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Towards Designing for the Postdigital Hybrid Workplace: A Systematic Literature Review

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Abstract

This paper frames the future workplace as a postdigital hybrid space of practice that foregrounds humanistic values and holistically accommodates various requirements of individuals and collectives who make up the socio-cultural context of the workplace, wherever work may occur. However, to move towards designing for the postdigital hybrid workplace, it is necessary to first have an overview of the requirements foreseen for the future of workplace that are pertinent to notions of the postdigital and hybridity within the scholarly domain. On this basis, the paper presents a Systematic Literature Review (SLR) of workplace design and management literature (2010-2022) informed by the PRISMA 2020 guidelines. Studies were sourced through Scopus and Google Scholar, and screened for comprehension, relevancy, and certainty. Studies were appraised for quality before inclusion in the SLR, using a framework that combines a Weight of Evidence (WoE) framework (Gough 2007) with a set of appraisal criteria that can be used in qualitative research (Hannes 2011). Through a thematic analysis of the final 37 studies, the following seven requirements were identified: 1) embodied, intuitive and multimodal experiences, 2) a balance between privacy and interaction, 3) environmental comfort, 4) disconnection, 5) a culture that empowers the individual, 6) social territories and collective synergies, and 7) heterogeneity. The paper discusses that collectively the requirements identified signify the importance of the socio-spatial context in which work occurs. Therefore, as the ecosystem of work continues to change and adapt to hybridity, changes in meanings, perceptions and behaviours related to these requirements should be further investigated in order to better support design and management strategies. In addition, the paper acknowledges the inevitable juxtapositions of opposing expectations and requirements in a flexible workplace, and brings light to the behavioural, temporal and connectivity dimensions under which rivalling issues should be considered for a postdigital hybrid workplace.

Keywords: postdigital, future workplace, hybrid work, office design, workplace design.

1. INTRODUCTION

In light of the COVID-19 pandemic, a drastic change has been experienced in how office work is conducted and managed (Diab-Bahman and Al-Enzi 2020; Schmidtner et al. 2021). In a short time, most knowledge workers had to learn to work from home, as well as collaborate and socialise with colleagues remotely (Waizenegger et al. 2020; Yang et al. 2023). Many conventions of work quickly were thrown into debate, such as working

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hours, managing work-life balance at home, suitability of home spaces for work, etc. (Ipsen et al. 2021; Marco et al. 2022; Palumbo 2020; Yang et al. 2023), propelling many organisations to hypothesise about the future of work (e.g., Lund et al. 2021). Large firms such as Gensler, Arup and WeWork conducted studies in different geographical regions to understand the changing expectations the pandemic has created for employees and the strategies organisations consider in returning to the office. Ideas of flexibility, choice, and creating safe and healthy environments were commonly noted and discussed (ARUP, n.d.; Gensler Research Institute 2021; WeWork and Workplace Intelligence, n.d.). In the two years since the start of the pandemic, some businesses have adapted and experimented new ideas for the return to the office. Ideas around the functionality and the role that the physical space of the office plays in the bigger organisational culture are also being more concretely discussed. For example, a recent article by *Worklife* alludes to the possibility of treating the office space mainly as a place for collaboration and provision of services and qualities that cannot be achieved in other remote sites like the home (Smith 2022). This is potentially an interesting prospect for the future of knowledge work and the corporate sector, especially as large-scale surveys by specialists in workplace provision, such as WeWork and Workplace Intelligence, suggest that remote work has not significantly affected productivity (WeWork and Workplace Intelligence, n.d.). Regardless of the outlook organisations have on the future use of their office spaces, there is an understanding that the hybrid mode of work will make a major mark on future workplaces (ARUP, n.d.; WeWork and Workplace Intelligence, n.d.). Nonetheless, as is also reported, employee perceptions suggest that existing work environments require alterations to make them appropriate for hybrid work (Gensler Research Institute 2021).

In addition, the accelerated assimilation of digital technology into everyday life is not only changing modes of communication but altering perceptions of space and the world around us (de Souza e Silva 2006). In essence, we are living and working in a blended and hybrid reality that partly functions in a physical space and partly in a digital space. As de Souza e Silva (2006, 262) explains, "[h]ybrid spaces are mobile spaces, created by the constant movement of users who carry portable devices continuously connected to the Internet and to other users". Understandably, such immersion of digital technology into everyday life can place the sense of location, materiality, presence and time into a constant flux, contributing to gradual cultural changes and disruptions (Cramer 2014; Kemper 2023; Striano 2019) as the meaning of space, and norms and activities around communication, socialisation, work, etc. morph and evolve. This is defined as the "post-digital condition" (Striano 2019, 83; see also Cramer 2014 and Kemper 2023), which is bringing about a distancing from "techno-positivist innovation narratives" (Cramer 2014, 18) and the desire for the precision that digital technology provided (Cramer 2014). The postdigital condition brings humanistic values and requirements associated with the use of digital technology to the fore (Alexenberg 2011).

Discussions on the postdigital have been ongoing for the past two decades, in particular in the fields of arts and cultural studies (Kemper 2023), and while the terminology has not yet been as widely and explicitly used in the literature of workplace studies (Reeves 2019), evidence of disruption in conventions of work and foregrounding of humanistic-laden postdigital values have already been in motion in the workplace sector. For example, over the past two decades or so, we have witnessed how collaborative work and community-building practices, initiated in the creative industry, have had a much more wide-reaching impact on methods of work in the corporate sector. In this relation, Graham and Gandini (2017, 3) explain that "the ethos and practices of artistic collaboration have flooded into the everyday practices and micro-politics of diverse industries across a global geography". Moreover, the demonstrated social and community-oriented values that the coworking movement, initiated by freelancers in the creative industry with the turn of the twenty-first century (Merkel 2015; Spinuzzi 2012), can have for businesses are being more widely discussed (Bouncken et al. 2021; Tremblay and Scaillerez 2020). Such shifts have brought a more social dimension to how the workplace and work practices should be considered and are increasingly reinforcing the importance of creating human-friendly workplaces that will contribute to organisational productivity and efficiency. Shedding light on the importance of looking at work environments as social environments, Dunbar (2022) notes in the foreword of Oseland's *Beyond the Workplace Zoo: Humanising the Office*:

> In our search for efficiency and cost savings, we often seem to lose sight of the fact that the workplace is a social environment. Every business and every organisation is a social microworld whose success depends not just on the health and motivation of its workforce but to an even greater extent on how well they get on socially with each other (Dunbar 2022, xvi).

So, we are now facing a postdigital hybrid conception of work that aims to holistically support the workforce and accommodate varied requirements wherever work occurs, be it in a digital, physical or hybrid space. Arguably, the pandemic created a more mainstream

and common disruption across the corporate sector and conditions of knowledge workers, acting as a catalyst for a more explicit consideration of postdigital hybrid conditions of contemporary knowledge work and its design and management roadmap. In light of this, it is a timely endeavour to review some of the existing requirements covered in the scholarly domain for workplace design that already consider facets of the postdigital and hybridity, be it explicitly or implicitly discussed, as a point of departure for identifying areas of further scholarly enquiry that can contribute towards designing for the postdigital hybrid workplace. Therefore, this paper presents a Systematic Literature Review of workplace design and management literature (2010-22), which aims to elicit the type of requirements literature accounts for the design and management of future workplaces that can be pertinent to the postdigital hybrid conception of work.

