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Post-COVID remote working and its impact on people, productivity, and the planet: an exploratory scoping review

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ABSTRACT

Since the COVID-19 pandemic outbreak, there has been a wealth of studies and reports published on the impacts of remote working (or work-from-home) due to pandemic lockdown measures. The primary aim of this article is to synthesise this work and conduct an exploratory scoping review of both scholarly and grey literature on the impacts of the pandemic on people, productivity, and the planet, with a focus on remote working (or work-from-home) and the post-pandemic workplace. Further, in light of the wide range of terms such as work-from-home, remote working, hybrid working, teleworking, telecommuting, and work-from-anywhere, a secondary but necessary aim of this scoping review is to clarify these terms before reviewing the extant literature on the multi-level impacts of the COVID-19 pandemic. A review of this literature revealed that most of the scholarly research and industry reports published since the pandemic outbreak are data-driven and some anecdotal rather than theory-driven. The common themes and findings backed by evidence include the gendered division of labour, organisational trust and managerial trust in employees, changes in workforce management, virtual communication and collaboration, reduced carbon emissions, and increased plastic consumption. The scoping review concludes by discussing the post-pandemic workplace and a brief research agenda.

It is evident from emerging scholarly analysis and practitioner discussions that the COVID-19 pandemic has had an indelible impact on the world of work, such that the "post-COVID workplace" will inevitably be

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very different from the one before (Cooke et al., 2021). In the first half of 2020, the greatest change to work arrangements caused by the pandemic was the shift *enmasse* to working from home (WFH). This paper will adopt the International Labor Organization's (2020) definition of WFH, that is, working either part or all of one's regular work time in one's primary place of residence. This unintended mass WFH experiment has also resulted in possibly the greatest revolution in *when*, *where*, and *how* we work. The transformational change for workers and workplaces, as well as the potential global environmental impact, requires a multi-level lens. It is on this basis that we apply the triple bottom line (TBL) framework (Elkington, 1997; Henriques & Richardson, 2013), as a holistic approach is needed to examine the impacts of the pandemic upon people, productivity, and the planet. We also discuss the opportunities, barriers, and challenges that have emerged during the pandemic, and examine those that appear likely to persevere after the pandemic (Bal & Brookes, 2022; McPhail, 2021). While it may be too early to draw conclusions about the post-COVID workplace[1], it is possible to make some tentative observations. In doing so, we examine studies that have been undertaken since the COVID-19 outbreak, especially in relation to people (e.g., impacts of WFH/hybrid working, office spaces, work autonomy, flextime, and worker wellbeing), productivity (e.g., agile working, flatter organisational structures, interruptions when WFH), and the planet (e.g., reduced commuting and plastic use, decreased greenhouse emissions). Through this multi-level lens, this paper will explore the early evidence and outcomes of this large-scale transformation.

The primary aim of this article is to conduct an exploratory scoping review. From a practical standpoint, this post-pandemic focus will help us understand the direction and likely extent of the changes. Further, in light of the wide range of terms used since the onset of the pandemic, such as WFH, remote working, hybrid working, teleworking, telecommuting, and work-from-anywhere, a secondary but necessary aim of this scoping review is to clarify these terms. We then review the extant scholarly and grey literature on the multi-level impacts of the COVID-19 pandemic. Clarity of the terms used is necessary in order to appraise the evidence, including what we know about the literature on WFH pre-pandemic, and to provide appropriate recommendations.

This scoping review will thus begin with an integrative review of the variety of terms used to describe different ways of working which have been brought to the fore by COVID-19 lockdowns and social distancing measures (Nakrošienė et al., 2019; Productivity Commission, 2021). Once these terms and concepts have been distinguished and clarified, we introduce a multi-level "People, Productivity, and the Planet" conceptual framework which was informed by the TBL approach (Elkington, 1997; Henriques

& Richardson, 2013) to guide our scoping review. Finally, we will discuss the key themes and findings that have emerged from the scoping review and propose a future research agenda for the post-COVID workplace.

Key terms and concept clarifications

As noted, there is a range of terms associated with the concept of WFH. A significant challenge presented in reviewing the evidence on WFH involves the varied definitions and conceptualisations of WFH employed in the extant literature. Indeed, prior studies (e.g., Allen et al., 2015; Sullivan, 2003) have acknowledged that the lack of a commonly accepted definition and conceptualisation has significantly hindered understanding of WFH, since results are often not comparable across studies. Therefore, in this section, we build on these prior studies to provide an updated review of these terms, with the primary aim of defining and distinguishing them.

Telecommuting was first coined in 1973 as "the substitution of tele-communications and/or computers for commuting work" (Niles, 1994, p. 7), with early literature focusing on the use of technology to relieve workers from the burden of commuting (Huws, 1990). Definitional issues were hindering academic research into the topic (Sullivan, 2003), hence *telework* offered an alternative terminology, capturing those who worked away from the office. In particular, Nakrošienė et al. (2019) observed that telework has different characteristics (i.e., where, when, and how often) which result in different outcomes. Later, *telework* was defined as "work arrangements in which an employee regularly performs officially assigned duties at home or other sites geographically convenient to the residence of the employee" by the US Office of Personnel Management in 2010 (Vega et al., 2015). Today, the term *telework* is generally used to refer to a broader form of *telecommuting* that involves working from a range of alternative locations outside the main office (Allen et al., 2015).

A closely related term—*virtual work*—is used to describe individuals, groups, or organisations that do not interact face-to-face because of geographic dispersion, instead they interact using technology (Allen et al., 2015). *Remote working* is also considered to be broader than *telecommuting* and denotes any form of work not conducted in the main office, and may include work at branch locations and other business units (US Office of Personnel Management, 2013). Since the onset of the COVID-19 pandemic, the term *remote working* has been commonly used to refer to work conducted primarily at home due to lockdowns or social distancing measures, and is thus often used interchangeably with WFH. In this article, we use the term WFH.

Hybrid working for those who can has become the predominant form of working as lockdowns are lifted across the world and "living with COVID" becomes the new reality. In Bloom's (2021) research, 70% of the

firms interviewed (e.g., Apple, Google, Citi, and HSBC) plan to implement hybrid working so that their employees can divide their time between collaborating with colleagues on-site and WFH. Many firms in Australia are also experimenting with the hybrid model, where workers spend two to three days a week in the office, and two to three days WFH (Productivity Commission, 2021). It appears that this model is also preferred by most workers who are able to WFH (Bloom, 2021).

