'Engaging' workplace ecosystem post-pandemic: a real estate industry perspective

Article

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'Engaging' workplace ecosystem post-pandemic: a real estate industry perspective

Abstract

Purpose – Triggered by the acceleration of hybrid work practices during the COVID-19 pandemic, this study explores the future development and utilisation of the workplace environment for knowledge-based organisations. It examines whether, and how, the global real estate (workplace) sector has contributed to this transition, with a focus on creating an 'engaging' workplace post-pandemic.

Design/methodology/approach – A qualitative study was carried out to examine future workplace scenarios through in-depth interviews with eleven experts from the global real estate (workplace) sector. All the experts interviewed focused on different aspects of the workplace environment, such as management, design, and evaluation.

Findings – The findings emphasise the need to improve alignment between organisational and workplace industry metrics within broader urban environments to facilitate a successful transition to an 'engaging' workplace ecosystem after the pandemic. The study also underscores the importance of wider adoption of workplace certificates and metrics to support these post-pandemic workplace ecosystems.

Originality/value – This is a relevant and timely study that presents future workplace scenarios projected by leading global real estate sector professionals. The findings obtained through in-depth interviews offer recommendations for organisations considering a permanent shift or transition to hybrid work practices and their monitoring and evaluation.

1. Introduction

The COVID-19 pandemic has widely accelerated new trends in how knowledge work is performed (Ipsen et al., 2021), subsequently affecting all sub-sectors of real estate markets (e.g., office and housing) (Balemi et al., 2021; Carson et al., 2021) and the way we envisage the new dynamics of post-pandemic cities (Batty, 2020). A global shift from '5-day in the office' to fully remote work-from-home (WFH) has unexpectedly encouraged many organisations and the real estate sector to think differently about what constitutes a workplace environment (e.g., home, office, third places, etc.) and how this workplace ecosystem impacts organisational outcomes (Boland et al., 2020). The generally positive WFH employee experience (Barrero et al., 2021) has been accompanied by statements made by the most prominent global agencies projecting a permanent transition to a 'total workplace ecosystem' (Cushman & Wakefield, 2020) with 'adaptive workplaces' (Deloitte, 2021) underpinned by a high-quality urban realm to fully embrace 'workplacemaking' as a whole (IPUT & ARUP, 2020). Given that hybrid work practices have become a 'new normality' for the majority of global organisations nowadays, it also has an unprecedented impact on organisations and their employees (Future Forum Pulse, 2022).

After the initial debate 'home versus office', there is growing evidence of 'hybrid' as the best option for all (Naor et al., 2021; Teevan et al., 2021; Williamson & Colley, 2022), including the youngest workforce (Pataki-Bittó, 2021), which confirms an acceleration of hybrid work patterns (Fiorentino et al., 2022). However, this creates a new set of challenges for both organisations and the real estate sector in terms of ensuring a smooth transition to an 'engaging' workplace environment post-pandemic (Surma et al., 2021). Employee engagement can be defined as "a positive, fulfilling, work-

related state of mind characterised by vigour, dedication, and absorption" (Schaufeli et al., 2002, p. 74), but it remains unclear how these parameters are influenced by the employee experience of a hybrid work practices, understood as work practices conducted in interconnected locations where knowledge work is performed regularly—for instance, two days per week at home and three days in the office. Subsequently, the physical workplace remains an underestimated point of consideration in terms of what constitutes an 'engaging' workplace environment, especially in the context of "a post-COVID-19 workplace ecosystem—a network of physical and virtual places where work occurs, including office, home, third places, and surrounding urban realm" (Surma et al., 2021, p. 4).

Therefore, the role of the workplace ecosystem post-pandemic needs to be re-examined to better accommodate a hybrid workforce (Gillen et al., 2021; Orel, 2022; Vinopal, 2022). There is a growing need for better alignment between an 'engaging' workplace ecosystem and future workplace strategies, which, for this paper, are understood as the necessary design, management, and evaluation practices regarding future workplace environments post-pandemic. Additionally, performance measurement in corporate real estate requires adaptation to the new world of work (Puybaraud et al., 2022). Considering the key role that the real estate (workplace) industry sector (e.g., IWBI; Leesman; Skanska; Arup; CBRE; Cushman & Wakefield; and WiredScore) plays in providing global standards on how to create and evaluate the office workplace environment, we argue that a new set of guidelines is needed to allow knowledge organisations to operate successfully in an 'engaging' workplace ecosystem post-pandemic.

This study aims to answer the following research questions (RQ):

- *RQ1.* Is there an alignment between the idea of an 'engaging' workplace ecosystem and anticipated future workplace strategies?
- *RQ2.* What are the options for the development of an 'engaging' workplace ecosystem post-pandemic?

The remainder of this paper proceeds as follows. Section 2 presents the literature review. Section 3 outlines the research methods of this study. Section 4 reports the results, and Section 5 further discusses the findings. Section 6 concludes the study by highlighting the value of this study and the future directions regarding an 'engaging' workplace post-pandemic.

2. Literature review

In this section, we explore the key background literature on the relationship between the physical workplace environment and employee engagement. We focus on the sustainable real estate, environmental psychology, and organisational behaviour literature, particularly on the concepts of the physical workplace environment and employee engagement. We address the following topics: the impact of the COVID-19 pandemic on real estate markets; environmental, social, and corporate governance in the workplace ecosystem; employee engagement post-pandemic; and the role of the office in the workplace ecosystem. We investigate the linkages between these topics to better understand an 'engaging' workplace ecosystem post-pandemic.

2.1 The impact of the COVID-19 pandemic on real estate markets

The COVID-19 pandemic has substantially changed the way we think about the future of real estate markets (Balemi et al., 2021; Carson et al., 2021) and how to plan our cities in this new context (Batty, 2020, 2022; Florida et al., 2021). We have seen a major shift in the prevalence of remote and hybrid work arrangements affecting residential and commercial real estate values and the future of cities, with consequences for productivity, innovation, local public finance, and the climate (Van Nieuwerburgh, 2023). For example, in terms of commercial real estate, investors expect rents to rise

in suburban areas relative to urban areas (Rolheiser et al., 2022). The commercial rent gradient falls by roughly 15% in transit cities, and the premium for proximity to transit stops also falls (Rosenthal et al., 2022). In 2023, the real estate industry reports that take-up in Central London's offices totalled 2.1m sq. ft., standing below the long-term average by 33% in the first quarter of the year (CBRE, 2023). Even pre-pandemic, over the two years from 2018 to 2020, residential property increased in value by 10% whilst the value of the commercial property stock fell by 9% (Mansley, 2022). In effect, landlords expand into flexible space due to increased demand from corporate tenants for shorter leases and greater agility (JLL, 2022). The real estate industry reports that 56% of corporates consider operationalising hybrid work models to support agility and flexibility a top priority between 2023 and 2025 (JLL, 2023a).

In light of the above pandemic-related consequences, global agencies project that the office real estate sector—due to the expected increase in office vacancy—may need to be adapted to other (i.e., non-office) functions (Boland et al., 2020; CBRE, 2022), which may potentially meet housing demand in the future (Cunningham & Orlando, 2022; Ward & Schwam, 2022). The newest research documents large shifts in lease revenues, office occupancy, lease renewal rates, lease durations, and market rents affecting both current and expected future cash flows for office buildings (Gupta et al., 2022). While some changes in the current use of offices may be temporary or more dynamic, other adjustments may be permanent (e.g., working from home and portfolio rationalisations) and trigger structural changes across cities (Fiorentino et al., 2022). For example, companies are more likely to invest in the "new office," bringing in more conference rooms and technology to blend in-person and remote workers (JLL, 2023b).

2.2 Environmental, social, and corporate governance in the workplace ecosystem

The built environment contributes almost half of the global greenhouse gas emissions, so there is constant pressure on the property and real estate sector to develop more sustainably-oriented investments (Wilkinson et al., 2018). Given that the owner of real estate assets may be either an investor or an owner-occupier, both should be equally aware of the broader sustainability issues of social and environmental responsibility concerning real estate and considering the emerging role of sustainability as a driver for real estate decision-making (Smith et al., 2006). For instance, some studies report that eco-certified buildings have both a rental and a sale price premium (Fuerst & McAllister, 2011). However, sustainable building owners and tenants often benefit from reduced operating costs during the building lifecycle (Wilkinson et al., 2011). Still, the adoption of sustainable principles suffers due to a lack of evidence relating to the financial benefits and uneven distribution of costs and benefits between owners (investors) and occupiers (Falkenbach et al., 2010). Some studies suggest that a green workplace offers greater psychological benefits (i.e., taking pride in the workplace environment) to occupiers than physical improvements (i.e., health and productivity gains) (Kato et al., 2009).

Given that corporate social responsibility (CSR) is a "rapidly expanding high-profile phenomenon that influences organisations to consider the impact that their working practices have on the environment and society" (Barthorpe, 2010, p. 5), paying higher rental costs for green-certified buildings makes intuitive sense if tenants perceive benefits in human talent retention, increased productivity, and/or corporate social responsibility (CSR) advantages (Robinson & Simons, 2018). Hence, the property development industry is considered responsible for adopting sustainable practices in the built environment by utilising more rigorous measurement tools (Wilkinson et al., 2015). Although location remains the dominant consideration in decision-making for occupiers, sustainability is key to CSR and 'value-added' in specific sectors (Livingstone & Ferm, 2017).

