2022

If Digitalization is the Answer, Then What Was the Question? A Case Study of How Technostress is Made

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IF DIGITALIZATION IS THE ANSWER, THEN WHAT WAS THE QUESTION? A CASE STUDY OF HOW TECHNOSTRESS IS MADE

Research paper

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Abstract

Digitalization is followed by technological opportunities as well as consequences such as technostress. Information Systems (IS) technostress research is built upon stress research assumptions, which are deeply rooted in positivist ontologies. In this paper, we take a social constructivist perspective, and we ask the question: How is technostress made in the workplace? We answer this question by employing a case study from Denmark across multiple Danish private organizations. We find that individuals work under deeply rooted and outdated obligations, some dating from the industrialization age (e.g., working from nine to five). Moreover, life in a highly digitalized society places additional pressure leading to technostress, as employees are also citizens. We invite IS research to consider how we might contribute as a discipline to an increasingly digitalization agenda, one that recognizes the unique position we find ourselves in as a discipline through uniting both the dystopian and utopian perspectives on digitalization and finding balance.

Keywords: Technostress, Digitalization, Obligations.

1 Introduction

Denmark is currently the most digitalized country in the EU (European Commission, 2021). Research and practice alike seem to assume that the society, organizations, and individuals can keep up the pace with these developments accordingly (e.g., Baskerville et al., 2020). Although Denmark currently lives in a reality where the answer to development is often digitalizing more (e.g., Digital Growth Panel, 2017), we still rely on centuries old ways of operating as individuals, organizations, and societies, built around deeply rooted beliefs or obligations we have about how to relate to work (e.g., Stana, 2021; Zuboff, 1989, 2016). In our paper we argue that simply relying on decades old digital tools to complete our work, while we operate under felt obligations that are centuries old, can contribute to the stress crisis in Denmark (e.g., Jensen et al., 2021).

More specifically, in Denmark, we see an increase in stress statics from 2017, when one out of four employees experienced high levels of stress at work (Jensen et al., 2017), to currently almost one out of three employees experiencing high levels of stress at work (Jensen et al., 2021). However, technostress and digitalization have yet to be connected to the worrisome stress development (e.g., Stana, 2021).

Technostress, or the stress experienced when directly or indirectly interacting with or through Information Technology (IT), has been debated in seminal IS research studies since 2007 (e.g., Tarafdar et al., 2007). From these previous studies, we learn that technostress, mostly studied in IS in the context of organizations and work, has a negative impact on employee performance, productivity, and engagement (e.g., Ragu-Nathan et al., 2008, 2008; Tarafdar et al., 2007). However, technostress as discussed thus far in IS literature, is rooted in stress research epistemologies, predominantly positivist.

While taking a positivist stance on stress and technostress has its merits, as we discuss in our theoretical background chapter, in our paper we argue that technostress is made, thus hinting towards a social constructivist perspective.

Given the real-world impact that technostress has, and the research gap described above, we ask:

How is technostress made at work in the context of a digitalized society?

The stance that technostress might be co-created or made at work has been explored in the authors' earlier work, although not fully (e.g., Stana and Nicolajsen, 2021a, 2021b; Stana, 2021). For instance, Stana (2021) claims that obligations present at the societal level have an influence on which technostressors are present in the work environment or not, and how employees tackle these stressors.

Another argument can be built from the inseparability of stress and emotions – if research demonstrates that emotions are made, it can be said that to a certain extent stress is also made. Lazarus (2006), one of the most preeminent stress researchers, claims that stress and emotions cannot be separated, and where there is stress, there is also emotion. Recent research on emotions shows that the brain, the place in which our emotions are made, is a predictive rather than a reactive organ (Barrett, 2017) - meaning, we are learning emotions and which emotions are appropriate in each situation or context, and then we proceed to render them accordingly throughout our life. Based on this recent finding, which is radical shift in emotions research (e.g., see Wetherell, 2012 for a review of emotions epistemologies), it can be said that if emotions are renderings of previously learned answers to the environment, and stress and emotions cannot be separated, it might be worth investigating to which extent (techno) stress is also learned and rendered.

Furthermore, sociology of time investigates and shows that although IT introduction has promised much advancement (for example, that we might work less in the future, and that IT will support and improve our living conditions), it has on the contrary to our expectations, created more work as employees experience an acceleration of time (e.g., Holt et al., 2013) due to increased pressures and expectations from society on other roles that employees need to fulfill simultaneously, such as being parents, citizens, or simply living in the modern world (e.g., Hochschild, 1983), roles which in Denmark, are now also digitalized. For example, in Denmark, digitalization and mandated technologies, such as some e-government services, do not always function optimally and create additional work for the citizens to navigate through (e.g., Fleron et al., 2022; Madsen, 2015; Petersen et al., 2021). Thus, technostress might be a result of the acceleration of time and mandated digitalization.

