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The future of the corporate office? Emerging trends in the post-Covid city.

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Abstract

Part of an ongoing longitudinal study, this article provides evidence on the emerging impacts of Covid-19 on the demand for, configuration and role of offices in cities, drawing on primary data from semi-structured interviews with UK-based Corporate

Real Estate Managers. The research is grounded on a 'theory of change' framework combining real estate, institutional economics, and economic geography literature. Our findings confirm an acceleration towards hybrid working patterns. 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, portfolio rationalisations) and trigger structural changes across cities.

Key words:

Corporate offices, covid-19, flexible working, cities, real estate trends, post-Covid city

JEL classifications:

R33, R00, R30, R14

Introduction

Since 2020, there has been considerable deliberation about the extent to which the shock of the Covid-19 pandemic will produce long-term structural socio-economic and political shifts that may, in turn, transform the way we live and work in our cities. Extant literature has extensively examined the inherent connections between economic, environmental, social and financial actors and our uneven built environments, and has reflected on market dynamics in cities during and post 'crises' periods (Ball *et al*., 2012; Monastiriotis *et al.*, 2021). This research seeks to unpack initial impacts of the pandemic on the built environment by considering changes in how office occupiers in the UK are responding to this particular 'crisis' and reflects on temporalities of emerging built environment impacts. Due to the uneven development of cities and their dynamics, initial responses to the pandemic have been variegated across real estate markets. These differences have predominantly been influenced by macro factors including geographical, socio-economic, and cultural variables, differences in business sectors and local market contexts.

This research focuses on the impacts of Covid-19 on UK-based corporate real estate (CRE) managers' expectations and experiences, and how adaptive occupier trends in response to the pandemic may have longer term impacts on our cities. Through a longitudinal study, drawing upon recurring rounds of interviews with CRE managers, this research investigates how the pandemic is expected to affect demand for and use of office space. As the vanguard of real estate strategies, CRE managers offer valuable insights into how responses to the pandemic have altered how office space is both perceived and operationalised, and what we can expect from the office of the future.

The choice to concentrate on corporations corresponds to the type of commercial spaces such institutions usually occupy: their real estate portfolios typically include a variety of spaces including prime offices (often leased from investment institutions), which indirectly support a series of other economic activities in city centres (e.g., retail and hospitality). Restructuring floorspace requirements across large occupier portfolios can therefore have significant impacts on not just the corporation and its labour force but can also generate related and sizeable impacts for locally connected economic activities. Our literature review explores these real estate trends in more depth and presents a ‘theory of change’ framework to better understand the evolution of the office market, its corporate occupiers and the city form. The theory of change adopted offers a novel approach to developing our knowledge of cities, as it connects established real estate literature with economic geography and economic perspectives on firm behaviour, recognising the interconnected and complex nature of market actors. In marrying concepts from these three differing disciplines, we can begin to create an enhanced way of understanding the emergence of the post-covid city.

Similar to many other markets, in the UK the rapid transition to remote working at the beginning of the pandemic (March 2020, for around a quarter of the workforce concentrated in managerial, professional, and administrative roles), appears to have fundamentally altered employers’ and employees’ perceptions of how previously office-based work can be effectively performed. Pre-pandemic there had already been a shift towards more agile working but one which did not fundamentally question the role of the office. The pandemic has had the potential to both disrupt and accelerate ongoing sectoral shifts in the office sector by changing the relationship between work and workspaces. This research explores the following research questions:

- How has the Covid-19 pandemic affected CRE workplace strategies?

- What are the potential impacts on the built environment across varied temporalities, temporary or permanent shifts, immediate and short-term impacts, and medium to longer-term future change?

To put the impacts of the ongoing pandemic in context, the paper first introduces the 'theory of change' adopted to better understand institutional CRE behaviour during the pandemic. It then provides an overview of the evolution of the office in the context of technological change transforming the nature of office-based work. The consequences of these changes on the use of office space, the office market and on cities are examined in the context of a pre-existing, pre-pandemic expansion of more agile, flexible and innovative working practices. An overview of the emerging post-Covid effect is provided, presenting emergent data from the UK office market. Following a discussion of methods, the implications of our findings are then analysed thematically in relation to the future of the office as a workspace in post-Covid cities and the effects on the commercial real estate market. Finally, we reflect on the potential impacts of change in the office markets upon cities and the wider urban environments.