In light of the above discussion on sustainable real estate, Langston and Al-khawaja (2018) elaborated on the term 'workplace ecology', understood as a "balance of factors that contribute to the health of an 'eco-system' that is fundamental to corporate success and continuous improvement" (abstract). Subsequently, the authors considered 'workplaces' as "eco-systems that are important to business goals and ultimate success" (p.277), and the "workplace ecology when organisation, space, and technology are in harmony to support human endeavour" (p.277). Given this paper's interest in the 'workplace ecosystem', it can be argued that hybrid work practices can contribute to CSR compliance due to reduced CO_2 emissions (and related carbon footprint) resulting from working from home and improving employee health and well-being due to the greater flexibility it offers. Therefore, in light of hybrid work patterns, the model proposed by Langston and Al-khawaja (2018) should not be limited to the office real estate sector but should be extended to a broader workplace ecosystem.

The research conducted by Dixon et al. (2009) suggested that occupiers in certified buildings (e.g., BREEAM) from business sectors with strong environmental and corporate responsibility policies placed more emphasis on sustainability than other groups in the final choice of office, but location and availability remained paramount. Considering the growing popularity of hybrid work patterns, it can now be discussed whether knowledge-intensive organisations should subsidise the expenses of employees working from home. Additionally, it remains questionable whether offices that are more widely distributed across a city (e.g., satellite offices in suburban areas) and ensure greater connectivity with residential areas are of higher interest to knowledge-intensive organisations. More research is required to investigate the perception of resident employees working wholly or partly out of their home, as current studies are primarily limited to the office sector (Jailani et al., 2015) located in central business districts (Levy & Peterson, 2013).

Since this paper focuses on the 'workplace ecosystem' dedicated to knowledge-intensive organisations, it can be argued that—in the context of hybrid work patterns—both the commercial office and workplaces in the home play a significant role in promoting sustainable property markets and social and environmental responsibility (i.e., Environmental, Social, and Corporate Governance – ESG). Therefore, there are clear connections between cities and organisational approaches to sustainability that can be combined for mutual benefit. For instance, expanding a real estate certification portfolio to encompass the broader urban environment can support sustainable urban development and enhance organisational performance. However, further research is necessary to fully understand how sustainable real estate markets in a wider urban or suburban context can influence knowledge worker outcomes (e.g., employee engagement, performance, and productivity).

2.3 Employee engagement post-pandemic

Employee engagement is a relatively novel construct that originated in the field of organisational psychology and continues to evolve (Saks & Gruman, 2014; Schaufeli & Salanova, 2007). It is one of the key organisational outcomes, so both researchers and businesses are equally interested in creating an 'engaging' workplace environment (Harter et al., 2002; Schaufeli & Salanova, 2014). It can be observed that due to a broad interest in the construct itself, there is a constantly evolving number of definitions elaborated in different fields of research (e.g., human resources and management studies) (Saks, 2006), not to mention those which emerged out of academic circles (e.g., business-oriented magazines) (Albrecht, 2010; Attridge, 2009; Bailey et al., 2017). As a result, numerous metrics have been developed to measure engagement based on various characteristics (Shirom, 2003). However,

there is a strong focus on the quality of a social rather than the *physical* workplace environment (Kumar & Sia, 2012; Osborne & Hammoud, 2017; Rana et al., 2014).

Unlike the socially-focused view of 'employee engagement', there is increasing evidence of the links between indoor environmental quality (IEQ) in the physical office, employee environmental satisfaction, and organisational outcomes such as productivity, performance, job satisfaction, and workplace well-being (Appel-Meulenbroek et al., 2016; Brinkley et al., 2010; Brunia et al., 2016; Chadburn et al., 2017; Haynes, 2007; Kegel, 2017; Vischer, 2008; Wyon, 2004). For instance, many studies explore environmental factors like air quality, biophilic design, daylight, views, and temperature (Clements-Croome, 2004; Jamrozik et al., 2019; Kwallek et al., 2007). Additionally, numerous findings relate to office design and associated employee activities, such as open-plan and activity-based office layouts (Candido et al., 2021; Kroemer & Kroemer, 2016). However, research on employee engagement in relation to the physical workplace remains fragmented and mainly concentrates on full-time office work (Augustin, 2020; Feige et al., 2013; Klotz, 2020; Smith, 2011). Conversely, some pre-pandemic studies indicate that different physical environments influence occupant satisfaction depending on the activities carried out at work (Chacon Vega et al., 2020). Still, it is unclear how office quality standards relate to employee engagement, especially in hybrid work settings where the workplace includes spaces at home. Thus, a more interdisciplinary approach is required to advance the diverse field of physical office environment research and to clarify the causal links with organisational outcomes (Appel-Meulenbroek et al., 2018).

2.4 The role of the office in the workplace ecosystem

It can be observed that the recent studies largely emphasise the importance of redesigning the office workplace post-pandemic (Hou et al., 2021), highlighting the emergence of multi-location work, a new value for the headquarters, and diversity empowerment as avenues for future real estate strategies (Tagliaro & Migliore, 2021). However, some studies indicate that hybrid working preferences vary among employees, which creates additional challenges in attracting them back to the office (Appel-Meulenbroek et al., 2022). These results align with pre-pandemic research, which indicates differences in office users' work environment preferences regarding specific characteristics of the work environment, such as their work style (Rothe et al., 2011). Therefore, more studies on a post-pandemic office workplace are needed to present convincing business cases for organisations, as office buildings are effective when they do account for basic individual and organisational needs (Oseland, 2009). Considering the growing number of studies on work from home (WFH) (Cuerdo-Vilches et al., 2021; Davis et al., 2020; Waizenegger et al., 2020; Xiao et al., 2021) and its relevance for organisational outcomes (Awada et al., 2021; Colley & Williamson, 2020; Hickman & Robison, 2020; Ipsen et al., 2021; Kotera & Correa Vione, 2020; Russo et al., 2021; Yang et al., 2021), new perspectives on the traditional office workplace are needed to support organisations working in a hybrid mode adequately. For example, more research is required to explore the relevance of a quality office environment that facilitates 'flexible workplaces' (i.e., dynamic, less closely linked to place and time) and interaction with colleagues (Van Der Voordt, 2004), which is one of the most important reasons for employees' return to the office post-pandemic (Marzban et al., 2021).

Although one of the latest pre-pandemic studies suggests that activity-based office work with occasional teleworking is conducive to engagement (Appel-Meulenbroek et al., 2020), more research is needed to clarify the extent to which the quality of the office environment impacts employee engagement. This study identified three physical work environment constructs (i.e., distraction, office comfort, and teleworking) to have significant relations with employee engagement. However,

distraction in the office environment, which has both a direct and indirect negative relation with the individual strain (i.e., increased exhaustion) (Appel-Meulenbroek et al., 2020), may be reduced in many cases by working from home. Also, a home workplace may increase feelings of autonomy, which has a positive relationship with work engagement (Maslach & Leiter, 2008). Considering that office comfort has indirect positive relations due to increased involvement through personal recognition and appreciation, the literature suggests there remains a growing need to explore how environmental satisfaction in the office workplace post-pandemic is related to vigour, dedication and absorption (i.e., all employee engagement components according to the Utrecht Work Engagement Scale - UWES) (Schaufeli & Bakker, 2003). Therefore, we can assume that a workplace ecosystem may contribute to 'full engagement'—a broader conception of engagement beyond 'a commitment-based view' to a more 'human-oriented', holistic sense of thriving and well-being (Robertson & Cooper, 2010).

This paper aims to explore the future development and utilisation of an 'engaging' workplace for knowledge-based organisations, and to investigate whether the global workplace sector intends to catalyse this transition. The literature review for this research indicates that research on the workplace environment and employee engagement post-COVID-19 is limited. Furthermore, the connection between the physical workplace environment and employee engagement is often underestimated. We contend that the role of the office workplace after the pandemic needs to be rethought within the wider context of a workplace ecosystem. Additionally, we seek to explore options for a successful transition to an 'engaging' office environment post-pandemic for knowledge-based organisations. To support this, in-depth interviews with global office workplace professionals were conducted to gather empirical data. In this study, we further examine how these preconditions of an 'engaging' workplace are addressed in future workplace scenarios by global workplace leaders and what steps may be necessary for a successful transition to an 'engaging' workplace after the pandemic.

3. Data and methods

The empirical work in this study involved in-depth interviews to explore and understand the wide range of impacts that the COVID-19 pandemic has had on the workplace. We discovered that the recent COVID-19 pandemic and the significant uncertainty regarding the future workplace model justified our selected qualitative methodology. The exploratory nature of our study necessitated an inductive approach, which guided our data collection process.

