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Understanding meaningful work in the context of technostress, Covid-19, frustration and corporate social responsibility

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Published in:
Human Relations

DOI:
[10.1177/00187267221139776](https://doi.org/10.1177/00187267221139776)

Publication date:
2022

Document Version
Peer reviewed version

[Link to publication in Tilburg University Research Portal](#)

Citation for published version (APA):

Aleksic, D., Batistič, S., & Cerne, M. (2022). Understanding meaningful work in the context of technostress, Covid-19, frustration and corporate social responsibility. *Human Relations*.
<https://doi.org/10.1177/00187267221139776>

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human relations**UNDERSTANDING MEANINGFUL WORK IN THE CONTEXT OF
TECHNOSTRESS, COVID-19, FRUSTRATION AND CORPORATE
SOCIAL RESPONSIBILITY**

Journal:	<i>Human Relations</i>
Manuscript ID	HR-2021-0240.R3
Manuscript Type:	Standard Manuscript
Keywords:	Frustration, Corporate social responsibility, Meaningful work, COVID-19, Techno-invasion

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Manuscripts

Technostress, frustration, CSR and meaningful work

Running head: Technostress, frustration, CSR and meaningful work

**UNDERSTANDING MEANINGFUL WORK IN THE CONTEXT OF TECHNOSTRESS,
COVID-19, FRUSTRATION AND CORPORATE SOCIAL RESPONSIBILITY**

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Abstract

COVID-19 and digitalization represent important sources of many employees' frustrations. In this paper, we address the question of how employees can achieve meaningful work in such a challenging and frustrating context. Specifically, we investigate whether employees' negative experiences related to technology use, that is, techno-invasion, leads to frustration and in turn reduces employee perceptions of meaningful work. In addition, we examine corporate social

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responsibility (CSR) as a potential remedy that could mitigate these negative effects. The results of our four-wave longitudinal study of 198 working professionals collected during the first wave of the COVID-19 pandemic did not find support for a proposed negative direct effect of techno-invasion on meaningful work. However, we did find support that perceived CSR moderates the indirect relationship between techno-invasion and meaningful work, mediated by frustration: For low levels of CSR, techno-invasion results in higher levels of frustration, in turn reducing meaningful work. High levels of CSR buffer this negative indirect effect. Implications for research and practice dealing with digitalization, meaningful work, and CSR are discussed.

Keywords: Frustration; Corporate social responsibility; Meaningful work; Techno-invasion; COVID-19

Technostress, frustration, CSR and meaningful work

He who has a why to live for can bear almost any how.

- Friedrich Nietzsche

INTRODUCTION

Many philosophers since ancient Greece have contemplated the meaning of life, a debate that is gaining new momentum in a modern society, which is characterized by an abundance of opportunities (Guinness, 2018). As most adults spend the majority of their waking hours at work, contemporary discourse on a meaningful life increasingly emphasizes the importance of meaningful work. It denotes work that is significant, worthwhile and has positive meaning and purpose for the individual (Rosso et al., 2010; Lysova et al., 2019; Smids et al., 2020).

Research suggests that meaningful work is related to many positive organizationally relevant outcomes, such as work engagement, job satisfaction, commitment, withdrawal intentions, and self-rated job performance (see Allan et al., 2019 for meta-analytic evidence). Given these benefits to employees and their organizations, scholars share a strong interest in understanding the factors that promote meaningful work (Michaelson et al., 2014). Despite many valuable efforts conducted to examine individual, job, organizational, and societal factors of meaningful work, understanding how these factors are interrelated and how organizations can thus promote the meaningful work experience for their employees remains limited (Lysova et al., 2019). Moreover, meaningful work is created through a highly social and contextualized process of conditions and constraints (Wrzesniewski et al., 2003), and the existing literature points to the need to better understand how the broader political, social, and institutional context shapes meaningful work (Bailey et al., 2019).

In recent years, the digitalization context has significantly shaped employees' meaning-making process at work (i.e., the process through which meaning of work is created or destroyed).

Technostress, frustration, CSR and meaningful work

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3 Although digitalization has greatly influenced the value system (Nikitenko, 2019) and has brought
4 many important advances to work and everyday life, the current trends' and developments' impact
5 resulting from the digitalization of work on employees' meaningful work is still under-researched
6 (Symon and Whiting, 2019). The few studies that have addressed this topic (e.g., Smids et al.,
7 2020; Lent, 2018) have theorized on how digitalization and meaningful work are related; however,
8 they have not empirically tested the proposed assumptions, or delved into individuals' specific
9 technology-related experiences of employees, mechanisms, and boundary conditions that enable
10 meaningful work to occur despite digitally constraining phenomena. In addition, the recent
11 COVID-19¹ pandemic has magnified digitalization trends (see Molino et al., 2020) and brought
12 new challenges, which have greatly influenced employees' perceptions of meaningful work.
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26 We build on Lips-Wiersma and Morris's (2009) holistic model of meaningful work and
27 the organizational frustration model (Fox and Spector, 1999; Spector, 1978) to explain how the
28 context of digitalization and the COVID-19 have shaped the meaning-making process about work.
29 The primary tenet of the organizational frustration model is that there is a relationship between the
30 "sources of frustration in organizations, and effects on organizations through the reactions of
31 individuals" (Spector, 1978, p. 818). In the current study, we propose technostress, defined as "any
32 negative impact on attitudes, thoughts, behaviors, or body psychology caused directly or indirectly
33 by technology" (Weil and Rosen, 1997, p. 5), focusing specifically on the techno-invasion
34 dimension, as a novel source of frustration in organizations that has been made further prevalent
35 due to the COVID-19 context. Consistent with the organizational frustration model, we argue that
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52 ¹ Referring to the disease caused by the "SARS-CoV-2" virus and how it has modified work-
53 related phenomena.
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Technostress, frustration, CSR and meaningful work

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3 techno-invasion elicits emotional responses of frustration, a key concept around which our
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5 research model theoretically revolves, and that experienced frustration influences employees'
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7 perceptions of meaningful work. We draw on Lips-Wiersma and Morris's (2009) holistic model
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9 of meaningful work, which emphasizes that seeking the balance between the needs of *self* and
10
11 *others* are inherent in the process of meaning-making process, to propose a novel mechanism for
12
13 mitigating the negative effects of frustration on meaningful work. Specifically, we argue that
14
15 perceived corporate social responsibility (CSR) can be considered as a source of meaning derived
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17 from contributing to others that encourages employees to meet their own needs as well, thereby
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19 influencing the relationship between technostress-induced frustration and employees' perceptions
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21 of meaningful work.
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27 This study offers several contributions to research on meaningful work and organizational
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29 frustration. A recent review has shown that while perceptions of meaningful work also depend on
30
31 the overall social context, our understanding of how individual, organizational, and societal factors
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33 interact to facilitate meaningful work remains limited (Lysova et al., 2019). Therefore, our first
34
35 contribution is aimed at advancing the growing body of literature on meaningful work by
36
37 conceptualizing a comprehensive theoretical framework that explains how employees
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39 acknowledge meaningful work in circumstances that offer limited opportunities for meaning (e.g.,
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41 in the context of the COVID-19 crisis). By focusing on individual-level phenomena arising from
42
43 the digital context, we respond to calls for more research that not only considers the factors that
44
45 promote or hinder meaningful work, but also advancing this line of inquiry into how the broader
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47 context shapes meaningful work (Bailey et al., 2019; Mitra and Buzzanell, 2017; Lysova et al.,
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49 2019). As digitalization is continuously changing the nature of work and there are no indicators of
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51 a trend in the opposite direction, digitalization and its potential downsides, which the COVID-19
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Technostress, frustration, CSR and meaningful work

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3 pandemic further exacerbated, are also significantly shaping the future of work through their
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5 impact on meaningful work. By examining the relationship between techno-invasion, employee
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7 frustration, and meaningful work, we respond to the call to explore the negative aspects (i.e., the
8
9 “dark side”) of employees’ digitalization experiences (Wood et al., 2019) and extend the existing
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11 literature on meaningful work by empirically investigating, for the first time, the influence of novel
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13 individual-level negative phenomena (i.e., techno-invasion and frustration) and feelings on
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15 meaningful work in a digital and challenging context.
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20 Furthermore, by examining the moderating role of CSR in the indirect relationship between
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22 techno-invasion and meaningful work, mediated by frustration, we complement current research
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24 on meaningful work and organizational frustration by highlighting the critical importance of CSR
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26 as a source of meaning that counterbalances the source of frustration source and emotional
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28 response, thereby promoting meaningful work. Perceptions of CSR have the potential to mitigate
29
30 the negative effects of frustration caused by techno-invasion causes, thereby facilitating
31
32 meaningful work in adverse and stressful situations. By demonstrating that CSR promotes
33
34 meaningful work under specific conditions arising from the digital and crisis context, we address
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36 the call to explore the conditions under which CSR can simultaneously lead to win–win outcomes
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38 in terms of business value and employee well-being (Aguinis and Glavas, 2019), advancing the
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40 discourse on how CSR reduces the feeling of frustration and thereby increases the possibility that
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42 employees find their work meaningful.
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48 Second, we aim to contribute to the literature on organizational frustration by exploring
49
50 how situational events arising from digitalization and the COVID-19 context affect the three
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52 elements of the organizational frustration model. In doing so, we integrate the holistic model of
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54 meaningful work with the organizational frustration model into a comprehensive framework. This
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Technostress, frustration, CSR and meaningful work