2. METHODOLOGY

A Systematic Literature Review (SLR) is a methodology that "can provide syntheses of the state of knowledge in a field, from which future research priorities can be identified [and] address questions that otherwise could not be answered by individual studies" (Page et al. 2021, 1). Informed by the established guideline of PRISMA 2020 for conducting and reporting systematic literature reviews, this paper provides an account of rigorous data collection and analysis methods to support well-evidenced and high-quality findings.

A PRISMA-informed systematic review commences by establishing eligibility criteria for the search and inclusion of studies in the field of focus. The search and inclusion are then led through three stages of identification, screening, and inclusion, where relevant databases are searched, studies scrutinised for eligibility, quality and certainty (confidence) in the body of evidence and methods of assessment of the researcher conducting the systematic review are examined for risk of bias.

Figure 1 presents the workflow for identifying, screening, and including studies in the review. The review was conducted in October 2021, and the entire process of selecting and appraising the studies was conducted by the author. From the 532 studies, 37 qualified for inclusion in this SLR.

2.1. Identification

This SLR examined literature on workplace design and management published between 2010 and 2022. This decision was based on an initial scoping search, revealing that a considerable number of literature reviews had been conducted during 2010-22 that encompassed and summarised findings of earlier periods. A delimitation this can create is the omission of reasons behind specific changes and movements in the workplace sector that may have roots in early periods. However, limiting the

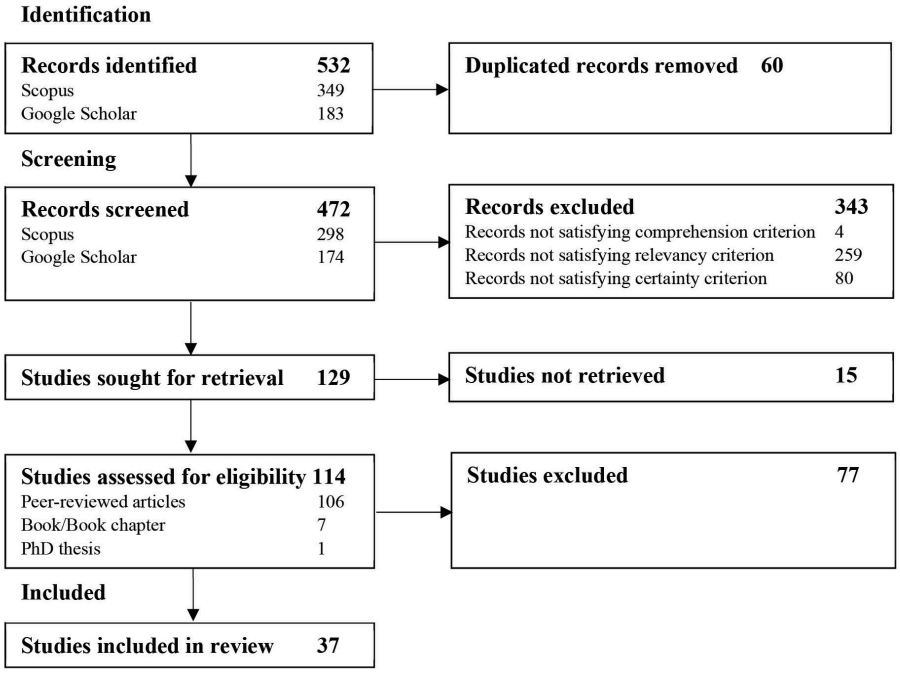

Figure 1. The workflow for identifying, screening and including studies in the review, in accordance with PRISMA 2020

period to the last decade, also reduces the repetition of certain findings or perspectives from the analysis, which otherwise can inadvertently inflate or skew the author's interpretations and conclusions. Additionally, it must be noted that the search strings and databases used can also exclude certain publications, particularly if the defined keywords and search strings do not appear in the title and abstract of those studies. Nevertheless, following an initial scoping search, the keywords were chosen to cover as broad a scope as possible, using databases and search engines of significance.

The identification of pertinent studies was conducted through the well-established and widely known database of Scopus for peer-reviewed literature, as well as through Google Scholar, that facilitates easy access to a range of scholarly sources. The same search strings were used in both Scopus and Google Scholar and the search was conducted in title+abstract+keywords. The search strings covered a broad combination of terms pertinent to the postdigital, hybridity and workplace design, as follows:

> Workplace AND "real-virtual space"; "Workplace design" AND postdigital; "postdigital workplace"; "next generation" AND "workplace design"; "future workplace design"; "hybrid work" AND collaboration; "collaborative work" AND "hybrid space"; "hybrid work" AND creativity; Workplace AND "digital-physical space"; "workplace design" AND "distributed work"; "workplace design" AND "virtual space"; "workplace design" AND "collaborative work"; "workplace design" AND "creative work"; "workplace design" AND "hybrid reality"; "workplace design" AND "hybrid space"; "workplace design" AND "physical space"; "workplace design" AND "digital space".

2.2. Screening and inclusion

The screening stage utilised an initial abstract screening before moving on to a detailed quality appraisal of the studies. For the abstract screening stage, several eligibility criteria were set to ensure relevancy and certainty (confidence) in the evidence, as shown in Table 1. To pass the screening stage, each study was expected to meet all the eligibility criteria outlined in Table 1.

For the detailed quality appraisal, the criteria used combined a Weight of Evidence (WoE) framework (Gough 2007) with criteria outlined by Hannes (2011) for appraisal of qualitative research. Gough (2007) suggests that a WoE can facilitate more robust scrutiny of the quality of studies and their relevance to an SLR study. As Gough explains, given that quality can be a nebulous concept, it becomes important to define the focus of the assessment. The appraisal can be broadly categorised into a generic assessment of quality and an assessment that focuses specifically on the relevancy of the topic or approach employed in the study to the aim and questions of the SLR (Gough 2007). Essentially WoE "is a useful heuristic for considering how to make separate judgments on different generic and review-specific criteria and then to combine them to make an overall judgment of what a study contributes to answering a review question" (Gough 2007, 223). Informed by Gough's (2007, 223) WoE descriptions, three categories of assessment were considered in this study: 1) an assessment on whether the study under scrutiny is pertinent to the question and aim of the SLR, 2) an assessment of the suitability of the methods employed in the study under scrutiny in relation to the focus of the SLR, and 3) a general assessment of the quality of the study under scrutiny independent of its relevancy or suitability for inclusion in the SLR.

Gough (2007) also notes that combining the WoE framework with other assessment criteria is possible. Therefore, for this SLR, the author deemed that the general quality assessment of the WoE framework, can be further defined and categorised to better inform decision-making and reduce the risk of bias in the appraisal process. Respectively, four criteria for critical appraisal of qualitative research as described by Hannes (2011), namely: credibility, transferability, dependability and confirmability, were used in the general quality assessment of each study. To be considered for inclusion in the SLR and proceed to the analysis stage, each study was required to satisfy the two SLR-related assessment categories and all four criteria within the general assessment category.

To check for confidence in the studies assessed and further control for risk of bias by the author in the appraisal process, before proceeding to analysis, an independent assessor scrutinised a random subset of approximately 20 percent (as noted in O'Connor and Joffe 2020, a sample of 10-25 percent has been common in qualitative research), equating to 30 studies. A satisfactory Cohen's (1960) agreement of 73 percent, following the thresholds outlined by Landis and Koch (1977), was observed.