In-depth interviews are particularly well-suited for developing knowledge about poorly understood areas, often with an exploratory orientation (Legard et al., 2003). Semi-structured interviews were conducted with professionals in the global workplace industry to understand the workplace sector's views, perspectives, sentiments, and expectations. Semi-structured interviews were found to be appropriate for studies involving limited participants, such as mini-studies and case studies (Drever, 1995). The interviews were designed to address specific topics while allowing new themes to emerge. They allowed us to explore the full complexity of employee engagement in a hybrid workplace (Galletta, 2013), post-pandemic. The semi-structured questionnaire ensured consistency in questioning while allowing respondents to provide additional insights, which allowed us to delve deeper into certain areas of the conversation by gauging the tone of interviewees' responses or other non-verbal cues.

Purposive sampling techniques were used for data collection. A blend of non-probability convenience sampling and snowball sampling (Onwuegbuzie & Collins, 2007) was used to identify respondents through a combination of requests for participation from professional contacts and/or recommendations from these contacts. Besides individual professional backgrounds, the focus on the

office workplace was another criterion for selecting interviewees. This approach enabled us to gather relevant information from individuals who could provide the necessary data for the study. Estimating an adequate sample size to achieve saturation is a long-standing problem in interview-based qualitative research. Still, we achieved some measure of saturation, gaining insights into aligning future strategies with the concept of an 'engaging' workplace while identifying aspects overlooked by prior studies.

The interviews explored experts' perspectives on an engaging post-COVID-19 workplace and its associated strategies. We identified and interviewed eleven interviewees, sufficient for our exploratory study involving global industry experts in workplace design, evaluation, and management who were recruited externally. Eleven in-depth interviews with open questions were undertaken online from February to May 2022. The interviewees included globally recognised representatives from organisations with the knowledge necessary to understand the pandemic's potential impact on the workplace for a hybrid workforce. They were well-positioned to represent their companies' views, allowing us to draw relevant conclusions regarding the workplace ecosystem after the pandemic.

Respondents received an information sheet about the research project before requesting their consent. All data used in this study were collected according to the guidelines set by the Henley Business School Research Ethics Committee at the University of Reading. For health and safety reasons, the interviews were conducted virtually. At the time of data collection, remote interviews had increasingly become normalised and were generally perceived as equally effective as face-to-face interviews. Table 1 presents the background information of the eleven interviewees, including their positions and the nature of the organisations in which they were employed.

Table 1. Background of the interviewees

Interviewee	Position	Nature of the organisation
1	Vice president of research	workplace design
2	Excecutive managing directore and global lead	workplace management
3	Head of EMEA	workplace management
4	Senior environmental advisor	workplace design
5	Senior product manager	workplace evaluation
6	Chief insights & research officer	workplace evaluation
7	Workplace strategist	workplace management
8	Head building-environment	workplace design
9	Senior asssociate market solutions, Europe	workplace design
10	Integrated cities & planning leader, Europe	workplace design
11	Country director, UK & Ireland	workplace evaluation

Source: Authors

We asked our respondents eight open questions. By asking respondents to define a workplace environment, we explored their subjective meaning of the workplace, considering different physical and social qualities. By asking our interviewees to elaborate on the impact of the COVID-19 pandemic on the definition of workplace environment, we were able to better capture our interviewees' perception of how/if they perceive any changes to the workplace environment. We examined the contribution of a workplace environment on employee engagement to help better understand how our stakeholders see the relationship between employee engagement and the workplace environment. By encouraging our respondents to reflect on the role of an outdoor environment for better employee engagement at the workplace, we identified the qualities of urban space that make the workplace an 'engaging' space. The question regarding the perceived contribution of organisations/employees to achieving an 'engaging' workplace environment helped us to understand the role of occupiers in delivering an 'engaging' workplace environment better. The question regarding

the policies (on different levels) that may be required to achieve an 'engaging' workplace environment post-COVID-19 acquired evidence of public and private sector interests that could feasibly support the realisation of an 'engaging' workplace environment. By asking respondents to elaborate on any additional issues that they thought should have been discussed, we explored any possible 'missing' puzzles in the relationship between employee engagement and the workplace environment. The final suggestion to elaborate on employee engagement helped us capture the last thoughts of our stakeholders regarding this construct.

Interviews were recorded and fully transcribed in Microsoft Teams. Interviews were anonymised for all participants and their respective organisations, who contributed to this research. Data were subsequently analysed using the qualitative data research analysis tool, NVIVO 12 (Lumivero, LLC). The reflexive analysis was inductive, with the meanings of each respondent's statements and paragraphs synthesised into different codes. A quantitative analysis of excerpt counts was conducted to supplement this qualitative analysis to determine the total number of references for each node. This quantitative coding measured the frequency of mention rather than the respondents' position or interest in the code. To maintain confidentiality, respondents are identified numerically throughout this paper. With this approach, the data analysis was an iterative process rather than a linear one. Initially, the data were open-coded to identify common themes and then re-coded to rationalise the list of themes and identify connections. The first step involved selecting the most informative sections of the interview transcriptions that addressed our research questions or their components. The next step entailed creating a structural description of each interview's content and incorporating insights into industry perceptions. In the third step, we identified text passages that shared common arguments through thematic coding. This process allowed us to compare interviewees' responses, revealing similarities and differences. Arguments were then organised around similar themes that emerged from the interviews inductively. The most significant findings were presented within these categories, providing a comprehensive overview of the interview results. Our initial coding framework was driven by findings from interviews and aligned with our research questions. Three main categories emerged through this process: 1) Expansion of the post-COVID-19 'workplace' definition, 2) 'Engaging' post-pandemic workplace, and 3) Future workplace strategies.

4. Results and analysis

In this section, we present our results and analysis, including emergent themes in the empirical data that we have grouped into the following three categories: 1) The post-COVID-19 expansion of the 'workplace' definition, 2) 'Engaging' post-pandemic workplace, and 3) Future workplace strategies (see Figure 1).
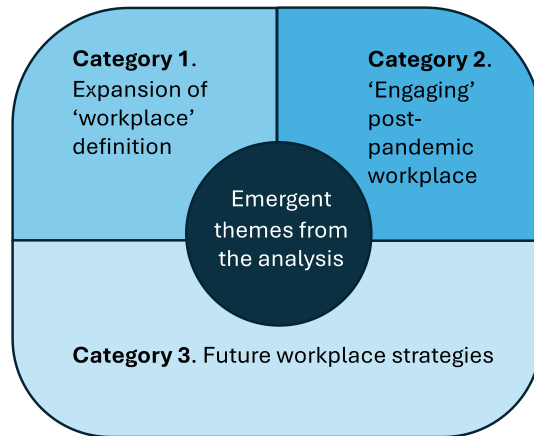
Figure 1. Emergent themes from the analysis

Source: Authors

• The post-COVID-19 expansion of the 'workplace' definition

Interviewees' responses regarding the expansion of the 'workplace' definition were synthesised according to the following timeline: pre-pandemic, at the very beginning of the pandemic (first 6 months), during the pandemic (2 years), and post-pandemic (now). Under each period, they described how the understanding of the workplace evolved. According to the interviewees, the pre-pandemic workplace was generally perceived as a central hub within the commercial corporate office context (as a primary workplace location) for knowledge workers (interviewees 5, 6). It was a place where employees travelled to, with occasional use of third spaces such as hotel rooms, cafes, airports, and trains, supported by mobile technologies (interviewee 1). Our interviewees emphasised that the pre-pandemic workplace was designed for employees in the form of an office (interviewee 10) to ensure the completion of work tasks (interviewee 1).

However, at the beginning of the pandemic (the first six months), office-based knowledge work transitioned to physically isolated work-from-home (WFH) arrangements, minimising employee access to shared co-working environments such as corporate offices and flex spaces. Consequently, the physical workplace environment was dramatically limited to the home, including kitchen tables and living room sofas, without ergonomic support from organisations (interviewee 9). Nevertheless, this new situation compelled organisations to enhance the functioning of the virtual workplace, subsequently enabling employees to work effectively from home (interviewee 9). As noted by our interviewees, working from home became productive mainly due to technological advances (interviewee 1), and the workplace environment evolved into something shaped by employees (interviewee 10). Hence, the pandemic positively shifted the perception that working from home can be as effective as office work (interviewee 11). Moreover, the widespread adoption of remote work accelerated due to the pandemic (interviewee 3), allowing knowledge workers to effectively 'work from anywhere' as the workplace environment expanded beyond its physical boundaries.

A generally positive experience of working from home sparked global discussions about the need for investment in office-related infrastructure, such as commercial workspace and workplace certifications (interviewee 1). The worldwide interest in remote work has coincided with increasing organisational resilience in achieving successful outcomes without being physically present in the office (interviewees 1, 2). Our interviewees observed that the first two years of the pandemic significantly accelerated pre-pandemic trends regarding the workplace, understood as an expanded platform where work occurs, including home, office, and third places (interviewees 1, 2, 3). In this

context, the home and the office emerged as primary work environments, while other locations, such as cafés and airport lounges, remained more transient (interviewee 10).