Conceptual framework – people, productivity, and the planet

We apply a multi-level TBL approach which we refer to as "people, productivity, and the planet" (see Figure 1) to guide our scholarly and grey literature search (Elkington, 1997; Henriques & Richardson, 2013). The TBL approach was first developed by Elkington (1997) and sought to introduce a sustainable development frame into the analysis of economic performance. Emerging at a time when discussions of the economy did not generally include the environment, the TBL approach acted as a unifying theoretical basis and asked that corporations consider their environmental and social value, alongside their economic value (Elkington, 2018; Henriques & Richardson, 2013). In recent times, scholars have increasingly utilised the TBL approach in a wide range of research disciplines, primarily focusing on the advancement and implementation of sustainable business models and the development of sustainable societies. For
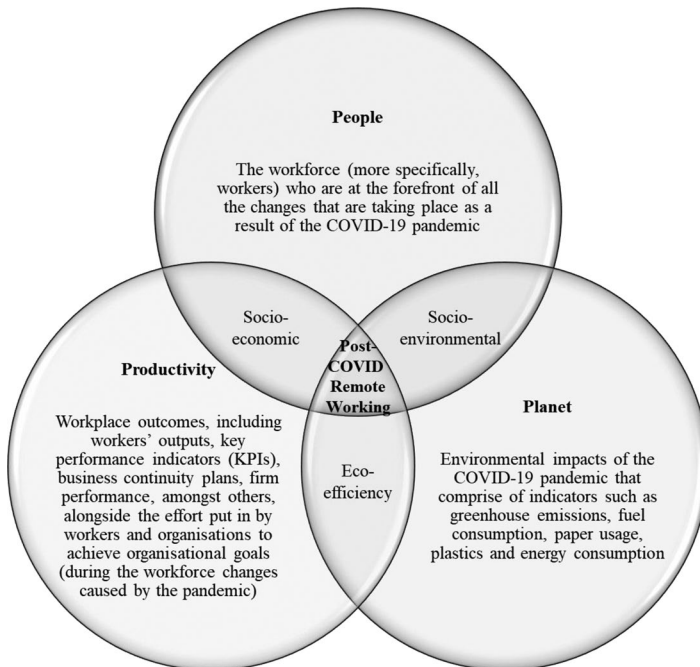

Figure 1. 'People, productivity, and the planet' conceptual framework.

example, Tate and Bals (2018) drew on the TBL approach to contextualise the resource-based view of the firm to the field of social entrepreneurship, producing the social resource-based view of the firm which recognises that social resources (e.g., relationships, networks, and social capital) play a significant role in creating value and sustaining competitive advantage for the firm.

The COVID-19 pandemic has led to an exponential increase in research on post-pandemic remote working, but the extant literature remains fragmented due to the abrupt onset and response to the pandemic (Ranjbari et al., 2021). Bal and Brookes (2022, p. 12) also criticised existing sustainable HRM approaches as being too strongly based on an instrumental perspective on the role of people in the organisation. Our research addresses this gap by taking a comprehensive approach to examining post-COVID remote working through the TBL framework, encompassing various stakeholders ("people"), performance indicators ("productivity"), and the environment ("planet") impacted by the COVID-19 pandemic (i.e., the social context and scope of analysis). In doing so, we respond to calls by other scholars (e.g., Aust et al., 2020; Ranjbari et al., 2021) to integrate the dignity and sustainability of the environment, planet, people, and animals into the purpose of HR practices in organisations. In a practice-based attempt to examine the COVID-19 shock and the changing workplace, McPhail (2021) used the same approach offering insights into the effects, challenges, and opportunities during and after COVID remote working.

The "people" aspect of the underlying conceptual framework refers to the workforce, more specifically, the workers who are at the forefront of all the changes that are taking place as a result of the COVID-19 pandemic. This aspect focuses on individual-level experiences navigating workplace changes since the onset of the pandemic. "Productivity" refers to workplace outcomes, including workers' outputs, key performance indicators (KPIs), business continuity plans, firm performance, amongst others, alongside the effort put in by workers and organisations to achieve organisational goals. This aspect focuses on both individual-level and organisational-level outcomes as a result of workplace and workforce changes caused by the pandemic. Finally, "planet" refers to the environmental impacts of the COVID-19 pandemic, and comprises indicators such as greenhouse emissions, fuel consumption, paper usage, plastics and energy consumption. This aspect focuses on individual-level, organisational-level, and global-level environmental impacts and their related workplace changes since the start of the pandemic. It is through this multi-level lens that we explore the early results of this workplace transformation caused by the pandemic.

Specifically, we seek to address the following research questions: (1) What are the impacts of the COVID-19 pandemic on "people", "productivity", and the "planet"?; and (2) How will these "people", "productivity", and "planet" changes shape the post-pandemic workplace? When addressing both research questions, there will also be a focus on remote working, since the

mass transition to WFH/hybrid working is the most prominent workplace change caused by the pandemic. Further, as many workers continue to oppose a full-time return to the office (made worse by new COVID-19 variants), and many organisations have downsized their office spaces and adapted jobs and physical locations to accommodate more hybrid work (Gallent & Madeddu, 2021), what will this mean for the workplace?

Method

Scholarly references search

The scholarly literature search methodology was informed by Short's (2009) best practice recommendations. Literature for the scholarly search was sourced using Business Source Complete (EBSCO), ABI/INFORM® Global (ProQuest), and Google Scholar. All searches included the key terms "remote work", "work from home" and "COVID-19" alongside terms such as "workforce changes", "employee experience", "employee outcomes", "employee productivity", "job performance", "firm performance", "business continuity", "environmental sustainability", and "ecological footprint". Results from these searches were limited to items published in the first two years (i.e., January 2020–December 2021) of the emergence of the global pandemic. Even though there was no way of ascertaining the extent to which they had been peer reviewed, book chapters and doctoral dissertations were also included in the search given that the pandemic is still ongoing at the time of writing.

To capture as many relevant articles as possible, the research team undertook a backward and forward citation search of the articles already identified. Two researchers independently read the articles to determine whether they focused on the impacts of the COVID-19 pandemic on "people", "productivity", and the "planet", and whether they should be included in the scholarly literature search and review. They then consulted with one another to determine whether to exclude certain articles. This process yielded a final sample of 81 scholarly articles included in the review, of which 31 were quantitative articles, seven were qualitative articles, five were mixed methods articles, eight were review articles, six were conceptual articles, five were policy articles, and 19 were editorial articles. A high-level summary is provided in Table 1, and the full list of articles in the scholarly literature search and review is shown in Appendix A.

