable us to analyze unintended and possibly harmful side effects of measures introduced to mitigate technostress. In our practical experience, employees sometimes perceive that organizational mitigation measures restrict how they organize their workday and how much flexibility they have, which can increase perceived techno-overload the next work day (Gibson, 2014). Organizations and employees would benefit by understanding the potential unintended negative effects of mitigation measures, which can

negatively impact employees' mental health as much as the techno-stressors they aim to reduce. To fill these three research gaps, we conduct a qualitative study, which we describe in the next section.

Methodology

To identify organizationally implemented mitigation measures and understand how they affect employees' perceptions of techno-invasion and techno-overload, we take an exploratory approach and conduct a qualitative study based on semi-structured interviews. A qualitative study is appropriate because open questions give participants more space to consider the design of emerging challenges associated with a specific mitigation measure. The particular perspectives of the participants play a significant role in this approach (Myers, 2019), which allows us to obtain a more detailed and in-depth understanding of mitigation measures and of how employees perceive and experience those measures (Wiesche et al., 2017).

Data Collection

For our qualitative study, we conducted semi-structured interviews with 30 white-collar workers, specifically 23 specialists, five managers, and two CIOs working in the IT departments of two medium-sized organizations in the production industry, one in fashion and one in systems engineering. Both organizations are headquartered in Germany and have locations in and outside Europe. Both organizations are aware of the potential adverse effects of technostress on employees and implemented measures to mitigate such effects during the year prior to our study. In our sample of employees

(see Table 1 for demographics), we had an equal distribution of males and females and an average work experience of 8.75 years. All employees rated their computer self-efficacy as good or very good and reported using ICTs during most of their workday. The two CIOs were males in their late forties and had at least ten years of C-level experience.

We drew on related literature (Galluch et al., 2015; Salo et al., 2020) in establishing procedures and designing our interview guideline (Myers, 2019) (see Appendix A for details) and pretested the semi-structured interview guideline with nine working students. Based on the pretest, we sharpened our focus on organizationally implemented mitigations rather than measures employees implement unilaterally.

We divided our interviews into three sections. In the first section, we asked all participants about their current work situation, whether they had demanding and stressful experiences involving ICT usage in the past, and whether they considered stress related to ICT usage a burden at work and/or outside work. We additionally asked the CIOs how they rate the overall situation in their teams and organizations. We described the five techno-stressors (techno-invasion, techno-overload, techno-insecurity, techno-complexity, and techno-uncertainty) identified in extant literature (Ragu-Nathan et al., 2008) to the participants without mentioning the concept name. This approach enabled us to understand the role technostress plays overall in their workday and other potential sources or categories of technostress related to how employees communicate with each other, the issue of constant connectivity, and the right to disconnect beyond techno-invasion and techno-overload.

Table 1. Demographics (N=30)

Age [years] Mean 35.26; SD 8.34		Gender		Professional sector		Job role		Work experience [years], Mean 8.75; SD 2.54	
< 26	13.33%	Male	53.33%	Fashion	53.33%	Specialist	76.67%	<5	6.66%
26-35	20.00%	Female	46.67%	Systems engineering	46.67%	Manager	16.67%	5-10	40.00%
36-44	43.33%	Other	0.0%			CIO	6.66%	11-15	36.66%
> 44	23.33%							>15	16.66%

Note: SD = standard deviation

In the second section, we gathered information about organizationally implemented measures to mitigate technostress. We followed an iterative approach: starting with the CIOs, we first asked each participant to identify and describe any and all measures introduced by their organization to mitigate technostress. In each subsequent interview, we mentioned the measures that had already been identified to confirm that all employees were aware of these mitigation measures. We chose this iterative approach to ensure that we had a comprehensive overview of each organization's mitigation measures.

In the third section, based on the results of the first two sections, we asked the employees how they experienced and perceived the organization's mitigation measures in terms of their efficacy in reducing techno-invasion and techno-overload. Our intention was to identify the intended and unintended effects associated with each measure.

To ensure transparency and confidentiality, we explained our research purpose and assured participants that their interviews would be anonymous and not personally attributable in any subsequent step. We regularly confirmed that we had understood the participants' responses fully and correctly by repeating their statements back to them and strove not to influence them with our own views. On average, each interview lasted approximately 45 minutes.

Data Analysis

All interviews were transcribed in German, translated into English, and coded with MAXQDAplus 20 following the coding scheme presented by Myers (2019) (see Appendix B). Table 2 provides an overview of this approach. During the sampling, we first identified the basic units of the text to be analyzed. We used descriptive and interpretive coding to identify themes and measures to reduce techno-invasion and techno-overload. Then we categorized the mitigation measures' effects into intended and unintended. Two researchers analyzed the data independently and then resolved any ambiguities in the coding process. Using one interview as a sample data set, we reached inter-

coder reliability of 0.90, calculated as the proportion of agreements to the total number of codes (Feng, 2014; O'Connor & Joffe, 2020). In that interview, there was agreement on 37 of the total 41 codes. After analyzing the interview data, we confirmed our interpretations with the participants to ensure interpretative validity.

Results

In this section, we present our results following the interview guideline structure: participants' understanding of technostress and the role it plays for them at work, mitigation measures categorized along technological, cultural, and social dimensions, and participants' assessment of the efficacy of mitigation measures.

The Role of Technostress

Our interview participants described their work environment as demanding, in part due to the constant work with ICTs. The participants do not describe experiencing techno-uncertainty or techno-insecurity while at work. Rather, they view handling the complexity of ICTs as a ubiquitous phenomenon or the new normal. The participants report perceiving techno-overload and techno-invasion as 'stressful' demands, as demonstrated by the following quotation from a specialist:

I am honestly not worried that some ICT could take away my job, even though I am aware that technology is able to do some things that humans lack the ability to do. Of course, none of us can know everything about every system we work with, but we can learn, which is just part of the job. The same applies to the complexity issue mentioned earlier. We live in an intertwined, global, complex world, which our ICTs also reflect. It is somewhat normal and not stressful for me. Rather, I would say the way we use technology is stressful to me, such as the constant inflow of information, requests, and messages, even at home and after work. You can handle a certain amount of it, but then you just need a break from all that.

Table 2. Overview of the Four-Step Coding Approach (adapted from Myers 2019)

Step	Summary of the applied procedure
<i>First step: descriptive coding</i>	Transcribe and translate interviews, segment text, and assign descriptive codes deductively to identify mitigation measures and intended techno-stressor mitigation effects and unintended adverse side effects. We link mitigation measures and effects inductively.
<i>Second step: interpretive coding</i>	Apply interpretive coding to descriptive codes from the first step, linking mitigation and associated effects to the techno-stressors
<i>Third step: review interpretive coding</i>	Verify accurate coding by reviewing interpretive codes and calculating inter-coder reliability
<i>Fourth step: categorize codes</i>	Categorize interpretive codes into mitigation dimensions

The CIOs agree with this assessment by their employees. However, in terms of how workplace technostress affects them, both stated that even if they are stressed, they prefer not to think about it much so they can focus on the big picture and make strategic decisions, as illustrated by the following quotation from a CIO:

I believe many employees are overwhelmed with requests and sometimes struggle to prioritize what to do first. Moreover, if they cannot finish their work, they take it home and think about what to do next or better tomorrow, which stresses them. I understand those issues. I work in the IT department of a medium-sized company where IT does not count as a core competency. We have a lot of work, a constant workload of 120 percent. That is a reality, and you have to deal with it every day. Nevertheless, I love my job. So, in order not to be stressed too much, I have learned that you cannot do everything at once, and I strictly separate my private life from work to spend quality time with my family. If you are responsible for the corporate IT infrastructure, if you begin to reflect on those things, you cannot do your job.

Based on this insight, we identify a stressor that we call techno-responsibility, which results from bearing responsibility for the ICTs implemented in the organization and the consequences that your decisions and systems can have for employees. The following quotation from the CIO at the systems engineering organization illustrates this techno-stressor:

The only thing I sometimes worry about is the responsibility of this job. Whenever we choose a new system or decide to automatize certain steps of a work process, we must remember that our employees have to work with it every day. The aim is to make their job easier, but I do not know [if it does]. If it burdens them additionally instead or intensifies their stress, I am the one who is responsible and who puts them in this situation in the end. So, we must decide very carefully what we will implement.