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3 juxtaposition allowed us to theorize and explore the negative influence of the source of frustration
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5 and emotional responses on the perception of meaningful work, as well as the mitigating role of
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7 serving others. Building on the idea that situational factors are related to a specific source of
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9 frustration (Bessière et al., 2006), we propose a novel source of frustration (i.e., techno-invasion)
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11 that elicits a frustration emotional response (i.e., frustration), leading to a novel frustration outcome
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13 (i.e., meaningful work), as predicted by Fox–Spector model of organizational frustration. We
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15 further propose that CSR positively influences the relationship between frustration emotional
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17 response and outcome. In contrast to previous research that has examined how meaningful work
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19 can mitigate the negative effects of frustration (e.g., Ugwu and Onyishi, 2018), we aim to advance
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21 the existing literature on organizational frustration by providing an integrative theoretical
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23 framework that explains how specific events and perceptions affect the elements of the
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25 organizational frustration model and thereby influence meaningful work. Finally, a potential
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27 contextual and empirical contribution can be seen in testing the proposed model using a four-wave
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29 longitudinal study conducted during the first wave of the COVID-19 pandemic. Thus, we advance
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31 research on the experience of meaningful work under these unique and stressful conditions.
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38 The remainder of this paper is structured as follows. We first present the theoretical
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40 background with the hypotheses development section in which we state the logic behind our
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42 research model and conceptualize hypotheses. An empirical section follows this in which we
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44 present our longitudinal analyses' methods and results. We conclude by discussing the theoretical
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46 contributions, practical implications, and limitations with future directions stemming from our
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48 findings.
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51 **THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT**

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Technostress, frustration, CSR and meaningful work

Existing research indicates that stressful events can violate an individual's perception of meaning of work and initiate the meaning-making process (Park, 2010; Park and George, 2013). We argue that stressful events arising from the context that digitalization and COVID-19 shaped can cause a crisis of meaning (i.e., evaluating life as frustratingly empty and lacking meaning). This study is grounded in the organizational frustration model (Fox and Spector, 1999; Spector, 1978) and holistic model of meaningful work (Lips-Wiersma and Morris, 2009) to explain how the digitalization and the COVID-19 context influenced employees perceptions of meaningful work and what are the mechanisms to cultivate the feeling of meaningful work in stressful conditions. The integrated theoretical framework presenting the research logic behind our model is displayed in Figure 1.

Insert Figure 1 about here

The organizational frustration model (Fox and Spector, 1999; Spector, 1978) specifies the relationships among sources of frustration, their effects on employees' emotional reactions and frustration outcomes. Spector (1978) highlights a number of potential sources of frustration, including the frustrating nature of the work itself and conditions arising from the work context. Technological advances and the frustration context of the COVID-19 pandemic (cf., Bessière, Newhagen, Robinson, and Shneiderman, 2006) over time exposes employees to information overload, frequent interruptions, multitasking (Galanti et al., 2021; Tarafdar et al., 2010), fear of the unknown, and increased stress from health risks. Consistent with the organizational frustration model, we argue that in such circumstances, employees are more likely to experience a sense of frustration—a negative emotional response resulting from obstacles or interruptions (i.e., frustration; Fox and Spector, 1999)—as a result of the techno-invasion, as one of the causative

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3 agents of technostress. Namely, feeling of frustration occurs when there is an inhibiting condition
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5 (such as those the COVID-19 pandemic posed) that obstructs realizing a goal (Lazar et al., 2006).
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7 We further argue that the frustration resulting from the techno-invasion limits employees' ability
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9 to express their talent, creativity and to have a sense of achievement. In other words, such
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11 frustration may lead to diminished perceptions of meaningful work (i.e., negative influence on the
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13 "expressing full potential" dimension of meaningful work). To mitigate the negative impact of
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15 frustration on meaningful work, employees need to make sense of this particular event or
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17 occurrence (Park and George, 2013) and set a goal to make their work meaningful.
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21 To achieve the goal, employees must find proper sources of meaning that motivates their
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23 engagement and agency toward the goal (Schnell, 2009). Lips-Wiersma and Morris's holistic
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25 model of meaningful work (2009) proposes four such sources of meaning (i.e., "developing and
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27 becoming self," "unity with others," "serving others," and "expressing self"). Building on these,
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29 we argue that frustrated employees are more likely to achieve their goal of experiencing higher
30
31 levels of meaningful work if they recognize their work makes a difference and meets the needs of
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33 others. Specifically, consistent with the existing studies showing that CSR contributes to
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35 meaningful work as a source of meaning (Glavas and Kelley, 2014; Bauman and Skitka, 2012),
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37 we argue that CSR perception moderates the relationship between frustration (i.e., frustration
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39 emotional response), caused by techno-invasion (i.e., frustration source), and meaningful work
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41 (i.e., frustration outcome). CSR extends the notion of work beyond one's workplace and
42
43 organization, beyond an exclusively profit-oriented perspective, and thus serves as an ideal
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45 channel for frustrated employees to find meaning through work (Aguinis and Glavas, 2019).
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51 ***Techno-invasion and meaningful work***
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Technostress, frustration, CSR and meaningful work

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3 Work fulfills our need for survival, relatedness, self-development, and self-efficacy (Blustein,
4 2008), and as such occupies a central position in the human search for meaning by serving as a
5 primary source of purpose, belongingness, and identity (Michaelson et al., 2014; Rosso et al.,
6 2010). Thus, meaningful work has become a topic of interest for many scholars and practitioners
7 (Bailey et al., 2019) in various disciplines, including philosophy, ethics, organizational studies,
8 economics, and sociology, leading to the development of various definitions of meaningful work
9 and approaches on its study (Allan et al., 2019; Lysova et al., 2019). Early conceptualizations of
10 meaningful work were unidimensional, emphasizing employees' perceptions that their work is
11 worthwhile, important, or valuable (Pratt and Ashforth, 2003). Allan and colleagues' (2019) recent
12 meta-analysis shows that some scholars have maintained this conceptualization while others (e.g.,
13 Lips-Wiersma and Wright, 2012; Rosso et al., 2010) have developed multidimensional
14 conceptualizations that bring together aspects of the self (e.g., self-actualization and personal
15 growth) with aspects of orientation toward others (e.g., helping others and contributing to the
16 greater good).

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Ciulla (2000) argues that meaningful work has an “objective” dimension (i.e., working conditions) and a “subjective” dimension (i.e., employee perceptions). While researchers in business ethics have explored the common element that all work and workplaces should have to facilitate meaningful work (i.e., emphasizing the objective dimension of meaningful work), scholars in organizational studies have focused their attention on examining what makes a certain task or job meaningful to a particular employee in a specific workplace (i.e., emphasizing the subjective dimension of meaningful work; Michaelson et al., 2014). However, some scholars argue that meaningful work is not associated only with specific tasks, but must also be interpreted and constructed in circumstances that may offer impoverished opportunities for meaning (Bailey et al.,

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3 2019). Contemporary workplaces increasingly encompass a strong digital dimension, which
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5 importantly shapes and constrains employee perceptions, responses, and behaviors, including
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7 those in the quest of meaning-making, and ultimately has the potential to impact salient individual
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9 and organizational outcomes.
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12 Despite technology's generally positive consequences, digitalization does not always
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14 necessarily produce positive outcomes (Wood et al., 2019). Indeed, the autonomy and flexibility
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16 that comes with digital work may be attractive and could help in the quest of meaning-making, but
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18 research shows that freedom and choice come with negative consequences, such as work overload
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20 and distress (Butler and Stoyanova Russell, 2018). Indicators reveal that in times of digitalization
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22 (Rutkowski and Saunders, 2018; Turel et al., 2011), life satisfaction, happiness, and interpersonal
23
24 trust are declining while people are working more than ever before (Eurofound and ILO, 2017).
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26 The COVID-19 emergency has further exacerbated this (DeFilippis et al., 2020) with digitalization
27
28 and technology encroaching more upon individuals at work and beyond.
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33 Technostress encompasses the stress employees experience as a result of the potential of
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35 information technology, with the techno-invasion dimension referring to being constantly
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37 connected and thereby invading the employee's personal life (Tarafdar et al., 2007). The COVID-
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39 19 context further facilitates the frustration response that occurs when the encroaching
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41 digitalization and its intrusion into individuals' work and lives, that is, techno-invasion (Tarafdar
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43 and Stich, 2018), is too severe. Individuals who are too encroached with IT may feel burdened by
44
45 technology and have difficulty coping with these digital demands. Digitalization has encouraged
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47 the so-called "always on" workplace culture, characterized by 24/7 access to information and
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49 connectedness. Receiving, checking, and responding to work-related emails, calls, and other
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51 messages many times during the day and often after office hours has become routine for many
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Technostress, frustration, CSR and meaningful work

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3 employees, and has been further aggravated during the COVID-19 emergency. Such techno-
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5 invasion has been shown to paradoxically decrease work productivity (Turel and Serenko, 2010).
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7 Moreover, it increases the work–life imbalance (Derks et al., 2015) and leads to various health
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9 problems, such as addiction, anxiety, and insomnia stress (Jenaro et al., 2007), as well as focus
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11 distraction (Rosen et al., 2012).
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15 In line with these arguments and Lips-Wiersma and Morris’s (2009) holistic model, we
16
17 argue that employees experiencing a techno-invasion may perceive and recognize their work as
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19 less meaningful in terms of fulfilling their potential for three distinct but interrelated reasons. First,
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21 employees who are highly techno-invaded are likely to be scattered across many different work
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23 activities, with plenty of task switching and a perception that their work does not constitute a
24
25 coherent whole (Durward and Blohm, 2017). In this case, employees are more likely to receive
26
27 distractions (e.g., additional tasks and requests, formal and informal communication) that require
28
29 their responses and prevent them from focusing on a coherent task (Rosen et al., 2012).
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34 Second, techno-invasion can result in technology invading not only an individual’s
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36 professional life, but also their personal life. Techno–invasion likely causes individuals to spend
37
38 additional time dealing with the technology, with additional tasks and issues stemming from it.
39
40 This can lead to work additionally invading their lives, resulting in reduced levels of their work–
41
42 life balance (Raišienė and Jonušauskas, 2013). Indeed, meaningful work is strongly based on how
43
44 individuals are able to achieve a balance between their work and non-work lives. Munn (2013)
45
46 empirically demonstrated that work-life balance increases employees’ perceptions of meaningful
47
48 work. In contrast, the study showed that when work-life conflict increases (i.e., when work and
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50 family/life interfere with each other and employees feel that they are inadequately fulfilling one or
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52 both of their roles), employees tend to find less meaning in their work.
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Technostress, frustration, CSR and meaningful work

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Third, techno-invasion likely generates negative perceptions about work. Individuals who are heavily technologically invaded tend to equate their work with the use of technology, leading to negative perceptions about their work and low job satisfaction (Suh and Lee, 2017). Negative associations that individuals develop about their work are in turn likely to diminish their perceptions of how meaningful their work is (Rothausen and Henderson, 2019). Thus, we propose:

H1: Techno-invasion negatively affects meaningful work.