Grey references search

A similar scoping review was conducted on the "grey" literature, consisting of published reports, technical reports, newsletters, government documents, working papers, and conference proceedings. The grey literature search and

Table 1. Scholarly literature search summary.

Number of articles (*N*=81)	Type of article
31	Empirical – Quantitative
7	Empirical – Qualitative
5	Empirical – Mixed methods
8	Empirical – Review
6	Theoretical – Conceptual
5	Empirical – Policy
19	Editorial/Commentary

Table 2. Grey literature search summary.

Number of articles (*N*=26)	Broad focus
6	Reviews that are summarising, describing, detailing
13	Surveys and other original research
7	Future focused, predictions, policy consideration

Note. The grey literature emanates from a variety of sources including public and private research organisations from the US, Europe, the UK, and Australia. Larger scale surveys, such as those by Althoff et al. (2022), Bertoni et al. (2021) and Eurofound (2020) have been undertaken to examine various perspectives of flexible working in the context of the pandemic and provide insights for policymakers and those responding to the challenges.

review was undertaken using the same three databases (EBSCO, ProQuest, and Google Scholar) and hand searches, using the key search terms: "remote work", "work from home" and "COVID-19". The timeframe for this search was limited to relevant grey literature published since January 2020, consistent with the scholarly literature search. Grey literature forms an important part of our review given the very dynamic and contemporary nature of our investigation, the practitioner-driven context, and the inherent time lag of peer-reviewed literature (Adams et al., 2017). In total, our grey literature search comprised of 26 reports and papers. A high-level summary is provided in Table 2, and the reports and papers are listed in Appendix B.

Analysis and synthesis of findings

First, each of the research team members conducted an abstract review of the scholarly and grey literature articles separately, and identified the key themes and findings of each article. Following which, they each read through the articles thoroughly, and synthesised and developed higher-order themes and general trends present across the scholarly and grey literature. The research team members then met to further synthesise and organise the key findings and themes, based on the "people, productivity, and planet" framework (see Figure 1). The key findings and themes are organised and presented in the next section.

Discussion of key findings and themes

Overview of trends and findings

On the whole, there was a good mix of articles and reports published on the topic of COVID-19 remote working. It is worth nothing that there

were quite a number of scholarly editorials and commentaries published on this topic, which were either prospective in nature or relied heavily on prior studies and data. Nevertheless, since we conducted both scholarly and grey literature search and review, there was rich, multidisciplinary information on WFH and the pandemic. Despite the wealth of information and data, there was not a high degree of theory-building across most of the articles, possibly because the pandemic is still in its early stages and many workplace issues and outcomes are still evolving and being examined. The scholarly articles were published in a range of disciplines alongside the mainstream organisational behaviour and human resource management (OBHRM) fields. The disciplines include labour relations, accounting and finance, economics, information systems, transport, environmental science, public health, and policy design. Most of these articles focused on the individual- and organisational-levels, while few took on a national or global perspective. The common themes and findings that are backed by empirical evidence are summarised and presented in the next section.

People

Gendered impacts of COVID-19

Multiple empirical studies and reports have shown that women, particularly working mothers, have been severely impacted by COVID-19 lockdown measures, with women more likely than men to reduce their working hours or leave their employment as a result of the pandemic (Clark et al., 2021; Reichelt et al., 2021). This is despite the relative increase in childcare undertaken by working fathers (Craig & Churchill, 2021). Since the start of the COVID-19 pandemic, women were shown to be less likely to experience improved health outcomes (Oakman et al., 2020). They were also more likely to experience pandemic hardships (e.g., income loss, housing instability, and food insufficiency) than men (Park & Ahn, 2022), and take on more intensive, unexpected, and ongoing care responsibilities whilst working from home (Shockley et al., 2021a). These aspects have been exacerbated by the arrival of more infectious COVID-19 variants with the additional care responsibilities associated with unwell or isolating children falling disproportionally upon women (Cooke et al., 2022).

Women have also reduced their work hours or left the workforce altogether due to childcare constraints at three to four times the rate of men, which has possibly led to a 20–50 per cent increase in the gender gap for work hours (Collins et al., 2021). In addition, even though Australian data found working fathers reported an increase in family activities from 2.2h per day to 6.28h per day, working mothers were still involved in family activities 2.3h per day more than working fathers on average during the pandemic (Craig & Churchill, 2021). Furthermore, working mothers were more often

actively caring for their children (e.g., home schooling and creating educational content for children) while working, compared to fathers (AIFS, 2021; Hopkins & Bardoel, 2020). In sum, the studies revealed that women, particularly working mothers, struggled most with COVID-19 WFH, as they had to constantly juggle between their professional and maternal responsibilities, reinforcing deeply ingrained gender role expectations, and leading to renewed gender inequality and injustice (Oakman et al., 2020).

Wellbeing

Wellbeing in the workplace context can be enhanced or diminished by core conditions ranging from a safe workplace to autonomy, control and flexibility (Grote & Guest, 2017; Guest, 2017). These features take on additional complexity in the WFH or hybrid environment, requiring proactive HRM responses (Butterick & Charlwood, 2021). The impacts of the COVID-19 pandemic on worker wellbeing have only just begun to be documented (*see* Chan et al., 2023; Oakman et al., 2020 for a review). The mental health impacts of social isolation, work intensification and WFH (Nesher Shoshan & Wehrt, 2022), compounding for those with caregiving responsibilities (Craig & Churchill, 2021; Shockley et al., 2021b), are emerging challenges for workers and employers.

Trust

Although trust was mentioned in many scholarly articles, it was not explicitly measured and examined in many of these articles. Among studies that examined trust among employees during the pandemic, it was found that employees' trust in their organisations and managers' trust in their employees are positively correlated with better WFH outcomes (Vyas & Butakhieo, 2021). Reliable information from the government and public health officials also helps employees to make informed decisions about their daily routines, and increase their level of trust in various stakeholders, thereby reducing panic and despondence (Atiku et al., 2020). Similarly, an organisation's effective response to the pandemic enhances employees' trust in the organisation, which in turn increases their concentration and job performance (Vo-Thanh et al., 2021). Social connection also helps to improve commitment and trust in both the office and WFH contexts, thereby minimising conflict while increasing loyalty and pro-social behaviours (Hafermalz & Riemer, 2021).