While this CIO primarily refers to the burden of being responsible for possible negative consequences for employees' mental health in response to the managerial decision to implement an ICT, the CIO of the fashion organization also perceives the growing responsibility for the organization's infrastructure as a stressful demand for IT specialists. The CIO summarizes it as follows:

With the increasing number of employees working remotely, the company now depends more than ever on the IT department. Consequently, IT specialists, who were responsible for the

infrastructure enabling remote working tools in the past, suddenly have to handle a lot more users burdening this infrastructure and are confronted with a situation where small mistakes or malfunctions can eventually bring the whole company to a standstill. I think this new level of responsibility can be stressful, especially because those team members did not ask for it in the first place, are overwhelmed with requests and contacted after hours.

Identified Mitigation Measures

After clarifying the role of technostress in the organizations, we asked the participants what measures their organization had introduced to mitigate technostress, specifically techno-overload and techno-invasion. Our analysis reveals eight mitigation measures, four addressing techno-invasion and four addressing techno-overload, which we categorize along three mitigation dimensions: technological, cultural, and social mitigation. In line with prior research (Tarafdar, Pullins, & Ragu-Nathan, 2015), we define technological mitigation measures as measures involving ICTs and their features. Based on the interviews, we define cultural mitigation measures as those related to workplace policies and understandings manifested in the organizational culture, such as a shared understanding of the way of working and communication. Social mitigation measures require or concern interaction with others, such as introducing communication rules or fostering attentiveness towards one another. In the following section, we present the measures to mitigate techno-invasion and techno-overload.

Measures to Mitigate Techno-Invasion

Techno-invasion refers to employees' feeling of constant connectivity to work during non-working hours and the invasion of their private life through ICTs. One predominantly technological measure to reduce such techno-invasion is restricting the usage of business end devices in private contexts to avoid blurring boundaries. This measure includes a clear separation of personal and business devices and the deactivation of online access to business devices during predefined times. This measure ensures that employees can and do not receive business-related emails or phone calls during non-working hours. A specialist describes the mitigation measure as follows:

During non-working hours, we can activate an automatic do not disturb mode on our business devices in a specified timeframe that matches our office hours. As a result, in that timeframe, calls or messages are not displayed but are somehow stored and shown the next day. We can also

switch off the device if we do not need it for anything at home.

A second and similar technological measure is an explicit restriction of email traffic (Stich et al., 2019). This measure includes automatized and manual measures restricting email traffic to a particular timeframe, such as by programming servers to not deliver emails outside of working hours. A manager explains this as follows:

Within the organization, emails are not delivered between eight o'clock in the evening and six o'clock the next day to ensure that people get their rest. These rules also apply to those working with international teams regularly. However, with this measure, we can opt out for a certain amount of time if we are working at different times for a specific project or something.

According to both CIOs, a significant issue with techno-invasion is that employees do not disconnect because they think colleagues and especially executives expect that they must respond immediately to an incoming request. The CIOs think that employees feel irresponsible if they do not respond until the next workday. The CIO of the systems engineering organization decided to confront this reason for not disconnecting by implementing a valuable break/free time culture that combines two mitigation measures, one cultural and one social. The cultural mitigation measure is establishing an emergency communication channel, especially for sensitive tasks. Employees are only contacted via this channel in urgent, non-deferrable cases, such as a server breakdown. The CIO explains the mitigation measure as follows:

Our organization uses a short message communication tool to implement channels that gather communication around certain topics. One of these channels has been defined as the "emergency channel," meaning that this is the only channel I have to respond to immediately, like within an hour, if something comes in. Those channels have been introduced for teams responsible for sensitive tasks, like [maintaining] the server or the cooling system for machines. Conversely, this also means that everything that does not come in via this channel can be easily ignored and handled the next workday. Employees must decide whether it is an emergency that cannot wait and is worth disturbing others' valuable free time. If that is not the case, they contact their colleagues the next day and not in their valuable free time.

The social mitigation component of the valuable break/free time culture depicts a clear communication of expectations between executives and employees

and among employees. It bases on the tenet that no one, no executive, and no colleague expects to receive an answer during non-working hours or during breaks out of respect for the new creativity and engagement that results from having that free time or taking those breaks. Hence, having free time or taking a break is not associated with laziness or low productivity but with the renewal of physical and creative energies with medium- and long-term benefits for the individual, colleagues, and overall project or business goals. The CIO elaborates:

I try to create an awareness that I do not expect my employees to respond to my requests during non-working hours, and I also try to transfer that climate to the team. I want them to develop a "social awareness" across the team that valuable free time helps to foster the project and does not delay it. Free time has been negatively connotated with laziness and low productivity in the past. This connotation also affects communications within the team. As a result of that mitigation measure, I expect that having respect for others' work, achievements, and the free time and breaks they need to perform will bring more appreciation into the conversation.

According to the CIO, in the long-term, this mitigation measure could help employees to handle their techno-overload better if they consciously decide to take little breaks to step back and reprioritize their workload and not work at home during their free time.

Measures to Mitigate Techno-Overload

Employees perceive techno-overload when they experience increased work volume and speed due to ICT usage (Tarafdar, Pullins, & Ragu-Nathan, 2015). A technological mitigation measure is to implement good practices for internal communication via ICTs. One example is the implementation of interruption and spam control in communication tools, such as restricting the number of recipients of emails to reduce the number of emails forwarded or shared within the organization. Another example is the introduction of enterprise social networks, such as Yammer, or internal short message tools, such as MS Teams, to reduce email traffic and communication efforts and encourage individuals to interact informally instead. A specialist explains:

Besides spam filters, mute functions, and so on, the organization has introduced an instant messaging tool to reduce the number of emails we receive and to structure information better for recipients. Via the channels within the instant messaging tool, we can provide information for specific groups, and one can ask short questions

with short answers without formally writing an email.

In the same spirit, a cultural mitigation effort we identified incorporates a more efficient way to get support or information by introducing a pull-not-push culture. This mitigation includes efficient substitutes for contacting colleagues via emails, such as good internal wikis, FAQ pages, or chatbots handling standard internal requests. Employees can pull information when they need it and cause fewer interruptions by asking colleagues. Organizations must establish a "give and get advice" policy. Employees learn how to contribute to the joint knowledge base, train a chatbot, and help each other find information more efficiently. One CIO summarizes the cultural mitigation measure as follows:

The only way to reduce the amount of largely unneeded information and interruptions is to establish structures and the culture of consuming knowledge when necessary and when it fits my current task. Existing knowledge has to be gathered and processed to make this happen. I know that this is nothing employees want to do because of time, effort, and willingness issues. However, if everyone contributes, it is easier to convince employees to share their knowledge. For example, we had one employee who was pretty good with presentation tools and then held a tutorial on designing good slides. Others collected healthy eat-out options for lunchtime, so I believe everyone can contribute something.

One social mitigation measure to reduce techno-overload is communicating the issue to an executive who can delegate ICT-related demands and lessen the workload for one specific employee. The executive can help to prioritize incoming requests and tasks. A manager described this as follows:

Normally, we prioritize and organize our workload by ourselves, but there are certain situations, especially if there is a project with many stakeholders, where there are too many requests and messages. In that case, we can speak to an executive and ask for help in prioritizing work or maybe rethink responsibilities for certain projects. I offer that to my team, but I also can talk to executives about it.

Another social mitigation measure to reduce techno-overload is to establish off-screen communication opportunities. This measure includes informal communication in team areas or formal communication in meetings outside. The CIO of the fashion organization explains this mitigation as follows:

In my opinion, the key to reducing stress is communication. If employees feel overwhelmed

by requests and interruptions by ICTs, I believe it is imperative to create off-screen communication opportunities. For example, we have an area where our employees can play foosball, talk about projects and stressful experiences, and get support from others in an informal environment, making it much easier to communicate those issues than with an executive. Further, we try to establish "walk and talks," which means we meet while going for a walk. This meeting form reduces interruptions, is healthy, and gives us a break from virtual communication tools.

Employees' Assessment of Mitigation Measures

While all the presented mitigation measures aim at reducing techno-invasion and techno-overload, interview participants varied in terms of their assessment of their reasonableness and effectiveness. After introducing participants' assessments (summarized in Table 3), we discuss the deduced effects based on data collected in the interviews (see Appendix, Table B.1).

Our analysis reveals that employees perceive none of the identified mitigation measures as purely positive. On the one hand, the interviewed specialists and managers confirm the potential of the identified mitigation measures to reduce techno-invasion/techno-overload. On the other hand, they also see some obstacles associated with the mitigation measures, including challenges, additional tasks, and emotional burdens that may, in turn, contribute to stress. When we compare how individuals in different roles assess the measures, we see that managers focus more on the consequences for the organization and the success of work processes than specialists, who focus more on their technostress reduction. Further, while the CIOs and specialists seemed convinced and persuaded that they could work together to reduce technostress, the managers were more restrained and afraid of the misuse of the mitigation measures.

