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Published Version

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Soga, L. ORCID: https://orcid.org/0000-0002-5471-9673, Bolade-Ogunfodun, Y. ORCID: https://orcid.org/0000-0001-8143-6946 and De Amicis, A. ORCID: https://orcid.org/0000-0002-5930-5840 (2024) Exploring flexible working practices and the digital divide in a post-lockdown era. European Journal of Management and Business Economics, 33 (4). pp. 445-465. ISSN 2444-8451 doi: 10.1108/EJMBE-08-2023-0247 Available at https://centaur.reading.ac.uk/119133/

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To link to this article DOI: http://dx.doi.org/10.1108/EJMBE-08-2023-0247

Publisher: Emerald

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Exploring flexible working practices and the digital divide in a post-lockdown era

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Received 3 August 2023
Revised 14 September 2023
30 October 2023
20 December 2023
Accepted 21 December 2023

Abstract

Purpose – This paper explores flexible working practices (FWPs) and takes a critical view that argues a need to consider not only access to digital technological resources but also the vast array of factors that constrain one's ability to use technology for its intended benefits, as constituting the digital divide post-COVID-19 lockdown.

Design/methodology/approach – Using a critical evaluation of the extant literature, we engage in a conceptual undertaking to develop theoretical propositions that form the basis for future empirical undertakings. To theoretically ground the arguments raised, we deploy the ontological lens of actor-network theory to illuminate the socio-technical dimensions of the digital divide in light of FWPs.

Findings – Since the COVID-19 pandemic, the need to adopt socially distanced work practices has become a reality for many organisations. We find that the adoption of FWPs, enabled by digital technologies, simultaneously signals hidden inequalities. We also develop a conceptual framework which depicts user responses in different technology environments that can either be limiting or enabling for individuals' work productivity.

Originality/value – With regards to the digital divide, attention has often focused on access to digital technologies, as the term "digital divide" portrays. The implication is that the array of factors and resources that individuals are heterogeneously networked to, which also constitute the digital divide, is often taken for granted. We take a different ontological view that brings to the fore other factors at play within an individual's network of relations.

Keywords Flexible working, Remote work, Digital divide, Lockdown, COVID-19, Technology environment

Paper type Conceptual paper

1. Introduction

Flexible working practice (FWP) connotes a way of working that is unimpeded by fixed time schedules, spatial boundaries and contractual limitations (Groen *et al.*, 2018; Soga *et al.*, 2022). It has been studied in various ways including its relationships with organisational attraction (Yu *et al.*, 2019), organisational outcomes (Maruyama and Tietze, 2012), the strategic motives of employers (Alward and Phelps, 2019; Raghuram, 2014), relationships with national cultural values (Vallicelli, 2018) and social perceptions (Groen *et al.*, 2018) among others. In recent years, especially as a result of the COVID-19 pandemic and its social distancing imperatives, FWP has gained even more attention in scholarly literature as its

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This paper forms part of a special section "Innovation, Knowledge, and Digitalization: Building Trust to Face Today's Challenges", guest edited by Alba Yela Aránega and Juan Miguel Alcántara-Pilar.

European Journal of Management and Business Economics
Vol. 33 No. 4, 2024
pp. 445-465
Emerald Publishing Limited
e-ISSN: 2444-8494
p-ISSN: 2444-8451
DOI 10.1108/EJMBE-08-2023-0247

implementation gained traction in contemporary organisations (Chadee *et al.*, 2021; Furmańczyk and Kaźmierczyk, 2020). This is coupled with the fact that there is a notable rise in the adoption of digital technologies that support FWP, with research estimating a $50.7 billion industry by 2025 (Kurtzman, 2021).

However, this increased focus on digital technology adoption for FWP has inadvertently masked a dark side: that is, the digital divide, which describes the infrastructural and technological gaps observed across the globe where some geopolitical zones are associated with greater technological access than others (Chen and Wellman, 2004). Recent research on the impact of remote working on employees signals that this digital divide is masked within organisations (Kuc-Czarnecka, 2020). There is therefore a need to expand its understanding in terms of intra-organisational infrastructural gaps which predispose some employees to greater productivity than others. Such inequalities potentially affect the ability of both workers and organisations to address inherent productivity challenges.

The challenges facing remote working arrangements are largely associated with the deployment of digital technologies (Solís, 2017), and authors argue various pitfalls including social isolation (Mulki and Jaramillo, 2011), exclusion (Soga *et al.*, 2020), lack of team cohesion (van der Lippe and Lippenyi, 2020), blurring of work and family life (Como *et al.*, 2020) and other unintended consequences referred to as "the other face" of FWP (Soga *et al.*, 2022). However, we observe a dearth of studies that draw attention to the inequalities posed by the digital divide as organisations widely adopt digital technologies for FWP, especially during and after the COVID-19 pandemic (Furmańczyk and Kaźmierczyk, 2020). Government-enforced lockdowns and other social distancing measures underpinned this shift to remote working and the consequent increase in the use of collaborative technologies.

Evidently, ubiquitous digital technologies for organisational practices make the shift to flexible working arrangements necessary (Hirsch-Kreinsen, 2016), but growth in the market for communication and collaboration technologies by nearly 25% in 2020 alone (International Data Corporation, 2021) also deepens the digital divide. The amplification of the benefits of FWPs for the modern workforce unintentionally silences the challenges of those on the disadvantaged side of the digital divide (Dwivedi *et al.*, 2016; Ashman *et al.*, 2022). The resultant effect is that the challenges posed for FWP as a result of the digital divide during and post-COVID-19 lockdown era remain hidden and undertheorised. This is particularly the case when it comes to individual responses to the downsides of FWP, a gap in the literature we seek to address in this paper. We therefore take a critical view of the implications of FWPs for the digital divide and vice versa, during and after the COVID-19 lockdown era.