2.3. Process of analysis

This paper aimed to elicit several themes representing requirements currently discussed in the literature for the design of future workplaces that can be pertinent to the concept of the postdigital hybrid workplace. Therefore, the data was analysed using methods of thematic coding and analysis (Braun and Clarke 2006; Williams and Moser 2019). The process commenced with memo-writing, summarising key points and issues of interest in each study. Following this, several open

Table 1. Eligibility criteria for the abstract screening stage

	Question	Rationale	Criteria
Comprehension	Is the evidence comprehendible by the researcher(s)?	the researcher(s) should be able to understand the language used	Language: English
Relevancy	Has the evidence been published in the last decade?	Notions of hybridity and the postdigital as well as change in modes of work emerged in the 21st century and over the last decade there has been a number of literature reviews conducted on various aspects of workplace design and performance which encapsulate the research outputs from the first decade of the 21st century; therefore, a SLR of research between 2010-22 should provide a satisfactory overview of the body of knowledge in this area	Year of publication: 2010-22
	Is the title/abstract related to the search string?	Some search strings may correspond to papers with a different interpretation of the wording combination than that of the focus of the research. For example, 'hybrid work' may result in papers on robots-human hybridity in the workplace which is not within the scope of this study	Semantic match of search terms with title/abstract of paper
Certainty (confidence)	In the case of papers, has the study been peer-reviewed?	Peer-reviewed papers would have been subject to scrutiny by a number of academics specialised in that particular area. Doctoral theses were also included as they are subject to examination by a panel of academics before award is conferred	Publication type: peer-reviewed papers and doctoral theses
	In the case of books, has the book been published by an established publisher?	Established publishers have a rigorous editorial process and quality control	Publication type: books by established publishers

codes reflecting spatial, behavioural, perceptual, and managerial factors considered by the studies were elicited. The interrelationships of these codes were assessed and reiteratively revised leading to several axial codes. The axial codes were then used to interpret what such groupings can mean regarding the requirements designers and managers should consider pertinent to the postdigital hybrid conception of work. This latter resulted in several latent theme categories, which will be discussed in the findings section. A summary of the codes emerging during the analysis process can be seen in Figure 2.

3. FINDINGS

From the 37 studies, 20 were reviews or critiques. The most common data collection method in non-review papers were interviews and questionnaires with a limited number of papers also using observational and ethnographic methods. The context of studies in non-review papers covered a range of countries worldwide, where the majority of study participants were employees, and only a limited number of studies considered points of views of managers or designers. Following, key findings related to the themes identified will be elaborated.

3.1. A requirement for embodied, intuitive and multimodal experiences

Literature suggests that work, in particular where distributed forms of collaboration is of concern, requires an intuitive, embodied and multimodal experience to support effective communication (O'Hara et al. 2011; Wang et al. 2021). On the one hand, physical co-location has been regarded as beneficial and discussed to support processes of trust building amongst teams (De Paoli and Ropo 2015). On the other hand, literature also looks at how to enhance spatial continuity across physical and virtual spaces and resolve the segregation

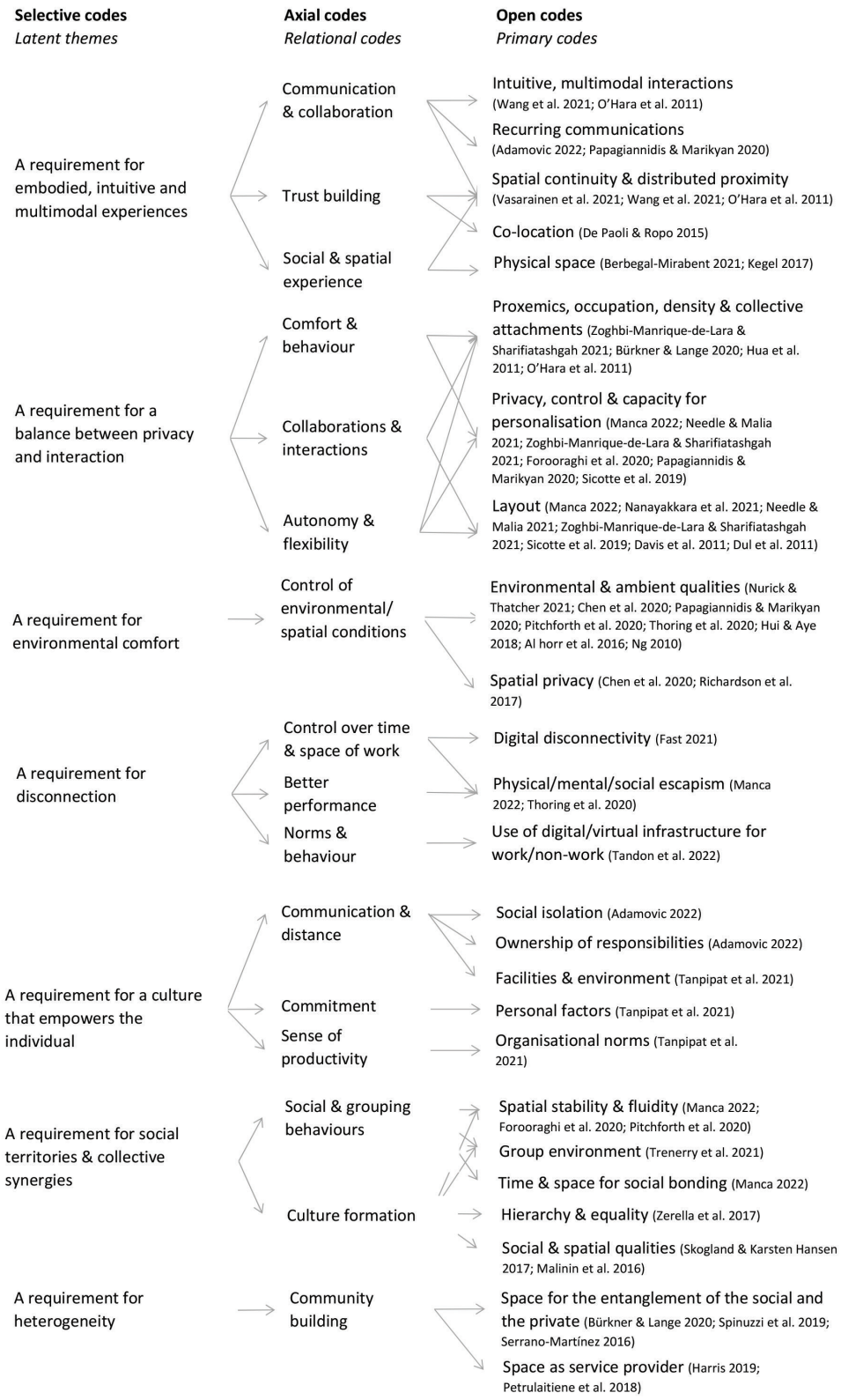

Figure 2. Summary of the coding categories as conducted by the author

of activities happening in a physical environment and a virtual one for distributed forms of collaboration (O'Hara et al. 2011; Wang et al. 2021). As O'Hara et al. (2011) discuss, how we interact with the environment is related to how our bodies receive information and how we are situated in relation to others. Additionally, Vasarainen et al.'s (2021) review of mixed and extended reality literature brings attention to how new forms of presence alter the spatial experience, both from a social perspective and in terms of the activities that can be performed. It would therefore seem that some of the limitations of existing technologies (as are discussed in O'Hara et al. 2011; Wang et al. 2021) in facilitating both a seamless and blended experience, as well as a social one, result in physical co-presence continuing to play an important role in providing the embodied and multimodal experience of work. Therefore, as reflected in studies such as De Paoli and Ropo's (2015), whilst some aspects of work can be effectively conducted online and virtually, managers find that face-to-face meetings, especially in the early stages, can help teams better develop a good grasp of each other's work and build rapport. Additionally, in their review of literature, Papagiannidis and Marikyan (2020), bring light to the importance of the frequency and quality of communication in enabling trust formation and bonds when remote working. Furthermore, Adamovic (2022) discusses the regularity in organising meetings between managers and employees, as a possible strategy for addressing social isolation and contributing to a more positive attitude towards remote working.