Drivers of urban change in cities: Dynamics of demand and uneven development

Transformations in our urban form have been considered from myriad academic viewpoints, providing established foundations for developing perspectives on the office market. Our framework combines perspectives from real estate, economic geography, and economics literatures; all three literatures analyse drivers of change in the built environment in different ways. Neo-classical economics and real estate fields have traditionally concentrated on demand and supply dynamics of space. Such literature explores market price shifts, land use patterns, urban development and city forms. Also incorporated into our framework are complementary approaches from institutional economics. The focus of the latter has been on the agency of market actors and the roles and interaction of various institutions in real estate markets (Theurillat *et al*., 2015; Adams and Tiesdell, 2010).

The economic geography literature has typically concentrated on how labour market dynamics influence and create demand for working spaces and infrastructure, and therefore impact the location and flow of people and goods (Dicken and Lloyd, 1990). Connected to these perspectives are reflections on the uneven distribution of capital and therefore real estate development (Harvey, 1979). The urban form has been viewed as a 'social product' influenced not just by economics and financial markets, but by the social form of labour and its spatial representation (Harvey, 1979: 196). Such literature became increasingly influential following disruptions caused by globalisation, neoliberalism and the aftermath of the global financial crisis (Cox, 2022).

A 'theory of change' for real estate

The observed outcomes and processes in the office sector can be analysed from a range of theoretical and epistemological angles. There is no one accepted overarching 'theory of change' in real estate literature, but diverse reflections on variegated aspects of the global market. Real estate is at the nexus of countless inter-connected patterns of and trends in technology, power and political structures, ideologies, regulation and governance, business and working practices, cultural, environmental, economic structures and capital markets that renders most theoretical frameworks substantively incomplete. The risk then is that theories of change in office markets end up, as Solow (1970: 102) notoriously observed about explanations of economic growth, 'in a blaze of amateur sociology'. In this paper, we choose to draw largely upon concepts from real estate, economic geography and economics to frame a nuanced reflection on the complex evolution of the office sector during Covid-19. This is underpinned by concepts from neo-classical economics according to which the pandemic has created both short-term and long-term shifts in demand for offices with consequent impacts in both occupation and investment markets. These underlying broad economic adjustments are mediated through institutional structures - '…capital passed down through history' – where path dependency effects either lock-in and/or shape the local outcomes of systematic changes (Hobley, 1996: 11).

Real estate economic theory looks at the location of productive spaces – in this case offices – and their relation to land, rent prices and occupier behaviour. In the North American context and in strictly zoned systems, the way firms choose their locations in cities has been widely investigated. An emergent 'theory of change' in the real estate sector described the decentralisation of the US employment market as a result of technological developments and the differentiation of economic activities. DiPasquale and Wheaton (1996) considered the decentralisation of firms as a trade-off between wages and commuting costs, and agglomeration or information costs. Offices occupiers that remained in central business districts (CBDs) needed to compensate for longer, more expensive commuting patterns through higher wages.

Office centralisation and decentralisation patterns are influenced by external factors such as land use regulation and technological change. In recent decades, the latter raised questions around the resilience of the CBD given the growth of suburban and exurban offices. Complex multi-dimensional relations of labour and real estate markets have influenced urban (re)development and the spatial form of cities through which particular working patterns have stimulated cyclical changes in the demand for and nature of workspaces (Fainstein, 2001). Krugman (1999) identified key centripetal and centrifugal forces. The former broadly consist of economic externalities and benefits from co-location and agglomeration, including increased possibilities meeting clients and talent concentration. Centrifugal forces are determined by immobile factors like increasing land and rent costs.

Within real estate literature DiPasquale and Wheaton (1992) discuss how two markets - for assets and for space - are interconnected. Their analytical model shows the way that external changes like economic growth or recessions may impact prices, supply and demand. 'Economic contraction leads to decreases in all variables' i.e., demand for space, rental income and asset prices (DiPasquale and Wheaton, 1992: 191-192). Their model describes an adjustment process in which, following negative shocks and in response to economic stimuli, interest rates will adjust, yields shift, and investors would direct capital into real estate sectors. Most of the effects and impacts of these processes of change play out in the longer term over cycles (Barras, 2009). However, it can be difficult to trace the intermediate steps in market shifts towards new equilibria (presuming the validity of underlying neo-classicist concept of equilibrium). This theoretical perspective saw a first revival in relation to the effects of the global financial crisis (GFC) from 2008 (Lizieri, 2009).