Furthermore, our interviewees noted that the post-pandemic workplace now consists of various layers (see Figure 2), including the physical and spatial (interviewees 5, 6, 8, 9, 10), virtual and digital (interviewees 2, 5, 6, 9, 10), cultural and societal (interviewees 5, 6, 9), and experiential (interviewee 2)—where such experiences of engagement are a product of other layers. All these layers are integrated across different distributed locations (interviewees 3, 5), creating blurred distinctions between physical workplaces such as home and office (interviewee 11). This understanding of the workplace is particularly relevant for white-collar workers (interviewee 11). Our interviewees concurred that the pandemic has expanded the definition of the workplace environment (interviewees 6, 7, 10) to an ecosystem of spaces that includes physical, cultural, and team environments (interviewee 7). Consequently, the pandemic has influenced how we work as a society in a flexible workplace (interviewee 4), facilitating greater productivity and collaboration (interviewee 11). The workplace environment now encompasses any location where work is performed (interviewees 1, 3, 6), supported by mobile technologies (interviewee 1).
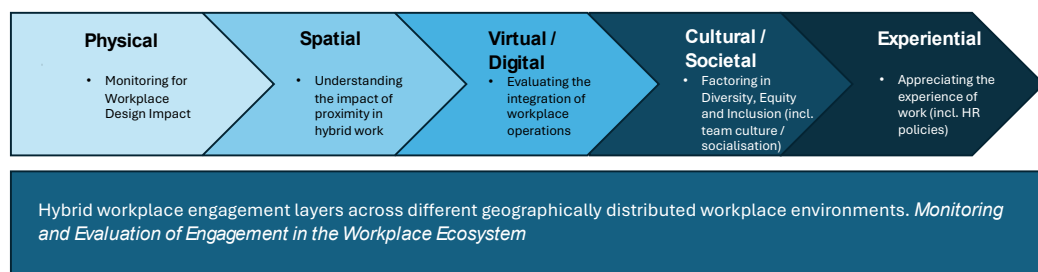

Figure 2. Engagement Layers

Source: Authors

We argue that the workplace ecosystem post-pandemic needs to be considered across multiple locations, including both virtual and physical spaces, encompassing both social and material factors. Hence, analysing this theme helps us better understand how the concept of the workplace has evolved in the aftermath of COVID-19 (RQ1), shedding light on a possible trajectory for future workplace strategies (RQ2).

• 'Engaging' post-pandemic workplace

Interviewees' responses regarding an 'engaging' post-pandemic workplace were synthesised according to the following themes: social relationships, a quality office environment, and a home workplace. According to our interviewees, employee engagement post-pandemic is viewed in the context of 'affiliation'—a shared experience that fosters lasting connections, driven by workplace platforms designed to develop relationships and employee engagement (interviewee 2). Therefore, organisations can incentivise employee engagement by organising activities for employees, such as free lunches (interviewee 5). Our interviewees noted that employee engagement, defined as communication and networking, is more critical in a workplace ecosystem due to the increased physical separation between employees (interviewee 4). Hence, the office's role has grown significantly due to hybrid working, connecting people and places, and among peers, which is vital for employee engagement (interviewee 3). Considering this, an office workplace is a tool for employee engagement and well-being, promotes interaction and knowledge sharing more effectively, and helps facilitate in-person collaboration (interviewee 8). However, individual experiences will vary, as suggested above in Figure 2.

An 'engaging' workplace post-pandemic refers to creating affiliation through employees' experiences (both physical and digital) to foster connection and enhance effective and efficient work, supported by technology (interviewee 2). Generally, a quality office boosts engagement (interviewees 4, 6) and productivity (interviewee 4), reflecting the observed correlation between workplace experience and engagement (interviewee 3). In this context, an 'engaging' workplace enhances the overall workplace experience (interviewee 6) and motivates employees to work both in the office and at home (interviewees 1, 11). Specifically, our interviewees identified a positive impact of an open-plan office on an 'engaging' workplace. They explained that a diverse workplace environment (e.g., areas for focused work and collaborative work) aligns better with various tasks (interviewee 8), allowing for increased employee engagement (interviewee 10). Moreover, working in different office areas boosts employee engagement through greater networking and collaboration opportunities (interviewee 4).

Additionally, a quality office environment, encompassing factors such as ergonomics, lighting, and acoustics, positively impacts employees' sense of care, trust, and pride, ultimately leading to enhanced employee engagement (interviewee 1). An office workspace should be designed to promote human health and well-being holistically by providing recovery spaces (interviewee 1) and healthy food options (interviewee 7). Furthermore, our interviewees observed that outdoor environments are extensions of indoor workplaces (interviewees 6, 9, 11) and can enhance employee engagement. For instance, easy access to outdoor spaces during work breaks positively influences employee engagement through the restorative effects of nature (interviewees 4, 7, 9), which in turn impacts productivity (interviewee 4), focus (interviewee 9), well-being (interviewee 3), and employee interactions (interviewee 11). However, several key elements must support an 'engaging' workplace environment, including physical quality, effective managerial/HR practices, and technological advancements (interviewee 7).

Furthermore, our interviewees underscored the crucial role of the home workplace in enhancing employee engagement following the pandemic. For instance, WFH arrangements were associated with improved work-life balance, enabling employees to manage their daily responsibilities more effectively (e.g., collecting children from school during work breaks, performing household chores, or engaging in brief walks) and eliminating the burden of lengthy daily commutes (interviewee 1). Thus, a reduced commute is identified as one of the primary benefits of WFH compared to traditional office-based work (interviewee 1). However, while remote work supports structured professional interactions, such as video conferencing, it detrimentally affects informal social engagements among colleagues, including opportunities for socialising, exchanging ideas, and fostering spontaneous connections (interviewee 2), thereby compromising overall teamwork (interviewee 3). In our study, this theme helps us to better understand the relevance of the quality workplace ecosystem (including home, office, and third places) in successfully transitioning to an 'engaging' workplace post-pandemic via a better alignment between the social and environmental factors conducive to employee engagement (RQ1).

- Future workplace strategies

Interviewees' responses about future workplace practices were synthesised into the following themes: flexible work patterns, the evolving role of a corporate office, digital experience, home workplaces, and mixed-use developments.

Our interviewees emphasised that future workplaces should adopt overall employee autonomy and flexible work patterns tailored to the specific needs of both employees and organisations, such as the number of days spent in the office and at home (interviewees 1, 3, 4, 7, 8, 9, 10). However, this

must be rooted in individual employee productivity rather than a top-down organisational approach (interviewees 2, 10), meaning it depends on the type of organisation, as there is no one-size-fits-all solution (interviewees 6, 11). It was noted that flexible working arrangements encourage employees to be in the office based on their individual needs (interviewee 5). Therefore, flexibility should encompass workplace location and working hours (interviewees 4, 8), as individuals tend to be more engaged when their daily lives do not interfere with work (interviewee 4).

Our interviewees projected a new role for the corporate office in the future, as there will be considerable experimentation with the future workplace, understood more broadly as a 'work platform' that meets employee expectations (interviewee 2). Therefore, discussing workplace expectations with employees is increasingly important, as the office environment should be organised according to their needs (e.g., allowing for focused work, collaborative work, etc.) (interviewee 1). An office environment holds value for organisational innovation and productivity, but it must 'magnetise' employees to encourage them to come in; thus, it must be a dynamic, vibrant, and exciting place to be (interviewee 2). Additionally, the office enhances innovation due to greater interaction among employees (interviewee 5) and is critical in centralising employees (interviewee 5). Nevertheless, employees need a reason to be in the office (interviewee 5). Considering the above, a corporate office should be viewed as an attractive work destination (e.g., investing in events/amenities) and measured by foot traffic rather than square feet per employee (interviewee 2).

Moreover, our interviewees found that the digital experience is an integral component of the future workplace: connecting the digital experience with the physical environment (interviewee 5), enabling hybrid meetings through digital setups (interviewee 8), and enhancing productivity (interviewee 10). Additionally, there is a stronger emphasis on the home workplace as an extension of the primary office, akin to a 'baby organisation' (interviewee 5). For instance, in the future, organisations may be more inclined to subsidise costs associated with working from home (e.g., internet, heating, chairs, etc.) and utilise co-shared spaces (e.g., memberships) more widely (interviewee 9). Considering these insights, one of the interviewees suggested that mixed-use developments tailored to the locations of satellite offices will enhance employee engagement in the future workplace (interviewee 5).

The above results demonstrate that the future workplace strategies are predominantly focused on the office workplace development. Although some considerations exist regarding the growing importance of the home workplace, our results from the last two themes show that there is some alignment between industry leaders' perception of an 'engaging' workplace ecosystem and how this can be factored into the development of future workplace strategies (RQ1 and RQ2).