Our inquiry is driven by the following research question:

RQ1. What are individual-level responses to FWP in the context of the digital divide during the COVID-19 post-lockdown era?

As our contribution, we propose a model that argues various response mechanisms by individuals that are affected by the digital divide. We consider factors that interact with the use of available technologies as also contributing to the digital divide. Additionally, with research on the impact of the COVID-19 pandemic still at its nascent stage, we deploy our understanding of the studies published during this period to develop propositions that contribute to ongoing debates in the field regarding FWP and the digital divide, and also open up areas for future research. We begin by exploring the concept of FWP in the COVID-19 lockdown era to lay out the broader field with respect to the digital divide. To ground our arguments within a theoretical framework, we draw on the philosophical assertions of actor-network theory (ANT), which embraces the agency of technological artefacts in human sociality. We then discuss the digital divide within the context of FWP in a post-lockdown era while raising theoretical and practical implications. We discuss the implications these hold for working flexibly in the digital divide and raise propositions that open up avenues for future research.

2. FWP in the COVID-19 lockdown era

FWPs occur in various forms in the literature with terms such as remote work, virtual work, telework, on-demand work, on-call work, flexiwork and freelancing used to describe this working model (Marica, 2019; Tudy, 2021). Although these terminologies carry nuances in how FWP is conceptualised, the common denominator is the idea that these working arrangements do not rely on fixed employer contractual documents that spell out work patterns (Choi, 2018). Another commonality is the dimension of spatial and time flexibility FWP affords for which several benefits are argued. For example, parents working remotely are more able to attend to childcare needs (Genadek and Hill, 2017), work travel times are reduced (Hopkins and McKay, 2019), organisations are able to save on energy and other utility bills as a result of fewer use of the office space (Richardson and McKenna, 2014) and more radically redundant office space is available to be repurposed for other uses *inter alia*.

However, the mandatory lockdown period necessitated by the COVID-19 pandemic exposed hidden pitfalls as most organisations adopted the practice (Matli, 2020; Adisa *et al.*, 2022). For example, Como *et al.* (2020) show that 38% of jobs in Canada that were before done onsite could now be done remotely, with similar statistics reported for the United States. With office spaces closed and workers now having to depend on digital technologies and associated technological devices for work, studies show that imbalanced home/work functions and technological dependence emerge as potential pitfalls for workers (Genadek and Hill, 2017; Pascucci *et al.*, 2022). Job demands, coupled with the stresses of the pandemic, have resulted in family conflicts, particularly for working parents (Bolade-Ogunfodun *et al.*, 2022). These family pressures were shown to be pronounced for those who needed to offer support for their children who were also now fully learning from home (Kuc-Czarnecka, 2020). Additionally, a working arrangement epitomised as "flexible" decreased the practice of flexibility in a context of mandatory implementation, since it co-occurred with the absence of practical and emotional support services, such as childcare or "face-to-face" social gatherings (Adisa *et al.*, 2022).

Additionally, FWP during the lockdown era seemed to have downsides of a gendered nature, with women bearing the brunt. This is because of the "traditional" gender roles and expectations which place additional pressures on female employees (Bolade-Ogunfodun *et al.*, 2022). Achieving a "work-life balance" appears to be an impossible task for women as the combination of home commitments and remote work pressures often leads to burnout, anxiety and other health challenges (Peasley *et al.*, 2020). These harmful effects relate to the blurring of work time and home time as extra work efforts spill into domestic activities. The gendered nature of these effects is also observed in situations where working mothers receive wage penalties or unfavourable evaluations about their commitment to work where they are unable to put in extra hours into their day jobs (Collins *et al.*, 2021).

Empirical studies that explore FWP in the COVID-19 era also identify some gendered issues including patriarchal cultures at the workplace affecting female teleworkers (Gálvez *et al.*, 2021), employee health challenges (Johnson *et al.*, 2020) and managerial issues such as remote leadership tensions with employees (Toleikienė *et al.*, 2020). We offer a summary of these key issues in the COVID-19 pre-/post-lockdown period in Table 1 based on the relevance of their empirical findings that speak to the arguments raised in this paper.

Furthermore, FWPs during the lockdown period showed the importance of the often taken-for-granted digital technologies that workers deploy for their daily tasks, but also revealed a dark side of organisational digitisation (Trittin-Ulbrich *et al.*, 2021) and technological dependence (San-Martin and Jiménez, 2023). In this regard, studies conducted during the lockdown periods have not only examined how digital technologies impact remote work (see Toleikienė *et al.*, 2020), but also how this dependence on digital technology impacts worker health (Johnson *et al.*, 2020), worker dispersion (Ruiller *et al.*, 2019) and, more importantly, digital inequalities and deprivation (Kuc-Czarnecka, 2020).