We explore our research question by using the central concept of obligation. Obligations can be defined as an emotional blend (e.g., guilt, shame, frustration) that lead to us feeling that we owe something to ourselves, others, the organization we work for, or the society we are part of, and take action on that feeling (Clark, 1990; Stana, 2021). As an example, a common obligation found in previous research is the obligation of being productive. Not living up to this common work obligation triggers guilt, shame, or anger when engaging in work that is perceived as unproductive (e.g., troubleshooting malfunctioning IT, waiting for an IT upgrade that hinders one from completing other types of tasks that are perceived as more productive) (Stana and Nicolajsen, 2021a).We argue that especially when obligations clash, we find ourselves in stressful situations, and we see obligations as a relevant lens to investigate how technostress is made, considering that employees need to relate to and fulfill multiple roles simultaneously (the role of being employees, parents, or citizens), which in a digitalized society this is sometimes mediated by IT.

Our data is drawn from 14 qualitative semi-structured interviews across Danish private organizations, which have been thoroughly examined in author's previous studies through other methods (Stana, 2021).

In this paper, our aim is to demonstrate how technostress is made in the workplace in the context of a highly digitalized society, and therefore how we may work with minimizing technostress. This calls for a long-term effort as the co-construction of technostress is deeply rooted in individual, organizational, and societal assumptions about work and workplaces, as we argue in the discussion. To effectively work towards minimizing technostress, we need to operate at the level of these deep-rooted understandings and patterns.

Our research contributes with insights for practitioners and researchers. We demonstrate how digitalization relying on paradigms stemming from the industrialization age negatively impacts individuals (techno)stress and hinders digitalization from delivering as promised and less than the potential it has to place the citizen in the center and provide better and meaningful services, as it is intended (Danish Finance Ministry, 2022).

Our findings indicate the need of an increased awareness with regards to how we all take part in co-constructing technostress and that efforts needed at many levels and situations to take responsibility for overcoming technostress in our society, the workplace being one such place.

The rest of this paper is structured as follows. First, we present the theoretical background. Second, we describe and justify our methodological choices. Third, we interpret our findings. Finally, we discuss our contributions, practical and theoretical implications, and limitations.

2   Theoretical Background

In this theoretical chapter, we explain the main concepts used in this paper and their relation to each other: technostress, obligations, and digitalization in Denmark.

2.1   Technostress

The first conceptualizations and discussions about stress stem from the 1930's, Selye's article from 1936 being one of the first ones to describe stress based on experiments on rats (Szabo et al., 2017). From then on, we see a steady interest in the phenomenon of stress, particularly from a natural sciences perspective. The term later enters other disciplines such as psychology (Lazarus and Folkman, 1984) and Organizational Studies (Cooper et al., 2001). Concomitantly with the usage of computers in organizational contexts, around 1970s (Zuboff, 1989), we also see stress entering the world of computers and the discipline of information science – first from the influence of a psychotherapist, Brod (1984), who observed a new form of stress in his psychotherapeutic practice: technostress.

In IS, the first study about technostress was published in 2007, and it establishes that technostress in the technological context of ICTs (Information and Communication Technologies) leads to role stress and decreased productivity (Tarafdar et al., 2007). This early study marks the beginning of a steady interest from the IS community in researching and understanding technostress.

We have much to thank to technostress research thus far, which engaged in the massive task of bringing stress research in the disciplines focused on understanding IT. For example, IS technostress research has established the technology environmental conditions, or characteristics of ICTs and ICT-related events, that have the potential to create a demand in the individual, appraised by the individual as stressful (Tarafdar et al., 2019). Some of these ICT characteristics and ICT-related events are ubiquity, mobility, ICT usability, or invasion of privacy (Ayyagari et al., 2011; Galluch et al., 2015; Tams, 2020).

Furthermore, what IS technostress research has discovered so far is what are the technostressors, or the ICT stress creators appraised by individuals as threatening. For example, a very widely use categorization of technostressors in IS research is dividing technostressors in the following five dimensions: techno-overload, techno-complexity, techno-invasion, techno-insecurity, or techno-overload (e.g., Ragu-Nathan et al., 2008; Tarafdar et al., 2007).

However, it appears that IS technostress takes it for granted that technostress exists out there. In our paper, we want to problematize the assumption that technostress simply exists, and employ a social constructivist view on technostress, in which we show how technostress is constructed based on how employees feel obligated to relate to their work in the digitalized workplace and a digitalized society. The view that technostress is constructed is not fully new to IS. For example, a recent study explores how social media induced technostress is constructed and develops through time as a result of building up new habits, beliefs, and peer pressure (Salo et al., 2020). Within IS research we are only aware of our work to investigate the construction of technostress in the digitalized workplace (Stana and Nicolajsen, 2020, 2021a, 2021b; Stana, 2021), though, other seminal IS studies also support our work

by pointing out that a limitation in technostress research insofar is that the social environment and obligations have not been previously considered (e.g., Tams, 2020; Tarafdar et al., 2019).

Recent stress research also takes a turn to broadening the research agenda towards forces that are at play in understanding stress, such as social, political, and cultural forces (Peterson, 2018). Moreover, recent research on the sociology of time also discusses how, paradoxically, we experience that we have less time rather than more free time (Holt et al., 2013; Hughes and Silver, 2020). This is important, as the individual's perception of time and stress have a well-documented connection, time being often one of the keywords used to define stress, for example, by stating that stress is triggered by the individual's perception of not having enough time to fulfill one's work tasks (Cooper et al., 2001).