5. Discussion

The COVID-19 pandemic will have a long-term impact on how the physical workplace environment is defined and understood, especially in the context of knowledge-based organisations and their employees. Hence, we argue that the workplace ecosystem will also impact our understanding of employee engagement (Saks & Gruman, 2014; Schaufeli & Salanova, 2007), as previously demonstrated by limited studies on the effect of hybrid work practices on employee engagement (Appel-Meulenbroek et al., 2020). Given that a home workplace pre-pandemic has been rarely considered a 'workplace environment', the COVID-19 pandemic has dramatically shifted it to a new role – integral to the corporate office. Consequently, the 'knowledge-based workplace' post-pandemic has expanded into a hybrid scenario (Naor et al., 2021; Teevan et al., 2021; Williamson & Colley, 2022). The dominance of these two primary workplace locations (home/office) subsequently escalates the

role of 'transient workplaces', including third places (e.g., cafes, libraries, etc.) and other co-working spaces (e.g., flex offices), which have been only occasionally chosen for work before the pandemic. Moreover, the analysis suggests that workplace industry leaders are aware of a changing world of work in a distributed ecosystem (i.e., home, office, and third place) and the necessity of redesigning future workplace strategies in this context, which reflects the latest academic findings (Fiorentino et al., 2022).

Although there is a growing interest in a workplace ecosystem among industry leaders, this work still falls short of what our earlier study suggests (Surma et al., 2021). However, our results highlight that, to some extent, the workplace industry's visions of an 'engaging' post-pandemic workplace reflect previous findings indicating a positive relationship between the physical workplace environment and employee engagement, as well as the value of hybrid work in that context. For example, the workplace leaders highlight the new role of the office environment post-pandemic, focused on facilitating human interaction at work. The importance of social relationships at work was also highlighted in numerous pre-pandemic studies (Kumar & Sia, 2012; Osborne & Hammoud, 2017; Rana et al., 2014). We argue that an 'engaging' workplace environment can be understood as a platform facilitating interactions between employees – 'engaging with others'. Our interviewees go further to point out the relevance of both virtual and physical connectivity. That is, while the physical (office) workplace remains a core space for enabling human interaction, there is a growing interest in merging both virtual and physical realities for better employee engagement. Hence, the broader adoption of the virtual workplace aims to facilitate employee engagement 'anywhere' by offering smooth communication between employees, whether face-to-face or remotely. It can be observed that future workplace strategies are dominated by ensuring a high-quality corporate office environment (i.e., physical quality), extended by a virtual environment for better connectivity among employees and their organisations. Therefore, a blended virtual and physical workplace environment is often a common workplace strategy in the digital era of knowledge work. This is an indisputable fact considering the organisational willingness to adopt hybrid work arrangements.

Our results suggest that a workplace ecosystem may be more conducive to employee engagement in this regard, as it offers greater flexibility in terms of work and space, thereby aligning better with an employee's professional and personal life. We argue that vigour, dedication, and absorption with work increase when individual preferences are met. This finding is in line with previous studies in the fields of environmental psychology and real estate, emphasising the relevance of comfort (i.e., environmental satisfaction) in the workplace for organisational outcomes (Appel-Meulenbroek et al., 2016; Brinkley et al., 2010; Brunia et al., 2016; Chadburn et al., 2017; Haynes, 2007; Kegel, 2017; Vischer, 2008; Wyon, 2004). Our results suggest that blended physical and virtual environments can effectively support a workplace ecosystem post-pandemic, allowing employees to perform work from a variety of places across the whole 'total workplace ecosystem'.

Considering the above, there is a need for further reflection on the level of employee autonomy and freedom regarding hybrid work. Although the findings of this study underscore the need for wider adoption of hybrid policies by knowledge-based organisations, the extent to which hybrid work should be imposed or chosen by employees should be discussed internally within organisations. On the one hand, selecting the days on which people come to the office would limit employee autonomy. On the other hand, top-down decisions help better coordinate work that requires in-person collaboration (e.g., employee collaboration on a joint project). However, our research suggests that striking a balance between organisational and managerial needs and employee preferences would be most beneficial for both parties, ensuring an improved level of employee engagement within organisations.

Nonetheless, a question remains for further research on how to achieve this most effectively. For example, employees living further distances from the core office would be more willing to spend more time at their home workplaces. Therefore, having access to satellite offices or membership in co-working spaces would help to achieve better employee engagement among those working relatively far from the central business districts. Hence, organisations should consider such issues when planning their long-term workplace strategies, office leasing preferences, office real estate locations, and fit-out costs, among others.

We argue that the importance of office environmental quality will remain stable as it will play the role of 'centralising' employees in a broader ecosystem of workplaces. This finding aligns with other studies that emphasise the importance of 'face-to-face' contact in the office post-pandemic (Marzban et al., 2021). However, to effectively increase 'foot traffic' in the office, it is necessary to rethink an office workplace's function in a workplace ecosystem (Gillen et al., 2021; Orel, 2022; Vinopal, 2022) and develop a new set of performance measures (Puybaraud et al., 2022) across the whole workplace ecosystem. Although a corporate office has lost the 'privilege' of being the only 'work hub' for knowledge workers, our results suggest that its dominating role in centralising employees will remain stable post-pandemic. However, an 'engaging' workplace needs to be embedded in relevant 'flex' policy, allowing employees to work both from home and in the office according to individual preferences and conduct work tasks to maximise the effectiveness of an 'engaging' workplace ecosystem. In contrast to previous studies (Candido et al., 2021; Kroemer & Kroemer, 2016), we argue that analysis of employee interaction with the physical workplace should not be limited to behaviours within an office environment.

Little is known about the specific evaluations of the home workplace and the broader urban ecosystem, despite a common acceptance of a workplace ecosystem in future strategies Considering the relevance of both environmental and human factors for employee engagement in hybrid work practices, there is a greater need to fully embrace this complexity through an accurate evaluation methodology (i.e., assessment criteria) that addresses the whole workplace ecosystem, which can be reflected in such future workplace strategies. Hence, our results suggest that the workplace environmental quality post-pandemic should be considered more broadly (e.g., physical/virtual, indoor/outdoor, and home/office/third/places), and go beyond indoor environmental quality assessments (Clements-Croome, 2004; Jamrozik et al., 2019; Kwallek et al., 2007). We argue that an 'engaging' workplace post-pandemic needs more consolidation between the physical infrastructure, i.e., high-quality urban environment (e.g., access to city amenities, green space, sustainable transportation, and quality residential districts), digital infrastructure (e.g., virtual workplace), and organisational management (e.g., flex policy).

Considering the above, our results emphasise that the evaluation of a workplace ecosystem needs better alignment between organisational and workplace industry metrics at the level of a city or functional urban region to ensure a successful transition to an 'engaging' workplace ecosystem post-pandemic. The results also suggest that the new work dynamic will need greater consolidation of the physical spaces where work occurs (i.e., home, office, and third spaces) with the virtual workplace. However, a 'total workplace ecosystem' will need to be underpinned by high-quality IT infrastructure to increase the availability of 'work from anywhere'. Wider implementation of such a 'total workplace ecosystem' across the whole city area will help to expand high-quality commercial real estate properties (e.g., office and flex space) within different city locations (e.g., core hub, satellite hub, and 'transition' workspaces) and help to attract employees back to the office(s) (Appel-Meulenbroek et al., 2022). Given the considerable role of the housing environment and the growing popularity of WFH, a

home workplace will demand greater consideration among organisations (e.g., home workplace set-up) and the workplace industry (e.g., home workplace standards/metrics).

Finally, there is an increased need to reconsider how to effectively implement a wide range of workplace ecosystem metrics at the city or functional urban region level. This is a complex task, given the numerous stakeholders involved, including city authorities, the real estate sector, and knowledge-intensive organisations. Therefore, we suggest that existing workplace certification bodies (e.g., IWBI and BREEAM) might consider broadening their schemes by analysing cities more holistically through the lens of environmental, social, and corporate governance. Consequently, property evaluation within a workplace ecosystem should be integrated into a broader city framework. For example, it may be necessary to develop different city typologies that promote vigour, dedication, and absorption in work, aligned with various human dynamics within a workplace ecosystem (e.g., home, primary office, co-working space). However, this is a long-term endeavour requiring further transdisciplinary research using diverse methods (e.g., big spatiotemporal data analytics, charrettes, behavioural studies) and closer collaboration among relevant parties. Nonetheless, understanding the characteristics of more developed cities in the context of hybrid work could improve the evaluation of how existing and future real estate investments and supporting infrastructure align with the concept of an 'engaging' workplace within a broader city context. Considering the post-pandemic workplace ecosystem within the wider city environment would facilitate a comprehensive comparison of different indicators, based on various trends and patterns that influence employee engagement. This represents an emerging gap in academic and industry research that should be addressed in future studies. We believe that adopting this more comprehensive approach to workplace ecosystem evaluation can lead to better-informed decisions about where knowledge-intensive businesses can thrive without compromising employee engagement.

6. Limitations

Although the sample size was relatively small, the in-depth interviews allowed us to collect responses rigorously while giving our interviewees ample 'space' to express their thoughts. This approach offered a greater opportunity for discovery, enabling us to follow topical trajectories as the conversations unfolded. However, our ability to generalise fully from our findings is limited because little remains known about the specific evaluations of the home workplace (i.e., assessment criteria) despite our confirmation of a general acceptance of hybrid work practices in future organisational strategies. Considering the relevance of environmental and human factors for employee engagement in a hybrid setting, future research must fully embrace this complexity by addressing the entire workplace ecosystem.