Authors	Year	Paper title	Recognised issues	Location of study
Johnson A., Dey S., Nguyen H., Groth M., Joyce S., Tan L., Glozier N., Harvey S.B.	2020	A review and agenda for examining how technology-driven changes at work will impact workplace mental health and employee well-being	Mental health affected by technology use	Australia
Bhumika B	2020	Challenges for work–life balance during COVID-19 induced nationwide lockdown: exploring gender difference in emotional exhaustion in the Indian setting	Gender differences in emotional exhaustion	India
Elfering, A; Igic, I; Kritzer, R; Semmer, NK	2020	Commuting as a work-related demand: Effects on work-to-family conflict, affective commitment, and intention to quit	Temporospatial pressures	Switzerland
Kuc-Czarnecka, M	2020	COVID-19 and digital deprivation in Poland	E-exclusion; digital inequalities	Poland
Toleikiene, R; Rybnikova, I; Jukneviciene, V	2020	Whether and how does the Crisis-Induced Situation Change e-Leadership in The Public Sector? Evidence From Lithuanian Public Administration	E-leadership and tensions with employees	Lithuania
Bohman, H; Ryan, J; Stjernborg, V; Nilsson, D	2021	A study of changes in everyday mobility during the Covid-19 pandemic: As perceived by people living in Malmo, Sweden	Changes in mobility	Sweden
Galvez, A; Tirado, F; Alcaraz, JM	2021	Resisting Patriarchal Cultures: The Case of Female Spanish Home-Based Teleworkers	Resistance by female teleworkers	Spain
Tudy, RA	2021	From the corporate world to freelancing: the phenomenon of working from home in the Philippines	Transformation of work into freelancing	Philippines
Mangla, N	2021	Working in a pandemic and post-pandemic period – Cultural intelligence is the key	Disrupted communication of virtual teams in post-COVID-19 period	US

Table 1.
Emerging research of pre-/post-COVID-19 related issues

Source(s): Table by authors

This dominance of digital technology in the lives of workers during the lockdown raises concerns about technostress (Bennett *et al.*, 2021) but also that individuals risk unhealthy and detrimental attachments to technology (Chadee *et al.*, 2021; Rohwer *et al.*, 2022). At the organisational level, the concerns raised have largely been about the difficulty of managing workers across different geographic and time zones (Aroles *et al.*, 2022). At the individual level, there are also risks of exclusion, isolation, surveillance, self-censorship and, ultimately, unemployment due to lack of technological know-how and the digital divide (Soga *et al.*, 2021a, b), all of which, we argue, reflect an ontological reality.

2.1 Actor-network theoretical framing

The ANT challenges the concept of agency in sociology in ways that radically consider objects (including technological applications) as having the ability to act on humans (Latour, 2005; Law, 1992). To "act" in this sense is to act with or without intentionality. In fact, the definition of agency from an ANT perspective is "the ability to act and elicit a response either with inherent intentionality in the case of a human agent, or (un)programmed intentionality in the case of a designed artefact" (Soga *et al.*, 2020, p. 646). This ANT assertion has implications for what the nature of human sociality is. This is because it brings objects into the space of the social (Latour, 2005). In this sense, digital technologies that are deployed for work are considered as being able to act on those that use them. The underpinning ontological view is that technologies, texts, "things" and so forth are all constituents of the social and are part of a heterogeneous network of relations (Latour, 1992, 2005).

The idea of heterogeneity here is in reference to humans and non-humans, both of which must be treated equally (methodologically) in ANT's principle of generalised symmetry (Callon, 1986); that is, the same descriptive or explanatory frameworks must be applied to both human and non-humans in the heterogeneous network. From that ANT perspective, FWPs are constitutive of the humans involved and the very digital technologies they deploy. The two entities are relationally connected in ways that give them their ontological status, such that there is no FWP without the technologies used to make it a practice (Yu *et al.*, 2019). These ANT-inspired assertions colour our lens as we develop propositions in this paper. The insights help us explore what is often taken for granted, which in this paper, we argue, are the hidden aspects of the digital divide in relation to FWP.

3. Developing conceptual propositions

We engage in a conceptual undertaking that develops theoretical propositions based on an in-depth and critical review of the extant literature. This followed our systematic literature review (see Soga *et al.*, 2022) published in *Journal of Business Research*. We choose this approach to further deepen our insights from the systematic review whose aim was to organise the literature. Whereas our systematic review uncovered insights on the downsides of FWP, it was limited in its scope with respect to the digital divide. Additionally, its general outlook meant that the "micro-level" individual responses to the downsides of FWP in relation to their technology environments could not be more deeply explored. This conceptual undertaking was thus warranted to respond to the obvious gaps we identified. This is particularly necessary as the COVID-19 pandemic precipitated various conditions that affected individuals' technology-mediated work practices. We do so through a critical evaluation of the digital divide and FWP. This led to the raising of propositions in the literature, which simultaneously present avenues for future empirical undertaking. Thereafter, we explore user responses to technology due to (arguably, in spite of) the digital divide, a contribution that also supports our arguments towards the effects of the digital divide on various forms of FWP.

3.1 The digital divide and FWP

The concept of the digital divide has often been considered as a symptom of the gap between the Global North and the Global South. There is strong evidence for this view, as satellite imagery of global Internet penetration shows some parts of the world as well-lit (that is the Global North) and others as poorly lit or completely dark (representing the Global South). Although the digital divide is traditionally understood to refer to (non-)access to technological devices and their corresponding applications, research findings indicate the need for a broader conceptualisation that includes the array of resources that either enable or prevent

individuals from using digital technology (Warschauer, 2004; Lythreatis *et al.*, 2022). In other words, the literature's narrow conceptualisation of the digital divide fails to recognise the myriad of enabling factors such as the technological know-how, spatial requirements, time and the flexibility needed especially for those in flexible working arrangements. Accordingly, the concept of the digital divide goes beyond issues of "access" alone that has plagued the Global South (Chen and Wellman, 2004).