The mediating role of frustration in the relationship between techno-invasion and meaningful work

Technological invasion increases digital workers' information technology overload, leading them to feel overwhelmed and unable to cope with all the demands and invasions that digitalization places on them (Shu et al., 2011). Consistent with the Fox–Spector model of organizational frustration, we argue that this likely leads to feeling frustrated. The model of organizational frustration, which builds on the general model of frustration, specifies various sources of either mild or severe frustration (Janus, 1940; Spector, 1978; Stäcker, 1977), and such a technological invasion may accordingly act as one of these important frustration sources. Existing research shows that working faster and for longer hours, as well as being in an “always on” work culture, manifested in the constant monitoring of work-related information via digital means (e.g., email and social media), causes anxiety, insomnia, and inefficiency (Salanova et al., 2007; Derks et al., 2015). Individuals may become frustrated due to digital encroachment, working on many different tasks and being constantly thrown off their work due to additional information being communicated. As a result, they frequently switch among tasks, losing valuable time and becoming even more frustrated. Furthermore, the fact that techno-invasion is throwing individuals

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3 out of their work-life balance and encroaching not only their professional lives, but also their
4
5 personal lives, likely further contributes to their emotional response of frustration.
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8 In a digitally invasive setting, work has been shown to be fragmented, with lowered
9
10 perceived significance (i.e., not seeing the positive impact of one's work on others; Nemkova et
11
12 al., 2019). This fragmentation and its resulting frustration can in turn undermine the experienced
13
14 meaningful work (Nemkova et al., 2019; Sanchez et al., 2015). Meaningful work does not reflect
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16 a stable state (Bailey and Madden, 2017). Rather, individuals have many episodic experiences at
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18 work that are meaningful or meaningless, which they integrate into a belief system about how
19
20 meaningful their work is overall. Techno-invasion-induced feelings of frustration might result in
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22 perceiving their work as meaningless or even worthless (May et al., 2004). Therefore, we propose:
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26 *H2: Frustration mediates the relationship between techno-invasion and meaningful work.*
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28 ***The moderating role of corporate social responsibility***

29
30 CSR is broadly defined as “context-specific organizational actions and policies that take into
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32 account stakeholders' expectations and the triple bottom line of economic, social, and
33
34 environmental performance” (Aguinis, 2011, p. 858). Recent CSR research has highlighted the
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36 importance of examining the micro-level perspective of CSR (El Akremi et al., 2018; Rupp and
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38 Mallory, 2015; Jones et al., 2019). Micro-level CSR is defined as “the study of the effects and
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40 experiences of CSR (however it is defined) on individuals (in any stakeholder group) as examined
41
42 at the individual level of analysis” (Rupp and Mallory, 2015, p. 216). Because employees are the
43
44 ones who plan, advocate, participate in, and witness CSR, scholars have begun to investigate how
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46 CSR affects employee attitudes and behaviors (Rupp and Mallory, 2015; Jones et al., 2017).
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48 Perceived CSR refers to the degree to which employees perceive their employer's support of CSR-
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50 related activities (Choi and Yu, 2014). Because CSR-related activities are defined as a long-term
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Technostress, frustration, CSR and meaningful work

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3 and stable corporate policy in line with stakeholders' values and resulting expectations (Žukauskas
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5 et al., 2018), we propose that CSR perceptions remain relatively stable over time.
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8 Recent literature reviews focusing on the micro-level CSR literature have revealed that
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10 employee perceptions of CSR are associated with a number of positive consequences, including
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12 increased employee engagement, organizational citizenship behaviors, improved employee
13
14 relations, and job satisfaction (see Rupp and Mallory, 2015). However, our understanding of the
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16 relationship between CSR and employee outcome relationships remains limited; thus, further
17
18 research is needed to answer the questions of why, how, and when CSR has an effect on employees
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20 (Glavas, 2016).
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24 Building on Lips-Wiersma and Morris's (2009) holistic model of meaningful work and
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26 existing research suggesting that employees' perceptions of CSR can facilitate meaningful work
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28 (Michaelson et al., 2014), we argue that the perception of CSR can serve as a counterbalance to
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30 frustration sources and thus reduce the negative impact of frustration techno-invasion causes on
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32 meaningful work. Rosso and colleagues (2010) argue that one way employees find meaning is by
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34 contributing to the common good or CSR. This extends the notion of work beyond one's job and
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36 organization, and beyond an exclusively profit-oriented perspective, thus providing an ideal
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38 channel for individuals to counterbalance frustration sources and find meaning in their work
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40 (Aguinis and Glavas, 2019). Lysova and colleagues' (2019) recent multilevel review has shown
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42 that CSR contributes to meaningful work because a) it signals that organizations have an ethical
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44 approach toward their stakeholders, which makes employees perceive and feel a sense of pride of
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46 and identification with the organization (e.g., Glavas and Kelley, 2014); and b) by making
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48 employees feel they are part of an effort that helps improve others' well-being, CSR satisfies
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50 employees' need for a meaningful existence (e.g., Bauman and Skitka, 2012).
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Technostress, frustration, CSR and meaningful work

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3 In organizations where CSR is integrated into the organization's strategy, routines, and
4 operations, employees are more likely to experience meaningfulness *in* work, which arises from
5 their own work role, and *at* work, which arises from being a part of something bigger (Aguinis and
6 Glavas, 2019; Pratt and Ashforth, 2003). Pratt and Ashforth (2003) further argue that CSR
7 practices, such as promoting the organization's goals, values, and beliefs and the changing the
8 nature of the relationship between members, can foster meaningful work. CSR can be particularly
9 beneficial when used as a means for employees to bring meaning and their whole selves to work
10 (Glavas and Kelley, 2014), and can provide an opportunity to re-engage individuals facing work
11 fatigue, boredom, or even career stagnation (Aguinis and Glavas, 2019). Further, we could expect
12 the same to be the case when frustration sources accumulating over time lead employees to an
13 emotional response of frustration.
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28 Therefore, we argue that employees who perceive high levels of CSR believe they are part
29 of something bigger and can make a significant contribution to others, thereby perceiving their
30 work as more meaningful even when they are annoyed and irritated (i.e., frustrated). CSR
31 emphasizes the importance of an employee's actions beyond the specific task, job, and
32 organization, and therefore can help employees gain an understanding that their potential
33 dissatisfaction and disappointment (i.e., frustration) serves for a bigger cause, thereby mitigating
34 frustration's negative effects on meaningful work. We therefore propose:
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45 *H3: CSR perception moderates the second stage of the indirect relationship between techno-*
46 *invasion and meaningful work via frustration in such a way that this relationship is less negative*
47 *for individuals with a higher CSR perception compared with individuals with a low CSR*
48 *perception.*
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53 METHODS

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Technostress, frustration, CSR and meaningful work

Sample and procedure

Through an agency specialized in data collection on work-related phenomena, we collected data from 198 working professionals across different industries with a four-wave longitudinal online survey. To match their responses across time waves, individual identification numbers were assigned to ensure participants' anonymity. The data was collected before, during, and after the first wave of the officially declared COVID-19 pandemic in Slovenia. To describe the data collection content, Table 1 briefly summarizes the COVID-19-related situation in Slovenia in 2020 during each wave of data collection. The full sample size of participants who started with the first wave is 200; however, only 198 fully responded to all four waves of data collection, with two dropping out after the first wave. We have thus only used full respondents' data for our analyses.

Insert Table 1 about here

The sample consisted of 46% of respondents working in public companies, 50% in private companies, and the remaining respondents working in joint ventures. Of the respondents, 10.6% were working in micro-companies with up to nine employees, 19.7% in small companies with up to 49 employees, 24.7% in medium-sized companies with up to 249 employees, and 44.9% working in large companies with 250 employees or more. Respondents operated mainly in the following industries: education, culture, and sport (13.1%); administration (12.6%); production (12.6%); health (9.6%); and sales (8.1%). Respondents were, on average, 46 years old, had 22 years of work experience, 49.5% were female, and on average, had 0.6 children. Among the respondents, 42.4% had a high school diploma, and 55% had at least an undergraduate diploma. In all, 30% performed managerial duties, and on average, worked 41.8 hours per week.

Measures

Technostress, frustration, CSR and meaningful work

All the focal variables were self-reported and all, except CSR, measured in all four waves. We assumed that the CSR perception was stable and would not change rapidly in the short time, thus we measured it in the first wave.

Techno-invasion was assessed with three items from Shu, Tu and Wang's (2011) scale that measures technostress technology invading personal life causes. A five-point Likert scale was used with the anchors "5 = strongly agree" and "1 = strongly disagree." Representative items include: "I have to be in touch with my work even during my vacation due to this technology," and "I feel my personal life is being invaded by this technology" ($\alpha_{t1} = .87$, $\alpha_{t2} = .86$, $\alpha_{t3} = .86$, $\alpha_{t4} = .89$, $\alpha_{cumulative} = .87$).

Frustration was measured with the following item from Peters, O'Connor and Rudolf's (1980) scale: "Overall, I experienced very little frustration at work" (reverse scored). The responses ranged from "1 = strongly disagree" to "5 = strongly agree."

Meaningful work was measured with three items from Lips-Wiersma and Wright's (2012) scale that represents expressing the full potential dimension of meaningful work. A five-point Likert scale was used with the anchors "5 = never" and "1 = very." Representative items include: "I make a difference that matters to others," and "I am excited by the available opportunities for me" ($\alpha_{t1} = .78$, $\alpha_{t2} = .86$, $\alpha_{t3} = .80$, $\alpha_{t4} = .84$, $\alpha_{cumulative} = .82$).

Perceived CSR was measured with five items Glavas and Kelley (2014) proposed. The scale covers an organization's social and environmental responsibilities. Examples of items include: "Contributing to the well-being of the community is a high priority at my organization," and "My organization achieves its goals while staying focused on its impact on the environment." The responses ranged from "1 = strongly disagree" and "5 = "strongly agree." ($\alpha = .84$).