Covid is the most contemporary market disruption stimulating substantial changes in global markets. However, this shock has happened when substantial capital has been assetised through commercial real estate. The pandemic has the potential to challenge the resilience of city central office locations for occupiers and investors alike. Since the beginning of the pandemic, researchers have questioned the (im)balance between the central location of office spaces and commuting patterns, suggesting that working from home (WFH) might increase demand for decentralised office spaces (Mariotti *et al*., 2021). Although it is challenging to draw definitive conclusions on the long-term impact of Covid-19, we ask, if large firms change their office occupation and CRE strategies what are the likely impacts on cities, and how will these play out temporally?

Changing work patterns: socio-economic triggers and urban impacts

In recent decades, particular disruptions have substantially impacted our urban form. For example, Castells (1996) predicted that digitalisation would produce the end of the city, with a shift towards remote working and a new 'Network Society'.

For several decades, there has been an element of office decentralisation to suburban locations. More polycentric urban forms have appeared, with the emergence of ‘edge cities’ and out-of-town office parks on low density, car convenient sites (Phelps, 2017).

As noted above, other researchers have emphasised the role of centripetal forces in global cities which generate positive economic externalities and clusters of cultural and creative activity (Sassen, 2001). Globalisation slowly blurred market boundaries and designed a new geography of employment, where skilled human capital would move accordingly to quality labour offerings (Moretti, 2012). Leamer and Storper (2014) suggested that, whilst the internet age could have triggered deagglomeration, it led instead to stronger agglomeration forces in certain locations. Global markets and new technologies made skills and ideas more mobile and transferable however, concomitantly, economic development and wealth became more unequally distributed.

A gradual shift in global labour markets occurred as inequalities grew, becoming even more evident in the aftermath of the GFC following years of austerity policies (Donald *et al*., 2014). These major socio-economic structural shifts are strongly related to changes in the way offices have been conceived and used in cities (Harris, 2021), as well as varying rates of changes in global city markets. Drennan and Kelly (2011) looked at office rents and demonstrated that agglomeration benefits are only achievable in large urban centres. In an analysis of the interdependencies between office investment markets and economies of global cities, Lizieri and Pain

(2014: 442) point out that 'while technology means that work can be carried out anywhere', office location still matters and large cities have benefitted from agglomeration and scale economies, labour skills and the critical mass of activities.

Some commentators have argued that Covid-19 could be a potential centrifugal factor. However, Florida *et al*. (2021) suggested that the pandemic might not alter the current spatial and economic inequalities shaping our cities but will likely produce social changes. Corporate office workers have already been impacted differently by the pandemic given the possibility for flexible WFH. Florida *et al*. (2021: 11) also highlight the importance of possible changes in 'office design, commercial real estate and commuting […] long-term impact will depend on how companies and workers navigate the complex advantages and disadvantages of this new landscape.' This is the focus of this paper, from an occupier perspective.

The evolution of office workspaces

The recession of the early 1990s led to cost reductions in, and rationalisation of, corporate office portfolios (Apgar, 1993). Concomitantly, rapid technological change drove increasing requirements for CRE flexibility (Joroff and Becker, 2017). Increasingly, white collar work was becoming more cognitively complex, team-based, collaborative and increasingly dependent on social connections and technological competence (Heerwagen et al*.*, 2010). The office evolved from a place to go to work to perform tasks into a curated, interactive environment. As the term 'hotelisation' implies, offices have been becoming more akin to hotels than traditional offices, characterised by less rigid, multi-functional workplaces (Brunia *et al*., 2016). In the last decade, austerity policies, the casualisation of employment and increased freelancing were complemented by the rise of platform-based technologies and an emergent 'gig economy' (Kenney and Zysman, 2020). The increasing digitalisation of working practices facilitated the emergence of agile working patterns and increasing rates of WFH in many CRE strategies (Harris, 2021).

Accounting for a relatively small but growing proportion of office space, a consequence of these trends has been the emergence of new workspace models such as co-working that initially addressed affordability and social isolation issues arising from WFH (Spinuzzi, 2012). In the last decade, the expansion of different typologies of co-working spaces and their increasingly corporate orientation have fuelled demand for flexible office spaces with short-term lease agreements that are more accommodating of fast-changing business needs (Fiorentino and Livingstone, 2021). There has already been speculation on whether co-working spaces and similar flexible workspace models would find additional market relevance following the pandemic, exploiting any potential centrifugal trends (Mariotti *et al*, 2021). However, perspectives on the centrifugal or centripetal nature of Covid-19 are still quite divided.