At the organisational level, the arguments of "access" to technology do not seem to hold as workers are given the relevant technological resources to do their jobs, although these also come with privacy concerns (Bhave *et al.*, 2019). However, a hidden danger lurks intra-organisationally, as the availability of technological devices for employees masks the digital divide *within* the organisation. The COVID-19 pandemic represents a context which reveals, we argue, the hidden inequalities in the digital divide. The shift to working from home necessitates the need for employers to provide work tools and equipment as well as updated software subscriptions and cybersecurity protection for workers. However, it is silent on the fact that employees are consequently saddled with direct responsibility for providing ongoing Internet connectivity to sustain long hours of working. Differences in employee capabilities with respect to providing such critical connectivity implies that we can expect variations in worker productivity (Pontones-Rosa *et al.*, 2021). As employees were geographically scattered as a result of the work-from-home mandate that the pandemic necessitated, the availability of technological devices to employees did not necessarily equate to technological access that ensured worker productivity. We argue that the array of other resources that are, in ANT terms, heterogeneously networked with the worker should also be given consideration so as to close the gap.

The global digital divide is thus considered to also include three aspects: geographic, socioeconomic and user-related factors (Chen and Wellman, 2004). The geographic digital divide describes the consideration given to within-country locations where access to the Internet and other technological devices are limited in comparison to other locations. The socioeconomic digital divide speaks to issues regarding income inequalities which create limitations or advantages for certain groups over others in relation to having access to the Internet and associated technologies. User-related factors have to do with a consideration of the technological know-how or literacy that enables one group of people to have access, while others are left out (Chen and Wellman, 2004). These arguments challenge the conventional understanding of the digital divide in the literature and underpin our call for broadening the typical location-specific conceptualisation. We argue that the idea of the digital divide occurs not only across the Global North-Global South dichotomy, but also within each context (Rico and Cabrer-Borrás, 2019). For FWP during the COVID-19 lockdown era, individuals were thus susceptible to the digital divide, being geographically dispersed and left to cater to their digital connectivity needs (Barsness *et al.*, 2005). In other words, workers who possess all the needed resources for effective remote work are those who are privileged, while others may be unable to do so despite having company-owned equipment or work tools, for example laptops. We therefore propose the following:

Proposition 1. The successful adoption of FWP in organisations is determined by the extent to which the digital divide at the level of individuals is resolved.

3.2 User responses to digital technology due to the digital divide

In the context of remote working and the digital divide, an analysis of work contexts would include not only technology and its affordances but also resources that facilitate or impede productivity as well as user responses. Responses by individuals to technological deployments take various forms along several lines and are driven by a number of factors (Choudrie and Zamani, 2016). Favourable responses manifest in early adoption of

technologies and their application to work, which results in productivity, while other user responses include resistance to new work processes and platforms (Beaudry and Pinsonneault, 2005; Burchell, 2011), technological dependence (Matli, 2020), isolation from work colleagues (Mulki and Jaramillo, 2011), exclusion from work activities and self-censorship (Soga *et al.*, 2021a, b) among others.

From an ANT perspective, responses to digital technologies are as much about what the technology allows as it is about other factors or conditions which contribute to ensuring that the work is done (Beaudry and Pinsonneault, 2005; Sun, 2012). Given our conceptualisation of the digital divide as also being about the array of conditions necessary to work effectively in the digital space, employees facing difficulties with connectivity or lacking in technological know-how face a different set of challenges that require particular responses to technology in order to get work done (Shakina *et al.*, 2021). Olson and Olson (2000) show how individuals are able to adapt to weak technology environments through behaviour modifications as they engage with technology. For example, in the case of telephone conferences, an individual who is committed to his/her collaborative task may sit for an hour on a weekly basis, shouting through meetings as a response to the low volume of the voices from other participants on the other end (see Olson and Olson, 2000, p. 154). The assumption is that different technology environments elicit particular responses from users so that expected outcomes are achieved (Sun, 2012).

By "technology environment", we mean the totality of technological infrastructure including the social factors that enable an individual to do their job or which constrain an individual from (effectively) doing their job since they are in a heterogeneous network. Consequently, we conceptualise technology environments as either *enabling* or *limiting*. An *enabling* technology environment is one in which the technological infrastructure and the social factors surrounding the use of technology allow the user to realise the benefits for which the technology was deployed. In this light, studies identify differences in technological environments at individual, organisational and country levels which affect access to and ability to adopt deployed technologies for work (Riggins and Dewan, 2005). These include user access, user knowledge gaps, organisation size, digitisation capacity, ownership status, industry or country location, socioeconomic factors or infrastructure, technological context and so forth (Pillai *et al.*, 2022). In other words, an enabling technology environment is one that is fit for purpose, and which allows the individual to get their job done irrespective of a "lockdown" scenario. Conversely, a *limiting* technology environment refers to one in which the technological infrastructure and the social factors surrounding the use of technology constrain the user in ways that inhibit the delivery of the benefits for which the technology was deployed. It is a technology environment that is present but not fit for purpose. Examples may include low Internet bandwidth preventing smooth video online communication, limited RAM of a laptop preventing the use of resource-hungry software and spatial limitations preventing a work-from-home parent from participating in an online meeting among other things.

Whereas some individuals may operate in adequately resourced technology environments that allow them to effectively work remotely, others across the digital divide potentially face situations in which they work around the limitations of their technology environments or are cut off altogether (Riggins and Dewan, 2005). In the case of the former, the individual is highly motivated to find a solution to challenges faced, while in that of the latter, the individual is either not motivated or is limited by conditions outside their control due to the weaknesses of the technology environment (Beaudry and Pinsonneault, 2005). In ANT terms, various non-human conditions are acting upon the individual. In other words, the technology environment is exercising agency to which the individual either has a strong or a weak response. We thus propose the following:

Proposition 2. User response to digital technology environments in FWP is determined by the nature of the technology environment (limiting or enabling).