Assessments of the Efficacy of Techno-Invasion Mitigation Measures

Employees acknowledge that the mitigation measures reduce interruptions during non-working hours, which can help sharpen work-life boundaries, create a clear end of the working day, and support the use of free time for leisure and non-work activities. They acknowledge that technological mandates that ensure more clearly defined working hours and a shared understanding of the value of breaks supported by the valuable break/free time culture enable them to take breaks and rest when they are not working. They report that these mitigation measures are intended to reduce techno-invasion. A specialist reports:

I am the type of person who is likely to stay connected with work at home. Even though I know that I do not have to do it, I normally check my email regularly because I do not want to miss anything and do not want to disappoint my manager or someone on my team. If I do not have

to check on my mail account because I receive critical messages directly, and if I know that I am not falling short of expectations by taking a break, it helps me calm down and distance myself from my job.

Table 3. Overview of Mitigation Measures and Their Assessment by Role

Techno-stressor	Mitigation dimension	Mitigation measure	Effects	Assessment by role	
				Specialists	Managers
Techno-invasion	Technological	Separation of private and business devices	Positive effects	<ul style="list-style-type: none"> • Clear end of the workday • Reduction of blurred boundaries • No accidental involvement in business-related communication 	<ul style="list-style-type: none"> • Clear end of the workday • Reduction of blurred boundaries
			Negative effects	<ul style="list-style-type: none"> • Stressful to use multiple devices • Loss of flexibility • No free choice of the end device 	<ul style="list-style-type: none"> • Loss of flexibility • Deceleration of work processes • Loss of decision autonomy
		Restriction of email traffic	Positive effects	<ul style="list-style-type: none"> • Clear end of the workday • Reduction of blurred boundaries 	<ul style="list-style-type: none"> • Clear end of the workday • Reduction of blurred boundaries
			Negative effects	<ul style="list-style-type: none"> • Postponing of overload • Loss of flexibility 	<ul style="list-style-type: none"> • Loss of flexibility • Deceleration of work processes • Loss of decision autonomy
	Cultural	Valuable break/free time culture: introduction of an emergency channel	Positive effects	<ul style="list-style-type: none"> • No feeling guilty for not staying up to date constantly at home • Fosters disconnection from work • Push of urgent messages, no need for constant pull 	<ul style="list-style-type: none"> • Clear attribution of responsibilities • Fosters disconnection from work • Shared understanding of the value of free time
			Negative effects	<ul style="list-style-type: none"> • Still a need to constantly check the channel • Channel not in an isolated tool • Fear of misuse 	<ul style="list-style-type: none"> • Abuse of free time burdens others with more work • Need to establish core working hours
	Social	Valuable break/free time culture: clear communication of expectations	Positive effects	<ul style="list-style-type: none"> • No feeling guilty for not staying up to date constantly at home • Fosters disconnection from work 	<ul style="list-style-type: none"> • Fosters disconnection from work • Shared understanding of the value of recreation
			Negative effects	<ul style="list-style-type: none"> • Need to reach mutual agreement with all employees 	<ul style="list-style-type: none"> • Abuse burdens others

Techno-stressor	Mitigation dimension	Mitigation measure	Effects	Assessment by role	
				Specialists	Managers
Techno-overload	Technological	Good practices for internal communication	Positive effects	<ul style="list-style-type: none"> Employees receive fewer requests Fewer interruptions Fosters informal communication and culture of information pull 	<ul style="list-style-type: none"> Employees receive less unneeded information Fewer interruptions Fosters informal communication and culture of information pull
			Negative effects	<ul style="list-style-type: none"> Fosters multi-channeling Need for guidelines on when to use which tool 	<ul style="list-style-type: none"> Fosters multi-channeling Need for awareness that an instant message does not mean an instant response
	Cultural	Introduction of 'pull not push' culture	Positive effects	<ul style="list-style-type: none"> Employees receive less unneeded information Fewer interruptions by standard requests Strengthens organizational IT infrastructure 	<ul style="list-style-type: none"> Employees receive less unneeded information Fewer interruptions by standard requests Strengthens organizational IT infrastructure Strengthens work autonomy Better support through higher reliability Based on wikis, first-level support can help with elaborated tasks
			Negative effects	<ul style="list-style-type: none"> Extra work and extra screen time No guaranteed usage 	<ul style="list-style-type: none"> High dependency on employees' willingness to contribute High dependency on IT infrastructure
	Social	Communication with executive	Positive effects	<ul style="list-style-type: none"> Better prioritization of requests Reduction of workload 	<ul style="list-style-type: none"> Early mitigation possible
			Negative effects	<ul style="list-style-type: none"> Highly dependent on specific executive and trust towards that person Fear of being perceived as less competent and less resilient than others 	<ul style="list-style-type: none"> Reduction is not always possible Higher workload for executives and too much involvement in employees' private affairs No substitute for professional help
		Introduction of 'off-screen' communication opportunities	Positive effects	<ul style="list-style-type: none"> Reduction of ICT use and screen time Working break Exercise and fresh air 	<ul style="list-style-type: none"> Working break Higher creativity Potential for social support
			Negative effects	<ul style="list-style-type: none"> Extra coordination, preparation, and the post-processing effort Only particular meetings suitable for off-screen 	<ul style="list-style-type: none"> Dependency on team structure and relationships

The employees we interviewed report having difficulties using different, less customized devices, or devices with overly regulated application restrictions and user rights. Limiting email access to certain hours severely reduces flexibility and can make it more difficult for employees to balance their work and non-work demands in a way that fits their schedules, thus reducing their decision autonomy. They report that this sometimes slows down work processes and postpones tasks to the next day, leaving them to face a flood of unread emails. One specialist reports:

So now they have introduced these email restrictions that no one can be disturbed in their private time. While I understand that some colleagues need that to disconnect from work, I cannot imagine that that solves any problems for me. Granted, I am not disturbed in the evening, but who helps me out when I am back in the office and swamped with emails? Honestly, starting every day by answering tons of emails is not pleasant. You feel like you will not make it through them all before the workday has even begun. In addition, I am worried that some of my colleagues go overboard on breaks, and those who take breaks responsibly end up doing all the work. I must admit that this has not happened yet, but managers must keep an eye on that.

In essence, mitigation measures intended to reduce techno-invasion can have the unintended adverse effect of increasing the level of techno-overload if work is postponed and multiple requests come in simultaneously.

Assessments of the Efficacy of Techno-Overload Mitigation Measures

The intended positive effect of measures to reduce the overall number of technology-induced requests, interruptions, and information that an employee receives is to mitigate techno-overload. Examples of such mitigation measures include strengthening the IT infrastructure by adopting or improving knowledge-sharing structures, such as wikis or chatbots, to reduce standard requests to knowledge providers and provide on-demand access to information to knowledge consumers. Introducing short message tools fosters informal communication and helps clarify which communication channel should be used for what purposes. One manager explains how different requests are suitable for different communication channels as follows:

I enjoy writing my colleagues direct messages via our internal social network. It is faster than writing an email because it is informal. Granted, it still interrupts your work, but the questions are more focused and the answers can be short, so I do not

have to invest as much thought as with an email. However, it sometimes seems like [some people think] instant messaging implies an instant response. If colleagues do not receive a response from me instantly, they either write question marks in the chat that constantly interrupt me or write me emails on the same topic as well. Therefore, we need clear instructions on which tool to use for what and how to use the tools politely and respectfully.

Along similar lines, a specialist stresses that the organization should provide "work-only" tools to avoid blurring boundaries that cause techno-invasion in an attempt to reduce techno-overload:

I see many advantages in using short message tools to achieve more direct communication, but only as long as they are exclusively work-related. I must remind myself not to download those tools to remote devices to prevent interruptions after working hours.

The intended positive effects of communicating with executives include clearer priorities, task reallocation and early intervention, such as support for consulting a mental health professional if perceived techno-overload is affecting employees' mental health. However, the effectiveness of such measures is highly dependent on the employee's relationship with the executive, whether the employee fears that the executive will perceive him or her as less competent or resilient, and how the executive handles the situation. One specialist reports:

A few weeks ago, my executive invited us to speak to him about our work conditions during a weekly meeting with all our colleagues. He told us that he had the impression that most of us worked the whole day without even taking a break or going to the coffee corner. He suggested we could talk about why this is the case. I decided to open up and share my perception that I was suffocating in emails and requests and that I sometimes do not know where to start. It was not easy to say that, and I felt like a complete mess by confessing that I felt overwhelmed, but suddenly my colleagues shared their stories and said they felt the same. Our executive listened carefully and offered direct support in prioritizing tasks and defending our department against unnecessary requests from others. Feeling my colleagues' and my executive's understanding and having the impression we would get this done together helped me feel better and gave me the confidence to get it done. I was glad my executive reacted with much understanding since I was worried my admission could make me look weak and vulnerable in his eyes. When I think back to my last executive, a

conversation like that would have been impossible because we did not share that level of trust.