Another limitation of our research is the potential influence of the selection criteria used for interviewees. Although we considered the workplace industry to be the most relevant group of respondents to discuss trajectories for the future workplace, we are also aware that other stakeholders, including urban planners and knowledge-intensive organisations, may not fully support their views. A multi-stakeholder perspective would therefore help future studies in getting a more nuanced understanding of the potential barriers and enablers of creating an 'engaged' workplace ecosystem post-pandemic. Additionally, our chosen stakeholders, who operate across well-developed real estate markets that attract global clients, allow us to observe different hybrid work practices. However, our focus on these international experts, working in various geographical locations, may be considered a limitation, as the findings may not apply to all countries.

Further research on post-pandemic workplace environmental quality must be considered more broadly (e.g., physical/virtual, indoor/outdoor, and home/office/third places) and extend beyond indoor environmental quality assessments (Surma et al., 2021). This will require consolidating hybrid workplace engagement layers across geographically distributed workplaces (see Figure 2) and its implications for the generation or redesign of monitoring and evaluation metrics. Considering the above, our findings point to a generalised need for greater collaboration between organisations, the real estate industry sector, and city planning to embrace the entire spectrum of potential post-COVID-19 workplace ecosystems fully. Moreover, due to the significant acceleration of remote work patterns since 2020, there is a growing need for examining the virtual workplace as well as the role of remote work (Vendramin et al., 2021) and the associated information space(s) (Will-Zocholl, 2021) as an integral component of a workplace ecosystem, as well as the use of portable electronic devices (Jiang et al., 2019). Considering the projected shift toward hybrid work patterns with the dominance of remote work, virtual relationships may dramatically change the way we conceive of employee engagement, its metrics, and the role of the physical workplace environment.

7. Conclusion

The paper provides valuable insights into the global outcomes of the COVID-19 pandemic. It contributes novel perspectives to discussions about the aftermath of COVID-19 on employee engagement and its implications for the future planning of real estate development and/or its management. The findings expand on existing academic literature and offer new understandings beyond the conventional understandings of a workplace environment. Previous research examining these effects of COVID-19 through empirical evidence has not adequately addressed employee engagement, making it challenging to identify key trends and trajectories. Therefore, our study contributes to the limited environmental psychology literature on the impact of the physical work environment on employee engagement (Kegel, 2017; Appel-Meulenbroek et al., 2018; Smith, 2011).

RQ1. Is there an alignment between the idea of an 'engaging' workplace ecosystem and anticipated future workplace strategies?

Our findings indicate that a broader adoption of hybrid work in future strategies may enhance employee engagement in knowledge-intensive organisations post-pandemic. However, this task is not straightforward due to the complexity of the process, the range of stakeholders involved, and the limited research on hybrid work practices. Despite notable shortcomings, current efforts in academia and industry regarding future workplaces are shifting toward a more flexible, digital, and geographically dispersed ecosystem. The quality of this extended workplace environment will, in turn, affect employee engagement levels across the entire ecosystem. Furthermore, the increasing importance of home offices should inspire the global workplace industry to broaden its perspective on current standards and metrics beyond the recent wave of hybrid work assessment frameworks. For instance, residential, district, and city developments should support office quality certification (Surma et al., 2021). This collaborative approach will contribute holistically to a more sustainable form of employee engagement, with growing recognition of employees' subjective well-being that fosters 'full engagement'—a more expansive view that transcends a commitment-based perspective towards a more human-centred and holistic sense of thriving and well-being (Robertson & Cooper, 2010).

RQ2. What are the options for the development of an 'engaging' workplace ecosystem post-pandemic?

We argue that the importance of office environmental quality will stay consistent as it focuses on bringing employees together within a larger network of workplaces. This aligns with other studies

showing how face-to-face interaction remains a key benefit of the office in a post-pandemic world. To effectively boost foot traffic in the office, it is crucial to rethink its role within the workplace ecosystem and develop metrics for monitoring and assessing engagement that cover the entire ecosystem. While our findings indicate that the physical office's role in centralising employees will continue after the pandemic, they also show that analysing employee interaction with the physical workspace as part of an 'engaging' workplace ecosystem must include behaviours beyond just the office itself. Our study highlights that different work environments within a wider city context (such as residential districts) should be considered in future workplace reviews and related standards and metrics. Our results suggest a greater need for more comprehensive workplace standards and metrics. Therefore, the workplace sector should broaden its scope by examining the physical workspace more comprehensively, including a greater focus on evaluating the residential sector. However, current standards and metrics mainly concentrate on corporate real estate features. The research indicates that indoor environmental quality should also include access to city amenities beyond the office site, as well as the quality of employee engagement supported by virtual environments. Hybrid work requires greater attention to space in both physical and virtual dimensions. Workplace assessment should show how all elements of a post-COVID-19 workplace ecosystem work together to promote better employee engagement (Deloitte, 2021; see also Figure 2). Thus, focusing only on corporate office real estate will limit organisational understanding of employee engagement within a broader workplace ecosystem.

8. References

Albrecht, S. L. (2010). Employee engagement: 10 key questions for research and practice. In S. L. Albrecht (Ed.), *Handbook of employee engagement: Perspectives, issues, research and practice.* (1st ed., pp. 3-19). Northampton, MA, US: Edward Elgar Publishing.

Appel-Meulenbroek, H. R., Aussems, R., Le Blanc, P. M., & Arentze, T. A. (2020). *The association between office use and the burnout-engagement continuum in activity-based offices.* Paper presented at the 2nd Transdisciplinary Workplace Research conference.

Appel-Meulenbroek, R., Braunschweig, M., & Pfnür, A. (2016). *Benefits of physical office environments for employee outcomes: An interdisciplinary state-of-the-art from a corporate real estate management point of view*. Paper presented at the 23rd Annual European Real Estate Society Conference, Regensburg, Germany.

Appel-Meulenbroek, R., Clippard, M., & Pfnür, A. (2018). The effectiveness of physical office environments for employee outcomes: An interdisciplinary perspective of research efforts. *Journal of Corporate Real Estate, 20*, 56-80. doi:10.1108/JCRE-04-2017-0012

Appel-Meulenbroek, R., Kemperman, A., van de Water, A., Weijs-Perrée, M., & Verhaegh, J. (2022). How to attract employees back to the office? A stated choice study on hybrid working preferences. *Journal of environmental psychology, 81*, 101784.

Attridge, M. (2009). Measuring and managing employee work engagement: A review of the research and business literature. *Journal of Workplace Behavioral Health, 24*(4), 383-398. doi:10.1080/15555240903188398

Augustin, S. (2020, 16-19 September). *Designing to Beat Burnout and Encourage Engagement.* Paper presented at the FUTURE WORKSPACES, Frankfurt am Main, Germany.

Awada, M., Lucas, G., Becerik-Gerber, B., & Roll, S. (2021). Working from home during the COVID-19 pandemic: Impact on office worker productivity and work experience. *Work*(Preprint), 1-19.

Bailey, C., Madden, A., Alfes, K., & Fletcher, L. (2017). The meaning, antecedents and outcomes of employee engagement: A narrative synthesis. *International Journal of Management Reviews, 19*(1), 31-53. doi:10.1111/ijmr.12077

Balemi, N., Füss, R., & Weigand, A. (2021). COVID-19's impact on real estate markets: review and outlook. *Financial Markets and Portfolio Management, 35*(4), 495-513. doi:10.1007/s11408-021-00384-6

Barrero, J. M., Bloom, N., & Davis, S. J. (2021). *Why working from home will stick*. Retrieved from

Barthorpe, S. (2010). Implementing corporate social responsibility in the UK construction industry. *Property Management, 28*(1), 4-17. doi:10.1108/02637471011017145

Batty, M. (2020). The Coronavirus crisis: What will the post-pandemic city look like? In (Vol. 47, pp. 547-552): SAGE Publications Sage UK: London, England.

Batty, M. (2022). The post-pandemic city: speculation through simulation. *Cities, 124*, 103594. doi:https://doi.org/10.1016/j.cities.2022.103594

Boland, B., De Smet, A., Palter, R., & Sanghvi, A. (2020). Reimagining the office and work life after COVID-19.

Brinkley, I., Fauth, R., Mahdon, M., & Theodoropoulou, S. (2010). Is knowledge work better for us? Knowledge workers, good work and wellbeing. *A Knowledge Economy Programme Report.* Retrieved from https://www.researchgate.net/profile/Sotiria_Theodoropoulou2/publication/274324989_Is_Knowledge_Work_Better_for_Us_Knowledge_Workers_Good_Work_and_Well-Being/links/551bbc4a0cf2fdce8438a88d/Is-Knowledge-Work-Better-for-Us-Knowledge-Workers-Good-Work-and-Well-Being.pdf

Brunia, S., De Been, I., & van der Voordt, T. J. (2016). Accommodating new ways of working: lessons from best practices and worst cases. *Journal of Corporate Real Estate*.