Besides the issues of information management and communication, being physically present amongst others doing work arguably also factors into the embodiment and multimodality of the work experience. Respectively, the emergence of the coworking model as a new space type across cities has been an indicator that work conducted in isolation, however connected virtually, is not sustainable or effective, accentuating the importance of physical co-presence and community building when working (Spinuzzi et al. 2019). Coworking spaces, in part, provide a social and physical infrastructure within cities to bring people into the same space to conduct work and their geographical location within cities can be deemed of importance in the future landscape of work (Berbegal-Mirabent 2021). Additionally, as concluded in Kegel's (2017, 25) review of literature, despite the many aspects that affect an organisation's success and performance, the physical space and the experiences associated with it impact a range of outcomes for an organisation, such as "performance, collaboration, innovation, effective human resource management, and profitability. It can also influence employee outcomes such as engagement, performance, well-being, and satisfaction". Therefore, it appears that the physical environment will continue to be a major player in how organisations think about facilitating the need for embodiment and multimodal interactions.

3.2. A requirement for a balance between privacy and interaction

Literature suggests a need to balance between creating a sense of privacy and control and maintaining the affordances for interaction and collaboration (Forooraghi et al. 2020; Manca 2022; Papagiannidis and Marikyan 2020), wherein proximity plays a key role (O'Hara et al. 2011). Proximity is often characterised as an advantage of being co-located, however too much proximity, especially when it can be associated with limitations in amount of space available, is not always conducive to a satisfactory work experience. This can result in a densely occupied space which is sometimes associated with feelings of being observed or crowding (Zoghbi-Manrique-de-Lara and Sharifiatashgah 2021). According to Hua et al. (2011), different interpersonal and spatial distance levels must be considered when analysing the relationship between spatial layout and collaboration. The authors conclude that it is not proximity per se, but density that impacts employees' perception of how supportive their work environment is for collaboration, wherein the higher the density, the lower the perception of collaboration support. Besides this, O'Hara et al.'s (2011) study draws on Hall's (1966) proxemics to articulate the implicit cues that distance between two individuals communicate about what is socially and culturally acceptable. Notably, how proxemics impacts spatial behaviours and relations becomes more complex when one considers the workplace as simultaneously physical and virtual, which raises discussions on how the feeling of closeness interlinks to physical proximity (Bürkner and Lange 2020). Related to this, Bürkner and Lange (2020, 60) state that in a digitally connected mode of work where one is "[w]orking 'on the ground' with traditional craft tools in a workbench fashion, while simultaneously applying digital tools, produces differential individual and collective 'attachments' to a workplace and surrounding communities of various composition (physical-local ones but also purely internet-based, hence virtual ones)". In effect this challenges how close people might feel in relation to one another in the more hybrid and distributed modes of work.

In addition, as is currently observed in literature, the differences in proxemics and socio-cultural situations make reaching a consensus about how particular layouts impact employees' performance difficult (for example compare the findings and discussions of Davis et al. 2011; Dul et al. 2011; Manca 2022; Needle and Malia 2021; Richardson et al. 2017; Sicotte et al. 2019;

Zoghbi-Manrique-de-Lara and Sharifiatashgah 2021). Understandably, these become heightened in the open-plan layout. In relation to this, Manca (2022, 334) argues that common strategies tend toward "managing trade-offs through balancing the advantages and disadvantages of oppositional design features, such as openness and enclosures, transparency and privacy, adjustability and fixities, personalization and anonymity (cf. Elsbach & Pratt, 2007)" in order to resolve the tensions that may be at play in an open-plan layout. Trading-off in the design and management of open-plan offices is also reflected in a review of the physical workplace by Davis et al. (2011). A study by Nanayakkara et al. (2021) on factors considered in workplace design and layout further highlights some of the complexities in designing and managing the tensions that can be at play. Through interviews with design firms and workplace design strategists, they explain that factors that are taken into account in designing offices include (but are not exclusive to) organisational culture values around "interaction and autonomy" (Nanayakkara et al. 2021, 75), reducing generational gaps by diversifying space types, creating flexible spaces that can respond to the uncertain future directions an organisation might take, whilst ensuring the functional needs are well met. Technology is also seen as a key consideration in that the layout of offices needs to synergise with new modes of communication enabled by technological change. Notably, the interviewees in Nanayakkara et al.'s study uniformly agreed that flexibility and functionality were amongst two of the important elements in the decision-making process. This is interesting because it might explain why the open-plan layout continues to be popular despite some of its drawbacks (such as those reflected in studies of Davis et al. 2011; Needle and Malia 2021), as they make modifications easier and quicker as businesses evolve and expand. However, this can be at the expense of the workforce's experiences. For instance, Nanayakkara et al. highlight that although all interviewees regarded acoustic aspects as important, organisations may pay less attention to such factors in the early design phase.

In being more attentive to the individual employee needs when considering layout configurations, several studies bring attention to the importance of providing a sense of personal space and designing for individuals (Forooraghi et al. 2020; Needle and Malia 2021; Papagiannidis and Marikyan 2020; Sicotte et al. 2019; Zoghbi-Manrique-de-Lara and Sharifiatashgah 2021). In relation to the open-plan office, the first of such studies is Zoghbi-Manrique-de-Lara and Sharifiatashgah (2021). The authors draw on Hobfoll's (1989) Conservation of Resources theory (COR), to discuss that employees that engage in cyberloafing (conventionally deemed as aberrant behaviour) do so as a way of coping with and managing the unpleasant experience associated with crowding, perceived lack of personal space and exposure that may be instigated in open-plan offices. Whilst they find that "stress and emotional conflict" (Zoghbi-Manrique-de-Lara and Sharifiatashgah 2021, 339) experienced at work as a result of crowding may not necessarily lead to negative behaviour, their study confirms that "trust and compassion" (Zoghbi-Manrique-de-Lara and Sharifiatashgah 2021, 339) can mediate how crowding affects cyberloafing and regulates the way employees safeguard their personal space and territory. They conclude that when analysing behaviours such as cyberloafing in the workplace, both the physical setup (i.e., density) and the psychosocial context need to be considered.