An analysis of redundancies in the UK during the COVID-19 pandemic also found that collaborative HRM approaches that emphasised trust and commitment helped to minimise negative reactions to redundancies, with employees maintaining their effort levels after layoffs (Cregan et al., 2021). Nevertheless, in the earlier period of the pandemic

outbreak, some managers emphasised management control, including measures such as implementing surveillance software to monitor employees or organising more online meetings to keep check on employees (Aloisi & De Stefano, 2022; Wang et al., 2021). In addition, Cregan et al. (2021) found that performance-oriented workplaces saw an immediate withdrawal of discretionary effort by remaining employees after mass layoffs, as employees blamed management and perceived layoffs as an erosion of trust, resulting in lower long-term organisational performance.

Productivity

Changes in workforce management

With the shift to remote and hybrid working, established organisational routines were disrupted overnight (Collings et al., 2021). Organisations and managers struggled to manage the tensions between employees' health-related concerns and wellbeing as well as the firm's value and sustainable performance (Bose et al., 2022; Mattera et al., 2021). Currently, many organisations are also experiencing the consequences (e.g., "quiet quitting") of many decades of shareholder focus (e.g., high executive salaries, increased workload with stagnant employee wages, high performance orientation) which was not always optimal for low-level employees and unskilled workers, leading to deep inequalities in organisations and society (Butterick & Charlwood, 2021).

Coupled with the unfolding COVID-19 situation, many organisations have either postponed or discontinued the usual performance evaluation and review process, which means that employees have not received feedback about their performance, potentially reducing their sense of connection and psychological safety (Aguinis & Burgi-Tian, 2021). With the pandemic now running into its third year, many scholars and policy analysts have also called for better risk management such as more human capital investment to tide through this and the next pandemic (Zhong et al., 2021); extending occupational health and safety laws (De Cieri & Lazarova, 2021), particularly to the home environment to facilitate WFH and hybrid working (Pennington & Stanford, 2020); and greater alignment between employees' interests and the organisation's interests through facilitating more employee voice and human capital investment (Collings et al., 2021; Cooke et al., 2022).

Nature of work – virtual communication and collaboration

Many grey literature sources (e.g., DeFilippis et al., 2020; Gibbs et al., 2023; NSW Innovation & Productivity Council, 2020; Productivity Commission, 2021) consistently showed that there were more frequent meetings with more attendees, more emails sent and received, and longer

workdays across most organisations with the shift to hybrid and remote working. Despite the increase in daily work hours by those who continued to have employment during the pandemic, productivity declined due to the sharp decrease in uninterrupted work hours caused by increased communication and coordination activities (i.e., emails and meetings) (Gibbs et al., 2023). Employees also reported communicating with fewer colleagues and receiving less coaching from supervisors with the loss of a centralised office and face-to-face interactions (DeFilippis et al., 2020). Despite the negative setbacks relating to WFH in the early days of the pandemic, managers and employees became better at working remotely and flexibly, appreciated the extra time saved without the need to commute, and became as productive as they were during pre-COVID times (Bloom, 2020; NSW Innovation & Productivity Council, 2020).

While the increased frequency of emails and virtual meetings at the start of the pandemic was essential to keep all employees on the same page, employees adjusted to the digital communication patterns in a few weeks and could better ascertain whether they needed to attend a virtual meeting or respond to an email (DeFilippis et al., 2020). Further, Shockley et al. (2021b) found that managers who established expectations about communication practices (e.g., expected response times to email) at the onset of the transition to remote work had a positive impact on their employees' job performance, even if they communicated frequently. Nevertheless, some employees continue to report regular incidences of "Zoom fatigue" and feeling less connected to their colleagues or feeling left out in a WFH or hybrid working context (Nesher Shoshan & Wehrt, 2022; NSW Innovation & Productivity Council, 2020). At present, it remains to be seen if there are "best" practices to communicate and collaborate while working remotely, as the nature of communication and collaboration is shaped by the work tasks, project timelines, and the people involved.

New work arrangements – four-day work week

The mass, rapid shift to WFH has also increased the uptake of the four-day work week, as a dozen companies across the UK, Spain, New Zealand, and Iceland have allowed their staff to work four days per week without reducing their wages or benefits (Zilber, 2022). Yet, the four-day work week is not a new work model. Around five decades ago, Calvasina and Boxx (1975) found that a four-day work week led to increased employee morale and productivity as well as reduced turnover and absenteeism. However, a more recent study by Delaney and Casey (2022) found that the four-day work week may lead to increased performance measurement, monitoring, and productivity pressures if management does not have a cultural and strategic shift alongside the reduction in work hours. This also applies to post-pandemic WFH and hybrid

working, and organisations that do not transform may experience the "great resignation" or "quiet quitting" that has been reported in some sectors of employment in North America, Europe, and Asia.

Planet

Most of the environmental implications of the COVID-19 pandemic were examined by scholars beyond the mainstream OB/HRM fields. The common themes and findings presented below were primarily from scholars in environmental science and sustainability, transport policy, and economic policy.

Lack of commute, reduced fuel consumption, and lowered carbon emissions

COVID-19 WFH decreased carbon emissions across the world (Sarfraz et al., 2021), and this was particularly evident in the top three greenhouse gas emitting countries and regions—China, the EU, and the US (Nundy et al., 2021). COVID-19 WFH arrangements also brought about a range of environmental benefits such as cleaner and clearer air from reduced air and vehicle traffic, due to closed international borders, lockdown restrictions, and decreased industrial activities (Beck & Hensher, 2020; Nundy et al., 2021). Many environmentalists also remarked that the pandemic helped to minimise emissions more effectively than any other initiatives, policies, or interventions combined, thus enabling the global community to align more closely with the UN Sustainable Development Goal on tackling climate change (Perkins et al., 2021). Importantly, the COVID-19 pandemic has also shown the possibility of stimulating structural changes that enable nations and organisations to operate in a more climate-friendly way (Perkins et al., 2021). In addition, the pandemic has illustrated that even the coal and oil industries are vulnerable to pandemic shocks, especially with the sharp drop in global oil and coal demand (Nundy et al., 2021). What started out as a mass WFH experiment is now also turning out to be an experiential lesson for organisations, managers, employees, and policymakers. Indeed, permanent WFH or hybrid working beyond the pandemic may help to combat climate change by significantly reducing carbon emissions.