We argue that in FWP, user responses to digital technology environments may produce four levels of engagement with work (summarised in Figure 1). Whereas some individuals might make some behavioural adjustments due to their technology environments (Olson and Olson, 2000; Soga *et al.*, 2021a, b), we argue that others may either be disengaged or be limited in their level of engagement or commitment to the task (Soga *et al.*, 2020). First, we conceptualise behavioural adjustments where individuals have a strong response to limiting technology environments as adaptive engagement. In other words, we propound that individuals demonstrating strong response are those that adapt to the constraining factors or work around those factors to achieve their work goals. The second level of engagement is shown in the converse where individuals make no behavioural adjustments or are simply unable to do so due to factors beyond their control. We categorise this as a weak response to the limiting technology environment where the individual is altogether disengaged from the job. In the third level of engagement, we do not assume that an enabling technology environment automatically produces strong individual responses or delivers effective work outcomes. Instead, limited engagement may occur even in cases where the technology environment is an

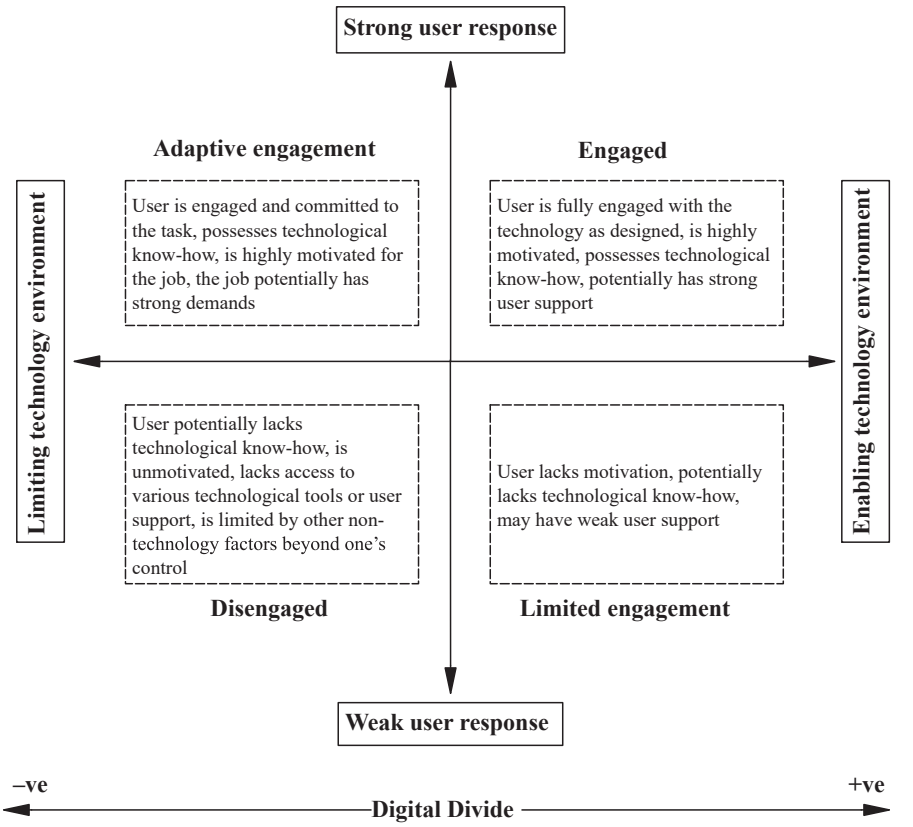

Figure 1.
User responses to digital technology environments in FWP

Source(s): Figure by authors

enabling one, but the individual displays a weak response due to lack of motivation for the task. The fourth level of engagement is the instance in which a highly motivated individual has an enabling technology environment and delivers a strong response. By these four levels of engagement, we do not mean an upward or increasing level of engagement so that one is higher or better than the other. Instead, we offer a starting point in arguing the various ways in which individuals might respond to their technology environments in light of the digital divide. For further clarity, we offer these arguments in a 2x2 matrix shown in Figure 1, and then explore the implications in light of digital divide for various forms of flexible working that users are often involved in.

3.3 Effects of the digital divide on various forms of FWP

The literature offers different conceptualisations of FWP, and the terms used to describe it are often employed interchangeably (Jacobs and Padavic, 2015; Tudy, 2021). These include remote work, on-call work (Marica, 2019), telecommute work (Aloulou *et al.*, 2023) and so on. What is common to all these approaches or conceptualisations of FWP is the idea of "flexibility" for the worker. However, these ideas do not take into consideration the digital divide and its impact on such "flexibility" that FWP affords. We now expand on the effects of the digital divide on different forms of flexible working, linking these to our conceptual propositions.

3.3.1 Working remotely and the digital divide. Working remotely assumes work that is conducted outside of the traditional office building without taking into account the time for which the work is done (Waples and Brock Baskin, 2021). Although this idea of working remotely highlights a form of flexibility (see Jacobs and Padavic, 2015) in which the worker is not bound by contractual time (usually Monday to Friday in Western countries), working remotely is challenged by the digital divide in ways that defeat the job's "remote" nature. This is because work done "remotely" is often designed to be supported by digital technologies that allow continuous conversations surrounding the milieu of tasks to be done (Richter, 2020). In ANT terms, this speaks to the connectedness of the individual in a network of relations, which, in this instance, allows for both synchronous and asynchronous ways of communication during never-ending "office hours" (Chadee *et al.*, 2021).