A manager adds:

I understand the thought process behind that mitigation measure, but, besides the extra workload for us, from my point of view, a reduction or reallocation of tasks is not always possible, and as an executive, I have limited means to actually help my employees. Also, I think a certain professional distance can be helpful, so I do not want to get too deeply involved in employees' problems, as I believe such talk cannot replace professional help.

The employees appreciate efforts to reduce screen time and encourage working outside, but, similar to with the other mitigation measures, they worry that avoiding unavoidable interruptions and requests can create other problems. A manager explains:

I like the idea, and I try to use walk-and-talks whenever possible, but we have to be aware that we cannot hold every meeting like that and that it requires additional preparation if you cannot use slides or other tools. Also, whether a team comes together and seizes opportunities like foosball depends on the team structure and relationships, so we do not know whether the mitigation measures have the intended effect or create more tasks and more stress.

Post-Hoc Analysis: Research Relevance and Transferability to Practice

Since our study addresses what organizations can do to reduce techno-invasion and techno-overload for their employees, we are interested in whether and how practitioners can use our results. To this end, we presented and discussed our results post-hoc with the interviewed CIOs and performed an applicability check to demonstrate the study's relevance, importance, accessibility, and suitability in practice (Gill & Bhattacharjee, 2009; Te'eni et al., 2018). Additionally, we spoke with a third CIO, who has not been interviewed for this study, to get an external perspective. This third CIO also works in a medium-sized organization in the German production industry, which is currently discussing the matter of technostress and possible organizational mitigation measures but has not yet introduced them.

In terms of relevance and importance of our study, all three CIOs agree that technostress and employees' mental health are essential topics for organizations and report that there is little to no common standard way to approach these issues. In their role as decision-makers, they would appreciate recommendations on how to approach the topic. The third CIO, whose

organization has not yet introduced mitigation measures, states:

The organizational understanding of the importance of employees' mental health has grown over the past years, especially since the [start of the COVID-19] pandemic. While I believe this has always been an important topic, the willingness to approach topics like stress or burnout or burdens arising from ICT usage has now outgrown the status of 'nice to have' and is now increasingly seen as a necessity for organizations. However, we lack experience on how to approach it. Therefore, having recommendations like the ones in this study is beneficial and very important.

Regarding the accessibility of the results, the CIOs rate the overview in Table 3 and the practical recommendations as helpful, easy to understand, transparent, and plausible.

The suitability of our results has been discussed from different perspectives, as the CIOs see four various vital takeaways from the results for their approach to mitigate technostress. The first takeaway is that employees suffer from technostress and appreciate the organizational efforts to reduce techno-invasion and techno-overload. The CIOs were surprised about the differences regarding the assessments of the mitigation measures, including how the employees' assessments contrast with their own. The CIO of the systems engineering organization states:

While I was aware that the mitigation measures would not be perfect for every employee, I am delighted to read that most of our employees value our effort to protect them from [techno]stress. The results show very transparently and plausibly that we are in the middle of the process and not at the end. We have to think about how we can address the raised concerns and where we can adjust or expand our mitigation measures. A significant takeaway is that introducing technological measures is not enough, but rather we also need additional guidelines to make the most out of these mitigation efforts.

The second takeaway is that while the introduced mitigation measures are a good starting point, there is still room for improvement, as demonstrated by this quotation from the CIO of the fashion organization:

We have made a good start in reducing ICT stress for our employees, but we need to continue consolidating those mitigation measures in the future. I am also very interested in learning more about what others have done. We can learn from each other, and I will also consider bringing this valuable break/free time culture to our

organization. The role I see for us as CIOs is threefold: first, to keep in touch with the employees and continue to ask for their opinion regarding the mitigation measures. Second, to build trust in ourselves as executives and in our mitigation measures. Third, to act as a prototype or role model for good communication and interaction within the team.

The third takeaway is the importance of cultural and social mitigation measures, which have been underrated. The CIO from the production industry, whose organization has not yet introduced mitigation measures, notes:

What I find quite impressive is that when we thought about bringing relief for our employees, we only had technological measures in mind. However, it all comes down to communication, social interaction, and culture.

The last takeaway refers to the detected "loop" in perceiving techno-invasion and techno-overload. We showed the CIOs that specific measures to reduce one techno-stressor could foster another. Specifically, our results show that restricting email traffic after working hours and on weekends to minimize techno-invasion can cause a flood of incoming emails the next working day, causing techno-overload. Further, we found that using short message tools to reduce the number of emails and techno-overload can be perceived by employees as an invasion of their privacy, causing techno-invasion. The CIOs were unaware of these interdependencies, and all agreed that this is a relevant issue when discussing mitigation measures. The CIO of the fashion organization summarizes:

The fact that we can cause stress by mitigating it is a big surprise for me, but I think it is plausible that some colleagues feel that way. This loop is an issue worth considering when improving implemented mitigation measures in the future. For me, this requires closer monitoring and individual feedback to understand when a mitigation starts to harm employees. With the help of their feedback, we can then decide whether we need to change, adapt or drop the mitigation measure to maximize employees' well-being.

The CIO of the systems engineering organization suggests ways to avoid undesirable "loop" effects:

Spontaneously, I would rather rate this loop as not fully breakable because if our employees focus on

the stress potential within the mitigations instead of their advantages, there is barely anything we can do about it. However, I still believe that we could help them overcome the negative effects of the loop. For example, we could raise awareness about the huge relief of not having to check emails that arrive after working hours or on weekends, which comes at the low cost of receiving postponed emails. They will receive the emails anyway but just bundled the next workday. This issue could be a question of mindset and framing things. Additionally, we could reserve the first half an hour or first hour on Monday as a "meeting-free" slot, where employees can focus on and organize new emails and gain a sense of control to mitigate techno-overload.

Discussion

The right to disconnect has put mitigation measures for techno-invasion and techno-overload on the agenda of many organizations lately. While literature (Valta et al., 2021) and practice (Koch, 2014) have identified a variety of mitigation measures, there is an ongoing discussion about how effectively they reduce techno-invasion and techno-overload (Akanabi, 2021; Earwaker, 2021). Scholars have identified technostress as an example of the "dark side of IT," which continuously threatens employees' well-being (D'Arcy et al., 2014; Tarafdar, D'Arcy, et al., 2015). By interviewing IT professionals, specifically IT specialists, managers, and CIOs, we identify mitigation measures for techno-invasion and techno-overload, categorizing them as technological, cultural, or social mitigation measures. Notably, our results show that none of the mitigation measures is free of negative effects for employees. Measures intended to mitigate one techno-stressor can have the unintended effect of fostering another, potentially failing to reduce overall technostress levels. This looping effect between techno-stressors and measures to mitigate them, combined with individual preferences regarding mitigation measures, shows that introducing successful mitigation measures requires a complex understanding of their effects on employees.

Theoretical Contribution

With this research, we contribute to the research stream of technostress and organizational technostress mitigation measures in the following four ways (see Figure 1):