Energy and plastic consumption

The shift to WFH amidst lockdown measures also saw people spending up to 90% of their time indoors (Nundy et al., 2021), and even if lockdown measures are lifted across the world, organisations and employees have indicated that they prefer WFH one or two days per week going forward (Barrero et al., 2021; Davis, 2021). However, the decreased energy consumption and plastic use in workplaces is counterbalanced by the widespread use of disposable personal protective equipment (PPE)

and masks since the start of the COVID-19 pandemic (Klemeš et al., 2020). Daily, millions of single-use plastics (e.g., masks, gloves, aprons, face shields, etc.) have been discarded into our environment and could potentially cause a surge in plastics washing up on coastlines and littering the seabed (Benson et al., 2021). Benson et al. (2021) further indicated that the COVID-19 pandemic will reverse years-long efforts to reduce plastic waste pollution. As governments and industries across the world are looking to support organisations and employees to upgrade (e.g., remote working technologies and collaborative workspaces) and upskill (e.g., design an ergonomic home workspace and enhanced cybersecurity knowledge) during the pandemic, this is another opportunity to innovate and develop reusable PPEs, as well as more sustainable and energy efficient homes with increased WFH during and after the pandemic. After the pandemic, there might also be attempts by governments and businesses to recover quickly from pandemic losses, but any economic stimulus measures will need to be carefully executed and monitored to ensure that the planet is not further harmed after the pandemic.

Concluding remarks and future research agenda

There is a wealth of qualitative and quantitative evidence of key trends and issues, as well as arguments for and against WFH in the post-pandemic workplace. The scholarly and grey literatures were consistent in showing that many employees and organisations became better at WFH a few months into the pandemic, but more recent sources have also shown that employees are missing face-to-face interactions with their colleagues, clients, and friends in the central business districts (Davis, 2021). Based on a range of industry polls (e.g., Broom, 2021; Microsoft, 2021) as well as research reviews and commentaries (e.g., Davis, 2021; Sander et al., 2021), it appears that most managers and employees expect flexible working between the office and home to be the main form of work arrangement into the future. It is likely that firms will not converge on a single workplace model but will instead adopt and adjust workplace models that best suit their management styles and business needs.

On a systemic level and from a research standpoint, the extant literature on COVID-19 remote working and the post-pandemic workplace continues to be driven primarily by empirical data and prospective articles based on prior research findings, which is to be expected given the ever-changing nature of the coronavirus and its impact on society. Alongside our "people, productivity, and the planet" framework which can help to guide future research on the post-pandemic work environment, Cooke et al. (2022) human-centred approach to HRM and Guest's (2017) wellbeing-oriented HRM approach also provide pertinent insights on

sustainability and employee wellbeing respectively. The human-centred approach to HRM argues that economic, technological, social, and ecological challenges and opportunities should be harnessed for the benefit of a range of stakeholders, including organisations, individuals and society. Similarly, the wellbeing-oriented HRM approach suggests that employee concerns should be at the forefront of organisations' minds, particularly through HRM practices aimed at enhancing employee wellbeing and positive employment relationships. Going forward, it is important to take stock of the research conducted with an understanding that these knowledge may be temporary and be open to "recall" or finetune theories (cf. Elkington, 2018) when new insights emerge, and avoid the reproduction of empirical studies and prospective articles that do little to advance what we already know about the pandemic and post-pandemic workplace.

The contextualisation and consolidation of multidisciplinary knowledge will continue to grow in importance as more "people, productivity, and planet" insights are revealed through empirical studies (cf. Harney & Collings, 2021). However, a majority of the empirical studies conducted since the COVID-19 outbreak have relied on cross-sectional, self-report data, which has two major weaknesses that limit the interpretability of the results, and their associated theoretical and practical contributions. First, the reported results may be contaminated by common method bias (Podsakoff et al., 2003). Similarly, the results may also be explained by social desirability and acquiescence, especially if the concepts and issues that are being examined are particularly sensitive (e.g., multi-tasking while working remotely). Second, cross-sectional data are subject to reverse causality and alternative causal accounts. For instance, it is plausible that high employee morale naturally encourages employees to be more open to remote working. These alternative explanations are very difficult to rule out in cross-sectional, self-report designs (Dormann & Griffin, 2015). Now that the pandemic is in its fourth year, researchers are encouraged to employ more robust statistical methods (e.g., longitudinal data collection and analysis) and a variety of methods (e.g., qualitative, quantitative, and mixed methods) to yield more reliable findings on the impacts of the pandemic and the potential changes to the way we work.

Secondly, while topics for future research are limitless, taking a multi-dimensional focus on people, productivity, and the planet is helpful when examining an unfolding situation such as the COVID-19 pandemic. The "people, productivity, and the planet" framework provides a useful framework from which to guide suggestions for future areas of research below:

People

The short- and long-term impacts on the progression, productivity, security (career and pay), and health of women should be explored further, as the

studies (e.g., Cooke et al., 2022; Park & Ahn, 2022) we reviewed reported a gendered regression in relation to equity in all these areas. The rapid increase and intensity of online meetings and constant communication experienced by workers in the shift to WFH leading to fatigue and burnout is also another area of interest in relation to work intensification, work extremity and worker wellbeing, as the mental health impacts of the pandemic are only beginning to fully emerge and may take time for firm evidence to be available.

Productivity

Given traditional performance reviews were largely suspended or modified, it remains to be seen if this will continue or, in their place, more fit-for-purpose ways of measuring and encouraging performance and development will emerge? Are control or commitment models likely to predominate? This might also be a pressing concern for HR around the desirability as well as their ability to encourage or enforce the return to the workplace, and in what ways this might have unintended consequences such as the reduction of discretionary effort, productivity, and retention (Aguinis & Burgi-Tian, 2021). Future research should also consider the emergence of AI monitoring and surveillance of employees through, for example, keyboard and keystroke measurements that will raise issues of ethics, policy, wellbeing and motivation for HR practitioners, employer, and employee representatives. Further, the pandemic may have accelerated the restructuring of work and organisations, and this is especially significant with the use of technologies in those sectors that were not previously affected by digitalisation. But while new technologies can play a role in the humanisation of work by allowing for WFH, they can also be invasive and used for surveillance and control (Wilkinson, 2022).

Planet

Questions about gains made for the environment and whether these can be maintained in a hybrid working environment are in question, but what we can learn at this moment in time might help researchers better understand what small gains can be made from alternative workplaces such as satellite offices and remote/hybrid working. The increased use of plastics and disposables during the pandemic will also require examination longitudinally.