Technostress, frustration, CSR and meaningful work

Gender and *age* were measured in the first wave and incorporated in the model as individual-level control variables.

RESULTS

Descriptive Statistics

Table 2 shows means, standard deviation, correlations, and reliability coefficients for the key study variables. Based on Cronbach's alpha coefficients, all measurement scales were internally consistent. They all exceeded the 0.70 criterion established in the literature (Hair et al., 1998). We first observed the factor structure of the focal variables and thus conducted a multilevel confirmatory factor analysis (MCFA) using MPlus 8.3 software (Muthén and Muthén, 2012). The expected four-factor solution (techno-invasion, frustration, meaningful work, and perceived CSR) displayed adequate fit with the data ($\chi^2(61) = 128.362$, $p < .01$, CFI = .96, TLI = .94, RMSEA = .04, SRMR_{within} = .03, SRMR_{between} = 0.05). The standardized factor loadings ranged from .64–.78 for the techno-invasion items, .52–.59 for the meaningful work, and .56–.90 for the perceived CSR items.

Insert Table 2 about here

As we have time-varying variables (techno invasion, meaningful work and frustration), we also checked for measurement invariance, to establish that participants across all groups interpret the individual questions, as well as the underlying latent factor, in the same way. Multiple CFAs were conducted for the time-varying construct of our model. CFA at time 1 ($\chi^2 = 31.80$; $p = 0.00$; CFI = 0.96; TLI = 0.95 ; RMSEA = 0.08), time 2 ($\chi^2 = 35.58$; $p = 0.00$; CFI = 0.97; TLI = 0.95; RMSEA = 0.09), time 3 ($\chi^2 = 42.34$; $p = 0.00$; CFI = 0.95; TLI = 0.93; RMSEA = 0.10), time 4 ($\chi^2 = 32.14$; $p = 0.00$; CFI = 0.97; TLI = 0.96; RMSEA = 0.08) and a cumulative model ($\chi^2 =$

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62.72; $p = 0.41$; CFI = 0.99; TLI = 0.99; RMSEA = 0.01) were thus conducted separately. Factor loadings for all constructs were significant and above .60. The results above show that the models of time-varying variables split by the time demonstrate a configural invariance.

Next, we move to metric invariance. The factor variance and mean were fixed to 1 and 0 respectively. The constraint of the first item for each factor was released so that the factor loadings and intercepts can be compared across groups (van de Schoot et al., 2012). The chi-square test ($\Delta\chi^2 = 12.53$; $p = 0.40$) is showing invariance between groups; this is also reinforced by the CFI difference, which is less or equal or less than 0.01 ($\Delta\text{CFI} = 0.00$) (Putnick and Bornstein, 2016). Next, we checked for scalar invariance. The factor mean and variance were fixed to 0 and 1, respectively, and all residual variances were permitted to differ across time (van de Schoot et al., 2012). The results show that compared to the metric invariance model ($\Delta\chi^2 = 29.72$; $p = 0.01$), the scalar model is not showing scalar invariance; we thus have scalar noninvariance. This suggests that noninvariance of the factor intercept for techno invasion, frustration and meaningful work (thus the scores between points) change, but this increase is not related to the change over time of the focal construct itself. Following the suggestions of Putnick and Bornstein (2016), we tried to identify the reasons behind such noninvariance. We did this by constraining the intercepts to be equal across time points and doing this for each factor separately. Techno invasion has a significant chi-square suggesting noninvariance, meaningful work was invariant, and frustration was also nonvariant. As scalar invariance was not supported, we did not check for other steps, such as residual invariance, correlations or means (Putnick and Bornstein, 2016; van de Schoot et al., 2012).

Hypotheses Testing

Technostress, frustration, CSR and meaningful work

Our dataset consisted of two hierarchically nested levels: observations spanning four time points (Level 1 $n = 792$) were nested into individuals (Level 2 $n = 198$). To check this assumption—if the data is time dependent—we conducted two analyses: general linear modeling (GLM) and latent state-trait (LST) analysis in Mplus (Muthén et al., 2017). Both analyses suggested there were no significant differences in the scores for techno-invasion (GLM; $F[2.375,538.828] = 1.074$, n.s.), LST; between 48 and 81% of true individual differences in techno-invasion can be explained by individual dispositions and 52 to 19 % by time) frustration (GLM; $F(2.934,577.927) = .881$, n.s.), LST; between 47 and 58% of true individual differences in frustration can be explained by individual dispositions and 53 to 42 % by time) and meaningful work (GLM; $F(3,591) = .576$, n.s.), LST; and between 71 and 86% of true individual differences in frustration can be explained by individual dispositions and 29 to 14 % by time) over time. Overall, the results of the above checks show that some key variables are not changing over time. For robustness, as another indication of variance partitioning, we also calculated the intraclass correlations (ICCs) of all the constructs that were measured across time using Biemann et al.'s (2012) Excel template. For techno-invasion, ICC(1) was .24, and ICC(2) was .64 ($F = 2.81$, $p < .01$). For frustration, ICC(1) was .32, and ICC(2) was .73 ($F = 3.69$, $p < .01$). For meaningful work (expressing full potential), ICC(1) was .22, and ICC(2) was .62 ($F = 2.62$, $p < .01$).

While there are multiple techniques available to analyze longitudinal data, we decided to apply a multilevel modelling technique to test our hypotheses, as deemed to be superior (Bell et al., 2019; Hanchane and Mostafa, 2012). For example, authors suggest that multilevel modeling can treat uneven time intervals (as in our case, see Table 1) or model individual-level variables over time for each participant (rather than simply averages; see Kwok et al., 2008, for the list of all potential benefits). Thus, we used hierarchical linear modeling (random intercepts with fixed

Technostress, frustration, CSR and meaningful work

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3 slopes) to test our model using multilevel SEM in Mplus 8.3. Such an approach allows
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5 simultaneous estimation (while applying full maximum likelihood principles) of all the model's
6
7 parameters. Following the suggestions of Preacher et al., (2010) as we used a multilevel SEM, we
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9 did not center the variables prior to the analysis.
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12 We report the results in Table 3. At the within level, the direct relationship between techno-
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14 invasion and meaningful work was negative and nonsignificant ($\gamma = -.02$, $se = .03$, $p = .56$), while
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16 at the between level, the direct relationship was positive and significant ($\gamma = .14$, $se = .05$, $p < .01$),
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18 rejecting Hypothesis 1. Techno-invasion was positively related to frustration at the both within-
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20 individuals ($\gamma = .14$, $se = .04$, $p < .00$) and between-individuals ($\gamma = .26$, $se = .06$, $p < .00$) levels.
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22 Further, frustration was negatively related to meaningful work at both the within-individuals ($\gamma =$
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24 $-.10$, $se = .03$, $p < .00$) and between-individuals ($\gamma = -.48$, $se = .07$, $p < .00$) levels.
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30 Insert Table 3 about here
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33 For the next part of the analysis, confidence intervals have been calculated by the Bayesian
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35 estimator in Mplus with 20,000 interactions (Yuan and MacKinnon, 2009). In support of
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37 Hypothesis 2, the indirect relationship of frustration in the relationship between techno-invasion
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39 and meaningful work was significant at both the within (indirect effect = $-.01$, $p < .05$, LLCI =
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41 $-.03$, ULCI = $-.01$) and between (indirect effect = $-.13$, $p < .00$, LLCI = $-.20$, ULCI = $-.06$) levels.
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43 Turning to the full moderated-mediation model (Hypothesis 3), all indirect effects of the
44
45 moderated mediation were only calculated at the between level, as CSR was a level-2 construct.
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47 All the indirect effects were negative and significant (low level of CSR (-1SD), indirect effect =
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49 $-.17$, $p < .00$, LLCI = $-.26$, ULCI = $-.08$; medium level (mean) of CSR, indirect effect = $-.13$, p
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51 $< .00$, LLCI = $-.20$, ULCI = $-.06$; high level of CSR (+1SD), indirect effect = $-.09$, $p < .05$, LLCI
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53 $< .00$, LLCI = $-.20$, ULCI = $-.06$;
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Technostress, frustration, CSR and meaningful work

= $-.16$, $ULCI = -.03$). Taken together, these results provide support for Hypothesis 3; the higher the CSR, the less negative the indirect relationship between techno-invasion and meaningful work, as mediated by frustration².

DISCUSSION

The results of our longitudinal (four-wave) study of professionals exposed to different levels of technology use and techno-invasion before, during, and after the first wave of the COVID-19 emergency supported our proposed moderated-mediation model. Techno-invasion, as one of the causative agents of technostress, did not directly negatively influence meaningful work, but it did contribute to higher levels of frustration, indicating crucial potential downsides of the (over)use of IT in contemporary organizations. Furthermore, in certain conditions, techno-invasion reduces perceptions of meaningful work through frustration, a short-term negative outcome. As technostress is a common phenomenon in the digital context, this finding is highly relevant for understanding how the digital work environment shapes the experience of meaningful work and thus influences future meaningful work experiences. Moreover, the results show that the higher the level of CSR, the less negative the indirect relationship between techno-invasion and meaningful work, as mediated by frustration.

Theoretical Contributions

² The results with regards to tests of hypotheses also hold when using random slopes for the link between frustration and meaningful work (where the moderation of CSR is tested). As a robustness check using an alternative analytic technique and software, we also applied MLmed (Beta 2), an SPSS (v25) macro for fitting multilevel models (Hayes & and Rockwood, 2020; Rockwood and Hayes, in press). The results were very similar and consistent in terms of tests of hypotheses.