Candido, C., Gocer, O., Marzban, S., Gocer, K., Thomas, L., Zhang, F., . . . Tjondronegoro, D. (2021). Occupants' satisfaction and perceived productivity in open-plan offices designed to support activity-based working: findings from different industry sectors. *Journal of Corporate Real Estate*.

Carson, S., Nanda, A., Thanos, S., Valtonen, E., & Xu, Y. (2021). Imagining a post-COVID-19 world of real estate. *Town Planning Review, 92*(3), 371-376. doi:doi:10.3828/tpr.2020.63

CBRE. (2022). Office conversions: A second chance for underutilized space. Retrieved from https://www.cbre.com/insights/viewpoints/office-conversions-a-second-chance-for-underutilized-space

CBRE. (2023). Slow start to the year but under offers rise. Retrieved from https://mktgdocs.cbre.com/2299/7c62053d-b5c3-4495-877a-6101a65b5ed2-405334172.pdf

Chacon Vega, R. J., Gale, S. P., Kim, Y., Hong, S., & Yang, E. (2020). Does an open-plan office actually work? A workplace gap analysis: importance and perceived support of key activities. *Journal of Corporate Real Estate, 22*(4), 261-277. doi:10.1108/JCRE-03-2020-0014

Chadburn, A., Smith, J., & Milan, J. (2017). Productivity drivers of knowledge workers in the central London office environment. *Journal of Corporate Real Estate, 19*, 66-79. doi:10.1108/JCRE-12-2015-0047

Clements-Croome, D. (2004). *Intelligent buildings: design, management and operation* (1st ed.). London, UK: Thomas Telford.

Colley, L., & Williamson, S. (2020). With management resistance overcome, working from home may be here to stay. *The Conversation, 24*, 08-20.

Cuerdo-Vilches, T., Navas-Martín, M. Á., March, S., & Oteiza, I. (2021). Adequacy of telework spaces in homes during the lockdown in Madrid, according to socioeconomic factors and home features. *Sustainable Cities and Society, 75*, 103262.

Cunningham, C., & Orlando, A. W. (2022). Will office conversions meet housing demand? Retrieved from https://www.atlantafed.org/blogs/macroblog/2022/10/11/will-office-conversions-meet-housing-demand

Cushman & Wakefield. (2020). The Future of Workplace: How will COVID-19 and data shape the new workplace ecosystem? Retrieved from https://www.cushmanwakefield.com/en/insights/covid-19/the-future-of-workplace

Davis, K. G., Kotowski, S. E., Daniel, D., Gerding, T., Naylor, J., & Syck, M. (2020). The Home Office: Ergonomic Lessons From the "New Normal". *Ergonomics in Design, 28*(4), 4-10. doi:10.1177/1064804620937907

Deloitte. (2021). Designing adaptive workplaces: How the public sector can capitalize on lessons learned from COVID-19. Retrieved from https://www2.deloitte.com/xe/en/insights/industry/public-sector/designing-for-adaptive-work-in-the-public-sector.html

Dixon, T., Ennis-Reynolds, G., Roberts, C., & Sims, S. (2009). Is there a demand for sustainable offices? An analysis of UK business occupier moves (2006–2008). *Journal of Property Research, 26*(1), 61-85. doi:10.1080/09599910903290052

Drever, E. (1995). *Using Semi-Structured Interviews in Small-Scale Research. A Teacher's Guide*. United Kingdom: Edinburgh: Scottish Council for Research in Education.

Falkenbach, H., Lindholm, A.-L., & Schleich, H. (2010). Review Articles: Environmental Sustainability: Drivers for the Real Estate Investor. *Journal of Real Estate Literature, 18*(2), 201-223. doi:10.1080/10835547.2010.12090273

Feige, A., Wallbaum, H., Janser, M., & Windlinger, L. (2013). Impact of sustainable office buildings on occupant's comfort and productivity. *Journal of Corporate Real Estate, 15*, 7-34. doi:10.1108/JCRE-01-2013-0004

Fiorentino, S., Livingstone, N., McAllister, P., & Cooke, H. (2022). The future of the corporate office? Emerging trends in the post-Covid city. *Cambridge Journal of Regions, Economy and Society*.

Florida, R., Rodríguez-Pose, A., & Storper, M. (2021). Cities in a post-COVID world. *Urban Studies*, 00420980211018072.

Fuerst, F., & McAllister, P. (2011). Green Noise or Green Value? Measuring the Effects of Environmental Certification on Office Values. *Real Estate Economics, 39*(1), 45-69. doi:https://doi.org/10.1111/j.1540-6229.2010.00286.x

Future Forum Pulse. (2022). Leveling the playing field in the hybrid workplace. Retrieved from https://futureforum.com/pulse-survey/

Galletta, A. (2013). *Mastering the semi-structured interview and beyond: From research design to analysis and publication* (Vol. 18): NYU Press.

Gillen, N., Nissen, P., Park, J., Scott, A., Singha, S., Taylor, H., . . . Featherstone, S. (2021). *RETHINK Design Guide: Architecture for a post-pandemic world* (1st ed.). London, UK: RIBA Publishing.

Gupta, A., Mittal, V., & Van Nieuwerburgh, S. (2022). *Work from home and the office real estate apocalypse*. Retrieved from

Harter, J. K., Schmidt, F. L., & Hayes, T. L. (2002). Business-unit-level relationship between employee satisfaction, employee engagement, and business outcomes: a meta-analysis. *Journal of Applied Psychology, 87*(2), 268-279. doi:10.1037/0021-9010.87.2.268

Haynes, B. P. (2007). An evaluation of office productivity measurement. *Journal of Corporate Real Estate, 9*(3), 144-155. doi:10.1108/14630010710845730

Hickman, A., & Robison, J. (2020). Is working remotely effective? Gallup research says yes. *Gallup, January.* Retrieved from http://metadataetc.org/gigontology/pdf/Is%20Working%20Remotely%20Effective%20Gallup%20Research%20Says%20Yes.pdf

Hou, H. C., Remøy, H., Jylhä, T., & Putte, H. V. (2021). A study on office workplace modification during the COVID-19 pandemic in The Netherlands. *Journal of Corporate Real Estate, 23*(3), 186-202.

Ipsen, C., van Veldhoven, M., Kirchner, K., & Hansen, J. P. (2021). Six key advantages and disadvantages of working from home in Europe during COVID-19. *International journal of environmental research and public health, 18*(4), 1826.

IPUT & ARUP. (2020, November 2020). Global research report: Making place.The recalibration of work, life and place. Retrieved from https://www.arup.com/perspectives/publications/research/section/making-place-the-recalibration-of-work-life-and-place

Jailani, J., Reed, R., & James, K. (2015). Examining the perception of tenants in sustainable office buildings. *Property Management, 33*(4), 386-404. doi:10.1108/PM-05-2014-0022

Jamrozik, A., Clements, N., Hasan, S. S., Zhao, J., Zhang, R., Campanella, C., . . . Wang, S. (2019). Access to daylight and view in an office improves cognitive performance and satisfaction and reduces eyestrain: A controlled crossover study. *Building and Environment, 165*, 106379.

JLL. (2022). Central London office market report. Retrieved from https://storymaps.arcgis.com/stories/d19b1cb1f4294b1f9379a4a2f805d567

JLL. (2023a). Top 10 CRE Trends 2023. Retrieved from https://www.us.jll.com/en/trends-and-insights/research/top-10-global-cre-trends#download

JLL. (2023b). What companies are missing about hybrid work. Retrieved from https://www.us.jll.com/en/trends-and-insights/workplace/what-companies-are-missing-about-hybrid-work

Kato, H., Too, L., & Rask, A. (2009). Occupier perceptions of green workplace environment: the Australian experience. *Journal of Corporate Real Estate, 11*(3), 183-195. doi:10.1108/14630010910985931

Kegel, P. (2017). The impact of the physical work environment on organizational outcomes: A structured review of the literature. *Journal of Facility Management Education and Research, 1*(1), 19-29. doi:10.22361/jfmer/76637

Klotz, A. C. (2020). Creating Jobs and Workspaces That Energize People. *MIT Sloan Management Review, 61*(4), 74-78.

Kotera, Y., & Correa Vione, K. (2020). Psychological Impacts of the New Ways of Working (NWW): A Systematic Review. *Int J Environ Res Public Health, 17*(14). doi:10.3390/ijerph17145080

Kroemer, A. D., & Kroemer, K. H. (2016). *Office ergonomics: Ease and efficiency at work*: CRC Press.

Kumar, R., & Sia, S. K. (2012). Employee engagement: Explicating the contribution of work environment. *Management and Labour Studies, 37*(1), 31-43. doi:10.1177/0258042X1103700104

Kwallek, N., Soon, K., & Lewis, C. M. (2007). Work week productivity, visual complexity, and individual environmental sensitivity in three offices of different color interiors. *Color Research & Application, 32*(2), 130-143. doi:10.1002/col.20298

Langston, C., & Al-khawaja, A. (2018). Workplace ecology. In *Routledge Handbook of Sustainable Real Estate* (pp. 277-295): Routledge.

Legard, R., Keegan, J., & Ward, K. (2003). In-depth interviews. *Qualitative research practice: A guide for social science students and researchers, 6*(1), 138-169.