In sum, practitioners have much to consider as they design the new workplace. It is important to note that much of the technology which has enabled the world to work during the pandemic has been around for many years. However, prior to the pandemic, business norms were such that technology was not well utilised to enable flexibility for their workforces. This suggests there may be greater scope to re-imagine the workplace. At the same time, there is a need to consider the negative impacts of WFH

that can be mitigated for women regarding promotions and opportunities. Equally, wellbeing measures and strategies of support need to be re-designed for the new workplace. Importantly, establishing appropriate workload expectations and boundaries (for example, in managing the number of meetings held, and the right to 'switch off') to avoid leader and employee burnout will be critical for HR. Strategies for ensuring there is inclusive communication and opportunities to develop a sense of connectedness will also need to be considered. The type and role of performance management will also require practitioner attention to establish what we measure and how we measure it, while not neglecting to upskill those who perform these new reviews. The health and safety of employees and the risks to employers have, to some degree, been achieved in the COVID-19 peak, however long-term effects of remote/hybrid working are still to be seen and should therefore be monitored by practitioners.

Finally, it will be vitally important for leaders across countries and organisations to work together to develop better ways to manage the pandemic, by allowing economies and communities to thrive but not at the expense of our environment. We call for concerted efforts by organisational leaders to work with policymakers, governments, unions, and other relevant stakeholders to lay the foundations and build momentum for a combined human-centred (Cooke et al., 2022) and wellbeing-oriented (Guest, 2017) "people, productivity, and the planet" strategy amid the rapid technological and social changes produced by the pandemic. We need interventions at macro, meso, and micro levels if we are to effect a *permanent* paradigm shift, one in which organisations offer flexible models of working necessitating fundamental changes to areas such as office design, technology infrastructure, and employee management and wellbeing. As Kochan (2015) has argued "we are not just pawns controlled by globalisation, technological changes, or any other force totally out of our control. If we take the right actions and work together, we can shape the future of work in ways that work for all" (p. xi). The time is ripe for organisations and governments to invest in their employees and citizens, assist them in building better workplaces and overcoming work-life challenges produced by COVID-19 remote/hybrid working, and develop voice and inclusive policies to eliminate socio-economic inequalities. Ultimately, enhanced wellbeing will increase employees' organisational commitment, proactivity, and performance in a WFH or hybrid working context, benefitting both organisations and society (Cooke et al., 2022), and providing a stable pathway to recovery after the pandemic.

Note

1. At the time of writing, the pandemic is ongoing, more COVID-19 variants have emerged, and intermittent lockdowns are still being enforced across the world.

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Data availability statement

The authors confirm that the data supporting the findings of this study are available within the article and its supplementary materials, specifically under "Appendices".

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Appendix A

Title	Journal	People	Productivity	Planet	Research Design	Theme(s)
Can COVID-19 mitigation measures promote telework practices?	Journal of Labor & Society	•	•		Editorial	Telework practices, future of work
How to improve organizational performance during Coronavirus: A serial mediation analysis of organizational learning culture with knowledge creation	Knowledge and Process Management		•		Quantitative - Survey	Organisational learning
Home Truths: What Did COVID-19 Reveal about Workplace Flexibility?	Australian Journal of Labour Law	•	•		Policy - Review	Right to request (FWAs)
Essential jobs, remote work and digital surveillance: addressing the COVID-19 pandemic panopticon	International Labour Review	•	•		Editorial	Essential workers, WFH, digital surveillance
COVID-19 and digitalization: The great acceleration	Journal of Business Research	•	•		Conceptual	Digitalisation
Perceptions of flexible work arrangements in selected African countries during the coronavirus pandemic	South African Journal of Business Management	•	•		Quantitative - Survey	FWAs, IT support
Working from home during the COVID-19 pandemic: Impact on office worker productivity and work experience	Work	•	•		Quantitative - Survey	WFH and productivity
Role of Emotional Intelligence and Strategic Human Resource Management during COVID-19 Pandemic	Academy of Strategic Management Journal		•		Qualitative - Interview	Emotional intelligence, HR managers
How COVID-19 Informs Business Sustainability Research: It's Time for a Systems Perspective	Journal of Management Studies		•	•	Editorial	Systems, business sustainability
COVID-19 Is Also a Reallocation Shock	Brookings Papers on Economic Activity	•	•		Quantitative - Panel Data	Unemployment, job loss, WFH
What might the changing incidence of Working from Home (WFH) tell us about future transport and land use agendas	Transport Reviews	•	•	•	Editorial	WFH, transport, commuting
COVID pollution: impact of COVID-19 pandemic on global plastic waste footprint	Heliyon			•	Quantitative - Forecasting	Plastic pollution, waste management
COVID-19 impact, sustainability performance and firm value: international evidence	Accounting & Finance		•		Quantitative - Panel Data	Firm value, sustainability performance
HRM and the COVID-19 pandemic: How can we stop making a bad situation worse?	Human Resource Management Journal	•	•		Editorial	HRM, labour market inequalities
Adjusting to epidemic-induced telework: empirical insights from teleworkers in France	European Journal of Information Systems	•	•		Quantitative - Survey	Telework adjustment

(*Continued*)

Appendix A: Continued.

Title	Journal	People	Productivity	Planet	Research Design	Theme(s)
The effectiveness of supervisor support in lessening perceived uncertainties and emotional exhaustion of university employees during the COVID-19 crisis: the constraining role of organizational intransigence	Journal of General Psychology	•	•		Quantitative - Survey	Supervisor support, emotional exhaustion, organisational intransigence
The Value of Work: Rethinking Labor Productivity in Times of COVID-19 and Automation	American Journal of Economics & Sociology		•	•	Policy - Editorial	Productivity, work automation
"You're a teacher you're a mother, you're a worker": Gender inequality during COVID-19 in Ireland	Gender, Work & Organization	•	•		Qualitative - Interview	Gender gap, working mothers
COVID-19 and the gender gap in work hours	Gender, Work & Organization	•	•		Quantitative - Panel Data	Gender gap, work hours
Leading through paradox in a COVID-19 world: Human resources comes of age	Human Resource Management Journal	•	•		Conceptual	HR function, HR profession, SHRM
Strategic Human Resource Management and COVID-19: Emerging Challenges and Research Opportunities	Journal of Management Studies	•	•		Conceptual	HR function and SHRM
IJHRM after 30 years: taking stock in times of COVID-19 and looking towards the future of HR research	International Journal of Human Resource Management	•	•		Mixed-Method Review	HR research trends
A rapid scoping review of COVID-19 and vulnerable workers: Intersecting occupational and public health issues	American Journal of Industrial Medicine	•	•		Scoping Review	Health inequities, precariousness, racial disparities
Dual-earner parent couples' work and care during COVID-19	Gender, Work & Organization	•			Quantitative - Panel Data	Dual-earner couples, gender equality, unpaid labour, care-giving
The influence of calculative ("hard") and collaborative ("soft") HRM on the layoff-performance relationship in high performance workplaces	Human Resource Management Journal	•	•		Quantitative - Panel Data	HRM, HPWS, layoff-performance relationship
Workplace change within the COVID-19 context: a grounded theory approach	Economic Research-Ekonomska Istrazivanja	•	•		Mixed-Method Review	Remote working, workplace redesign, technology
JUE Insight: How do cities change when we work from home?	Journal of Urban Economics	•	•	•	Quantitative - Panel Data	WFH, telecommuting, real estate prices
COVID's Impacts on the Field of Labour and Employment Relations	Journal of Management Studies	•	•		Editorial	Inequality, racial justice, low wage worker, collective action
Who on Earth Can Work from Home?	The World Bank Research Observer	•	•		Policy - Review	WFH, occupations, internet access
COVID-19 and employee psychological safety: Exploring the role of signaling theory	Industrial and Organizational Psychology	•	•		Editorial	Psychological safety, signalling theory, employee well-being