To a large extent, organisations would often provide employees with digital technologies with organisation-level support or software subscriptions (Huang, 2022). With such "access" granted employees, it is often assumed that all users possess the technological know-how or an enabling technology environment to ensure adequate or full usage of the technology (Chadee *et al.*, 2021). The implication is that although digital technology for mandatory remote working during the COVID-19 lockdown offered an opportunity for work to continue outside the office space (Mansor and Ldris, 2015; Adisa *et al.*, 2022), issues surrounding the digital divide are drowned out and those who are disadvantaged are inadvertently silenced. Remote work is thus negatively impacted for individuals who are affected by the digital divide in ways that include family time conflicts (Como *et al.*, 2020), loss of social contact (Mulki and Jaramillo, 2011; Morrison *et al.*, 2023) and, ultimately, socioeconomic challenges due to inability to work (Rafnsdóttir and Heijstra, 2013; Atasoy *et al.*, 2021), that is, even though these individuals may have organisation-level support for their physical technological devices. We thus propose the following:

Proposition 3. Organisational provision of technological devices for remote work is more likely to hide the effects of limiting technology environments than when individuals work from the office.

3.3.2 On-call workers and the challenge of the digital divide. On-call work is one aspect of FWP that typifies unpredictability of work in which individuals are assigned job tasks for a

specified amount of time without the need for fixed term contracts (Marica, 2019). While on-call work is precarious as it is dependent on job availability from potential employers, workers have a degree of freedom to direct what jobs they take or avoid. The level of autonomy depends on whether workers are officially attached to an organisation (Laker *et al.*, 2023) or whether they are completely free of any predefined working hours or arrangements (Eaton, 2012). For example, skunk workers are those who work within an established organisation but are given some degree of independence and resources to enable them work without disruptions so they can provide innovative solutions for the organisation in response to the competitive market (Biron *et al.*, 2021). For other on-call workers, there is a high degree of freedom in which they are able to choose contractual terms with their employers and the resources needed to execute their "gigs" (Furtmueller *et al.*, 2011; Tudy, 2021). This contrasts with some on-call workers who do not have any organisational affiliations and are therefore vulnerable to job non-availability and low wage negotiation anchoring from potential employers (Bellesia *et al.*, 2019).

A common denominator for on-call work in its various forms is the use of digital technology. These are mostly technologies that enable on-call workers to register their availability, make contact with potential employers, negotiate wages, receive notifications of awarded contracts and so on (Laker *et al.*, 2021). These technologies also allow for synchronous modes of communication between on-call workers and their employers as they seek to deliver projects within specified requirements (Felstead and Henseke, 2017). The implication is that employers seek to engage on-call workers that are technologically connected to allow for monitoring of progress of work, which is often a challenge if workers are in different geographic zones (Marica, 2019). For on-call workers who are negatively impacted by the digital divide, further administrative costs are needed to maintain connectivity (O'Connor and Cech, 2018). Other disadvantages include the precarity of job offers and subsequent income-generation irregularity (Eaton, 2012; Jacobs and Padavic, 2015).

For on-call workers who are unaffected by the digital divide (that is, those on the "good" side of the divide), the imbalance of work availability may have positive impact, that is, with an oversupply of work but with the unintended consequence of having to face stressful conditions as they try to meet multiple project deadlines (Haley and Miller, 2015). This is shown to affect worker well-being, particularly when combined with lack of regulatory protection for on-call workers with regards to working hours (Marica, 2019). Additionally, the digital divide may be hidden as most digital applications deployed by on-call workers offer freemium models and are therefore supposedly available for every worker without prejudice to socioeconomic background. From an ANT perspective, we argue that because the digital divide also involves a heterogeneous network of various resources needed to effectively use digital technology, freemium models only deepen the divide as even more "free" resources are made available to those who are able to access it. Consequently, on-call workers who depend on freemium models are expected to deliver their jobs, while other inhibitory factors are drowned out of the conversation. We thus propose the following:

Proposition 4. On-call workers are more likely to exhibit strong responses to their technology environments because of the need to mitigate the risk of precarious income than those in regular employment.

3.4 Social distancing measures and the digital divide

With the easing of lockdown measures in many countries, social distancing measures remained (sometimes implicitly) in organisations upon return to the office (Boland *et al.*, 2020). Some measures include flow of traffic signposting within office buildings, room capacity reductions, mask mandates within offices and online meetings mostly preferred (Yuan *et al.*, 2020).

Additionally, some organisations have adopted hub-and-spoke models, while others have deployed hybrid working models (Davis, 2021). In some cases, there is a rota system for working in which employees are given specific days to be at the office (Kane *et al.*, 2021). Some technologies allow for hybrid meetings where participants can be either remote or physically present. The underpinning assumption for these socially distanced forms of meetings is that work patterns during the lockdown can continue or be merged into new post-lockdown arrangements. This assumption discounts any inconvenience that employees have overcome during the lockdown to be able to deliver work outputs. In other words, the technology environment within which employees operated, whether limiting or enabling, is not accounted for, as work-as-usual is assumed.

To this end, social distancing measures that were put in place to limit the transmission of the coronavirus held consequences for the digital divide, especially when those measures involved the use of digital technology (Yuan *et al.*, 2020). This is because they assume the availability of technological resources for all individuals, with no considerations to their unique technology environments (Choudhury, 2020). Additionally, rota systems that are established to limit the number of employees on company premises also assume that all individuals who worked at home on certain days of the week have enabling technology environments (Kane *et al.*, 2021). The implication is that the inequalities that the digital divide engenders are hidden but simultaneously perpetuated in the post-lockdown era.