2.2 Obligations

In our paper, we take a sociological standpoint on obligation. We draw upon the work of Clark (1990) who sees obligation as an emotional blend, rather than one emotion that can stand by itself. In our paper, we define obligation as an emotional blend that we "ought to" do something, or that we owe something to ourselves, others, or to the society. Clark (1990) emphasizes that obligation is not only something imposed from the outside, but that we wouldn't answer to these outside calls, unless we, consciously or unconsciously, also develop a sense of duty or responsibility in ourselves. At the same time, obligation is important in ensuring group coherence and integrating the individual in the group, organization, or societies, as it motivates people to give and to conform to group norms (Bergson, 1935; Poder, 2008; Ross, 1970). Obligation is also an appropriate concept to use in our exploration of technostress being made, as it encompasses emotions and the socialization of the individual into a group, organization, and society.

There are multiple types of obligations. In this paper, we consider it important to note that there are social obligations, which are obligations co-constructed in society (Ross, 1970), such as how many hours one should work in a week, or what is the most common working time interval (e.g., nine to five). There are also personal obligations, in which one freely and voluntarily agrees to something or makes a promise and consequently regards oneself obligated to carry through with the promise and the obligations one believes are associated with these promises (e.g., being a good parent means being able to guide one's child in how to relate to IT in a healthy and safe way, or having contact with the children's school via school's IT system).

Furthermore, while individuals sometimes engage in these obligations without being conscious at other times it is a conscious choice to carry out these obligations (Stana and Nicolajsen, 2020; Stana, 2021). In previous work, some contemporary work obligations that we discovered were work obligations to be constantly available, to maintain work-home balance, to have an overview over one's work despite techno-complexity, to manage and troubleshoot IT, or to constantly learn (Stana and Nicolajsen, 2021b).

2.3 Digitalization and stress in Denmark

Digitalization is most often discussed in an organizational context and can be defined as: "the use of digital technologies to change a business model and provide new revenue and value-producing opportunities" (Gartner Glossary, 2021, cited in Fleron et al., (2022)). However, as in the case of Denmark, we see a shift in focus from digitalization of organisations, to digitalization of e-government services as early as 2007, when Denmark launched its first successful e-government digitalization strategy (Danish Government et al., 2007).

Currently, according to a recent report released by the European Commission, Denmark ranks 1st as the most digitalized country out of the 27 EU member states (European Commission, 2021). Danes have strong digital skills compared to other Europeans, but 30% of adults and 25% of the labour force still lack basic digital skills. 58% of Danish businesses trying to recruit ICT experts report hard-to-fill vacancies for jobs requiring ICT specialist skills (EU average 55%) (ibid). The country has the highest rates of eGovernment use (92% of internet users) (ibid).

At the same time, the most recent statistics related to stress in Denmark shows that almost one out of three employees experience high levels of stress in 2021 (Jensen et al., 2021), which is a significant increase compared to 2017, where the numbers were already very high: one out of four employees experience high levels of stress (Jensen et al., 2017). The most sensible population is amongst females between ages 18 and 34, where every second female in that age group experiences high levels of stress on a daily basis (European Commission, 2021).

The Danish research environment raises critical questions related to digitalization. These questions address inclusion, digital divide and inequality, biases in AI usage as case workers do not document the needed data for the AI based solution (Petersen et al., 2021), or tensions related to e-Government platforms not communicating well together, thus creating confusion and frustration amongst citizens (Madsen, 2015).

Newspapers report cases of citizens being contacted by the authorities online at odd times, or during weekends, sometimes with sensitive issues in which citizens, although confronted with pieces of information creating tensions and anxiety, still must wait until business hours to contact the authorities and solve the issue. Furthermore, much of the communication between schools and parents happens online through online platforms, leaving parents without high digital skills out of the loop.

These incidents: receiving communication on the weekends from the authorities or digital exclusions, can all be added to a broader understanding of technostress. However, what we want to show is that one can say that Danish employees experience a reality of having to fulfill many obligations as employees, parents, or citizens simultaneously and continuously (e.g., receiving communication from the authorities or their workplace on the weekends or vacations).

3   Methodology

We conduct qualitative research in the form of an instrumental case study, as we see this as the appropriate methodology for exploring our "How" research question: "*How is technostress made at work in the context of a digitalized society?*" (Baxter and Jack, 2008). Additionally, case study research is applicable in studies where the researchers believe that the contextual conditions are relevant to the phenomenon, and where the boundaries between the phenomenon and the context are not clear (ibid). We see case study as the appropriate method to investigate technostress as a phenomenon in the digitalized Denmark as a context, as technostress is deeply connected to the social environment, in which obligations, emotions, political forces, or social interactions can have an influence on how technostress is made (Lazarus, 2006; Peterson, 2018; Stana, 2021).

Although the context of the case study is Denmark, we do not proceed with collecting data about Denmark and connecting it with the case study other than accentuating that the context has a deep influence on our study, and that provided that Denmark is the most digitalized country in Europe and forth in the world according to Fleron et al. (2022), the mechanism that lead to (techno)stress creation might differ in countries where digitalization is not as prevalent, or where work related obligations might differ. We do, however, describe digitalization in general terms and how that looks like in Denmark in our theoretical background.