In another study, Needle and Malia (2021) challenge past research that attributes the disadvantages of working in an open-plan layout to introverted personalities. Their study of 143 people working in the creative industry (majority within advertising and marketing) in the USA, suggests that open-plan offices may have adverse effects (e.g., such as distractions) on productivity of creative workers, regardless of their personality type. Their study also draws on past research to highlight the importance of the provision of personal space for employees in the workplace in support of and complementary to a collaborative and creative environment. This is further supported through the responses to their survey, indicating that besides the collaborative ethos associated with creative work, seclusion, silence and flexibility should also be considered as a requirement for creative productivity.

Lastly, Sicotte et al. (2019) analysed how teams within one organisation worked and assessed the impact of their environment on their perception of creativity and effectiveness. In terms of effectiveness, proximity to other team members and the flexibility in and around each team's space to allow them to grow and adapt based on the needs of a project were suggested to impact the effectiveness of a team. In contrast, providing spatial diversity was discussed as a possible way of contributing to the team's creativity, allowing them to choose spaces based on project requirements. This latter resonates with Needle and Malia's (2021, 287-288) findings, also suggesting that creative professionals highly prefer having "different rooms or outside areas to explore depending on their productivity levels or mood or task difficulty".

What is clear within the literature is that the flexibility often sought in design of workplaces necessitates a closer understanding of the dynamics of performance, perceptions and behaviours at an individual level. As is insinuated from the studies considered in this section,

the feeling of privacy or control over privacy is an important factor to consider, and this is one that is not solely based on the physical configuration and layout of spaces but also influenced by social, psychological and cultural factors. In particular when thinking about a postdigital hybrid conception of work, as the domain for interactions amongst the workforce diversifies, it is important to better understand what the workforces' expectations around privacy will entail and what spatial strategies can best support the emergent needs. Currently, the literature that has predominately been conducted in physical workplace settings places value on diversification of spaces (Nanayakkara et al. 2021; Needle and Malia 2021; Sicotte et al. 2019; Thoring et al. 2020). However, the question this creates is, as work partly moves away from the office, whether diversifying the physical space will be financially, environmentally and also socially viable, and whether spatial diversity can be partially accommodated via digital media and remote sites?

3.3. A requirement for environmental comfort

Comfort, in part, is psychological and can be linked to previously discussed issues of sense of privacy. Additionally, comfort could be related to Indoor Environmental Qualities (IEQ) such as lighting, sound, temperature, etc. as well as ergonomics, which may also play an integral role in the wellbeing of individuals, productivity and creativity of individuals and teams and overall performance of an organisation (Chen et al. 2020; Nurick and Thatcher 2021).

Thoring et al. (2020) explain that from the range of ambient indoor qualities, light and sound have been regarded as the most pertinent to creative performance by past research, whilst other studies suggest thermal and lighting conditions to be the most salient aspects when considering environmental comfort (Huang et al. 2012, as cited in Papagiannidis and Marikyan 2020). Furthermore, one study of 2537 employees across six countries (in university offices), suggests out of all the IEQs (temperature, air, natural and electric light and acoustics), control of light switches was most linked with perceived sense of productivity (Chen et al. 2020). Chen et al. (2020) also found that those working in private offices compared to shared offices had a more positive sense of productivity regarding indoor environmental conditions. For example, they discuss that both in terms of indoor air quality and natural lighting, occupants of private offices believed these conditions to affect their productivity positively. Here is an indication of how the perception of control over environmental conditions, attitudes towards sharing of control, thermal comfort and satisfaction with IEQs can influence beliefs regarding the impact of different environmental conditions on performance (Chen et al. 2020). Similarly, Richardson et al.'s (2017) review of office design literature in relation to health, concludes that sharing of office space compared to more private office spaces can negatively impact health, wellbeing and productivity.

Moreover, Pitchforth et al.'s (2020) study shows noise to be a key environmental factor. They show that a fully open-plan office fails to provide an effective healthy noise range compared to a more zoned and walled-off office, thus potentially impacting employees' less positive rating in the fully open-plan layout. Nonetheless, Nurick and Thatcher's (2021) review of the literature suggests inconclusive results regarding how different environmental conditions impact performance. They discuss that establishing direct connections between IEQ and productivity is difficult. This is understandable particularly bearing in mind that productivity can be related to four interrelated factors: "personal, social, organizational, and environmental" (Al horr 2016, as cited in Chen et al. 2020, 2). It is also noteworthy that in the literature review of comfort and wellbeing, Al horr et al. (2016) discuss that parameters associated with comfort and wellbeing are not always aligned with good building performance. For example, they draw on Deuble and de Dear (2012) to discuss how increased ventilation could lead to worse acoustic comfort, shedding light on the intricacy and complexity of how IEQs might affect comfort and wellbeing.

The above studies show how it is difficult to draw conclusive readings regarding how a specific spatial quality impacts wellbeing and performance of employees. Additionally, this is compounded by the fact that IEQs and environmental comfort are not only an issue of consideration within the physical office space but require attention as work moves into the home and other sites. Here, Ng's (2010) review of literature on teleworking is noteworthy, explaining that there is limited research on the suitable conditions of the home office and the various variables that can contribute to the overall performance and wellbeing of the employees. Nevertheless, as is derived from Ng's review, the author concludes that "teleworkers desire similar qualities as they desire for the workspace in their corporate offices (e.g., a private office where they can have privacy, quality lighting and adequate equipment)" (Ng 2010, 148).

Adding to the complexity of factors that impact employees' comfort is that the perception of comfort can also be subject to change. In relation to thermal comfort for example, Papagiannidis and Marikyan (2020) review past literature, noting that due to the adaptability of bodies to temperature fluctuations and a range of other factors, the perception of ideal temperature can vary from one person to the next. In addition, Hui and Aye (2018), in their review of literature

on the relationship between design, stress at work, and relationship with nature, posit that a connection to nature and incorporating biophilic principles as a resource for psychological and physical wellbeing are essential elements of workplace design for managing occupational stress. So it would appear that providing a healthy context for work should consider a range of physical and psychological factors to support the comfort and happiness of employees.

Furthermore, although some research speaks of the importance of mobilising and strengthening groups in establishing a culture and supporting acceptance of new and changing conditions (for example refer to Trenerry et al. 2021 regarding the uptake of technology), in the case of IEQs, Chen et al.'s (2020) study suggests that social influences, namely 'group norms' and 'conformity intentions', may not play a significant role in how employees perceive the link between IEQ and their sense of productivity. Whether or not the social and cultural context can mediate or impact individual's sense of comfort would require further investigation. Nonetheless, following from section 3.2., which suggested that having a control over privacy is important for employees, this section too shows evidence that enabling environmental control over work conditions for employees can be beneficial.

3.4. A requirement for disconnection

Strategies often used for maintaining communication in a virtual/hybrid/remote/digital work mode can also create unhealthy expectations for constant availability, increased workload, disrupted work-life balance and fatigue (Adamovic 2022; Fast 2021). Therefore digital disconnectivity, that is the "deliberate "non-use" of, "withdrawal" from, "disengagement" with, or "resistance" against digital media" (Fast 2021, 1615) is seen to be presented as a strategy " by which workers can *regain control* over increasingly liquid life domains" (Fast 2021, 1619). As Fast argues, the demand for connectivity on the one hand engenders the ideas that workers can have more autonomy and control and hence a more satisfactory work-life balance, whilst on the other hand creating an expectation for continual accessibility, resiliency and adaptability on the part of the worker. Therefore, the advocacy of disconnection and "digital detox" (Fast 2021, 1615) to take care of health and wellbeing is also introduced to work culture. Reflecting on Fast's arguments, this can make decision-making around the use of space also difficult and nebulous creating a question around where digital detox should occur; does it become embedded in spaces designed for other functions or should it have spaces dedicated to it? Some studies included in this review allude to a more or less fuzzy segregation of spaces based on function, which in effect moves rest and non-work outside the immediate space of work but also gives definition to the type of activity that could happen within that space meanwhile maintaining some element of fluidity and playfulness across the boundaries (Manca 2022; Thoring et al. 2020).