For those with limiting technology environments, the easing of lockdown measures and a return to work potentially offer a way out of challenges faced. As workers on the disadvantaged side of the digital divide, a return to the office environment with its available technological resources supplies the needed technology environment for work productivity (Fosslien and West-Duffy, 2021). On the other hand, those on the advantageous side of the digital divide have greater latitude to choose flexible work arrangements as they possess the enabling technology environment to support their work activity (Choudhury, 2020). Social distancing requirements and therefore FWPs perpetuate these inequalities but also offer an opportunity for a deeper investigation into the digital divide at the individual level. We thus propose the following:

Proposition 5. Individuals with limiting technology environments are more likely to be disposed to a return to in-person work environments than those with enabling technology environments.

4. Discussion

The COVID-19 post-lockdown era places enormous burden on workers, particularly as FWPs are adopted (Boland *et al.*, 2020). Some employers have allowed their employees to either choose to work permanently from home or choose their own work schedules (Deloitte, 2021). These all signal a change in working approaches, especially in these times of uncertainty (Lever *et al.*, 2023). However, this change has inadvertently drowned out the digital divide, not only because work is now done remotely but also because the conditions that sustain remote forms of work are unequally distributed (Shockley and Allen, 2010; Adisa *et al.*, 2022). In this light, we move the digital divide away from its broad conceptualisation to something that is a lived experience, negotiated by individuals in their daily work practices (Riggins and Dewan, 2005).

Our arguments point to the agency of an individual's technology environment that can hinder or facilitate their ability to do their jobs. By agency, we make reference to the actor-network theoretical framing of the concept as an ability of a human or a non-human to act on another and elicit a response (Soga *et al.*, 2020). In so doing, we conceptualise the technology environment precipitated by the digital divide as either limiting or enabling and is one in which workers respond differently depending on their individual motivations (see Figure 1).

In this sense, we contribute to the ANT literature by illustrating how human agency in response to changes within a network of relations may be more of a gradual adaptation than about sudden action. It may not so much be about an actor directly doing "something" to another actor for the benefit of the former, depicted in Callon's (1986) sociology of translation (in terms of power dynamics), as it is about an actor intrinsically adapting to a stimulus for its own benefit. These actor responses and, in some cases, adaptations, argued in this paper as user responses, are shown in other ways (see Beaudry and Pinsonneault, 2005), but we contribute to the ANT literature by examining these responses with respect to the digital divide.

Additionally, the actor-network theory's approach to social phenomena in which the technological is constitutive of the social means that the digital divide at the individual level may be even more pronounced than we think. Considering that a worker's ability to do their job depends on their heterogeneous network of relations (Ahmadi and Soga, 2022; Santoro *et al.*, 2020), unpacking such a network might reveal various elements that hinder the individual's ability to do their job, not access to technology alone (Riggins and Dewan, 2005). The ANT lens allows us to examine the digital divide from a more micro actor-to-actor perspective beyond technological resource and capability gaps. We take this view of a network of relations as offering an opportunity to explore the drivers of user responses in different technology environments.

With the blurring of work and non-work boundaries, individuals have tended to work long hours and have suffered corresponding health challenges (Ingusci *et al.*, 2021). While some authors argue for FWP as offering a good work-life balance (Wheatley, 2012), others argue to the contrary (see Rafnsdóttir and Heijstra, 2013; Thornton, 2016). These positions point to a lack of consistency in extant literature regarding the impact of FWP on individuals in their heterogeneous networks. This is complicated by the fact that FWP is eclectic and appears in various forms. It is particularly the case in a post-COVID-19 lockdown era in which it remains unclear how organisations will choose to work (Deloitte, 2021). The lack of conceptual clarity is also worsened by the idea of the digital divide in which some individuals are fully equipped to work flexibly, and others not so much and are therefore marginalised (Hasan *et al.*, 2021).

Furthermore, a post-lockdown flexible work potentially considers work as "flexible" in that it is no longer necessitated by mandatory government rules due to COVID-19. This "flexibility" poses a conceptual challenge for us. With individuals experiencing the digital divide in some form, could work really be "flexible", as such flexibility is hampered by other factors that may not be readily visible? The idea of "flexibility" is also contested as calls are made to regulate the practice for worker rights protection, especially with the increasing use of algorithmic monitoring systems (Bell, 2011; Wood *et al.*, 2019). "Flexibility" in this instance is no longer "flexible" when control mechanisms are introduced. Moreover, digital technologies that proudly underpin the flexible work culture are themselves inflexible, particularly when technology fails (Lucas Jr and Olson, 1994).

There is consensus in the literature that digital technology facilitates FWP, but with it are potential side effects that must not be neglected. We illuminate one of these side effects as the digital divide, which occurs in the lived experience of workers, and ultimately creates conditions for perceived lack of effort from colleagues or employers, personal stress in adapting to limiting technology environments and eventual isolation from work (Chadee *et al.*, 2021). These can, in turn, result in a sense of detachment from work as individuals struggle to do their jobs (Gordón and Rocío, 2020). Researchers are thus faced with new concerns on how to unveil the determinants of the various unknowns in the COVID-19 post-lockdown era (Matli, 2020).

4.1 Theoretical contributions

This work makes several theoretical contributions. First, it develops FWP theoretical propositions through ANT's critical lens of the digital divide. For instance, we emphasised an

enhanced understanding of the digital divide as going beyond the physical access to technological tools and argued that the human, the computer, the Internet, the job or the job contract (if available), the home electricity, the space used for working at home and other objects that may have been displaced to make work possible at home and so on all form part of a network of relations. The implication is a difference in experience as individuals belong to different heterogeneous networks, that is, if the networks are "punctualised" – that is, seen as "acting as a single block" (Law, 1992, p. 385) or a "black box" with a known set of characteristics (Callon, 1991) – a concept rooted in ANT.