Additionally, our case study is instrumental in the sense that the case itself is secondary in nature and plays a supportive role in facilitating our understanding of how technostress, a broader phenomenon, is made (Baxter and Jack, 2008).

Our data includes14 semi-structured interviews with knowledge workers across six private organisations with profiles ranging from entertainment, fintech, or pharmaceutical. Each interview lasted between 30 to 60 minutes, with employees at different levels in the organizations: non-managerial responsibilities, middle, and top managers, and ages ranging between 30 to 55 years old.

We coded our material in two rounds of coding (Saldaña, 2009) by using the qualitative analysis software Atlas.ti. In the first round of coding our verbatim transcripts, we coded all the technostress related scenarios or descriptions, resulting in over 130 rich data quotes. Next, we engaged in untangling of obligations from these technostress descriptions. In this round, we created a coding table of

obligations and a standard of working with obligations while analyzing the material. For example, verbs like "must", "have to", or emotions that were either explicitly named or implicitly described in the data, would be coded as obligations, resulting in over 130 obligations.

In the next round, we categorized and relate these different obligations to each other, and arrange them in themes and sub-themes. We engaged in this process multiple times both separately and together.

Although, in our previous work we explore and present the resulting obligations categories in detail (e.g., Stana and Nicolajsen, 2021b), in this paper we present three situations of technostress that we assessed as being relevant to portraying how technostress is made.

We discuss how technostress arises based on multiple types of obligations involved, how these collide, and how the employees feel compelled, we speculate, about this co-construction. We describe situations of technostress as we aim for a holistic approach to understanding how technostress is made.

4   Analysis

In this chapter, we present three situations that we assessed the employees experience regularly based on our data. In each of these situations, we highlight the obligations that the employees experience based on our previous work, and we interpret where those felt obligations come from to demonstrate their co-construction, which, we argue in our discussion chapter, is both ongoing and deeply rooted in our cultural, familial, and societal inheritance. We show how these situations are constructed in the workplace through practices involving IT either directly or indirectly and the felt obligations making employees take responsibility for acting in certain ways. We thus show how technostress situations are co-constructed.

There is some level of generalizability in these situations, however, the situations may be understood and handled differently across organizations or by different people.

In each of the situations depicted in Table 1, 2, and 3, on the left-hand column we add a list of technologies and people involved. These are not always obvious from reading the selected quote, but they represent background knowledge from our case study. Furthermore, the obligations listed are drawn from our previous work by Stana and Nicolajsen (2021b).

Situation 1	Quote example
Working more hours than nine to five	"They have so many very driven persons, that the people working here actually work far more hours out of choice, out of passion, out of engagement (..) it's the hidden culture. And then if one says, well, I only work from nine to five and switch off my phone, I think one would feel bad because everyone is doing more hours. "(Employee)
Involved technologies:	
Mobile phone	
Work computer	
Internet	
Work applications	
Obligations involved:	
Obligation to be available	
Obligation to be productive	
Obligation to manage a work-home balance	
Obligation to show engagement	
People involved	
Employees	

Table 1.   Situation 1 – Working more hours than nine to five.

The situation of working more hours is a well-recognizable from a research and practice perspective. In many workplaces, as in this one, there is a culture supporting working longer hours and from home as portrayed above. The informant expresses a feeling of pressure to work more hours and to be available after work. The pressure is so strong that not living up to it would make the employee feel "bad", a feeling that the employee might feel compelled to avoid by working longer hours and being available. Additionally, the employee highlights the norm of working nine to five, and also how this is no longer seen as enough.

In the given situation, it can be said that IT ubiquitness enables it. However, it is also the employee's observation of how things are done in that organizational context that makes her reflect that "one would feel bad" for not following other employees' choice of working more hours. Thus, IT plays the role of enabling the employees to fulfill their felt obligations of working more hours than expected. In this particular quote, we can observe obligations of availability, of being productive, managing a work-home balance, and showing engagement. The pressure and the felt obligations might come from deep rooted values and alter casting done by co-workers and leaders expecting employees to be available, and by employees observing their co-workers as being available. This could be blended with the schooling and socialization from parents, friends, and society.

Situation 2	Quote example
Preparing for an online meeting	"It's not only that you're getting angry and might act irrationally because of it, but well, if you're in time pressure, say you're preparing for some meeting, it's in ten minutes, and you wanted to open some presentations and also some applications, and also connect to some server (..) and something doesn't work, then, of course, it's irritation, and then you are stressed and pressed on time, and of course the source it's the technology that doesn't work as it is expected (..) people on the other side are waiting, and they are writing on some other channels 'are you there? We are waiting for you." (Employee)
Involved technologies:	
Digital presentation material Applications Server Online meeting Digital communication	
Obligations involved:	
Obligation to be on time Obligation to be productive Obligation to manage ICTs Obligation for ICTs to work as expected	
People involved:	
Employees, co-workers	

Table 2.   Situation 2: Preparing for a meeting.