Technostress, frustration, CSR and meaningful work

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3 This study advances the literature on meaningful work and organizational frustration in several
4 ways. First, our study extends previous research on meaningful work by integrating Lips-Wiersma
5 and Morris's (2009) holistic model of meaningful work and the organizational frustration model
6 (Fox and Spector, 1999; Spector, 1978) into a novel, comprehensive theoretical model that
7 explains how the constraints and tensions of a context influence individuals' recognition of
8 meaningful work. Although scholars have established that context influences the degree to which
9 an individual can find meaningful work (Lysova et al., 2019), they have paid scant theoretical and
10 empirical attention to the role of digitalization and crisis context in shaping employees'
11 experiences of meaningful work. As digitalization and high-profile events are continuously
12 changing the nature of work, thus shaping the future of work through their impact on meaningful
13 work, our study extends the existing literature on meaningful work by deepening our
14 understanding of how digitalization and crisis (i.e., COVID-19 pandemic) context affect
15 employees' perceptions of meaningful work.
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33 Specifically, following Lips-Wiersma and Morris's (2009) holistic model of meaningful
34 work, we argue that stressful events arising from the context of digitalization context and the
35 COVID-19 pandemic can trigger a crisis of meaning (i.e., evaluating life as frustratingly empty
36 and lacking meaning). Combining this logic with the organizational frustration model (Fox and
37 Spector, 1999; Spector, 1978), we propose that techno-invasion, arising from the digitalization
38 context, induces a frustration emotional response and thereby reducing meaningful work. Although
39 the literature suggests that, due to different reasons and mechanisms, digitalization can either
40 positively or negatively affect meaningful work (Lent, 2018; Smids et al., 2020), empirical studies
41 rigorously examining these effects remain limited. Our study thus adds to a growing conversation
42 about the meaningful work by theoretically and empirically investigating how digitalization and
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Technostress, frustration, CSR and meaningful work

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3 the COVID-19 context affect employees' perceptions of meaningful work and what are the
4 mechanisms to cultivate feelings of meaningful work under stressful conditions. Consistent with
5 the holistic model of meaningful work that emphasizes service to others as a source of meaningful
6 work, we propose CSR perception as an important mechanism that mitigates the negative effects
7 of frustration (i.e., the emotional response) techno-invasion causes (i.e., frustration sources) and
8 thereby facilitates the experience of meaningful work (i.e., frustration outcome) in the specific
9 context (i.e., digitalization and COVID-19 pandemic). A recent review highlights the need for
10 more empirical research exploring the positive and negative factors that shape experiences of
11 meaningful work (Lysova et al., 2019). Therefore, this study adds to the literature on meaningful
12 work by theoretically and empirically examining a unique set of factors (i.e., techno-invasion,
13 frustration, CSR perceptions) that influence meaningful work. In addition, it is important to
14 emphasize that while we proposed and empirically investigated the negative effects of context (i.e.,
15 digitization in the COVID-19 pandemic) on meaningful work, our comprehensive model is also
16 appropriate for investigating the positive effects of context on the meaning-making process.

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19 By outlining a comprehensive theoretical framework for how context shapes the meaning-
20 making process, we respond to calls for examining of how interactions between various individual,
21 organizational, and social factors contribute to the experience of meaningful work (Lysova et al.,
22 2019) and how a broader context shapes that experience (Bailey et al., 2019). Specifically, we
23 provide empirical support on how factors arising from the digital context (i.e., technostress and
24 frustration) interact with a potentially mitigating factor related to a source of meaning (i.e., CSR)
25 to influence meaningful work. By examining novel negative consequences of the techno-invasion,
26 we also contribute to technostress research, responding to the call to explore the negative aspects
27 (i.e., the "dark side") of employees' digitalization experiences (Wood et al., 2019). However,
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Technostress, frustration, CSR and meaningful work

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3 contrary to expectations, our results suggest that techno-invasion can serve as a source of
4 meaningful work in a crisis context. In line with the existing literature, which mainly focuses on
5 examining the negative effects of techno-invasion on employees' work and non-work experiences
6 (e.g., Tarafdar et al., 2010; Wu et al., 2020), we proposed that the direct relationship between
7 techno-invasion and meaningful work is negative. However, the results suggest that the direct
8 effect of techno-invasion on employees' perceptions of meaningful work in crisis contexts, such
9 as COVID-19, is actually positive. Diller and colleagues (2016) argue that techno-invasion
10 enhances both positive and negative stress responses, depending on particular boundary
11 conditions. For example, Wu and colleagues (2020) found that employee computer self-efficacy
12 and perceived organizational support can significantly mitigate the negative consequences of
13 techno-invasion. Because our data were collected during the COVID-19 pandemic when many
14 employees performed their work remotely (Molino et al., 2020), many organizations were forced
15 to pay special attention to employee support to maintain continuous implementation of business
16 processes. In addition, employees who had to work during the first wave of the pandemic possibly
17 received reassurance that their work, although intruding on their personal life, was important and
18 worth doing, serving as a source of meaning, which in turn increased their perception of how
19 meaningful work actually it was. However, our theorization and results also suggest a negative
20 indirect effect of techno-invasion on meaningful work through increased frustration. If techno-
21 invasion leads to frustration, the degree to which employees find their work meaningful will
22 decrease.

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49 Moreover, in line with Lips-Wiersma and Morris's (2009) holistic model of meaningful
50 work, we also highlight CSR's crucial importance as a source of meaning, counterbalancing
51 sources of frustration and promoting meaningful work. Thereby, our study responds to the call to
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Technostress, frustration, CSR and meaningful work

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3 investigate conditions under which CSR can lead to win–win outcomes of business value and
4 employee well-being simultaneously (Aguinis and Glavas, 2019). By examining the moderating
5 role of CSR perception in the indirect relationship between techno-invasion and meaningful work,
6 which frustration mediates, our study contributes to the discourse on CSR’s positive impact related
7 to meaningful work. Existing evidence suggests that CSR is particularly beneficial when used as
8 a means for employees to bring both more meaning and their whole selves to work (Glavas and
9 Kelley, 2014), and provides an opportunity to re-engage individuals who are in a challenging
10 situation (Aguini and Glavas, 2019). Consistent with the existing evidence, our study suggests that
11 CSR perception can mitigate the negative consequences of frustration techno-invasion causes,
12 highlighting CSR’s critical importance in promoting meaningful work in the digital context.
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26 Second, by exploring how situational events arising from digitalization and the COVID-19
27 context affect the organizational frustration model’s three elements, our study also contributes to
28 the literature on organizational frustration. Building on the idea that situational factors are related
29 to specific frustration source (Bessière et al., 2006), we proposed a novel source of frustration (i.e.,
30 techno-invasion) and explained how it is linked to the frustration emotional response (i.e.,
31 frustration) and the novel frustration outcome (i.e., meaningful work) as the Fox–Spector model
32 of organizational frustration predicts. We found empirical evidence that the techno-invasion
33 contributed to higher levels of frustration, thereby advancing the existing debate in the literature
34 on organizational frustration and meaningful work, which has mainly examined how of meaningful
35 work can mitigate the negative effects of frustration (e.g., Ugwu and Onyishi, 2018). Our study
36 shows that certain events can affect the organizational frustration model’s three elements and thus
37 meaningful work. One of the novelties of this study is also to shed light on how CSR perceptions,
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Technostress, frustration, CSR and meaningful work

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3 which are influenced by corporate CSR policies, can mitigate the negative effects of the frustration
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5 emotional response resulting from the frustration source on the frustration outcome.
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8 Third, our study also makes an empirical contribution by testing the moderated- mediation
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10 model, which posits frustration as a mediator of techno- invasion effects on meaningful work, with
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12 CSR perceptions as a moderator of such effects using a four-wave longitudinal study conducted
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14 during the first wave of the COVID-19 pandemic. As a global phenomenon with severe global
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16 consequences across all aspects of work and life, COVID-19 further exacerbated some negative
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18 consequences of digitalization and acted as an important contingency interfering and constraining
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20 workers' experiences of frustration (Bessière et al., 2006). Thus, we advance research on the
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22 experience of meaningful work under these unique and stressful conditions.
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26 **Practical implications**

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28 Our findings have important practical implications for creating work environments that aim to
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30 maximize employees' perceptions of meaningful work, particularly with regard to administering
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32 appropriate levels of technological invasion. There is ongoing public and professional debate about
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34 the negative impact of techno-invasion on individuals, which may also negatively affect
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36 organizationally relevant outcomes. Our study provides the rare empirical evidence that techno-
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38 invasion can have both positive and negative impact on meaningful work. Specifically, our results
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40 show that in times of crisis (e.g. COVID-19 pandemic), when employees are aware of the
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42 importance of their work for the survival of the organization, the techno-invasion can positively
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44 influence their perception of meaningful work. However, our results also show that techno-
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46 invasion can also lead to frustration, decreasing employees' perception of meaningful work.
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48 Therefore, managers and organizations should carefully examine their employees' attitudes toward
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50 the use of technology, keep track of their workloads and overloads, and monitor whether
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Technostress, frustration, CSR and meaningful work

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3 employees perceive technological invasion as a challenge that enables them to express their full
4 potential or as a source of frustration. To avoid employees feeling frustrated and thereby believing
5 their work is less meaningful, organizations should keep an eye on digital intrusion into employees'
6 lives and pay attention to how much work is assigned to them through technological means, as
7 well as when that work is administered. Moreover, frustration occurs when employees feel that
8 some inhibiting factors, such as the work environment and the structure of the working
9 environment, including procedures and rules, prevent them from achieving their goals (Lazar et
10 al., 2006; Spector, 1978). Therefore, to reduce the techno-invasion-induced frustration,
11 organizations should apply rules and policies to limit after-hours work (e.g., by instituting a “no
12 after-hours” or a “limited timeframe email” policy), so that employees can achieve their goals in
13 both their professional and personal lives. Organizations should also keep formal expectations of
14 employees’ availability at all times and places low (Piszczek, 2017) and encourage them to take
15 time off from work and technology to reduce feelings of technological invasion, thereby reducing
16 frustration.