Second, it offers a relational conceptualisation of FWP. For instance, the arguments position FWP as a practice that must be understood relationally as a set of entities brought together with undetermined characteristics (Callon, 1993; Law, 2004). This is because the concept is interlaced with several unidentifiable processes that the individual must negotiate in order to sustain it.

Third, the study allows the ascription of agency to both human practitioners of FWP and the network they are a part of. For instance, ANT's conceptualisation posits that for individuals to sustain FWP, they would need to (re)order themselves relationally in response to shifts in the heterogeneous network they are a part of. This theoretical framing of the role of the digital divide in FWP in a post-lockdown world opens up the need to consider what networks of relations individuals are part of and how those networks act and/or have changed post-lockdown. Understanding the network of relations allows us to capture the nature of the work of individual actors within it since "an actor is also a network" when we speak of actor-networks (Callon, 1991, p. 142). Following, we have shown how actor responses within a network may purely be adaptational, that is, for the actor's own benefit, as against reactionary, that is, reacting to a direct external stimulus, the latter being what underpins Callon's (1986) sociology of translation.

4.2 Practical implications

This study, by advancing our knowledge of FWP, also makes several practical contributions. First, we argue that the adoption of FWP raises implications for how work is designed for individual workers who may be suffering in silence due to the digital divide. Second, implications are raised for work evaluation systems for individual workers with attention to their technology environments. A "provide and pray" approach will not work as there are other factors constituting one's technology environment. Third, the calls for regulation in order to ensure worker protection are an implicit recognition of the inherent challenges of FWPs, one of which is the digital divide. Our user response framework (Figure 1) provides a starting point for managers in organisations to begin important conversations, which would otherwise have remained hidden.

4.3 Future research directions

The arguments raised show that the adoption of FWP post-COVID-19 lockdown is as much a practical issue as it is also a research challenge. Future research could examine how the heterogeneous network of relations shape, sustain or limit workers' ability to engage in flexible working arrangements. With regards to proposition 1, it would be useful to understand further how the digital divide plays out intra-organisationally as the assumption is that everyone is back at work in the office. Here, we propose ethnomethodological approaches for closer investigation. With reference to proposition 4, future research could examine comparatively how on-call workers and those in regular employment navigate the digital divide.

Additionally, research could consider how individuals respond to different technology environments as they work from home or remotely. Here, further conceptualisation is needed

as to what constitutes the technology environment; our ANT perspective takes a much broader view, but other theoretical lenses could narrow it down. Experimental research designs could also help explore how individuals react to a limiting or an enabling technology environment so as to gain deeper understanding into the phenomenon. Additionally, research could consider individual motivations of workers at the disadvantaged end of the digital divide as this could throw light on how user responses in such environments can help inform policy.

Furthermore, ANT's ontological assertions are not without criticism (see Elder-Vass, 2015; Shapin, 1998). For instance, the idea of generalised symmetry, explained earlier, has sparked debate. It is seen by some as anthropomorphising non-humans, with epistemological difficulties of giving "voice" to objects in research practice (see Collins and Yearley, 1992; Elam, 1999). Cresswell *et al.* (2010) recognise this challenge and suggest practical approaches to negotiating ANT research as "methodology cannot resolve the higher epistemological [and ontological] debate" (Cresswell *et al.*, 2010, p. 9). In other words, the "ANT method" of doing research could be viewed as impossible. To this end, Latour (2005) advocates tracing the heterogeneous network by "following the actor". In doing so, the researcher must consider all the various elements of the network (be they human or non-human). The implication is that researchers should consider following the actors – remote workers, on-call workers, freelancers and so on – in order to trace how they sustain their practices. It is an act of examining their context of work (Callon, 1991), as it is in that process that we understand what or how these individuals negotiate the digital divide. Finally, with the COVID-19 lockdown lifted, we believe there is scope to examine how the lockdown period hid the effects of the digital divide for individual workers in either the Global North or the Global South.

5. Conclusion

The arguments raised in this paper show the practical and theoretical issues surrounding the adoption of flexible working practice post COVID-19. We have highlighted how (in) accessibility of digital technologies alone does not constitute the digital divide, but the myriad of elements within one's environment including the technologies in question. This is of value in that the availability of technological resources for work could be taken for granted as individuals return to old habits of work pre-lockdown. By our proposed framework on user responses to digital technology environments in FWP, we extend the literature on FWP by highlighting factors that would otherwise remain hidden in the work life of the individual, and ANT by demonstrating how human and non-human agency play out in a network of relations without elements of coercion. In this sense, a human could act for their own benefit without being coerced by another as illustrated in adaptive engagement (see Figure 1).

Our proposed framework also calls for future research to examine potential inequities when it comes to technology environments. Whereas new technologies are designed to be accessible to users across the globe, we have shown that consideration also ought to be given to reducing the digital divide in the usability of those new technologies. Research could also examine the role of professional networks in safeguarding protective regulations for flexible working as well as equity in performance evaluation systems in the design of work and recruitment in a technological age. We acknowledge limitations for this paper in that it does not account for other user groups such as those with high technological adeptness or those with limited technological know-how. While we refute blanket categorisations of generational gaps, we acknowledge a limitation in this paper in that we do not account for potential variations in individual attitudes towards their technology environments, whether enabling or limiting. This leaves room for further exploration in future studies as we continue to make sense of the digital divide in contemporary organisations. More importantly, we hope this conceptual paper has laid a foundation for future empirical examination of the propositions raised.

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