The next example is representative of workplaces in which collaborative work is meditated by technologies or that simply involve using one's computer for presenting ideas. In the given situation an employee describes the preparations ahead of a meeting to try to make sure that everything is working as it should when the online meeting begins. In the given situation, it can be said that the employee feels an obligation to be on time, being prepared, and not delaying others. However, the felt obligation of being on time cannot be fulfilled due to malfunctioning IT. Simultaneously, it can be said that the other participants also share an obligation of being on time, and when this is not experienced due to their colleague being delayed, they prompt their colleague with the question: "Are you there? We are waiting for you." By using the pronoun "you", the colleagues are alter casting an obligation on the employee that is perceived to be delayed, without considering that the technology might be at fault.

There is a strong obligation to manage ICTs with a felt obligation to troubleshoot by avoiding possible breakdowns ahead of the meeting. The feeling of technostress arises due to the feeling of irritation caused by the employees' perception that troubleshooting is not part of the work and that there is an obligation for ICTs to work as expected. This clashes with the other felt obligations and the employee being blamed and shamed ("we are waiting for you".) and therefore wants to take responsibility.

Situation 3: Continuous learning	**Quote example**
	"We are in what we call an agile transformation. (...) And some people are fed up with that. And to some extent, I do understand that, but we also need to move on (...) So you get some slack, get on board, or I don't know, maybe you need to find another job." (Top manager)
Involved technologies:	
(Agile Transformation in this case signifies a continuous introduction of new technologies in the organisation)	
Obligations involved:	
Obligation to get the employees on board Obligation of the employees to get on board Obligation of the employees to learn new skills /adjust to agile transformation	
People involved:	
Employees, managers, society	

Table 3.   Situation 3: Continuous learning.

In the situation above the company in question is going through an agile transformation. This is an enduring change process which demands employees to embrace the change with all the demands it entails, such as reorganization and new skills. We see an example of how a manager is alter casting an obligation on employees to "get on board", meaning being supportive of the agile transformation happening in the company. There is even a threat to the lack of adherence which is losing the job. The situation demands, according to the manager, the company to move on which means that the manager feels an obligation to ensure that the employees are open to the change here and now. The obligations reflected in this expressed manager-employee power relationship and maybe even how the manager sees the obligations in his job can be argued to be related to doing as being told by authority figures.

5   Discussion

The technostress situations encountered by employees and described in the analysis chapter may not be seen as severe if looked at individually. But, encountering these and other situations of technostress multiple times during the day, every day, lead to an accumulative effect throughout the days, weeks, or months – and it is this cumulative effect that technostress researchers warn us about as grave for our mental health and stress in broader sense (e.g., Weil and Rosen, 1997). Additionally, in a digitalized society, we have less time to recover from these (techno)stress incidents if we do not take the issue of work home balance seriously (Cooper et al., 2001), as well as the issue of constant connectivity and exposure to malfunctioning IT. In Denmark, as a highly digitalized society, this also implies a constant and, in some cases, mandated relation with e-Government services (e.g., digital post, health care system) and the digitalized society (e.g., public transport and the banking systems are also highly digitalized) which, as shown by other studies (e.g., Madsen, 2015), also come with their own challenges for citizens. This constant connection and constant exposure to IT that can malfunction or simply not function as

expected can be severe for our brains and bodies, and hinder our recovery time which is vital in coping with stress (Cooper et al., 2001).

Going back to our research question: "How is technostress made in the workplace?", we explore that technostress is co-constructed, but tackled individually. What we get to see is technostress as a complex picture, which requires a process perspective to acknowledge the multiple relationships that are at play beyond the workplace, as well as acknowledging timely aspects of the past and the present, as earlier situations and experiences impact both the present and the future. We are constantly reenacting patterns of existing social obligations (e.g., working nine to five, being on time, not delaying others) if we are not becoming conscious of them and challenge them.

While the situations described might seem somewhat easy to escape at first: e.g., by doing something else and not living up to the felt obligation, this might be part of the problem: although it might seem easy to escape these obligations, it might be in fact difficult as the very nature of obligations is that they are deeply rooted in us, and sometimes we might not even be aware that we have a choice (Ross, 1970). Additionally, as in the situation related to working more hours than nine to five, the obligation continues to be reinforced by observing others' behaviors or the norms of the group we are part of, either at an organizational or societal level (e.g., the culture of engagement, as the employee names it). Simply not living up to these obligations might lead employees to feeling "bad" about it, as one employee reports, or, as we have explored in our previous work, to feelings of shame and guilt (Stana and Nicolajsen, 2020).

We posit that this obligation (working nine to five) stems from the industrialization age in which the work parties convened and agreed on the 8-8-8 model (8h of work, 8h of leisure time, and 8h of sleep per day), five days a week. However, if we account for the complexity of today's digitalized workplace, as well as the pressures that the society currently puts on the individual, for example, as that of being a good parent, or a good citizen (Holt et al., 2013) we argue that a renegotiation is necessary and that we need to acknowledge that work, individuals, as well as societies have dramatically changed since the establishment of that convention.