However, the disconnection required in the space of work is not always related to digital availability. In fact, as Tandon et al. (2022) highlight, some previous research suggest that being able to use the internet during work hours to attend to personal matters, may be regarded as a way of creating a work-life balance as well as providing short breaks that could be positive for the employee's performance. Interestingly, what is implied when broadly looking at discussions regarding this issue in literature is that the disconnection required is a disconnection and escapism from work itself; dependent on the nature of that work and norms around activities that facilitate disconnection. This is reflected by Tandon et al. (2022, 66) in a discussion on cyberloafing, explaining that "[i] t is possible that activities seminally conceptualized as minor cyberloafing behaviors may be considered normal behavior in current times". In addition, Manca's (2022) analysis of tensions embedded in collaborative open workspaces further adds that employees can also require disconnection from their physical and social interactions, which can sometimes lead to digital interactions instead and working from alternative locations that better allow employees' control over their privacy. Nonetheless, it is also possible for disconnection from social interactions to occur without physical disconnection, for example, by using objects that communicate some temporary partitioning (Manca 2022).

It would appear therefore that the requirement for disconnection is intertwined with both needs for rest and privacy, which should partly be accommodated during the time and space of work.

3.5. A requirement for a culture that empowers the individual

Using Hofstede's (1984) cultural value framework, Adamovic (2022) discusses the relevance of two factors from that framework that are pertinent to expectations and supervision of work in a teleworking context, namely 'power distance' or the degree of expectancy and acceptance to be directed and supervised, and 'individualism-collectivism' or the belief of who should take responsibility for work. Adamovic suggests that employees with high power distance inclinations (i.e., those who believe that the "physical distance from their supervisor will interfere with their work" (Adamovic 2022, 4-5)) view teleworking negatively, whilst those with high individualism (i.e., those who believe key responsibility of work is with them) believe teleworking to impact their work positively. Adamovic

further concludes that the relationship between stress and working from home is contingent on employees' cultural values of work; only if employees do not associate telework with social isolation can such a work mode have positive effects on minimising their stress. Therefore, it may be permissible to assume that one possible way for organisations to balance the stress in a mode of work which values autonomy and flexibility is to invest in activities that empowers the individual and reduces the belief that associates work effectiveness with proximity to a supervisor.

Furthermore, a study by Tanpipat et al. (2021) of 414 corporate office workers in Thailand during the pandemic suggests that in a remote work context where contact amongst co-workers decreases, facilities and environment provided for communication and collaboration becomes more important than individuals' abilities in communication when considering perceived productivity. The study brings attention to the importance of the affective dimension of work in how an increase in work demand is managed, such as how motivated employees feel. Accordingly, high motivation would mean an employee can continue their commitment to an organisation even with the rise in work demand. Nonetheless, this motivation is not reported to have been significantly impacted by organisational norms and, as the authors reflect on work of Kamara et al. (2020), could be seen as more of an internal and personal factor. Where organisational norms are seen to take effect is in mediating the effect of work demand on employees' sense of productivity. The authors also conclude that organisational norms, compared to employees' job motivation, is a stronger mediator. They, therefore, propose that investing in creating norms suitable for remote working at an organisational level can be influential in encouraging an employee to feel productive and committed.

Considering the findings of Adamovic (2022) and Tanpipat et al. (2021), there appears to be an entanglement between organisational culture, management and how employees feel. Supporting employees to develop a sense of individuality may help mitigate the negative feelings that may arise in current remote work that is still new and therefore imbued with uncertainty. Drawing on findings discussed so far, it could be argued that if there is to be a managerial need to strengthen a culture around individuality where the workforce feel confident to pursue work with reduced supervision, inevitably demands that other aspects of the work experience (e.g., space of work) also provide affordances for the exercise of individuality, ownership and control over work conditions (also see Skogland and Karsten Hansen 2017).

3.6. A requirement for social territories and collective synergies

An issue that literature brings attention to is territorial behaviour when understanding individual employee needs (Forooraghi et al. 2020; Zoghbi-Manrique-de-Lara and Sharifiatashgah 2021). Further to this, as Manca's (2022) review highlights, the social grouping of employees is also important when thinking about how collaborative, open workspaces are occupied. Accordingly, a collaborative open workspace affords the dynamic assembly and reassembly of groups and implies an expectation for fluidity in the use of space. However, at the same time, for groups to be able to establish social relationships effectively, spatial stability and the formation of territories may be inevitable. Based on Manca's (2022, 341) review of literature, the formation of social territories within the workspace allows employees "to defend the localized sociabilities with their previously co-located colleagues, independently from the actual need for collaborating on projects and tasks (cf. Halford, 2004; Thanem et al., 2011)". In effort to maintain the fluid use of space, Manca explains that social bonding amongst groups can be pushed outside the time and space designated for work into another class of spaces that the author refers to as "third spaces or border zones" (2022, 344). However, there is also a need for the formation of social bonds amongst individuals from different groups and a desire for breaking down boundaries to facilitate more fluid interactions. To address this, Manca proposes 'a framework for managing collaboration in collaborative workplaces', advocating that the work experience is actively supplemented with informal social events, where social relations can begin to form on non-work related topics. Here, Manca (2022, 344) focuses on how "[t]o *reterritorialize the previously localized* sociabilities".

This idea of requiring stability through more obvious territories and boundaries of groups is also resonated in a review of 30 years of workplace literature conducted by Forooraghi et al. (2020) and implied by a study conducted with a technology company by Pitchforth et al. (2020). Pitchforth et al. (2020) examined the effects of four types of layouts on wellbeing and productivity. The four layouts included: the open-plan office; the activity-based office which is essentially an open-plan office that has activity-centred zones that are not pre-assigned to specific employees; the zoned open-plan office, which is an office with added privacy compared to the open-plan format; and the team office, which is similar to the cubicle office, situating small teams in one enclosure. The zoned open-plan and the team office arrangement were highly evaluated by workers compared to the traditional open-plan in terms of measures of "employee satisfaction, enjoyment, flow,

and productivity" (Pitchforth et al. 2020, 1), according to their survey with 288 employees from 22 teams within the organisation. Although this study does not expand on possible reasons for such outcomes in-depth, it does entertain the idea that a more positive overall experience may be created where boundaries are less blurred and fluid.