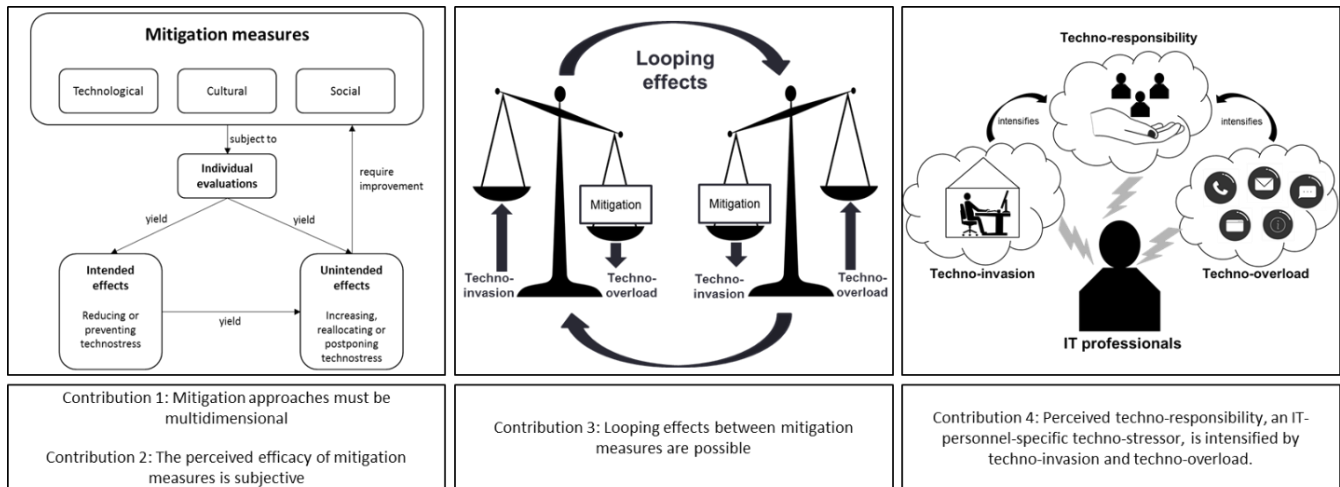


Figure 1. Theoretical Contributions

1) We demonstrate the importance of taking a multidimensional approach to mitigating technostress that considers the technological, cultural, and social aspects of technostress. In our study, we identify eight measures to mitigate technostress, four to mitigate techno-invasion, and four to mitigate techno-overload. Based on our results, we categorize three of these measures as technological mitigation measures: *separation of private and business devices* and *restriction of email traffic* addressing techno-invasion and *good practices for internal communication* addressing techno-overload. In line with prior research (Tarafdar, Pullins, & Ragu-Nathan, 2015), we define technological mitigation measures as measures involving ICTs and their features. Our findings confirm the existence of previously suggested mitigation measures, such as the restriction of email traffic (e.g., Galluch et al., 2015), and show that ICTs can also mitigate ICT-induced technostress. The remaining five mitigation measures can be categorized as cultural or social mitigations, two dimensions that have not been considered in previous research. We identified two cultural mitigation measures: an *emergency communications channel* to mitigate techno-invasion as an expression of the valuable break/free time culture and a *"pull not push" culture* to mitigate techno-overload. Based on the interviews, we define cultural mitigations as measures related to workplace policies and understandings manifested in the organizational culture, such as a shared understanding of the way of working and communication. The two identified cultural mitigation measures introduce shared understandings of work regarding when to use the emergency communication channel after-hours and the practice of proactively seeking information. Further, with *valuable break/free time culture – clear communication of expectations* as a measure to mitigate techno-invasion and *communication with executives* and *'off-screen'*

communication opportunities as a measure to mitigate techno-overload, we identify three social mitigation measures. Our interviews indicate that social mitigation measures require or concern interactions with others, such as introducing communication rules or fostering attentiveness towards one another. The identified measures all stress the importance of communication and illustrate the importance of an infrastructure that fosters communication, going beyond the technology to include the social level. By identifying these three dimensions, we develop an understanding of technostress mitigation beyond targeting the ICTs to include tackling the socio-technological nature of ICT usage (Bednar & Welch, 2020). We thereby contribute by demonstrating the importance of taking a multidimensional approach to mitigating technostress that targets the technological, cultural, and social aspects of technostress.

2) We reveal the important role of subjectivity in perceived efficacy of mitigation measures. Our results show that individuals are subjective in their assessment of how efficiently a particular measure mitigates a particular techno-stressor. Hence, while a measure may be introduced to mitigate or prevent techno-invasion or techno-overload, some employees may perceive the measure as ineffective because it increases, reallocates, or postpones technostress. By taking the employees' perspective, we complement existing research on organizational mitigation measures that mainly take the organizational view (Tarafdar, Pullins, & Ragu-Nathan, 2015), showing that reducing techno-stressors can come at a price. These insights help us better understand the implications of the mitigation measures for employees and guide organizations in considering the potential downsides of mitigation measures as they develop and implement technostress mitigation strategies. Our results point to possible job role-specific assessments of the mitigation measures, supported by partly

overlapping assessments among the specialists we interviewed. This finding opens the discussion of whether techno-stressors experienced by IT-specialists in different IT job roles require unique mitigation measures. While our study makes the first step in that direction, we call for future research to continue exploring role differences in technostress mitigation research.

3) We illustrate possible looping-effects between the measures to mitigate techno-invasion and techno-overload. Based on our interviews, we find that measures designed to mitigate one techno-stressor can foster another. Specifically, by restricting or prohibiting email delivery after working hours and on weekends in an effort to mitigate techno-invasion, some employees perceive the resulting flood of incoming emails the next working day as techno-overload. We also found that some employees perceived the use of short message tools, intended to reduce the number of emails and thus mitigate techno-overload, as an invasion of their privacy and, therefore, as techno-invasion. On a theoretical level, these findings indicate that measures intended to mitigate technostress can cause unintended technostress and lower employees' well-being and performance. This insight contributes to research into treating transmission effects between employees (Chen & Karahanna, 2018; Ragu-Nathan et al., 2008) by adding the layer of intertwined techno-stressor mitigation effects that exchange the perceptions of one stressor for the perception of another.

4) We identify techno-responsibility as an IT-professional-specific techno-stressor. Extant research into technostress and mitigations for non-IT professionals (e.g., Tarafdar, Pullins, & Ragu-Nathan, 2015) and evaluating differences between the two (e.g., Maier, Laumer, & Eckhardt, 2015) shows that technostress among IT professionals is often techno-invasion or techno-overload. Our study identifies techno-responsibility as a third category relevant specifically to IT-personnel. We define techno-responsibility along two dimensions: the perceived burden of being aware of the responsibility for the ICTs implemented in the organization and of the potentially adverse consequences of ICT-related decisions and systems for employees and their working routines. Further, our findings indicate that perceived techno-overload and/or techno-invasion intensifies perceived techno-responsibility by intensifying the awareness of the responsibilities leading to techno-responsibility, triggered by incoming requests, interruptions after working hours, etc. This contributes to studies calling for further research into the interplay between techno-stressors (Pflügner et al., 2020) and transmission effects between stressors (Chen & Karahanna, 2018). Further, by identifying techno-responsibility as an IT-

personnel-specific techno-stressor, our study addresses differences in perceived techno-stressors depending on the job role and context, e.g., IT vs. non-IT professionals (Ahuja et al., 2007; Sarker et al., 2018). This insight helps us detect demands within different contexts and design suitable mitigation measures targeting role-specific techno-stressors.

Practical Implications

Our study offers practitioners valuable insights into implementing mitigation measures in organizations that support the right to disconnect by identifying eight mitigation measures and revealing how employees assess the efficacy of these mitigation measures in terms of intended and unintended effects. We deduce three significant insights for organizations:

1) Technostress mitigation is complex and can have unintended effects. While the *right to disconnect* implies that disconnecting from work is a desirable option for employees, organizations should be aware that reducing technostress, specifically techno-invasion and techno-overload, for their employees is a complex undertaking. Simply disconnecting technically is not enough. Introducing organizational mitigation measures requires a vital ICT infrastructure, a robust team culture, and socially skilled executives. Introducing organizational mitigation measures is not a short-term project with guaranteed success: mitigating technostress in the medium and long term requires strong organizational commitment. Our results indicate that employees' individualized working habits and preferences influence how they cope with their job's responsibility and connectivity. There is a risk that they may perceive mitigation measures as a stressful restriction of their flexibility. We advise organizations to take a complex, holistic approach rather than looking for a (non-existent) simple quick-win solution.

2) Technological mitigation measures alone are insufficient without also considering cultural and social measures. Our analysis indicates that simply introducing new tools or technologically implemented restrictions to reduce techno-invasion and techno-overload is insufficient. Rather, organizations must consider how employees can use such tools or technologically supported measures to reduce their technostress levels. Measures designed to mitigate technostress related to internal communications should establish and articulate and support best practices for choosing when to use various communication tools, increase social awareness among employees regarding when and how to communicate and provide guidelines on where to pull information from a wiki or database rather than asking others. Social and cultural mitigation measures should be prioritized in order to establish a shared mindset for

mitigating technostress and avoiding unintended negative effects of implemented measures.

3) Employees value the efforts to reduce technostress. Our analysis shows that even though mitigation measures do not reduce techno-invasion and techno-overload to the same extent for every employee, they still acknowledge and value the organization's efforts to implement them. Putting employees' mental health on the organization's agenda is a sign that management cares about and appreciates the work of employees, thus increasing their job satisfaction. We encourage organizations to include employees actively in introducing technostress mitigation measures and listen to what they need to protect their employees and keep productivity and satisfaction high.