Furthermore, the most common definition of stress used in Denmark, refers to stress as a condition that one feels as a result of not being able to see a connection between one's work tasks and the time one is given to perform these task (Jensen et al., 2017; 2021) – a definition that connects time and work directly, although, as we discuss in this article, the very idea of relating time to work could be seen as an outdated conceptualization.

This connection: time and work, can be also the reason behind the employee in the second situation being frustrated for wasting time on troubleshooting IT instead of "productively" meeting up with their co-workers that were waiting online on the other side of the IT artefact.

The employee sees the malfunctioning and troubleshooting of IT as a waste of one's time and unproductive work. Seeing the implications of such a belief on a societal level, it is easy to imagine that in cases, digitalization will end up being seen as the villain, contrasting the governmental picturesque depiction of digitalization as being the key to growth (Danish Finance Ministry, 2022). In the third situation, the top manager exclaims that unless employees can keep up with the technological transformation, they should get a new job. Lifting this obligation (constantly adapting to and being able to learn new technologies) on a societal level, we might wonder what the implications on the citizens are that cannot live up to the expectation of keeping up with the technological advancements.

Speaking back to the novel ontological shift that IT is no longer a reflection of reality, but a creator of it (Baskerville et al., 2020), what we imply through our study is that perhaps we are undergoing a transformative phase: from a technological rendering of reality to the creation of it through the IT artefact. Many employees and citizens might still be caught up in the old adage realities of the industrial age (e.g., working nine to five, being on time), while trying to create and adapt to the new reality of a digitalized society (e.g., the ability to work anytime, anywhere). Our data shows that the outcome of the tension between industrial age norms and digitalization is not a reinvention of what could be, but rather a combination of both: working both nine to five and working additional hours to adhere to what is

perceived to be admirable: being engaged in one's work. The employees seem to believe that being engaged in one's work is demonstrated through working more hours.

It can be said that digitalization, in this case, has not increased our life quality, but it has merely extended our working time. Considering the very definition of digitalization: "the use of digital technologies to change a business model and provide new revenue and value-producing opportunities" (Fleron et al., 2022), it can be said that perhaps digitalization has delivered on its promise if we assume that employees working more hours has a direct and positive effect on revenue. However, we are still left with the question of whether or not this is also in the favour of employees and citizens, and even if it's in the favour of organizations and societies, as (techno) stress can be expensive (Stana and Nicolajsen, 2021b) and unsustainable long term.

Following Ross (1970), what might be needed in this situation is moving these obligations to the political arena and start a renegotiation of what is work in a digitalized organisation and in a digitalized society, as well as what is the desired outcome. In other words, from seeing IT and digitalization as merely tools to achieve outcomes such as growth (e.g., Danish Finance Ministry, 2022), to seeing digitalization as an enabler of opportunities outside of what we previously believed possible about work and quality of life.

Furthermore, we argue that more is needed for us as a society to not merely survive digitalization, but to also thrive and make the most out of it. What is necessary, we argue, is a deeper exploration of the question: "If Digitalization is the answer, then what was the question?". IT is not merely an artefact to be deployed, the successful implementation of it requires a deep transformative reimagining of reality, as Baskerville et al. (2020) perhaps hints at. If IT is indeed a creator of a new reality, we argue that organizations and societies alike need to discuss, negotiate, and implement that desired reality beyond the IT artefact and digitalization.

Additionally, IS as a discipline must consider this new reality in all phases of IS creation and implementation: from idea generation to successful value creation. Furthermore, we might also ask: "What is the value creation that we want to achieve with digitalization long term?". In other words: we argue that in our starting point we ought to take a step back and ask: "Which reality do we want to operate in, what is a desired reality for our society?" and account for that we still operate under outdated beliefs and obligations related to work.

As we've seen in the portrayed situations, merely carrying on leads to a reinforcement of obligations that can also lead to (techno) stress. We argue that, considering that one out of three employees experiences high levels of stress in Denmark (Jensen et al., 2021), leaving these assumptions about work not challenged is unsustainable. Thus, the answer might lay in a reimagining of what opportunities digitalization can provide if we should start from a "tabula rasa" devoid of what we used to believe about work, while accounting for the less desired effects that much research insofar has documented (e.g., Fleron et al., 2022; Madsen, 2015; Petersen et al., 2021; Stana, 2021). Failing to do so, not accounting for the less desired effects of digitalization, can lead to a vilification of digitalization, and even worse, a crystallization of this vilification in the form of individual, organizational, and societal beliefs that will hinder digitalization from reaching its full potential.

With our study, we contribute to practice by demonstrating how co-constructed obligations lead to technostress and how technostress is made at work and discussing few of these obligations and technostressors in the context of the digitalized society. This can be a departure point for employees, managers, HR representatives, company directors, policy makers, politicians, and other interest parties, to start a discussion about how technostress can be included in their considerations when imagining and deploying new IT artefacts, writing policy papers, or handling stress in organizations. Additionally, considering that Denmark is most digitalized country in Europe, the issues that we are facing here can be viewed as looking through a crystal ball for predicting the future for other societies that pursue digitalization, unless technostress and work obligations that lead to technostress are accounted for. In other words, other countries pursuing digitalization, as well as organizations, might ask themselves: "If digitalization is the answer, then what is the question?".