Covid-19 and the preliminary effects on the office sector

Reflecting the uncertainty of the pandemic's trajectory, initial literature on the impact of Covid-19 on urban environments has been tentative. There have been several studies within real estate, assessing emerging impacts on specific market sectors within cities, and other, more speculative papers, on how change may progress. Researchers have explored topics like the potential impact on the economics of agglomeration, the employment-housing location relationship and urban inequalities. Batty (2020: 547) queries what the outcomes of this 'unique and entirely unanticipated situation' will be for the urban environment. He suggests that 'traditional' ways of working might return but networks that actively create and influence our urban forms will adapt. Batty (2022: 2) also suggests that 'centralisation and decentralisation in cities are usually balanced at any time but the massive disruption posed by the pandemic has resulted in completely artificial forms of such functioning that are impossible to reconcile with previous forces'.

Florida *et al.* (2020: 21) discuss potential changes in the office market, specifically diminishing demand for both office and co-working spaces, reduced rents and increased need for adaptive reuse, suggesting that these are contingent upon both 'financial markets and urban political regimes'. It is also suggested that although digital advances enable remote and alternative working patterns, a persistent need for in-person interaction and engagement remains, even with moves towards hybrid working: a blend of WFH and working from the office (Florida *et al*., 2020).

Linked to broader perspectives on the complex interconnections between the city form, changes in the real economy and capital markets, Balemi *et al*. (2021) provide a comprehensive overview of the body of research on impacts on the real estate sector. This includes a model of the relationships between the macro-economy, housing market, commercial real estate markets and mortgage markets to provide an assessment framework. Carson *et al*. (2020, 371) suggest that cities 'as the manifestation of the real estate market appear to face an existential threat' from Covid-19 and that, due to its inherent characteristics, the market response will emerge slowly over time. They speculate that impacts may include potentially diminished volumes of international capital flows, decreased demand for office space in cities but growth in the regions, and the need to better operationalise and understand real estate data.

So far, the only consensus on the extent of change in the office sector is that it is difficult to predict. Demand for space may reduce, but the pandemic offers opportunities to reconsider workplace strategies and practices (Nathan and Overman, 2020). New working practices may require different types of spaces based on emerging needs both at home and in the office, (Boland *et al*., 2020; Dingel and Neiman, 2020). For many, WFH has proved successful, with performance and productivity in the pandemic perceived as resilient and constant (Gibbs *et al*., 2021). As a result, it is anticipated that hybrid working will persist in the long-term. However, it is also expected that the office will continue to play a key role in supporting innovation, employee motivation and company culture.

Emerging data insights from the market.

At the end of 2020, the value of commercial real estate in the UK was estimated at £918 billion, with offices accounting for approximately £263 billion (IPF, 2022). Among the domestic investors (70%), over half are financial entities like Real Estate Investment Trusts (REITs), pension and insurance funds (IPF, 2022). Therefore, any changes in the supply/demand/revenue equilibrium are likely to produce wider effects on the real economy.

The majority of the UK's offices (by floorspace and value) are concentrated in central London, and the UK market is the most transparent globally (JLL, 2020). Over the last two years, London has shown substantial volatility in terms of supply and demand. The pandemic produced a sharp fall in take-up of offices, associated with an equally rapid rise in supply (CBRE, 2022). Whilst the level of supply has remained relatively high and stable, take-up has steadily increased since the second half of 2021, which may be indicative that the pandemic has represented a temporary demand shock with the persistence of high supply reflecting disposals of surplus or unsuitable space.

It is also notable that capital flows have recovered, with a record £5.5bn invested in Q1 2022 (CBRE, 2022). The Investment Property Forum (IPF) Consensus Forecasts for the UK office market suggest that investors and their advisors are expecting relatively minor impacts from the pandemic in terms of rental change over the medium term. In February 2020, offices rents were expected to grow at around 2% per annum between 2020 and 2024. Whilst subsequent post-pandemic surveys indicated that rental values are expected to grow steadily at around 1% per annum until 2024 (IPF, 2022). Data from CoStar (2022) on the current office market situation in the UK confirms the forecasts from IPF. Capitalisation rates have decreased steadily since 2013, the progressive growth of market rents stopped in 2016, but prices have remained stable since the outbreak of Covid (CoStar, 2022).

Different industry research shows diverse values for vacancies, but in most cases, figures have almost doubled since the pre-pandemic. JLL reports a vacancy rate in central London at 9.0% in the first half of 2022, as compared to 4.1% at the end of 2019 (JLL, 2022). Absolute percentages from CoStar show different figures, but a similar ratio in the variation over time. A stark growth in vacancy rates have been registered all over the country and almost doubled in all its sub-markets since the second half of 2020. Overall, figures are still lower than those registered after 2008, but the fast pace of growth in vacancies since 2020 seems to suggest we might see new record figures.