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Second, even if employees feel that technology is invading their work and lives, our findings suggest that organizations can prevent this occurrence from resulting in reduced feelings of how meaningful work they perform is by focusing on inducing higher levels of CSR perceptions. Organizations and managers should therefore carefully design and implement CSR practices, policies, and actions, as they can significantly influence employees’ CSR perceptions and thus their perception of meaningful work in a crisis context. Organizations can use human resource management practices and systems, such as training and development, to make employees aware of CSR policies (Shen and Benson, 2016). Once they become aware that their organizations give them the opportunity to positively contribute to the world, they may become re-energized and find

Technostress, frustration, CSR and meaningful work

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3 meaningfulness in their work (Aguinis and Glavas, 2019) despite techno-invasion-induced
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5 feelings of frustration. In addition, our study shows that employees are more likely to experience
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7 their work as meaningful in crisis situations if they feel they are part of something bigger. This
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9 finding suggests that organizations should pay particular attention to promoting meaningfulness at
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11 work - a sense of meaning that comes from being part of the organization rather than from what
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13 one does. Pratt and Ashforth (2003) suggest that meaningfulness at work can be fostered through
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15 building cultures, ideologies, identities, and communities, as well as through charismatic,
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17 visionary, or transformational leadership.
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22 Practically, our study implies that organizations should 1) review and analyze business
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24 processes and core values to identify where values, such as solidarity, environmental awareness,
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26 or contribution to humanity, exist or could potentially exist (Asif et al., 2013) and integrate them
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28 into the corporate culture; 2) carefully develop CSR initiatives and adapt them to the particular
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30 organizational context and promote them even in difficult circumstances as they may influence
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32 employees' CSR perceptions, thereby increasing meaningful work; 3) promote CSR initiatives
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34 internally as well as externally, integrating them with people management and marketing
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36 strategies, and (co)create positive (employee) brand awareness (Bhattacharya et al., 2004; Jamali
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38 et al., 2015) to promote meaningfulness at work.
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41 42 **Limitations and Future Research Directions**

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44 As is true for any research, our study is not without limitations. While our longitudinal research
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46 across four points in time entails important advantages in terms of making causal claims, a possible
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48 limitation of our research design can be the exclusive use of self-reports. However, according to
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50 Fox and Spector (1999), self-reported measures capture critical features of the situation more
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52 adequately than more objective, non-intuitive measures. Because our study aimed to understand
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3 how employees view, feel, and respond to digitalized work, a self-report methodology made the
4 most sense (Howard, 1994; Spector, 1994). Nonetheless, such research could be complemented by
5 including additional objective measures, perhaps those of CSR, by investigating a multilevel
6 model of organizational CSR initiatives that moderate the basic mediated model at the individual
7 level, or expand the model to include potential impact on business performance.
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15 In terms of our used measurement instruments, for several constructs (specifically for
16 technostress and meaningful work), we have only captured a single dimension of otherwise
17 multidimensional constructs, and short and even single-item scales had to be used. Such an
18 approach might be especially useful in longitudinal research in an attempt not to overburden
19 respondents with too long research instruments, thus enabling them to maintain concentration and
20 focus on the content when responding (Lucas and Donnellan, 2012; Fisher et al., 2016). During
21 the COVID-19 pandemic, when individuals faced a range of professional, personal, and health
22 challenges that required a rapid response and the time and energy of individuals, it was even more
23 important that we were considerate of their time and kept the survey as short as possible. Further,
24 the selected dimensions were chosen because they were theoretically the most relevant for the
25 research model in question. However, future research could further improve the validity and scope
26 of our study by employing multidimensional scales and investigating whether additional
27 dimensions of technostress and meaningful work behave differently.
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45 In addition, we have captured techno-invasion, frustration, and meaningful work across
46 time, while only relying on the CSR perceptions the respondents provided in a single point in time.
47 Because our study took place across several months, it is also possible that some respondents
48 changed jobs in this period, which would likely change their perceptions regarding their
49 organizations' CSR. Since we have a nationally representative quota sample (representative of age,
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3 gender, and industry), we can assume, based on our national labor statistics, that only a small
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5 number of employees included in the sample changed jobs. However, a viable research avenue
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7 would be to examine how CSR perceptions are shaped over time, which would involve longer
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9 periods included in such longitudinal research, potentially spanning across multiple years. This
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11 would also produce larger variance in all examined constructs over time. Lastly and on a related
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13 note, our preliminary checks highlighted that few constructs (especially techno invasion and
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15 frustration) did not change over time or there was no scalar invariance. This means that comparison
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17 between time points might not be needed as there are differences in the scale meaning for some
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19 constructs is different between time points, or that the change over time is less prominent than
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21 expected. Even if some authors still compare groups/time points even without assessing scalar
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23 invariance (e.g., Dahlstrom and Nygaard, 1995) and multilevel analysis is recommended, we
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25 believe that our results should be taken with this limitation in mind.
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33 **Acknowledgements**

34
35 We would like to thank John Gelissen for advice regarding the analyses. We also acknowledge all
36
37 the individuals frustrated (at work and beyond) by the pandemic and its implications, but especially
38
39 those who took time to participate in our research during these challenging times.
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43 **Funding**

44
45 The authors acknowledge financial support from the Slovenian Research Agency (Javna Agencija
46
47 za Raziskovalno Dejavnost RS; core research funding P5-0410, J5-2555, and J5-4574).
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56
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References

- Aguinis, H., & Glavas, A. (2019). On corporate social responsibility, sensemaking, and the search for meaningfulness through work. *Journal of management*, 45(3), 1057-1086.
- Aguinis, H. (2011). Organizational responsibility: Doing good and doing well. In S. Zedeck (Ed.), *APA handbook of industrial and organizational psychology* (Vol. 3, pp. 855–879). Washington, DC: APA.
- Allan, B. A., Batz-Barbarich, C., Sterling, H. M., & Tay, L. (2019). Outcomes of meaningful work: A meta-analysis. *Journal of Management Studies*, 56(3), 500-528.
- Asif, M., Searcy, C., Zutshi, A., & Fisscher, O. A. (2013). An integrated management systems approach to corporate social responsibility. *Journal of Cleaner Production*, 56, 7-17.
- Bailey, C., & Madden, A. (2017). Time reclaimed: temporality and the experience of meaningful work. *Work, Employment and Society*, 31(1), 3-18.
- Bailey, C., Yeoman, R., Madden, A., Thompson, M., & Kerridge, G. (2019). A review of the empirical literature on meaningful work: Progress and research agenda. *Human Resource Development Review*, 18(1), 83-113.
- Bauman, C. W., & Skitka, L. J. (2012). Corporate social responsibility as a source of employee satisfaction. *Research in Organizational Behavior*, 32, 63–86.
- Bell, A., Fairbrother, M., & Jones, K. (2019). Fixed and random effects models: making an informed choice. *Quality & Quantity*, 53(2), 1051-1074.

Technostress, frustration, CSR and meaningful work

1
2
3 Bessière, K., Newhagen, J. E., Robinson, J. P., & Shneiderman, B. (2006). A model for computer
4
5 frustration: The role of instrumental and dispositional factors on incident, session, and post-
6
7 session frustration and mood. *Computers in human behavior*, 22(6), 941-961.

8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
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42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
Bhattacharya, C. B., Smith, N. C., & Vogel, D. (2004). Integrating social responsibility and
marketing strategy: an introduction. *California Management Review*, 47(1), 6-8.

Biemann, T., Cole, M. S., & Voelpel, S. (2012). Within-group agreement: On the use (and misuse)
of rWG and rWG(J) in leadership research and some best practice guidelines. *The Leadership
Quarterly*, 23(1), 66-80.

Blustein, D. L. (2008). The role of work in psychological health and well-being: a conceptual,
historical, and public policy perspective. *American Psychologist*, 63(4), 228-240.

Boyd, T. L. (1982). Learned helplessness in humans: A frustration-produced response
pattern. *Journal of personality and social psychology*, 42(4), 738.

Butler, N., & Stoyanova Russell, D. (2018). No funny business: Precarious work and emotional
labour in stand-up comedy. *Human Relations*, 71(12), 1666-1686.

Choi, Y., Yu, Y. (2014). The influence of perceived corporate sustainability practices on
employees and organizational performance. *Sustainability*, 6(1), 348-364.

Dahlstrom, R., & Nygaard, A. (1995). An exploratory investigation of interpersonal trust in new
and mature market economies. *Journal of retailing*, 71(4), 339-361.

DeFilippis, E., Impink, S. M., Singell, M., Polzer, J. T., & Sadun, R. (2020). Collaborating during
coronavirus: The impact of COVID-19 on the nature of work. *NBER Working Paper*, (w27612).

Diller, H., Jeffrey, S., & Fiedler, M. (2016). *Searching for the silver linings of techno-invasion*
(No. B-22-16). Passauer Diskussionspapiere-Betriebswirtschaftliche Reihe.

Technostress, frustration, CSR and meaningful work

1
2
3 Durward, D., & Blohm, I. (2017). I am a Crowd Worker-How Individuals Identify with a New
4
5 Form of Digital Work. *European Conference on Information Systems (ECIS)*. Guimarães,
6
7 Portugal.

8
9
10 El Akremi, A., Gond, J. P., Swaen, V., De Roeck, K., & Igalens, J. (2018). How do employees
11
12 perceive corporate responsibility? Development and validation of a multidimensional corporate
13
14 stakeholder responsibility scale. *Journal of Management*, 44(2), 619-657.

15
16
17 Eurofound & ILO (2017), *Working Anytime, Anywhere: The Effects on the World of Work*,
18
19 Luxembourg/Geneva: Publications of the Office of the European Union and the
20
21 International Labour Office.

22
23
24 Fisher, G. G., Matthews, R. A., & Gibbons, A. M. (2016). Developing and investigating the use
25
26 of single-item measures in organizational research. *Journal of Occupational Health*
27
28 *Psychology*, 21(1), 3.

29
30
31 Fox, S., & Spector, P. E. (1999). A model of work frustration-aggression. *Journal of*
32
33 *Organizational Behavior*, 20(6), 915-931.

34
35
36 Galanti, T., Guidetti, G., Mazzei, E., Zappalà, S., & Toscano, F. (2021). Work from home during
37
38 the COVID-19 outbreak: the impact on employees' remote work productivity, engagement, and
39
40 stress. *Journal of Occupational and Environmental Medicine*, 63(7), e426.

41
42
43 Glavas, A. (2016). Corporate social responsibility and organizational psychology: An integrative
44
45 review. *Frontiers in Psychology*, 7, 144.