We contribute to IS research by employing a social constructivism approach to technostress, which has so far been explored primarily from a positivist ontological perspective. Additionally, we invite IS

research to consider the question: "What was the original question that led to the digitalization of societies and workplaces?". IS as a discipline finds itself in a unique place: at the crossing between the IT artifact, which for many other disciplines, such as sociology or psychology, might be seen as a black box, and a history of being open and inclusive of other disciplines. We might not be sociologists or psychologists, but we have a history of being able to draw upon these disciplines, while also having a deep understanding of what is in the black box.

6 Conclusions

In our paper, we show how technostress is co-constructed in the workplace, moreover that the process is influenced over time and beyond the workplace. While this is a new and radical perspective to technostress it does not imply that earlier perspectives on technostress are "wrong", however we provide a novel avenue, followed by a reveal of social expectations and the social context that contribute to technostress in the workplace.

This new way of understanding technostress also directs us to move from individualized solutions that suggest that the employees are at fault (e.g., mindfulness, therapy, sick leave) - towards looking at the broader picture of technostress and empowering organizations and societies to take responsibility. Employees may still contribute by taking actions that although reside in their power, are externally focused (e.g., understanding that technostress is not their fault, and that by setting boundaries around the usage of ICTs they also empower others to do the same).

The new way of understanding might also be used by managers and policy makers at a Danish society or EU level to address how our ways of working, inherited from the industrialization era, which come with a certain set of perceived expectations, might not fit into the digitalization era, and which is already backfiring in our efforts to sustainably digitalize societies in the benefit of their citizens. We need to rethink work, and to acknowledge and find new ways of managing the additional work that digitalization places on the employees, and to ensure that digital solutions are made for and with the users. The way forward is doing things in new ways. Some examples could be four days' work week, no stressful communication from the public sector during the weekend, leaders not communicating during time off, or expecting employees to do so, setting up support systems for troubleshooting IT in the workplace. The list is just a beginning, and an invitation to a further exploration of solutions, both from the practitioners and the research community alike.

Other countries can view Denmark, the most digitalized country in EU, as an example of how to, but also, what to avoid and use this insight to be aware and take responsible choices in their digitalization agenda to minimize or even avoid certain aspects of technostress.

References

Ayyagari, R., Grover, V., and Purvis, R. (2011). Technostress: Technological Antecedents and Implications. *MIS Quarterly*, 35 (4), 831–858. https://doi.org/10.2307/41409963

Barrett, L. F. (2017). How emotions are made: The secret life of the brain. Pan Macmillan.

Baskerville, R. L., Myers, M. D., and Yoo, Y. (2020). Digital First: The Ontological Reversal and New Challenges for Information Systems Research. *MIS Quarterly*, 44 (2), 509–523. https://doi.org/10.25300/MISQ/2020/14418

Baxter, P., and Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The qualitative report*, 13 (4), 544–559.

Bergson, H. (1935). *The two sources of morality and religion* (1977th ed.). University of Notre Dame Press.

Brod, C. (1984). *Technostress: The Human cost of the computer revolution*. Addison-Wesley.

Clark, C. (1990). *Emotions and Micropolitics in everyday life: Some patterns and paradoxes of "place."* In: Kemper, T. (Ed.) Research Agendas in the Sociology of Emotions, pp. 305–333. State University of New York Press.

Cooper, C. L., Dewe, P. J., and O'Driscoll, M. (2001*). Organizational Stress: A Review and Critique of Theory, Research, and Applications.* SAGE Publications.

Danish Finance Ministry. (2022). *Danmark's digitalization strategy: Together for a digital development.* Danish Finance Ministry. URL: https://fm.dk/media/25912/danmarks-digitaliseringsstrategi_sammen-om-den-digitale-udvikling_web_a.pdf

Danish Government, The National Association of Municipalities, and Danish Regions. (2007). *Strategy for digitization of the public sector 2007-2010: Towards better digital service, in-creased efficiency and stronger collaboration.* Digital Management. URL: https://digst.dk/media/12701/digitaliseringsstrategi-2007-2010.pdf

Digital Growth Panel. (2017). Denmark as a digital frontrunner. Governmental recommendations. Digital Growth Panel.

European Commission. (2021). Digital Economy and Society Index (DESI) 2021 Denmark.

Fleron, B., Pries-Heje, J., and Baskerville, R. (2022). Becoming a most Digitalized Country: A History of Digital Organizational Resilience in Denmark. *Communications of the Association for Information Systems*, 51 (1), 120–139.

Galluch, P., Grover, V., and Thatcher, J. (2015). Interrupting the Workplace: Examining Stressors in an Information Technology Context. *Journal of the Association for Information Systems*, 16(1). https://doi.org/10.17705/1jais.00387

Gartner Glossary. (2021). *Digitalization.* URL: https://www.gartner.com/en/information-technology/glossary/digitalization

Hochschild, A. R. (1983). *The managed heart. Commercialization of human feeling*. University of California Press.

Holt, H., Kamp, A., Lund, H., and Hvid, H. (2013). *Et arbejdsliv i acceleration. Tiden og det grænseløse arbejde*. Samfundslitteratur.