Although the formation of territories may have negative connotations, especially as it may impede the fluidity intended for open-plan setups, the formation and settling of groups can also be regarded positively (Manca 2022; Zerella et al. 2017). Zerella et al. (2017, 3) associate what they label 'clan culture' with an organisational culture that "is similar to a family organization, valuing communication, collaboration, relationships, commitment, participation, group cohesion, support and trust". Their survey of 202 workers in Australia suggests that a combination of features such as "architectural privacy, physical proximity, visual access and workstation equality" (Zerella et al. 2017, 7) can be interlinked with the formation of a 'clan culture', especially in open-plan offices where view and proximity are most evident. They discuss that both high and low levels of privacy can contribute to clan-like behaviour. Their work relates 'clan culture' with equality in the office space, which according to the authors complements finding of previous research on the relationship between 'clan culture', hierarchy and status. Moreover, it is important to note that group behaviour and peer dynamics can influence individual attitude and perceptions (Tandon et al. 2022; Trenerry et al. 2021). For example, as Trenerry et al. (2021) discuss in their review of literature on technology adoption, factors such as whether or not technology use is mandated, how easy it is to use, or the perception of usefulness for the task at hand (which can be mediated by age or gender) can all affect how employees feel about a particular technological transformation. It could be said that the resonance of experience and feelings is important in how groups are formed and collective expectations shaped. Notably, Trenerry et al., also bring attention to a study by Chauhan et al. (2016) to suggest that peers compared to supervisors can have a more impactful role in learning skills and training.

Related to how individuals and groups occupy the workplace, some studies bring attention to the concepts of play and disruption (Malinin et al. 2016; Thoring et al. 2020). Malinin et al. (2016, 204) define disruption as "an integral component of team creative process providing opportunities for new (and often surprising) perspectives on creative situations to encourage innovation and potentially add value to organizations". Through a case study, Malinin et al. (2016) present 'play' as the key to creative disruptions influenced by social and physical qualities within the workplace (the 'psycho-spatial dynamics'). They argue that the workplace design should visually promote a culture where disruption is acceptable and allows for affordances that balance between personalisation of space for both individual work and teamwork; a process engendered bottom-up, empowering employees' exploitation of physical and environmental resources for their dynamic needs. In addition, Skogland and Karsten Hansen's (2017) review of literature also emphasises the importance of examining processes by which the workforce make meaning within their workspace. Accordingly, work is constructed through "socio-material relationships" (Skogland and Karsten Hansen 2017, 95) which needs to be considered in aligning the workforces' perceptions and behaviours with intentions for change at organisational level.

All the themes discussed thus far have highlighted the importance of the social context of the workplace that contribute to both how individuals regulate their expectations and behaviours, and how relationships between teams form. If, as insinuated from this section, social activities both within and outside the space and time of work can contribute to the social territories and group dynamics formed within the workplace, it becomes important to think diligently about what the social sphere in an increasing connected future for work will look like and how that in turn will impact the use of space (physical and digital) and interactions amongst individuals and teams as well as their sense of control over conditions of their workspace.

3.7. A requirement for heterogeneity

Heterogeneity is a concept that emerges through literature that considers the relationship of work (and changing modes of work) with its broader context, the urbanscape and civic life (Bürkner and Lange 2020; Serrano-Martínez 2016; Spinuzzi et al. 2019) and can be relevant when considering remote and hybrid modes of work. One example of this is seen in coworking spaces, which according to Bürkner and Lange (2020), are not a typical workspace in the sense that they merge the social and economic facets of work and, through digital connectivity, enables the socio-economic relations to extend in time and space. Furthermore, Spinuzzi et al. (2019) highlight that the changing landscape of work towards more distributed forms means that workers seek new ways to establish connections with and collaborate with communities. Reflecting on coworking setups, they discuss how such setups extending beyond the corporate office can leverage knowledge-sharing opportunities amongst heterogeneous groups, compared to the homogeneity experienced in traditional shared offices. If this heterogeneous community formation is to become a value for the next-generation of collaborative work, according to the typology proposed by the authors, the space of work should

enable all contributors to benefit proportionally from knowledge creation. It should also enable contributors to network based on shared interests and facilitate a more collaborative interdependence amongst managers and workers. Serrano-Martínez (2016) also emphasises the notion of heterogeneity by observing creative workers, considering the dynamics of creative work as a 'fusion' that brings multiple private and social spheres into the same space of work. The author notes that the significance of heterogeneity "is that the opinion of every worker is considered and respected" (Serrano-Martínez 2016, 147).

As work expands into the context of the city and becomes more intertwined with community-centric values, it also calls into the question the role of the physical office space. Several studies have placed an emphasis on the provision and management of services and experiences as a more important asset than the physical space per se, as work becomes more mobile (Harris 2019; Petrulaitiene et al. 2018; Spinuzzi et al. 2019). From designing workplaces that incorporate domestic and business functionalities and design features to create a welcoming atmosphere (Harris 2019), to strategies for creating 'added value' (Petrulaitiene et al. 2018), such studies imply a shift towards better accommodating employees' needs. The office, as Petruaitiene et al. (2018) explain, should allow as well as foster the types of activities that a future workplace demands. This, in turn, may encourage management to search for the right service at the right time and use of services facilities such as coworking spaces or incubators. As they explain, community-centric values bring many aspects of personal requirements as a service offering within future offices. Nevertheless, based on a series of case studies, the authors articulate that in order to "replace space with experience" (Petrulaitiene et al. 2018, 540) and support community-laden values effectively, companies are required to pay further attention to this matter.

4. DISCUSSION

As the literature shows, there has been a great emphasis on employees' perceptions and beliefs when evaluating the different aspects of the workplace over the past decade (Adamovic 2022; Hua et al. 2011; Needle and Malia 2021; Pitchforth et al. 2020; Trenerry et al. 2021; Zerella et al. 2017; Zoghbi-Manrique-de-Lara and Sharifiatashgah 2021). Derivative from such emphasis is that perceptions and beliefs should have a considerate role to play in conceiving and designing the spatial, cultural, and managerial experience of work, as they can impact the success or failure of different interventions and changes (see, for example, Trenerry et al. 2021 on factors influencing adoption of technological changes in the workplace; and Skogland and Karsten Hansen 2017). Overall, the particular reflection on the affective and subjective impact that different design and management strategies can have on employees foregrounds the increasing attention being paid to humanistic values within the workplace, which provides a suitable ground for thinking about a postdigital notion of the workplace.

Within the existing requirements that literature discusses for workplace design and management, the importance of socio-spatial context was realised through this SLR. Notably, concepts such as proximity, individuality, territory, diversity, heterogeneity, etc., were discussed, all of which accentuate the place and importance of how individuals feel and behave at work, in relation to others and their social and cultural context (Adamovic 2022; Forooraghi et al. 2020; Malinin et al. 2016; Needle and Malia 2021; O'Hara et al. 2011; Serrano-Martínez 2016; Sicotte et al. 2019; Trenerry et al. 2021; Zerella et al. 2017; Zoghbi-Manrique-de-Lara and Sharifiatashgah 2021). The literature considers that the dynamics within the space of work are multi-factorial, complex and cannot be examined independently of the other (Chen et al. 2020; Davis et al. 2011; Manca 2022; Trenerry et al. 2021). Therefore, each of these socio-spatial concepts can be valued differently in different context and as Skogland and Karsten Hansen (2017) discuss, empirical research is needed to better understand how work manifests given its social and spatial backdrop.