The pandemic has overlayered effects triggered by the 2016 Brexit referendum. Demand for office space has diminished slightly in 2021/2022 in the London region, but irrespective of prices, the City of London is one of the steadier markets (CoStar, 2022). The more stable demand in central locations seem to suggest that Covid might be acting as a centripetal force of agglomeration. However, market data is still not sufficiently developed to give an exact picture of the impacts of the pandemic on the take-up and supply of offices in both central and regional markets (cf. Carlson et al. 2020).

Methodology

As discussed by DiPasquale and Wheaton (1992), it takes time for exogenous shocks to be translated into yields and measurable impacts on real estate markets, and therefore on cities. As we are in the initial phases of this market shift, we chose to undertake a longitudinal qualitative study (interviews that would be repeated every six months for three years since the disruption), that allows us to capture additional variables affecting corporate office occupiers and employees across numerous temporal perspectives. We recognise the need to disentangle the changing role of the office and therefore the potential impacts on the city form.

Semi-structured interviews were selected as the core research method to serve the purpose and nature of the research. They allow flexibility in approach to capture the emerging views and experiences of corporate occupiers regarding their use of office space (Bryman, 2016). An interview framework was developed by the research team enabling comparable qualitative data to be collected whilst providing the flexibility to draw out alternative themes and issues that emerged during interviews. The study is inductive because the understanding of the topic was improved using the empirical findings. Eleven CRE managers have agreed to commit to this ongoing longitudinal study (2020-23). Interviews are being carried out at six-monthly intervals with previous responses revisited, allowing the research team to track how attitudes and thinking, along with consequent CRE strategies, evolve in response to the pandemic. This article captures responses from three rounds of data collection, a total number of 33 interviews.

The industry sectors, scale and geographical responsibilities of the eleven respondents are displayed in Table 1. Organisations were chosen as they occupy significant office floorspace, through which both the magnitude and nature of changes can be unpacked across several years. The eleven respondents hold either Europe, Middle East and Africa (EMEA) or global CRE Manager roles in institutions that range from public sector through partnerships to publicly quoted entities. They are at the frontline of executing changes to office space and responsible for the acquisition, disposal and operational management of CRE for large organisations. Through interviews expectations of how the office as a workspace has and may change as we shift to a post-pandemic are explored.

ID	**Portfolio of responsibility.**	**Industry/business sector**	**Total No. of Employees of the Company.**
TMT1	Europe and the UK.	Telecommunication and networking equipment.	>100,000 worldwide. >30,000 in Europe.
FS1	UK.	Financial services and insurance.	>10,000 worldwide. >1,000 in UK.
CL	Global.	Legal services.	>5,000 worldwide. >2,000 in UK.
TMT2	UK.	Telecommunication equipment and services.	>15,000 worldwide. >6,000 in UK.
FS2	EMEA (except Switzerland).	Financial services and banking.	>70,000 worldwide. >10,000 EMEA.
PS	UK.	Public sector body.	>50,000 in UK.
Con1	UK.	Consultancy/professional services.	>200,000 worldwide. >20,000 in the UK.
Con2	Europe and the UK.	Consultancy/professional services,	>300,000 worldwide. >15,000 people in the UK.
Man1	UK and Ireland.	Manufacturing: hospitality sector.	>25,000 worldwide. >10,000 in Europe.
TMT3	Global.	Telecommunication equipment and services.	>20,000 worldwide. >10,000 in the UK.
Man2	Global.	Manufacturing: mechanical sector.	>75,000 worldwide. >2,000 in UK.

Table 1 – List of interviewees, industry sector, employee numbers and scale of corporate occupation (2020-22). Interviewers IDs corresponds to their industry sector: TMT – Technology, Media and entertainment, and Telecommunications; FS – Financial Services; PS – Public Sector; CL – Consultancy Legal; Con – Consultancy; Man – Manufacturing Company.
(Sourced from various websites and publicly available information, but these are anonymised in line with the ethical approach adopted to ensure participant anonymity).