Hughes, K. D., and Silver, W. A. (2020). Beyond time-binds: Rethinking work–family dynamics for a mobile world. *Human Relations*, 73 (7). https://doi.org/10.1177/0018726719846264

Jensen, H. A. R., Davidsen, M., Ekholm, O., and Christensen, A. I. (2017). *Danskernes Sundhed. Den nationale sundhedsprofil*. Sundhedsstyrelsen.

Jensen, H. A. R., Davidsen, M., Møller, S. R., Román, J. E. I., Kragelund, K., Christensen, A. I., and Ekholm, O. (2021). *Danes' health—The national healthprofil*. Danish Health Ministry. URL: https://www.sst.dk/-/media/Udgivelser/2022/Sundhedsprofil/Sundhedsprofilen.ashx

Lazarus, R. S. (2006). *Stress and emotion: A new synthesis*. Springer Publishing Company.

Lazarus, R. S., and Folkman, S. (1984*). Stress, appraisal, and coping*. Springer publishing company.

Madsen, C. Ø. (2015). "Why do they keep calling? Single parents' Domestication of mandatory e-government self-service channels." PhD thesis. IT University of Copenhagen.

Petersen, A. C. M., Christensen, L. R., Harper, R., and Hildebrandt, T. (2021). *"'We Would Never Write That Down': Classifications of Unemployed and Data Challenges for AI"*. In: Proceedings of the ACM on Human-Computer Interaction, 5 (CSCW1), 1–26. https://doi.org/10.1145/3449176

Peterson, C. (2018). Stress at Work: A Sociological Perspective (1st ed.). Routledge.

Poder, P. (2008). The sociology of emotions. Managing, exchanging and generating emotions in everyday life. In: Hviid Jacobsen, M. (Ed.) *Encountering the everyday: An introduction to the Sociologies of the Unnoticed*. pp. 329–352. Macmillan International Higher Education.

Ragu-Nathan, T. S., Tarafdar, M., Ragu-Nathan, B. S., and Tu, Q. (2008). The Consequences of Technostress for End Users in Organizations: Conceptual Development and Empirical Validation. *Information Systems Research*, 19 (4). https://doi.org/10.1287/isre.1070.0165

Ross, R. (1970). *Obligation: A social theory*. University of Michigan Press.

Saldaña, J. (2009). *The coding manual for qualitative researchers*. Sage Publishing.

Salo, M., Makkonen, M., and Hekkala, R. (2020). "The interplay of IT users' coping strategies: Uncovering momentary emotional load, routes, and sequences." *MIS Quarterly*, 44 (3).

Stana, R., and Nicolajsen, H. W. (2020). People on The Other Side Are Waiting: Work Obligations and Shame in ICT-Related Technostress. *Selected Papers of the IRIS, Issue Nr 11, 5*, 16.

Stana, R., and Nicolajsen, H. W. (2021a). A Cautionary Tale: How Co-Constructed Work Obligations Lead to ICT-Related Technostress. In: Hawaii International Conference on System Sciences. https://doi.org/10.24251/HICSS.2021.797

Stana, R., and Nicolajsen, H. W. (2021b). Sociological Mechanisms Behind ICT-Related Tech-nostress in the Workplace. In: Lee, Z.W.Y., Chan, T.K.H. and Cheung, C.M.K. (Eds) Information Technology in Organisations and Societies: Multi-disciplinary Perspectives from AI to Technostress, pp. 85–110. Emerald Group Publishing.

Stana, R.-A. (2021). "Revealing the Obligations that lead to ICT-related Technostress in the Digital Workplace." PhD Thesis. IT University of Copenhagen.

Szabo, S., Yoshida, M., Filakovszky, J., and Juhasz, G. (2017). "Stress" is 80 Years Old: From Hans Selye Original Paper in 1936 to Recent Advances in GI Ulceration. *Current Pharmaceutical Design*, 23 (27). https://doi.org/10.2174/1381612823666170622110046

Tams, S. (2020). Worker stress in the age of mobile technology: The combined effects of perceived interruption overload and worker control. *Journal of Strategic Information Systems*, 29 (1).

Tarafdar, M., Cooper, C. L., and Stich, J. (2019). The technostress trifecta - techno eustress, techno distress and design: Theoretical directions and an agenda for research. Information Systems Journal, 29 (1). https://doi.org/10.1111/isj.12169

Tarafdar, M., Tu, Q., Ragu-Nathan, B. S., and Ragu-Nathan, T. S. (2007). The Impact of Tech-nostress on Role Stress and Productivity. Journal of Management Information Systems, 24 (1). https://doi.org/10.2753/MIS0742-1222240109

Weil, M. M., and Rosen, L. D. (1997). *Technostress: Coping with technology@ work@ home@ play.* Wiley.

Wetherell, M. (2012). *Affect and emotion: A new social science understanding*. SAGE.

Zuboff, S. (1989). *In the age of the smart machine: the future of work and power.* Basic Books.

Zuboff, S. (2016). *The age of surveillance capitalism: The fight for the future at the new frontier of power*. Profile Books.