Limitations and Future Research

Due to the nature of our qualitative study, our results are context-specific and restricted to the specific set of employees and CIOs working in the two IT departments of organizations in the German production industry. While we acknowledge the limits to the generalizability of our study, our approach nonetheless provides an in-depth understanding of those employees' assessments and provides valuable insights into measures to mitigate techno-invasion and techno-overload among IT personnel. We encourage future research comparing our results to those in other industry, cultural and economic settings.

Furthermore, this study focuses on techno-invasion and techno-overload because they relate to the right to disconnect and are relevant for IT professionals. While we understand that extant literature has identified a number of other techno-stressors (Califf et al., 2020; Fischer et al., 2021; Ragu-Nathan et al., 2008), focusing on these two particular techno-stressors sharpened our discussion of the relevant mitigation measures. We acknowledge that techno-invasion and techno-overload may have dominated in our interviews because of the strict IT context and the high computer self-efficacy among our sample.

Our research touches on individual differences in how employees with different roles perceive and assess measures to mitigate technostress. For instance, our findings suggest that CIOs perceive, handle and manage technostress differently from other employees. Prior research shows that individual differences, such as personality traits (Maier et al., 2019) or profiles of personality traits (Pflügner et al., 2020), influence the perception of techno-stressors. Our interviews suggest that this might also apply to mitigation measures. We call for further research into how personality traits or personality profiles interact with job skills, roles, and responsibilities to influence the

perceived efficacy of different measures to mitigate techno-stressors.

Moreover, we encourage future research to investigate how ICTs such as artificial intelligence (AI) can be both a source and cure for technostress. AI could also be implemented to support cultural and social mitigation measures, e.g., through using chatbots acting as support assistants answering standardized frequently asked questions. Cultural and social mitigation dimensions are expected to gain particular importance as we enter the 'feeling economy' (Huang et al., 2019).

Last, recent literature investigates the potential positive effects of technostress when techno-stressors are perceived as a challenge (Califf et al., 2020; Maier, Laumer, Tarafdar, et al., 2021). While this study focuses on the negative implications of technostress and how to reduce it for employees, future research could also investigate possible measures to mitigate negative perceptions of technostress, such as communication strategies, that foster positive technostress.

Conclusion

This study examines measures to mitigate techno-invasion and techno-overload among IT-personnel and their assessment of the efficacy (intended and unintended effects) of such measures. We identify eight mitigation measures, four intended to mitigate techno-invasion and four intended to mitigate techno-overload. We categorized three as technological, two as cultural, and three as social mitigation measures with the intended effect of reducing techno-invasion and techno-overload and the possible unintended effects of increasing, postponing, or reallocating technostress. Our findings reveal that mitigating technostress is a complex undertaking involving the interplay between technological, social, and cultural measures and is influenced by subjective individual perception, work skills, roles, and responsibilities.

References

- Ahuja, Chudoba, Kacmar, McKnight, & George (2007). IT Road Warriors: Balancing Work-Family Conflict, Job Autonomy, and Work Overload to Mitigate Turnover Intentions. *MIS Quarterly*, 31(1), 1. <https://doi.org/10.2307/25148778>
- Akanabi, O. (2021, November 22). 'Right to disconnect' laws aren't the solution to overwork and burnout. *BusinessInsider*. <https://www.businessinsider.com/legislation-may-not-have-answers-solving-right-to-disconnect-2021-11>
- Ayyagari, Grover, & Purvis (2011). Technostress: Technological Antecedents and Implications. *MIS*

- Quarterly, 35(4), 831–858.
<https://doi.org/10.2307/41409963>
- Bednar, P. M., & Welch, C. (2020). Socio-Technical Perspectives on Smart Working: Creating Meaningful and Sustainable Systems. *Information Systems Frontiers*, 22(2), 281–298.
<https://doi.org/10.1007/s10796-019-09921-1>
- Benlian, A. (2020). A daily field investigation of technology-driven spillovers from work to home. *MIS Quarterly*, 44(3), 1259–1300.
<https://doi.org/10.25300/MISQ/2020/14911>
- Bruijn, A. (2021). The right to disconnect: A European Overview. <https://www.oysterhr.com/library/right-to-disconnect-a-european-overview>
- Califf, C. B., Sarker, S [Saonee], & Sarker, S [Suprateek] (2020). The Bright and the Dark Sides of Technostress: A Mixed-Methods Study Involving Healthcare IT. *MIS Quarterly*, 44(2), 809–856.
<https://doi.org/10.25300/MISQ/2020/14818>
- Chen, A., & Karahanna, E. (2018). Life interrupted: The effects of technology-mediated work interruptions on work and nonwork outcomes. *MIS Quarterly*, 42(4), 1023–1042.
- D'Arcy, J., Gupta, A [Ashish], Tarafdar, M., & Turel, O. (2014). Reflecting on the "Dark Side" of Information Technology Use. *Communications of the Association for Information Systems*, 35.
<https://doi.org/10.17705/1CAIS.03505>
- Earwaker, J. (2021, August 19). Should workers have a legal right to disconnect? *Business Spotlight*.
<https://www.business-spotlight.de/business-englisch-lesen/should-workers-have-legal-right-disconnect>
- Eurofound. (2021). Right to disconnect. <https://www.eurofound.europa.eu/observatories/eurwork/industrial-relations-dictionary/right-to-disconnect>
- Feng, G. C. (2014). Intercoder reliability indices: disuse, misuse, and abuse. *Quality & Quantity*, 48(3), 1803–1815.
<https://doi.org/10.1007/s11135-013-9956-8>
- Fischer, T., Reuter, M., & Riedl, R. (2021). The Digital Stressors Scale: Development and Validation of a New Survey Instrument to Measure Digital Stress Perceptions in the Workplace Context. *Frontiers in Psychology*, 12, 607598.
<https://doi.org/10.3389/fpsyg.2021.607598>
- Galluch, P. S., Grover, V., & Thatcher, J. (2015). Interrupting the workplace: Examining stressors in an information technology context. *Journal of the Association for Information Systems*, 16(1), 1–47.
- Gaudio, F., Turel, O., & Galimberti, C. (2017). The mediating roles of strain facets and coping strategies in translating techno-stressors into adverse job outcomes. *Computers in Human Behavior*, 69, 189–196.
- Gill, G., & Bhattacharjee, A. (2009). Whom Are We Informing? Issues and Recommendations for MIS Research from an Informing Sciences Perspective. *MIS Quarterly*, 33(2), 217–235.
- Huang, M.-H., Rust, R., & Maksimovic, V. (2019). The Feeling Economy: Managing in the Next Generation of Artificial Intelligence (AI). *California Management Review*, 61(4), 43–65.
<https://doi.org/10.1177/0008125619863436>
- Koch, M. (2014). Banning e-mail after work. *Deutsche Welle* (www.dw.com).
<https://www.dw.com/en/banning-e-mail-after-work/a-17445387>
- Maier, C., Laumer, S., & Eckhardt, A. (2015). Information technology as daily stressor: Pinning down the causes of burnout. *Journal of Business Economics*, 85(4), 349–387.
<https://doi.org/10.1007/s11573-014-0759-8>
- Maier, C., Laumer, S., Eckhardt, A., & Weitzel, T. (2015). Giving too much social support: Social overload on social networking sites. *European Journal of Information Systems*, 24(5), 447–464.
- Maier, C., Laumer, S., Joseph, D., Jens Mattke, & Tim Weitzel (2021). Turnback Intention: An Analysis of the Drivers of IT Professionals' Intentions to Return to a Former Employer. *Management Information Systems Quarterly*, 45(4), 1777–1806.
<https://aisel.aisnet.org/misq/vol45/iss4/9>
- Maier, C., Laumer, S., Tarafdar, M., Mattke, J., Reis, L., & Weitzel, T. (2021). Challenge and Hindrance IS Use Stressors and Appraisals: Explaining Contrarian Associations in Post-Acceptance IS Use Behavior. *Journal of the Association for Information Systems*, 22(6), 1590–1624.
<https://doi.org/10.17705/1jais.00709>
- Maier, C., Laumer, S., Thatcher, J. B., Wirth, J., & Weitzel, T. (2022). Trial-period technostress: a conceptual definition and mixed-methods investigation. *Information Systems Research*. Advance online publication.
<https://doi.org/10.1287/isre.2021.1047>
- Maier, C., Laumer, S., Wirth, J., & Weitzel, T. (2019). Technostress and the hierarchical levels of personality: A two-wave study with multiple data samples. *European Journal of Information Systems*, 28(5), 496–522.
- Moore, J. E. (2000). One Road to Turnover: An Examination of Work Exhaustion in Technology Professionals. *MIS Quarterly*, 24(1), 141–168.
- Myers, M. D. (2019). *Qualitative research in business and management*. Sage Publications Limited.
- O'Connor, C., & Joffe, H. (2020). Intercoder Reliability in Qualitative Research: Debates and Practical Guidelines. *International Journal of Qualitative Methods*, 19, 160940691989922.
<https://doi.org/10.1177/1609406919899220>