Title	Journal	People	Productivity	Planet	Research Design	Theme(s)
Working from home before, during and after the Covid-19 pandemic: implications for workers and organisations	New Zealand Journal of Employment Relations	•	•		Editorial	WFH, telework, future of work
Firms' environmental performance and the COVID-19 crisis	Economics Letters			•	Quantitative - Panel Data	Firm environmental performance, green investment, carbon emissions
Productive and connected while working from home: what client-facing remote workers can learn from telenurses about 'belonging through technology	European Journal of Information Systems	•	•		Qualitative - Interview	Client-facing work, belonging, team functions, well-being, productivity
Human resource management and the COVID-19 crisis: Implications, challenges, opportunities, and future organizational directions	Journal of Management & Organization	•	•		Narrative Review	HRM, remote working, WFH
New Technology, Work and Employment in the era of COVID-19: reflecting on legacies of research	New Technology, Work and Employment	•	•		Editorial	Control, resistance, surveillance, experience of work
Covid-19 and The Study of Professionals and Professional Work	Journal of Management Studies	•	•		Editorial	Professionals, professional roles, professional work
The Future of Work and Labour Regulation after COVID-19	Australian Journal of Labour Law	•	•		Policy - Review	Labour regulation, working practices, future of work
The mind, the heart, and the leader in times of crisis: How and when COVID-19-triggered mortality salience relates to state anxiety, job engagement, and prosocial behavior	Journal of Applied Psychology	•	•		Quantitative - Survey	Leadership, mortality salience, anxiety, employee outcomes
Words that hurt: Leaders' anti-Asian communication and employee outcomes	Journal of Applied Psychology	•	•		Quantitative - Survey, Experiment	Race, stigma, interpersonal justice perceptions, employee outcomes
HR initiatives to establish the new normal in COVID-19 Scenario	International Management Review	•	•		Qualitative - Text Analysis	HR initiatives, leadership, technology
COVID-19 leadership challenges in knowledge work	Knowledge Management Research & Practice	•	•		Quantitative - Survey	Knowledge work, WFH, leadership, well-being
Minimising the present and future plastic waste, energy and environmental footprints related to COVID-19	Renewable and Sustainable Energy Reviews			•	Conceptual	Plastic waste, waste management, environmental footprints
Working in lockdown: the relationship between COVID-19 induced work stressors, job performance, distress, and life satisfaction	Current Psychology	•	•		Quantitative - Survey	Job performance, life satisfaction, roles, occupational discomfort
COVID-19 and the New Technologies of Organizing: Digital Exhaust, Digital Footprints, and Artificial Intelligence in the Wake of Remote Work	Journal of Management Studies	•	•		Editorial	AI, digitisation, change, remote work

(*Continued*)

Title	Journal	People	Productivity	Planet	Research Design	Theme(s)
Disrupting the brave new world: COVID-19 effects on organisations' sustainability efforts	Journal of Organizational Change Management		•	•	Quantitative - Survey	Sustainability, change management, organisational systems
Business continuity in the COVID-19 emergency: A framework of actions undertaken by world-leading companies	Business Horizons		•		Qualitative - Web Content Analysis	Business continuity, value creation, workforce management, operations
Leadership and governance in a crisis: some reflections on COVID-19	Journal of Accounting & Organizational Change		•		Editorial	Governance, business, crisis management, leadership
Facing a global crisis - how sustainable business models helped firms overcome COVID	Corporate Governance: The International Journal of Effective Board Performance		•	•	Quantitative - Panel Data	Sustainable business model, corporate governance, strategic management
Implications of the COVID-19 Pandemic for Gender Equity Issues at Work	Journal of Management Studies	•	•		Editorial	Gender equity, work-family, women
Potential of telecommuting for different employees in the Indian context beyond COVID-19 lockdown	Transport Policy		•	•	Quantitative - Survey	WFH, telecommuting
Impact of COVID-19 pandemic on socio-economic, energy-environment and transport sector globally and sustainable development goal (SDG)	Journal of Cleaner Production			•	Systematic Review	Socio-economic, energy-environment, transport sector, SDGs
A rapid review of mental and physical health effects of working at home: how do we optimise health?	BMC Public Health	•	•		Rapid Review	WFH, telecommuting, physical health, mental health, gender
Exploring compassionate managerial leadership style in reducing employee stress level during COVID-19 crisis: the case of Nigeria	Employee Relations	•	•		Qualitative - Interview	Compassion, managerial leadership, employee stress
Government Employees' Experience and Expectation of COVID-19 Hardships: The Moderating Role of Gender and Race in the United States	The American Review of Public Administration	•	•		Quantitative - Survey	Socioeconomic hardships, gender gaps, racial disparities
Effects of workplace rumors and organizational formalization during the COVID-19 pandemic: a case study of universities in the Philippines	Corporate Communications: An International Journal	•	•		Quantitative - Survey	Communication, crisis, organisational structure, well-being
Three pillars of sustainability in the wake of COVID-19: A systematic review and future research agenda for sustainable development	Journal of Cleaner Production			•	Systematic Review	Environmental sustainability, social sustainability, economic sustainability
Psychological Contract for Human Development and Organizational Sustainability	Business Perspectives and Research	•	•		Conceptual	Psychological contract, human development, organisational sustainability
The impact of COVID-19 on gender inequality in the labor market and gender-role attitudes	European Societies	•	•		Quantitative - Survey	Gender inequality, gender-role attitudes, unemployment