A blend of non-probability convenience and snowball sampling was used to identify the respondents based on a combination of requests for participation from the professional contacts of the research team and/or recommendations from these professional contacts. Estimating an adequate sample size to achieve saturation is a long-standing problem in interview-based qualitative research (e.g., Nelson, 2017). Given the longitudinal nature of the study and the size of portfolios managed by the respondents, the sample size was deemed adequate for our research. Figures and data used to populate Table 1 are the result of a desk-based research[1]. The annual revenues of the selected corporations ranges from £1.5 billion to over £35 billion. The decisions taken by our interviewees are likely to influence the workplaces of a total of circa 300,000 employees. They manage a total of 92 office premises in the UK. If we consider the average space ratio per employee[2] we get a managed portfolio of around 2 million m^2 of office space, that is equivalent to 4.9% of the total office space inventory by CoStar (2022) for the UK. For the purpose of this project, we focus on office spaces and the potential impacts over cities. But the interviewed companies occupy a broad range of real estate premises across the UK, Europe and globally (e.g., retail units, manufacturing centres, data centres, utility plants, industrial warehouses, etc.). The CRE strategies of the respondents' organisations has the potential to significantly affect the market for commercial spaces. Currently, there is no easy analysis of the statistical data across all these sectors. Hence the qualitative approach adopted by the research offers a chance to understand key determinants, by collecting original and in-depth insights into corporate responses to Covid-19.

Our primary data collection complements the analysis of emerging secondary data from close-to-market analysts and commercial real estate databases - like CoStar - that has been presented in the previous section (“*Emerging data insights from the market”*). This body of work attempts to monitor the intentions of office occupiers. However, as explored earlier, the nature of these data is still contrasting and uncertain. On the contrary, our application of qualitative research methods was concerned with improving understanding of, and obtaining deeper insights into, experiences, expectations, intentions, rationales and CRE responses. Essentially, whilst market research has mainly been extensive, this research study is intensive and conceptually guided by our ‘theory of change’. The longitudinal element of the study is crucial to track evolution of decision making and reactions over time.

All interviews took place over Microsoft Teams, with two members of the team present. Respondents were provided with an information sheet on the research project and completed consent forms. Interviews were transcribed, anonymised and then analysed. Initially the data was open-coded to identify common themes and then re-coded to rationalise themes and identify connections. Findings are centred around themes which have emerged from the interviews in an inductive way. Our analysis focuses on four themes: (1) pre-pandemic change in the use of offices; (2) plans for hybrid working; (3) impact on the quantity of office space and (4) the continuing role of the office.

The future of corporate offices: emerging trends.

Pre-pandemic trends in office use

To understand whether the pandemic had influenced CRE trends, during the first interviews (winter 2020/21), respondents were asked how their organisation's office use had changed in the decade prior to the pandemic. There was variation in workplace models across the institutions, ranging from those who were more agile to those still centred on one desk per employee (with a fixed computer). Several had been considering more flexible working, but adoption had been mixed.

Prior to the pandemic, half of the organisations had explored WFH or agile working. Consulting and telecoms firms were generally more flexible and better equipped to pursue more agile workplace models. The adoption of particular technologies made remote working more accessible, and the implementation of hot desking systems made this process smoother (LS; FS1). Some sectors were more conservative than others, like manufacturing and public services (Man2; PS). Respondents from consulting firms described a relatively well-established agile model (Con1; Con2).

> *Agile working has been front and centre of what we've been doing for at least…four or five years now… people can work productively from home, and it's probably accelerated some of the portfolio rationalisation*. (FS2).

However, almost all the interviewees caveated their comments on agile working pre-pandemic, confirming that staff were still expected to come to the office for the majority of the working week. Other respondents pointed to varying degrees of agile working between different locations and roles, and that pre-pandemic trends pointed to the intrinsic inequalities in its implementation even within the same organisation, based on the tasks performed and seniority of role.

> *Different parts of the business have evolved at different speeds… the global vision for our future workplace? We've landed on activity-based working, unassigned desking.... different types of spaces depending on the different types of work people do.* (Man1).

Similar variations were noted in relation to R&D sectors and their office needs (TMT1).

Organisations have been engaged with moving towards agile working over the last 10 years at different speeds and to different degrees. Put simply, this corresponded to a densification and rationalisation in how space was used: "*for the last two to three years we've been trying to get to a 0.8 figure [one person to 0.8 of a workstation]".* (TMT3), and even the more traditional offices have been transforming their space (TMT3).

> *Where we are now versus where we were, say a decade ago - gradually decreasing the number of sites and the total footprint…in 2009/10 the directors lost their rooms...It's all open plan, apart from meeting rooms* (TMT2).

One respondent illustrates the impacts of agile working on the nature of office space required: they were expanding the workforce by 50%, whist decreasing the quantity of space used by 25% to 30%: "*We've been fortunate in that a lot of the* *leases were coming to an actual end... Which gave us this once-in-a-generation opportunity really to renew the office network…That's been paramount to rightsizing all our offices in the last 10 year"* (Con1). These comments also reflect the important influence the dynamics of leases and pricing have on real estate occupation trends, as well as the temporalities of change: other occupiers may be locked into very different leasing arrangements with no imminent break clauses or expiries.