- Pflügner, K. (2022). Technostress Management at the Workplace: A Systematic Literature Review. *Wirtschaftsinformatik 2022 Proceedings*.
- Pflügner, K., Maier, C., Mattke, J., & Weitzel, T. (2020). Personality Profiles that Put Users at Risk of Perceiving Technostress. *Business & Information Systems Engineering*, 1–14. <https://doi.org/10.1007/s12599-020-00668-7>
- Pirkkalainen, H., Salo, M., Tarafdar, M., & Makkonen, M. (2019). Deliberate or instinctive? Proactive and reactive coping for technostress. *Journal of Management Information Systems*, 36(4), 1179–1212.
- Piszczek, M. M. (2017). Boundary control and controlled boundaries: Organizational expectations for technology use at the work-family interface. *Journal of Organizational Behavior*, 38(4), 592–611.
- Ragu-Nathan, T. S., Tarafdar, M., Ragu-Nathan, B. S., & Tu, Q. (2008). The consequences of technostress for end users in organizations: Conceptual development and empirical validation. *Information Systems Research*, 19(4), 417–433.
- Richter, A. (2019, September 4). How Your Company Can Combat The Effects of Technostress. *Forbes*. <https://www.forbes.com/sites/forbestechcouncil/2019/09/04/how-your-company-can-combat-the-effects-of-technostress/?sh=77517f75c5b4>
- Russell, E., & Woods, S. A. (2020). Personality differences as predictors of action-goal relationships in work-email activity. *Computers in Human Behavior*, 103, 67–79. <https://doi.org/10.1016/j.chb.2019.09.022>
- Saló, M., Makkonen, M., & Hekkala, R. (2020). The Interplay of IT Users' Coping Strategies: Uncovering Momentary Emotional Load, Routes and Sequences. *MIS Quarterly*, 44(3), 1143–1175. <https://doi.org/10.25300/MISQ/2020/15610>
- Saló, M., Pirkkalainen, H., Chua, C., & Koskelainen, T. (2017). Explaining information technology users' ways of mitigating technostress. *Proceedings of the 25th European Conference on Information Systems*.
- Sarker, S [Saonee], Ahuja, M., & Sarker, S [Suprateek] (2018). Work–Life Conflict of Globally Distributed Software Development Personnel: An Empirical Investigation Using Border Theory. *Information Systems Research*, 29(1), 103–126. <https://doi.org/10.1287/isre.2017.0734>
- Soucek, R., & Moser, K. (2010). Coping with information overload in email communication: Evaluation of a training intervention. *Computers in Human Behavior*, 26(6), 1458–1466. <https://doi.org/10.1016/j.chb.2010.04.024>
- Srivastava, S. C., Chandra, S., & Shirish, A. (2015). Technostress creators and job outcomes: Theorising the moderating influence of personality traits. *Information Systems Journal*, 25(4), 355–401. <https://doi.org/10.1111/isj.12067>
- Stich, J.-F., Tarafdar, M., Stacey, P., & Cooper, 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, 132–160.
- Tams, S., Thatcher, J., & Grover, V. (2018). Concentration, Competence, Confidence, and Capture: An Experimental Study of Age, Interruption-based Technostress, and Task Performance. *Journal of the Association for Information Systems*, 19(9). <https://aisel.aisnet.org/jais/vol19/iss9/2>
- Tarafdar, M., D'Arcy, J., Turel, O., & Gupta, A [A.] (2015). The dark side of information technology: Is overuse of information technology sapping your employees' productivity, innovation, and well-being? *MIT Sloan Management Review*, 56(2), 60–70.
- Tarafdar, M., Pullins, E. B., & Ragu-Nathan, T. S. (2015). Technostress: Negative effect on performance and possible mitigations. *Information Systems Journal*, 25(2), 103–132. <https://doi.org/10.1111/isj.12042>
- Te'eni, D., Seidel, S., & vom Brocke, J. (2018). Stimulating dialog between information systems research and practice. *European Journal of Information Systems*, 26(6), 541–545. <https://doi.org/10.1057/s41303-017-0067-9>
- Valta, M., Pflügner, K., & Maier, C. (2021). Guiding Companies to Reduce Technostress: A Mixed-Methods Study Deriving Practice-Oriented Recommendations. *Proceedings of the Hawaii International Conference on System Sciences (HICSS) 2021*.
- Weinert, C., Maier, C., Laumer, S., & Weitzel, T. (2020). Technostress mitigation: an experimental study of social support during a computer freeze. *Journal of Business Economics*, 90(8), 1199–1249. <https://doi.org/10.1007/s11573-020-00986-y>
- Wiesche, M., Jurisch, M. C., Yetton, P. W., & Krcmar, H. (2017). Grounded Theory Methodology in Information Systems Research. *MIS Quarterly*, 41(3), 685–701. <https://doi.org/10.25300/MISQ/2017/41.3.02>

About the Authors

Lea Reis is a PhD student in information systems at the University of Bamberg, Germany. Her research interests include digital advertising, digital marketing, technostress and artificial intelligence in healthcare. Her work has been published in leading IS journals and conference proceedings, including the *Journal of the Association for Information Systems*, *European Journal of Information Systems*, *MIS Quarterly*

Executive, Information and Management, The DATABASE, Communications of the Association for Information Systems and Proceedings of the International Conference on Information Systems. She was awarded best paper awards by the *AIS SIGADIT DIGIT Workshop* and the *ACM SIGMIS Computer and People Research*.

Christian Maier is Professor at the LMU Munich School of Management, Ludwig-Maximilians-Universität München, Germany. His research interests include the IS use life cycle, especially the adoption, usage, and discontinuous usage of digital technologies in the private and organizational use contexts, viewed through various theoretical lenses, such as IS use stress, coping, and resistance. His research has been published in the *MIS Quarterly, Information Systems Research, Journal of Management Information Systems*, among other journals. He was awarded the Schmalenbach prize, Heinz Maier-Leibnitz prize, and the Early Career Award by the AIS and by the ACM SIGMIS. In his free time, he enjoys cycling and eating out with family and friends.

Katharina Pflügner is a PhD student at the department of Information Systems and Services at

the University of Bamberg. She received her BS and MS in psychology from the Universities of Regensburg and Bamberg, Germany. Katharina's research interests include the bright and dark sides of information systems usage in the mental health context, including technostress at work and digital health with a focus on e-mental health. Her research is forthcoming or has been published in the *MIS Quarterly, Business & Information Systems Engineering*, and the Proceedings of the International Conference on Information Systems, besides others. Her research has been awarded with several Best Paper Awards by the *International Conference on Wirtschaftsinformatik* and the *ACM SIGMIS Computer and People Research*.

Tim Weitzel is Full Professor and Chair of Information Systems and Services at the University of Bamberg in Germany and Director of the Centre of Human Resource Information Systems (CHRIS). His current interests are in IT management, technostress, and the future of work. Tim's research has been published in all major IS journals and conferences and cited over 10.000 times.

Appendix A: Interview Guideline

Introduction

Outline the purpose of the study, inform participants about data collection, analysis, and anonymization, and gather personal data of the interviewee, including age, gender, job role, work experience, workday description, and computer self-efficacy.

The Role of Technostress

How would you describe your current work situation? Are there exceptionally high demands to handle? Do you sometimes feel stressed?

Would you describe working with ICTs as part of the problem?

How relevant do you rate the following demands to your situation:

- Do you sometimes fear losing your job due to new technology?
- Do you feel capable of working with the ICTs and applications at work? Even with new ones?
- Do you see the rising complexity of more intertwined systems as a burden?
- Do you sometimes feel overwhelmed by the volume of incoming requests?
- Can you disconnect from work during non-working hours?

Mitigation Measures for Techno-Invasion and Techno-Overload

Has your organization done anything to reduce constant connectivity with work/the high volume of incoming requests?

Can you describe this mitigation measure and its effect? How much did it help you to relax at home/reduce incoming requests?

Have you heard of the following mitigation measures in your organization:...?

Employees' Assessment of the Introduced Mitigation Measures

Do you perceive those mitigation measures as applicable? Did they ever lead you to experience a decrease in stress? Why/why not?

Do you see challenges arising from those mitigations?