Title	Journal	People	Productivity	Planet	Research Design	Theme(s)
COVID-19 and OD: Unplanned Disruption and the Opportunity for Planned Talent Development	Organization Development Review	•	•		Editorial	Talent development, organisational development
Escaping the Cubicle: Exploring the Physical Work Environment of the Home	Handbook of Research on Remote Work and Worker Well-Being in the Post-COVID-19 Era	•	•		Editorial	Physical work environment, WFH
Modeling the relationship between carbon emissions and environmental sustainability during COVID-19: a new evidence from asymmetric ARDL cointegration approach	Environment, Development & Sustainability			•	Quantitative - Panel Data	Carbon emissions, sustainable development
Remote worker communication during COVID-19: The role of quantity, quality, and supervisor expectation-setting	Journal of Applied Psychology	•	•		Quantitative - Survey	Telecommuting, communication, remote work
Work-Family Strategies During COVID-19: Examining Gender Dynamics Among Dual-Earner Couples With Young Children	Journal of Applied Psychology	•	•		Quantitative - Survey	Work-family, division of childcare, gender, remote work
Understanding "Zoom fatigue": A mixed-method approach	Applied Psychology	•			Mixed-Method - Survey	Employee well-being, exhaustion, Zoom fatigue
An early assessment of the impact of COVID-19 on air transport: Just another crisis or the end of aviation as we know it?	Journal of Transport Geography		•	•	Quantitative - Panel Data	Air transport, aviation industry
Organizational Culture and COVID-19	Journal of Management Studies	•	•		Editorial	Organisational culture
COVID-19 and the uncertain future of HRM: Furlough, job retention and reform	Human Resource Management Journal	•	•		Editorial	Furlough, job retention, labour hoarding, redundancy
Mindfulness and the challenges of working from home in times of crisis	Business Horizons	•	•		Editorial	Mindfulness, productivity, telework, well-being, WFH
Working From Home During the COVID-19 Crisis: How Self-Control Strategies Elucidate Employees' Job Performance	Applied Psychology	•	•		Mixed-Method - Survey	Self-control strategies, telework, trait self-control
The influence of social distancing on employee well-being: a conceptual framework and research agenda	Journal of Service Management	•	•		Conceptual	Employee well-being, social distancing, service continuity
Disruptions and General Distress for Essential and Nonessential Employees During the COVID-19 Pandemic	Journal of Business & Psychology	•			Quantitative - Survey	Work stressor, social stressors, general distress, change communication

Appendix A: Continued.

Title	Journal	People	Productivity	Planet	Research Design	Theme(s)
Changes to the work–family interface during the COVID-19 pandemic: Examining predictors and implications using latent transition analysis	Journal of Applied Psychology	•	•		Quantitative - Survey	Work-family conflict and enrichment, technostress, support, compassion
How does hotel employees' satisfaction with the organization's COVID-19 responses affect job insecurity and job performance?	Journal of Sustainable Tourism	•	•		Mixed-Method - Survey	Perceived health risk, COVID-19 response, perceived job insecurity, job performance
The impact of working from home during COVID-19 on work and life domains: An exploratory study on Hong Kong	Policy Design and Practice	•	•		Qualitative - SWOT Analysis	Work-life balance, WFH
Achieving Effective Remote Working During the COVID-19 Pandemic: A Work Design Perspective	Applied Psychology: An International Review	•	•		Mixed-Method - Interview, Survey	Remote working, work design, performance, well-being
Offering flexible working opportunities to people with mental disabilities: The missing link between sustainable development goals and financial implications	Business Strategy & the Environment	•	•		Mixed-Method - Survey, Interview, Secondary Data	Flexible working, mental disabilities, financial benefits
Exploring remote and onsite employees' preferred appreciation languages prior to COVID-19 and during COVID-19	Strategic HR Review	•	•		Quantitative - Panel Data	Remote working, onsite working, preferred appreciation languages
Will working from home become the 'new normal' in the public sector?	Australian Journal of Public Administration	•	•		Editorial	WFH, gender equity, public sector
Brand authenticity, employee experience and corporate citizenship priorities in the COVID-19 era and beyond	Strategy & Leadership		•		Editorial	Brand authenticity, employee experience, corporate citizenship priorities
The impact of the COVID-19 outbreak on the air quality in China: Evidence from a quasi-natural experiment	Journal of Cleaner Production			•	Quantitative - Experimental	Air quality, exogenous shock
Risk Management: Exploring Emerging Human Resource Issues during the COVID-19 Pandemic	Journal of Risk and Financial Management	•	•		Systematic Review	HR practices, risk management

Appendix B

Title	Organisation	People	Productivity	Planet
Working from home	Australian Government Productivity Commission	•	•	
2020 year-end labour market review: Insecure work and the COVID-19 pandemic	Australia Institute	•	•	
Working from home: Opportunities and risks	Australia Institute	•	•	
Employment & work–family balance in 2020	Australian Institute of Family Studies (AIFS)	•		
Future of work literature review: Emerging trends and issues	Australian Taxation Office	•	•	•
Managing the cyber risks of remote work	BCG		•	
Work from home & productivity: Evidence from personnel & analytics data on IT professionals	Becker Friedman Institute (BFI)	•	•	
Coronavirus (COVID-19): Flexible working during the pandemic and beyond	CIPD	•	•	
Work, health and COVID-19: A literature review	ETUI	•	•	
Living, working and COVID-19	Eurofound	•	•	
Key working from home trends emerging from COVID-19	Fair Work Commission (FWC)	•	•	
5 models for the post-pandemic workplace	Harvard Business Review	•	•	
Insights into the impact of COVID-19 on household travel, working, activities and shopping in Australia	ITLS - University of Sydney	•		•
The COVID-19 crisis and telework: A research survey on experiences, expectations and hopes	IZA - Institute of Labor Economics	•		
Remote working and mental health during the first wave of COVID-19 pandemic	IZA - Institute of Labor Economics	•	•	
What jobs are being done at home during the COVID-19 crisis? Evidence from firm-level surveys	NBER	•	•	
Collaborating during coronavirus: the impact of COVID-19 on the nature of work	NBER	•		
The donut effect of COVID-19 on cities	NBER		•	•
The geography of remote work	NBER	•		•
Why working from home will stick	NBER	•	•	
Our experience during COVID-19 and what it means for the future of work	NSW Innovation and Productivity Council	•	•	
COVID-19: Protecting people and societies	OECD	•		
Literature review on parameters related to work-from-home (WFH) arrangements	Queensland University of Technology	•	•	
How working from home works out	Stanford Institute for Economic Policy Research	•	•	
Managing employees throughout the COVID-19 pandemic: Flexible working and the future of work	University of Birmingham & University of Kent	•	•	
Hybrid and remote working in the north of England: Impact and future prospects	Work Foundation - Newcastle University	•	•	