46
47
48 Glavas, A., & Kelley, K. (2014). The effects of perceived corporate social responsibility on
49
50 employees. *Business Ethics Quarterly*, 24, 165-202.

51
52
53 Guinness, O. (2018). *The call: Finding and fulfilling God's purpose for your life*. Nashville,
54
55 Tennessee: Thomas Nelson.

Technostress, frustration, CSR and meaningful work

- 1
2
3 Hanchane, S., & Mostafa, T. (2012). Solving endogeneity problems in multilevel estimation: an
4
5 example using education production functions. *Journal of Applied Statistics*, 39(5), 1101-1114.
6
7
8 Hair, J. F., Anderson, R. E., Tatham, R. L., & William, C. (1998). *Multivariate data analysis*.
9
10 Upper Saddle River, NJ: Prentice Hall.
11
12 Hayes, A. F., & Rockwood, N. J. (2020). Conditional process analysis: Concepts, computation,
13
14 and advances in the modeling of the contingencies of mechanisms. *American Behavioral*
15
16 *Scientist*, 64(1), pp. 19-54.
17
18
19 Jamali, D. R., El Dirani, A. M., & Harwood, I. A. (2015). Exploring human resource management
20
21 roles in corporate social responsibility: The CSR-HRM co-creation model. *Business*
22
23 *Ethics: A European Review*, 24(2), 125-143.
24
25
26 Jenaro, C., Flores, N., Gómez-Vela, M., González-Gil, F., & Caballo, C. (2007). Problematic
27
28 internet and cell-phone use: Psychological, behavioral, and health correlates. *Addiction*
29
30 *Research & Theory*, 15(3), 309-320.
31
32
33 Jones, D. A., Newman, A., Shao, R., & Cooke, F. L. (2019). Advances in employee-focused micro-
34
35 level research on corporate social responsibility: Situating new contributions within the current
36
37 state of the literature. *Journal of Business Ethics*, 157(2), 293-302.
38
39
40 Jones, D. A., Willness, C. R., & Glavas, A. (2017). When corporate social responsibility (CSR)
41
42 meets organizational psychology: New frontiers in micro-CSR research, and fulfilling a quid
43
44 pro quo through multilevel insights. *Frontiers in Psychology*, 8, 520.
45
46
47 Kwok, O.-M., Underhill, A. T., Berry, J. W., Luo, W., Elliott, T. R., & Yoon, M. (2008). Analyzing
48
49 Longitudinal Data with Multilevel Models: An Example with Individuals Living with Lower
50
51 Extremity Intra-articular Fractures. *Rehabilitation psychology*, 53(3), 370-386.
52
53
54
55
56
57
58
59
60

Technostress, frustration, CSR and meaningful work

- 1
2
3 Lazar, J., Jones, A., Shneiderman, B. (2006). Workplace user frustration with computers: An
4
5 exploratory investigation of the causes and severity. *Behaviour & Information Technology*, 25,
6
7 239–251.
8
9
10 Lent, R. W. (2018). Future of work in the digital world: Preparing for instability and opportunity.
11
12 *The Career Development Quarterly*, 66(3), 205-219.
13
14 Lips-Wiersma, M., & Morris, L. (2009). Discriminating between ‘meaningful work’ and the
15
16 ‘management of meaning’. *Journal of business ethics*, 88(3), 491-511.
17
18
19 Lips-Wiersma, M., & Wright, S. (2012). Measuring the meaning of meaningful work:
20
21 Development and validation of the Comprehensive Meaningful Work Scale (CMWS). *Group*
22
23 *& Organization Management*, 37(5), 655-685.
24
25
26 Lucas, R. E., & Donnellan, M. B. (2012). Estimating the reliability of single-item life satisfaction
27
28 measures: Results from four national panel studies. *Social Indicators Research*, 105(3), 323-
29
30 331.
31
32
33 Lysova, E. I., Allan, B. A., Dik, B. J., Duffy, R. D., & Steger, M. F. (2019). Fostering meaningful
34
35 work in organizations: A multi-level review and integration. *Journal of Vocational Behavior*,
36
37 110, 374-389.
38
39
40 Michaelson, C., Pratt, M. G., Grant, A. M., & Dunn, C. P. (2014). Meaningful work: Connecting
41
42 business ethics and organization studies. *Journal of Business Ethics*, 121(1), 77-90.
43
44
45 Mitra, R., & Buzzanell, P. M. (2017). Communicative tensions of meaningful work: The case of
46
47 sustainability practitioners. *Human Relations*, 70(5), 594-616.
48
49
50 Molino, M., Ingusci, E., Signore, F., Manuti, A., Giancaspro, M. L., Russo, V., ... & Cortese, C.
51
52 G. (2020). Wellbeing costs of technology use during Covid-19 remote working: An
53
54
55
56
57
58
59
60

Technostress, frustration, CSR and meaningful work

1
2
3 investigation using the Italian translation of the technostress creators scale. *Sustainability*,
4
5 12(15), 5911.
6

7
8 Muthén, L. K., & Muthén, B. O. (1998-2012). *Mplus User's Guide* (7th ed.).
9

10 Muthén, B. O., Muthén, L. K., & Asparouhov, T. (2017). *Regression and mediation analysis using*
11
12 *Mplus*. Los Angeles, CA: Muthén & Muthén.
13

14
15 Nemkova, E., Demirel, P., & Baines, L. (2019). In search of meaningful work on digital
16
17 freelancing platforms: the case of design professionals. *New Technology, Work and*
18
19 *Employment*, 34(3), 226-243.
20

21
22 Nikitenko, V. (2019). The impact of digitalization on value orientations changes in the modern
23
24 digital society. *Humanities Studies*, 2 (79), 80-94.
25

26
27 Peters, L. H., O'Connor, E. J., & Rudolf, C. J. (1980). The behavioral and affective consequences
28
29 of performance-relevant situational variables. *Organizational Behavior and Human*
30
31 *Performance*, 25(1), 79-96.
32

33
34 Piszczek, M. M. (2017). Boundary control and controlled boundaries: Organizational expectations
35
36 for technology use at the work–family interface. *Journal of Organizational Behavior*, 38(4),
37
38 592-611.
39

40
41 Pratt, M. G. & Ashforth, B. E. (2003). Fostering meaningfulness in working and at work. In
42
43 Cameron, K. S., Dutton, J. E. & Quinn, R. E. (Eds), *Positive Organizational Scholarship* (p.
44
45 309–27). San Francisco, CA: Berrett-Koehler Publishers Inc.
46

47
48 Preacher, K. J., Zyphur, M. J., & Zhang, Z. (2010). A general multilevel SEM framework for
49
50 assessing multilevel mediation. *Psychological methods*, 15(3), 209.
51
52
53
54
55
56
57
58
59
60

Technostress, frustration, CSR and meaningful work

- 1
2
3 Putnick, D. L., & Bornstein, M. H. (2016). Measurement invariance conventions and reporting:
4
5 The state of the art and future directions for psychological research. *Developmental Review*, 41,
6
7 71-90.
8
9
10 Raišienė, A. G., & Jonušauskas, S. (2013). Silent issues of ICT era: impact of techno-stress to the
11
12 work and life balance of employees. *Entrepreneurship and Sustainability Issues*, 1, 108-115.
13
14 Rockwood, N. J., & Hayes, A. F. (in press). Multilevel mediation analysis. In A. O'Connell, D.
15
16 McCoach and B. Bell (Eds.), *Multilevel Modeling Methods with Introductory and Advanced*
17
18 *Applications*. Charlotte, NC: Information Age Publishing.
19
20
21 Rosso, B. D., Dekas, K. H., & Wrzesniewski, A. (2010). On the meaning of work: A theoretical
22
23 integration and review. *Research in Organizational Behavior*, 30, 91-127.
24
25
26 Rupp, D. E., & Mallory, D. B. (2015). Corporate social responsibility: Psychological, person-
27
28 centric, and progressing. *Annual Review of Organizational Psychology and Organizational*
29
30 *Behavior*, 2(1), 211-236
31
32
33 Rutkowski, A. F., & Saunders, C. (2018). *Emotional and cognitive overload: The dark side of*
34
35 *information technology*. Routledge.
36
37
38 Sanchez, H., Robbes, R., & Gonzalez, V. M. (2015). An empirical study of work fragmentation in
39
40 software evolution tasks. In *2015 IEEE 22nd International Conference on Software Analysis,*
41
42 *Evolution, and Reengineering (SANER)* (pp. 251-260). IEEE.
43
44
45 Schnell, T. (2009). The Sources of Meaning and Meaning in Life Questionnaire (SoMe): Relations
46
47 to demographics and well-being. *The Journal of Positive Psychology*, 4(6), 483-499.
48
49
50 Shen, J., & Benson, J. (2016). When CSR is a social norm: How socially responsible human
51
52 resource management affects employee behavior. *Journal of Management*, 42, 1723-1746.
53
54
55
56
57
58
59
60

Technostress, frustration, CSR and meaningful work

1
2
3 Smids, J., Nyholm, S., & Berkers, H. (2020). Robots in the Workplace: a Threat to—or
4
5 Opportunity for—Meaningful Work?. *Philosophy & Technology*, 33(3), 503-522.

6
7
8 Spector, P. E. (1994). Using self-report questionnaires in OB research: A comment on the use of
9
10 a controversial method. *Journal of Organizational Behavior*, 385-392.

11
12 Spector, P. E. (1978). Organizational frustration: A model and review of the literature. *Personnel*
13
14 *Psychology*, 31(4), 815-829.

15
16
17 Suh, A., & Lee, J. (2017). Understanding teleworkers' technostress and its influence on job
18
19 satisfaction. *Internet Research*, 27(1), 140-159.

20
21
22 Shu, Q., Tu, Q., & Wang, K. (2011). The impact of computer self-efficacy and technology
23
24 dependence on computer-related technostress: A social cognitive theory perspective.
25
26 *International Journal of Human-Computer Interaction*, 27(10), 923-939.

27
28
29 Symon, G., & Whiting, R. (2019). The sociomaterial negotiation of social entrepreneurs'
30
31 meaningful work. *Journal of Management Studies*, 56(3), 655-684.