Pre-pandemic, portfolios were being actively rationalised by interviewees, cutting less prime and less central locations, and increasing agility due to the increased flexible working. This was to maximise positive agglomeration externalities (in line with Drennan and Kelly, 2011), to maintain a strong corporate culture and brand in highly visible locations (Sassen, 2001) and to rebalance office densities. In terms of wider impacts on global cities this process typically corresponds with increasing land prices and rents in CBDs, as well as increased and longer commuting patterns from the outer metropolitan locations. Through these findings we can confirm the importance of various dimensions of change as suggested by Florida (2021): office design, commercial real estate and commuting.

All the organisations kept their offices operational during the various lockdowns and, with one exception, there were very small occupancy rates, mainly for priority users, such as IT and other staff for whom office access was critical. Not surprisingly, organisations that were already agile had a greater capacity to adjust more quickly to the need to shift to WFH.

During the pandemic, organisational productivity was not perceived to have been negatively impacted but to have been maintained or enhanced. Some interviewees expressed concern that employees were working longer hours at home with issues arising from 'over communication' and 'virtual fatigue'. Managing teams was perceived to be more difficult as was working in a new team, and the role of the office will remain key in addressing ongoing workplace challenges in the longer term.

Plans for hybrid working

For most organisations, given the relative success of WFH, the pandemic has prompted an evaluation of the role of the office workplace, its uses, management, and configuration. In the first round of interviews, all respondents envisioned some type of hybrid working pattern for most of the workforce.

> *… "what does the future of work look like?" …. I think the expectation is that people will go to the office three days a week and work from home two days a week... there's a general expectation that people are not going to be in the office five days a week.* (TMT3).

The majority of the CRE managers interviewed discussed staff preferences for working from the office two or three days per week. Internal workforce surveys were also run in most organisations, confirming the increasing "*desire to have … flexibility.*" (TMT1). But hybrid working patterns also require appropriate protocols and formalisation to avoid managerial problems (FS2).

The impression emerging from our thematic analysis was that there is an inherent need to go back to the social life of the office, but as employees demonstrated that it is possible to flexibly WFH, there will be no ‘cultural pressure’ nor ‘technical reasons’ to return full time. Interviewees envisage a partial return to the office (Man1; TMT2). Here we see a trend of space rationalisation confirmed; TMT2 estimated that hybrid working could bring additional cuts in office space “*up to an average of 30%”.* Short-term impacts on cities might mean a partial renaissance of peripheral town centres and expenditure closer to employees’ residencies, at the expenses of central CBDs, and to a certain extent reduced pressure on commuting paths. In the longer term, it may precipitate a more drastic structural change in occupational demand, with significant impacts for the investment market, pricing and returns (Carson et al, 2020, DiPasquale and Wheaton, 1992).

Whilst pointing out that there was some desire to return to the office, FS1 noted that WFH could become required in order to attract and retain high calibre employees, with a more formal shift to WFH should result also in amendments to employment contracts, especially once uncertainties around the pandemic are settled. Additionally, FS1 felt there would be a shift towards the dislocation of work from a single place*, “and where you work, it won't be on the job description anymore”* (FS1).

In the second round of interviews in summer 2021, this pattern was broadly confirmed, with all respondents reporting plans to make hybrid working practices the ‘new norm’.

> *…our return to workplace will clearly happen in the coming months… my expectation is all our population will be in a rhythm of hybrid working…People shouldn't expect to be going back into an office more than three days a week, as a blended average...* (PS).

> *We understand people want to work at home for 2-3 days a week. So, we're allowing that sort of almost 50:50 balance subject to business needs and requirements.* (TMT1).

Reflecting the uncertainty around future strategy, some respondents stated that there would be a degree of experimentation. In other cases, expected adaptation reflected through learning-by-doing. Many respondents used the pandemic as a pilot to test the introduction of new policies and to attract people back to offices (TMT1; LS), with technology and data collection crucial to informing future decisions. However, it is too soon to confirm longer-term strategy:

> *... we are doing a hybrid work pilot. So, we're not committing to anything … but we're going to try and get the data and see what happens. We're not being prescriptive about how often people go in… there'll be… communication around it to encourage people to come in.* (TMT3).