What would you wish for that would improve the mitigations?

Note: The interviews were conducted in German, and the interview guideline was translated.

Appendix B: Coding Example

We followed the coding approach presented by Myers (2019) for our analysis. Table B.1 shows an example of our coding approach. We used two codes to categorize the techno-stressors, three codes for the mitigation dimensions, eight codes for the mitigation measures, two codes to classify the effects, and 39 codes to label employees' assessments.

Table B.1. Coding Example

Techno-stressor	Mitigation dimension	Mitigation measure	Intended/unintended effects	Assessments	Coding examples (quotations)
Techno-invasion	Technological	Separation of private and business devices	Intended	Clear end of the workday	Switching off the device helps me mark the end of my workday.
			Intended	Reduction of blurring boundaries	It is easier to separate private and work life with two devices.
			Intended	No accidental involvement in business-related communication	When I receive short messages on my private device, I accidentally get involved in business talks, even my private life.
			Unintended	Stress through multiple device usage	Having two devices stresses me because I have to check and switch between them.
			Unintended	Loss of flexibility	It reduces my flexibility if messages are not delivered to my business device after a certain time.
			Unintended	No free choice of the end device	I cannot choose the device or the operating system to use. I cannot decide which tools to use and need a moment to switch between devices.
			Unintended	Deceleration of work processes	If everyone takes the evening off, the leftover work is done the next day, creating more leftover and slowing down work processes.
			Unintended	Denial of decision autonomy	I feel capable of deciding whether I want to use the device in the evening and do not need someone to turn it off for me.
		Restriction of email traffic	Intended	Clear end of the workday	No emails mean no work, so my day is over.
			Intended	Reduction of blurring boundaries	Knowing that the evening is not compromised by work emails, I can concentrate more on my family.
			Unintended	Postponing of overload	Not receiving the emails in the evening only stores them for the next day, where you start with a flood of emails.
			Unintended	Loss of flexibility	I love to work in the evening when my children are asleep, which is hard without email

					access.
			Unintended	Deceleration of work processes	Now I cannot use spare time in the evening to finish leftover work and have to postpone it to the next day, which slows down my tasks the next day.
			Unintended	Denial of decision autonomy	I would rather decide when I want to be confronted with those emails.
Cultural	Valuable break/free time culture – Introduction of an emergency channel	Intended	No bad conscience for not keeping oneself up to date every minute at home	It is ok not to check my device regularly in the evening because important things are directly delivered. So, I do not have a bad conscience to relax.	
		Intended	Fosters disconnection from work	Knowing there is nothing important to deal with right now helps me to wind down and concentrate on other things.	
		Intended	Push of urgent messages, no need for constant pull	You do not have to be online all the time. You get informed if something is important.	
		Intended	Clear attribution of responsibilities	I like that we have a clear assignment of who is responsible in that case and not that everyone is informed, even though it is not one's job to deal with that.	
		Intended	Shared understanding of the value of recreation	I think having a shared awareness that breaks are important is good.	
		Unintended	Still a need to check the channel constantly	Ok, but I still have to check the emergency channel every hour, so does this change anything?	
		Unintended	Channel not in an isolated tool	We do not have emergency pagers or anything like that, so we still have to use our business device and could get caught up in business-related stuff.	
		Unintended	Fear of abuse	If it is OK to take breaks, I worry that some colleagues will constantly take breaks the whole day.	
		Unintended	Abuse of breaks burdens others with more work	If some take long breaks and others do not, it burdens the remaining team with additional work.	
		Unintended	Need for core working hours	I understand the mitigation, but we still need core working hours where breaks that last longer than 15 minutes are prohibited.	
Social	Valuable break/free time	Intended	No feeling guilty for not keeping up to date every minute at	Knowing that I am not expected to answer or work	

		culture – Clear communication of expectations		home	after work frees my mind.
			Intended	Fosters disconnection from work	If my executive is ok with me disconnecting from work, I am too.
			Intended	Shared understanding of the value of recreation	If everyone respects others' private time and understands that they need that time for recreation, that helps to relax and disconnect in the evening.
			Unintended	Dependency on mutual agreement with all employees	If there is only one who does not go with the flow and disturbs everyone in their private time, the mitigation is useless.
			Unintended	Abuse burdens others	Just because we worship breaks, we cannot burden our colleagues for our own sake.
Techno-overload	Technological	Good practices for internal communication	Intended	Employees receive fewer requests	Restricting the number of recipients also reduces the number of unnecessary requests.
			Intended	Fewer interruptions	If we mute certain tools, we can focus on our tasks more.
			Intended	Fosters informal communication and culture of information pull	I enjoy writing via the instant messaging tool because it is informal, and people use the channels to provide information that I can read when I am ready for it.
			Unintended	Fosters multi-channeling	I often realize that colleagues first write me via the instant messaging tool and later find out they sent the same request via email. So, I must deal with the request twice on multiple channels.
			Unintended	Need for guidelines on when to use which tool	I'm afraid that without guidelines on which requests can be written via short message tools and which requests need an email, the number of interruptions and redundant requests will rise.
			Unintended	Need for awareness that an instant message does not mean an instant response	Some people think that their request is the only thing I have to deal with now. After a while, they even send question marks to remind me that they are still waiting. However, I have other tasks, too, and sometimes you have to wait.
	Cultural	Introduction of "pull not push" culture	Intended	Employees receive less unneeded information	When I have to get the information myself, I am also not spammed with unneeded information.
			Intended	Fewer interruptions by standard requests	If we do not have to handle the standard repeating requests

					because people can find the information elsewhere, we get fewer interruptions.
			Intended	Strengthens organizational IT infrastructure	Implementing tools for knowledge management also strengthens the IT infrastructure because we have to build reliable systems and databases.
			Intended	Strengthens work autonomy	I believe getting the information when I want to fosters my work autonomy because I do not have to wait for or rely on others.
			Intended	Better support through higher reliability	The information in wikis is reliable and not dependent on specific colleagues.
			Intended	Based on wikis, first-level support can help with elaborated tasks	Even first-level support can look up standard procedures and try them first before contacting a specialist.
			Unintended	Extra work and extra screen time	Getting the information via the system takes more time than asking the colleague, and we must use the computer again.
			Unintended	No guaranteed usage	I doubt people will use that instead of asking their colleagues.
			Unintended	High dependency on employees' willingness to contribute	If everyone contributes knowledge, this is extremely valuable, but we depend on employees' willingness to share and process that knowledge, which creates extra effort.
			Unintended	High dependency on IT infrastructure	If the system does not work, the knowledge cannot be acquired, and people get overwhelmed with support requests.
	Social	Communication with executive	Intended	Better prioritization of requests	My executive can help me recognize what is important and prioritize better.
Intended			Reduction of workload	If possible, the executive can redistribute tasks.	
Intended			Early mitigation possible	If employees speak to us as executives, we might be able to prevent severe consequences, such as burnout.	
Unintended			Highly dependent on specific executive and trust towards that person	The required level of trust is not achievable with every executive.	
Unintended			Fear of being perceived as less competent and less resilient than others	To open up about being overwhelmed with requests is not easy because it can be used against me, labeling me	

					less competent and resilient.
			Unintended	Reduction is not always possible	Sometimes there is work that must be done, and we cannot take that away from employees.
			Unintended	Higher workload for executives and too much involvement in employees' private affairs	I think a certain professional distance can be helpful, so I do not want to get too deeply involved in employees' problems, which causes additional work for me.
			Unintended	No substitute for professional help	Talking to your executive does not replace professional help, and both employees and executives should be aware of that.
		Introduction of 'off-screen' communication opportunities	Intended	Reduction of ICT use and screen time	I enjoy every minute that I can work without a screen.
			Intended	Working break	Working outside feels like a constructive break.
			Intended	Motion and fresh air	Going outside for meetings and even playing foosball is healthy as we get to stand up and move and get fresh air.
			Intended	Higher creativity	Being in a different context, such as outside, can foster creativity in discussions.
			Intended	Potential for social support	If I have a bad day and feel overwhelmed by the requests, I enjoy playing foosball with my colleagues. We then talk about our workdays and realize that we are all in the same position, which is comforting.
			Unintended	Extra coordination, preparation, and the post-processing effort	When we cannot use slides or tools, we must ensure that the meeting is still effective and structure it accordingly.
			Unintended	Only particular meetings suitable for off-screen	I would say that updates or performance reviews can be done outside, but not every meeting fits the approach.
			Unintended	Dependency on team structure and relationships	If the employees in a team are very heterogeneous and do not have much in common, they will not come together to play foosball.