In the current climate, as the ecosystem of work continues to change and adapt to hybridity, the significance of examining the socio-spatial context in which change is occurring becomes paramount (Petani and Mengis 2023; Saatçi et al. 2019). This is because the approach to hybrid work and provision of services, equipment and facilities can be different from one organisation to the next, and may also be experienced differently by the workforce depending on where they are located (Saatçi et al. 2019). In addition, perceptions about some of the aforementioned socio-spatial factors may also change. Notably within the broader literature emerging in response to the 'enforced' experience of working from home during the pandemic, Waizenegger et al. (2020) discuss changes in norms regarding communication, requiring planning and scheduling due to lack of knowledge of availability of others. Similarly, Marco et al.'s (2022) study discusses a reinterpretation of the meaning of the home, based on how socio-spatial affordances such as connectivity, communality, and adaptability were realised through the experience of the interviewees. Therefore, to better understand how different socio-spatial qualities manifest in the new ecosystem and the impact of different strategies on employees and the organisations, the socio-spatial context needs to be a key consideration in future studies. The requirements extrapolated in this SLR for

design of workplaces, can be used as a foundation to examine how such requirements collectively manifest in a postdigital hybrid ecosystem of work.

Furthermore, key to the findings of this SLR was a discussion around tensions, contradictions and juxtapositions of rivalling and seemly opposing expectations in the flexible and increasingly connected workplace (Davis et al. 2011; Fast 2021; Manca 2022). In addition to some of the tensions mentioned by Manca (2022, 333), such as, "*flexibility vs structure*, *fluidity vs stability*, and *exposure vs privacy*", or Fast's (2021, 1619) explanation about the ""individual self-optimization-collective self-care" spectrum", this SLR repeatedly brought attention to a need of balance between the needs and behaviours of individuals and those of the collective. The SLR also showed that there are factors that further complicate the type of strategies that can be used to create an individual-collective balance, which are related to the extension of flexibilities beyond the time and space of the conventional and physical office space. Therefore, further to the aforementioned tensions, it can be argued that in thinking about a postdigital hybrid conception of work, there are three dimensions of tensions that need to be carefully considered: behavioural, temporal and connectivity.

From a behavioural dimension, the workforce works both individually and collectively. As the literature alluded, the atmosphere created by what individuals do and what groups do can impact on the other as well as set the norms and expectations around acceptable behaviours (O'Hara et al. 2011; Tandon et al. 2022; Trenerry et al. 2021). In this light, the perceived comfort the workforce has towards their work conditions is an important issue to consider, and one that is probably most varied from one person to the next. The literature discussed aspects of psychological comfort that relate to closeness and proximity to others, sense of control, territory and stability they have over their positions, etc. (Forooraghi et al. 2020; Hua et al. 2011; O'Hara et al. 2011; Zerella et al. 2017; Zoghbi-Manrique-de-Lara and Sharifiatashgah 2021), but also to environmental comfort that relates to conditions such as temperature, sound, light, etc. (Al horr et al. 2016; Chen et al. 2020; Forooraghi et al. 2020; Hui and Aye 2018; Ng 2010; Nurick and Thatcher 2021; Papagiannidis and Marikyan 2020; Pitchforth et al. 2020; Thoring et al. 2020). However, the issue that is not specifically discussed in this literature is whether when working collectively, groups are more lenient and forgiving of conditions that may not necessarily fully align with their own comfort preference than when working individually; how does the type of work, individual or team-based, change perceptions of comfort? This may become more complex as the flexibility of hybrid working is also considered. Nonetheless, considering the hybridity of future work, studies that will investigate the changes in comfort dependent on individual versus collective work conditions can support organisations decide the spatial criteria that should be prioritised in their physical offices dependent on whether their offices are more likely to be occupied for teamwork or individual work?

From a temporal dimension, work activities can be either synchronous and asynchronous (Baker 2021; Johanson and Törlind 2004; Rico and Cohen 2005). Regarding synchronous activities that require groups to be present in real-time, due to the ongoing challenges of conducting virtual teamwork for effective embodied spatial experiences (De Paolo and Ropo 2015; O'Hara et al. 2011; Wang et al. 2021) there is an indication that certain aspects of teamwork, in particular the social and interpersonal aspects, may continue to benefit from being co-located (De Paoli and Ropo 2015). As the majority of studies were focused on the physical workplace, much of the social and behavioural implications of conducting work in close proximity to others were pertinent to synchronous working (whether that work is done individually or in teams). However, in the area of asynchronous work (that is conducted in a remote and distributed setup), it was not clear how the design and management of a workplace can support a healthy and productive social and cultural context besides a need for better communication (Adamovic 2022; O'Hara et al. 2011; Tanpipat et al. 2021; Wang et al. 2021) and spatial continuity (O'Hara et al. 2011; Wang et al. 2021). Some questions that would benefit from further scholarly enquiry are: how will different types of synchronous and asynchronous activities benefit from different physical/temporal distances? Should workplaces also provide spaces within the physical premises of a business for asynchronous activities or will/can such activities move beyond the office, into the city or the home? How should businesses create a balance between the types of asynchronous and synchronous activities their workforce engage with, how can this materialise spatially and what impact will it have on the organisation's culture and image?

From a connectivity dimension, the literature highlighted a push-pull between needs and expectations that are formed around being connected and disconnected during work (Adamovic 2022; Fast 2021; Manca 2022; Tandon et al. 2022). Social isolation in particular was accounted as a negative facet of disconnection (Adamovic 2022). However, disconnection was also discussed as a way of enabling recuperation (Fast, 2021), which could sometimes be facilitated through physically moving from one space to another (Manca 2022), or through digitally connecting to virtual spaces outside of work (Manca 2022; Tandon 2022). In accommodating both connectivity and disconnectivity in the same space of work, some of the suggestions made in the literature

for a more effective working space may be applicable. One noticeable discussed strategy is the diversification of space types (Forooraghi et al. 2020; Nanayakkara et al. 2021; Needle and Malia 2021; Sicotte et al. 2019; Thoring et al. 2020). Such strategy alludes to the importance of enabling the workforce to have choices and control over how they disconnect and connect to various aspects of work. Nonetheless, as Forooraghi et al. (2020) discuss more clarity is required on how spatial diversity should be integrated into design. In addition to Forooraghi et al.'s note, it is also not currently clear how autonomy and control can be spatially and temporally negotiated to ensure that individual or team needs for connectivity do not interfere with another's need for disconnection? Secondly, most of the strategies covered in the literature, are currently focusing on design and provision in the physical space of work. However, to what extent the digital space of work can take on a role in providing and maintaining a sense of choice and control over the time and space of work for the workforce and how will that in turn impact physical space strategies, requires further investigation.

5. CONCLUSION

On the premise that the future of work is postdigital and hybrid, this research set out to understand some of the considerations that need to be taken into account in designing future workplaces. Acquiring an understanding of the requirements currently discussed in literature pertinent to notions of the postdigital and hybridity was regarded as a first step. The requirements that were extrapolated from 37 studies within the workplace design and management areas (2010-22) brought attention to a range of socio-spatial qualities, reflecting issues of individuality, collectivity, synchrony, asynchrony, connectivity and disconnectivity. It was discussed that as we move towards a new ecosystem of work, the different socio-spatial qualities identified through this paper should be further examined to understand how meanings, perceptions, expectations and behaviours related to each will change. In addition, noting that a flexible working ecosystem is bound to be imbued with requirements and expectations that are at times opposing and contradictory, the paper brought light to the importance of better understanding what such juxtapositions are within a postdigital hybrid workplace and how through design a balance between emerging requirements and expectations can be facilitated.

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