32
33
34 Tarafdar, M., & Stich, J. F. (2018). Information and Communication Technology: Understanding
35
36 Their Dark-Side Effects. In *Economics, Management and Sustainability* (pp. 265-275).
37
38 Springer, Singapore.

39
40
41 Tarafdar, M., Tu, Q., & Ragu-Nathan, T. S. (2010). Impact of technostress on end-user satisfaction
42
43 and performance. *Journal of management information systems*, 27(3), 303-334.

44
45
46 Tarafdar, M., Tu, Q., Ragu-Nathan, B. S., & Ragu-Nathan, T. S. (2007). The impact of technostress
47
48 on role stress and productivity. *Journal of Management Information Systems*, 24(1), 301-
49
50 328.

51
52
53 Turel, O., & Serenko, A. (2010). Is mobile email addiction overlooked?. *Communications of the*
54
55 *ACM*, 53(5), 41-43.

Technostress, frustration, CSR and meaningful work

- 1
2
3 Turel O., Serenko A., & Giles P. (2011). Integrating technology addiction and use: An empirical
4 investigation of online auction users. *MIS Quarterly*, 1043-1061.
5
6
7 Ugwu, F. O., & Onyishi, I. E. (2018). Linking perceived organizational frustration to work
8 engagement: The moderating roles of sense of calling and psychological meaningfulness.
9
10
11
12 *Journal of Career Assessment*, 26(2), 220-239.
13
14 van de Schoot, R., Lugtig, P., & Hox, J. (2012). A checklist for testing measurement invariance.
15
16
17 *European Journal of Developmental Psychology*, 9(4), 486-492.
18
19 Weil, M. M., & Rosen, L. D. 1997. *Technostress: Coping with technology@work@home@play*.
20
21
22 New York: Wiley.
23
24 Wood, A. J., Graham, M., Lehdonvirta, V., & Hjorth, I. (2019). Networked but commodified: The
25
26
27 (dis) embeddedness of digital labour in the gig economy. *Sociology*, 53(5), 931-950.
28
29 Wrzesniewski, A., Dutton, J. E., & Debebe, G. (2003). Interpersonal sensemaking and the meaning
30
31
32 of work. *Research in Organizational Behavior*, 25, 93-135.
33
34 Wu, J., Wang, N., Mei, W., & Liu, L. (2020). Technology-induced job anxiety during non-work
35
36
37 time: examining conditional effect of techno-invasion on job anxiety. *International Journal of*
38
39
40 *Networking and Virtual Organisations*, 22(2), 162-182.
41
42 Yuan, Y., & MacKinnon, D. P. (2009). Bayesian mediation analysis. *Psychological*
43
44
45 *methods*, 14(4), 301.
46
47 Žukauskas, P., Vveinhardt, J., & Andriukaitienė, R. (2018). Corporate social responsibility as the
48
49
50 organization's commitment against stakeholders. *Management culture and corporate social*
51
52
53
54
55
56
57
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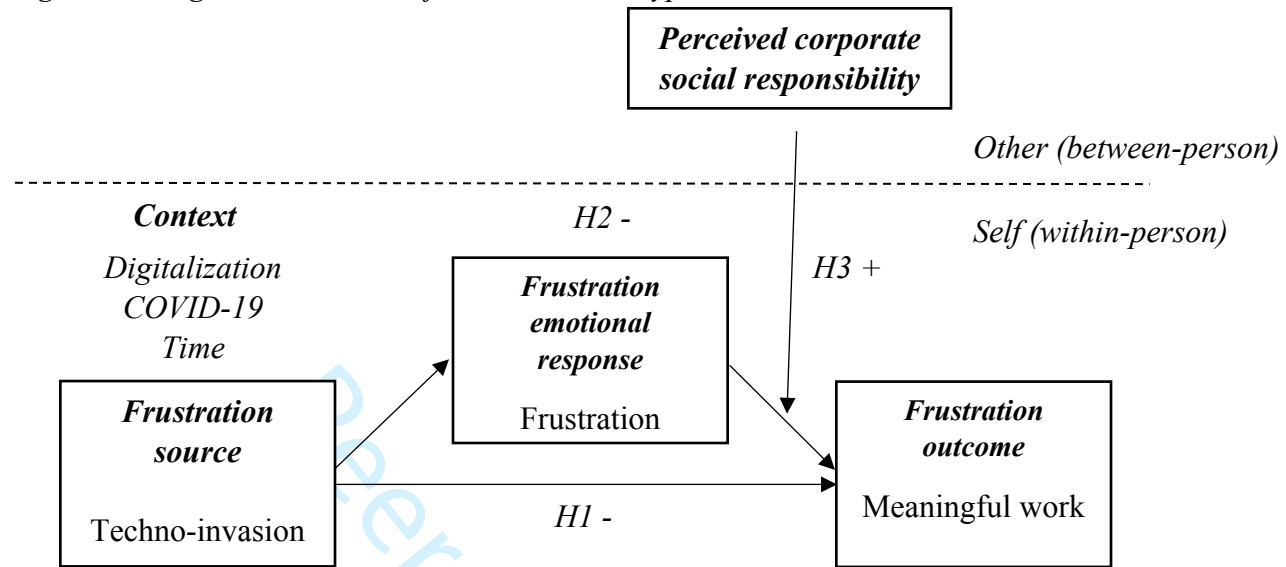
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3 methods. His work has been published in journals such as the *British Journal of Management*, *The*
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Technostress, frustration, CSR and meaningful work

Figure 1: Integrated theoretical framework with hypotheses



Note. The integrated model explaining the logic behind our research is based on the juxtaposition of Lips-Wiersma and Morris’s holistic model of meaningful work (2009) and the Fox–Spector model of organizational frustration (1999; 1978).

Definitions of core constructs: (1) **Meaningful work:** work that is experienced as particularly significant and has a more positive meaning for the individual (Rosso et al., 2010), or more broadly, as “work that is personally significant and worthwhile” (Lysova et al., 2019, p. 375). (2) **Techno-invasion:** dimension of technostress referring to being constantly connected and thereby invading the employee’s personal life (Tarafdar et al., 2007). (3) **Frustration:** the feeling of being upset or annoyed as a result of being unable to change or achieve something (Boyd, 1982). (4) **Perceived corporate social responsibility:** refers to the degree of employees’ perception about the support their employer provides to the CSR-related activities (Choi & Yu, 2014)

Table 1: COVID-19-related situation in Slovenia in 2020 during each wave of data collection

<i>Time</i>	<i>Month</i>	<i>Situation</i>
Time 1	Late February	Before the epidemic; preparation of potential measures
Time 2	Mid-March	The epidemic was officially declared in Slovenia; the first phase of the infection spread; a number of measures were adopted
Time 3	Mid-April	The peak of the first wave of the epidemic, the most restrictive measures were adopted
Time 4	Late May	The official end of the COVID-19 epidemic; the lockdown measures were gradually erased

Technostress, frustration, CSR and meaningful work

Table 2: Descriptive statistics and correlations

Between level		Mean	SD	1	2	3										
1	Corporate social responsibility	3.42	.96	(.84)												
2	Gender	1.51	.50	.05	-											
3	Age (in years)	46.41	9.82	-.09*	.09*	-										

Within level		Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	
1	Techno-invasion at t1	2.30	1.17	(.87)												
2	Techno-invasion at t2	2.42	1.14	.60**	(.86)											
3	Techno-invasion at t3	2.32	1.16	.53**	.72**	(.86)										
4	Techno-invasion at t4	2.34	1.18	.55**	.66**	.73**	(.89)									
5	Frustration at t1	2.69	1.25	.23**	.11	.12	.12	-								
6	Frustration at t2	2.63	1.25	.23**	.20**	.19**	.17*	.61**	-							
7	Frustration at t3	2.66	1.28	.16*	.17*	.24**	.22**	.45**	.51**	-						
8	Frustration at t4	2.76	1.23	.24**	.22**	.33**	.33**	.54**	.51**	.56**	-					
9	Meaningful work (expressing full potential) at t1	3.42	.88	-.05	-.03	-.00	-.06	-.43**	-.39**	-.44**	-.25**	(.78)				
10	Meaningful work (expressing full potential) at t2	3.36	.92	-.02	.01	.06	.04	-.35**	-.43**	-.44**	-.32**	.70**	(.86)			
11	Meaningful work (expressing full potential) at t3	3.40	.83	-.02	-.02	-.07	-.05	-.38**	-.41**	-.50**	-.38**	.63**	.68**	(.80)		
12	Meaningful work (expressing full potential) at t4	3.37	.86	-.11	-.07	-.09	-.07	-.44**	-.47**	-.43**	-.42**	.69**	.67**	.68**	(.84)	

Notes. ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed). For gender, 1 = male, 2 = female. Reliabilities (coefficient alphas) are on the diagonal in parentheses

Technostress, frustration, CSR and meaningful work

Table 3: Results of multilevel analyses using Mplus

Moderated-mediation model	Predicting frustration = mediating variable	Predicting meaningful work = outcome variable
<i>Within-Effects (across time)</i>		
Techno-invasion	.14** (.04)	-.02 (.03)
Frustration		-.10* (.03)
<i>Between-Effects (between individuals)</i>		
Techno-invasion	.26** (.06)	.14** (.05)
Frustration		-.49** (.07)
Interaction effect: CSR × Frustration		.15** (.06)
Gender		-.05 (.07)
Age		-.00 (.00)
Model fit (DIC)		7327.50
Within-indirect effect of frustration	-.01*; LLCI = -.03; ULCI = -.01	
Between-indirect effect of frustration	-.13**; LLCI = -.20; ULCI = -.06	
Between-indirect effect of frustration at low level of CSR	-.17**; LLCI = -.26; ULCI = -.08	
Between-indirect effect of frustration at medium level of CSR	-.13**; LLCI = -.20; ULCI = -.06	
Between-indirect effect of frustration at high level of CSR	-.09*; LLCI = -.16; ULCI = -.03	

Notes. N = 792 observations (Level 1) nested into 198 individuals (Level 2). *p < .05; **p < .01; †p < .10. LLCI = lower-level confidence interval; ULCI = upper-level confidence interval.