Levy, D., & Peterson, G. (2013). The effect of sustainability on commercial occupiers' building choice. *Journal of Property Investment & Finance, 31*(3), 267-284. doi:10.1108/14635781311322238

Livingstone, N., & Ferm, J. (2017). Occupier responses to sustainable real estate: what's next? *Journal of Corporate Real Estate, 19*(1), 5-16. doi:10.1108/JCRE-03-2016-0016

Mansley, N. (2022). The Size and Structure of the UK

Property Market: End-2020. Retrieved from https://www.ipf.org.uk/resourceLibrary/the-size---structure-of-the-uk-property-market-year-end-2020--january-2022--report.html

Marzban, S., Durakovic, I., Candido, C., & Mackey, M. (2021). Learning to work from home: experience of Australian workers and organizational representatives during the first Covid-19 lockdowns. *Journal of Corporate Real Estate*.

Maslach, C., & Leiter, M. P. (2008). Early predictors of job burnout and engagement. *Journal of Applied Psychology, 93*(3), 498.

Naor, M., Pinto, G. D., Hakakian, A. I., & Jacobs, A. (2021). The impact of COVID-19 on office space utilization and real-estate: a case study about teleworking in Israel as new normal. *Journal of Facilities Management*.

Onwuegbuzie, A. J., & Collins, K. M. T. (2007). A typology of mixed methods sampling designs in social science research. *Qualitative report, 12*(2), 281-316.

Orel, M. (2022). Guest editorial: The pandemic-driven metamorphosis of a modern workplace. *Journal of Corporate Real Estate, 24*(2), 73-75. doi:10.1108/JCRE-03-2022-074

Osborne, S., & Hammoud, M. S. (2017). Effective employee engagement in the workplace. *International Journal of Applied Management and Technology, 16*(1), 50-57. doi:10.5590/IJAMT.2017.16.1.04

Oseland, N. (2009). The impact of psychological needs on office design. *Journal of Corporate Real Estate*.

Pataki-Bittó, F. (2021). Work environment transformation in the post COVID-19 based on work values of the future workforce. *Journal of Corporate Real Estate, 23*(3), 151-169.

Puybaraud, M., Walia, R., & Hawkeswood, A. (2022). Metrics that Matter: The next generation of performance measurement. Retrieved from https://www.jll.pl/en/trends-and-insights/research/future-of-work-metrics-that-matter

Rana, S., Ardichvili, A., & Tkachenko, O. (2014). A theoretical model of the antecedents and outcomes of employee engagement. *Journal of Workplace Learning, 26*, 249-266. doi:10.1108/JWL-09-2013-0063

Robertson, I. T., & Cooper, C. L. (2010). Full engagement: the integration of employee engagement and psychological well-being. *Leadership & Organization Development Journal, 31*, 324-336. doi: 10.1108/01437731011043348

Robinson, S. J., & Simons, R. A. (2018). Creating a green index based on tenant demand for sustainable office buildings and features. In *Routledge Handbook of Sustainable Real Estate* (pp. 296-315): Routledge.

Rolheiser, L., Van de Minne, A., Ghosh, C., & Wang, X. (2022). The Price of Work-from-Home: Commercial Real Estate in the City and the Suburbs. *Available at SSRN 4279019*.

Rosenthal, S. S., Strange, W. C., & Urrego, J. A. (2022). JUE insight: Are city centers losing their appeal? Commercial real estate, urban spatial structure, and COVID-19. *Journal of Urban Economics, 127*, 103381. doi:https://doi.org/10.1016/j.jue.2021.103381

Rothe, P., Lindholm, A. L., Hyvönen, A., & Nenonen, S. (2011). User preferences of office occupiers: investigating the differences. *Journal of Corporate Real Estate*.

Russo, D., Hanel, P. H. P., Altnickel, S., & van Berkel, N. (2021). Predictors of well-being and productivity among software professionals during the COVID-19 pandemic – a longitudinal study. *Empirical Software Engineering, 26*(4), 62. doi:10.1007/s10664-021-09945-9

Saks, A. M. (2006). Antecedents and consequences of employee engagement. *Journal of managerial psychology, 21*, 600-619. doi:10.1108/02683940610690169

Saks, A. M., & Gruman, J. A. (2014). What do we really know about employee engagement? *Human resource development quarterly, 25*(2), 155-182.

Schaufeli, W., & Salanova, M. (2007). Work engagement: An emerging psychological concept and its implications for organizations. In S. W. Gilliland, D. D. Steiner, & D. P. Skarlicki (Eds.), *Research in social issues in management* (1st ed., Vol. 5, pp. 135-177). Greenwich, CT, USA: Information Age Publishers.

Schaufeli, W. B., & Bakker, A. B. (2003). *UWES: Utrecht Work Engagement Scale. Preliminary Manual*. Department of Psychology, Utrecht University, The Netherlands.

Schaufeli, W. B., & Salanova, M. (2014). Burnout, Boredom and Engagement in the Workplace. In M. C. W. Peeters, J. de Jonge, & T. W. Taris (Eds.), *An Introduction to Contemporary Work Psychology* (1st ed., pp. 293-320). Chichester, UK: John Wiley & Sons, Incorporated.

Shirom, A. (2003). Feeling vigorous at work? The construct of vigor and the study of positive affect in organizations. *Research in organizational stress and well-being, 3*, 135-165.

Smith, A. (2011). How important is the physical workplace to engagement and productivity? *Journal of Facilities Management, 9*(2). doi:10.1108/jfm.2011.30809baa.001

Smith, J., Sayce, S., Cooper, R., Venmore-Rowland, P., & Venmore-Rowland, P. (2006). *Real Estate Appraisal : From Value to Worth*. Williston, UNITED KINGDOM: John Wiley & Sons, Incorporated.

Surma, M. J., Nunes, R. J., Rook, C., & Loder, A. (2021). Assessing Employee Engagement in a Post-COVID-19 Workplace Ecosystem. *Sustainability, 13*(20), 11443.

Tagliaro, C., & Migliore, A. (2021). "Covid-working": what to keep and what to leave? Evidence from an Italian company. *Journal of Corporate Real Estate*.

Teevan, J., Hecht, B., & Jaffe, S. (2021). The New Future of Work: Research from Microsoft on the Impact of the Pandemic on Work Practices. 1st. Retrieved from https://www.microsoft.com/en-us/research/uploads/prod/2021/01/NewFutureOfWorkReport.pdf

Van Der Voordt, T. J. (2004). Productivity and employee satisfaction in flexible workplaces. *Journal of Corporate Real Estate*.

Van Nieuwerburgh, S. (2023). The remote work revolution: Impact on real estate values and the urban environment: 2023 AREUEA Presidential Address. *Real Estate Economics, 51*(1), 7-48. doi:https://doi.org/10.1111/1540-6229.12422

Vinopal, C. (2022). Workers Are Returning to the Office, But It Won't Look Quite the Same. Retrieved from https://observer.com/2022/09/workers-are-returning-to-the-office-but-it-doesnt-look-quite-the-same/

Vischer, J. C. (2008). Towards an environmental psychology of workspace: how people are affected by environments for work. *Architectural science review, 51*(2), 97-108.

Waizenegger, L., McKenna, B., Cai, W., & Bendz, T. (2020). An affordance perspective of team collaboration and enforced working from home during COVID-19. *European Journal of Information Systems, 29*(4), 429-442.

Ward, J. M., & Schwam, D. (2022). Can adaptive reuse of commercial real estate address the housing crisis in Los

Angeles? Retrieved from https://www.rand.org/content/dam/rand/pubs/research_reports/RRA1300/RRA1333-1/RAND_RRA1333-2.appendixes.pdf

Wilkinson, S., Christensen, P. H. a., & Sayce, S. a. (2015). Developing property sustainably. (9781315764825).

Wilkinson, S., Reed, R., & Jailani, J. (2011). *User satisfaction in sustainable office buildings : a preliminary study*. https://dro.deakin.edu.au/articles/conference_contribution/User_satisfaction_in_sustainable_office_buildings_a_preliminary_study/20998711

Wilkinson, S. e., Dixon, T. e., Miller, N. e., Sayce, S. e., Taylor, & Francis. (2018). Routledge Handbook of Sustainable Real Estate. (9781315622750).

Williamson, S., & Colley, L. (2022). Working During the Pandemic: The Future of Work is Hybrid. *Canberra: UNSW Canberra*.

Wyon, D. P. (2004). The effects of indoor air quality on performance and productivity. *Indoor air, 14*, 92-101. doi:10.1111/j.1600-0668.2004.00278.x

Xiao, Y., Becerik-Gerber, B., Lucas, G., & Roll, S. C. (2021). Impacts of Working From Home During COVID-19 Pandemic on Physical and Mental Well-Being of Office Workstation Users. *J Occup Environ Med, 63*(3), 181-190. doi:10.1097/jom.0000000000002097

Yang, E., Kim, Y., & Hong, S. (2021). Does working from home work? Experience of working from home and the value of hybrid workplace post-COVID-19. *Journal of Corporate Real Estate*.