The anticipated return to the office has progressed more slowly following the impact of the Omicron variant and, as we write, most organisations are still largely WFH. Remaining uncertainties about the pandemic's trajectory and employee behaviour still reflects a trial-and-error approach, and *"it will take 12 months to* *really take an informed view"* (Con2). The temporalities of the short-term experiences discussed by occupiers suggests that some changes may become permanent (WFH, hybrid working, portfolio rationalisation), whilst others could be more temporary or dynamic (flexibility of roles, contractual shifts).

Whilst hybrid working is expected to be the dominant working model, plans remain largely emergent with complexities and uncertainties likely to become clearer during the pilot stage of adoption. CRE Managers are currently evaluating how to accommodate a complex matrix of workforce preferences in a context of uncertainty. The stated preferences of employees might change once hybrid working is fully implemented, with institutional strategies in CRE and management overall becoming clearer.

Impacts on quantity of office space

In the first round of interviews, most respondents expected to have smaller footprints as a result the increase in WFH and associated changes to office space configuration.

> *I think the consequence of the new ways of working in the redesign of space will be that we need less space going forward.* (TMT1).
>
> *Cost reduction will come through footprint reduction largely… I think there will be a significant reduction in the portfolio. I would say 20% to 30%. Possibly more.* (FS2).

In some cases, the projection over spaces reduction and footprint cuts were more radical, stretching up to "*50% by 2030*" (LS), motivated primarily by saving costs (Man2).

In the second round of interviews, similar figures for footprint reduction were cited, but for some the extent and timing of the streamlining had become less clear. Overall, the disposal of surplus space is anticipated as being a gradual process, and common to the majority of discussions independent of the variegated industries represented. Strategies are being created around interconnections of lease events (breaks or expiries), business requirements and sunk costs (e.g. from the likes of fit-outs), with timeframes of four to five years mentioned. Considering the substantial size of these office occupiers' portfolios, the strategies for rebalancing space will be experienced across varied temporalities, approaches and magnitudes.

Most of the respondents indicated that they are not likely to take any final decisions in terms of cuts to their portfolios before the next three to five years, to observe the direction of the market and wait for break clauses and lease expirations. Man1 had a clear idea regarding selecting space for disposal through a detailed filtering process:

> *…we target lease events… [and] expiries … We apply lower square metres per head count. What opportunities does that throw up? And then we started to risk profile it.*

Man1 continued, explaining that offices that were recently refurbished pre or during the pandemic, and offices whose leases are due to expire far in the future (10 years+) are to be excluded.

> *…we will need less office space in the future, but it will not be an immediate, seismic change. It'll be a sort of five-year program … as lease events give us opportunities* (Man1).

This approach suggests that the significant impacts of office downsizing and space selections on cities will be spread over a medium-term time horizon of five to ten years. At that point, some losers in this game of selection and the theory of change in terms of DiPasquale and Wheaton's (1992) four quadrants of the real estate market will start to become apparent. The success of such changes will also be determined by additional factors, such as local real estate market dynamics and the macroeconomies of future cities, which are fluid, but consistently 'temporally and geographically constrained' (Balemi et al., 2021).

The continuing role of the office.

Interviewees vigorously confirmed that their institutional office space will remain essential. Its importance in building teams, driving innovation and learning, facilitating collaboration and connection, was mentioned frequently. Respondents felt that the office would remain key to creating, maintaining and transmitting the often tacit norms, values and behaviours that constitute corporate culture (TMT3;

Con2; FS2). However, it was also acknowledged that building corporate culture was not necessarily incompatible with hybrid working.

> *Culture is important…that was one of the reasons for building the HQ back in 2009/10. The project that kicked off in 2007 was to bring together disparate buildings and creating more of a cultural hub… But you just don't need to be there five days a week to tap into that.* (TMT2).

Whilst there was some recognition that collaboration could occur WFH, returning to the office was considered as vital for team-working.

> *If I'm doing emails and Zoom calls and writing reports, I don't need to be in the office. I can do that perfectly well from home…But, if I need to connect with teams and people, then I'm coming in.* (Man1).

Technology and the enabling possibilities offered by various platforms (Zoom, Teams etc.) are here to stay but the office will retain a multi-dimensional role for team efforts and creative tasks. Collaboration was much more important for some types of role or tasks; research and development areas and business innovation were most disadvantaged by WFH.

> *... to really be generating innovation and creativity, you need to be face-to-face and that happens when people spark off each other and interact with each other.* (Man1).

> *…it's not like those informal conversations that you have or the chance meetings that you get bumping into someone in an office building…* (TMT3).

There was agreement that physical presence in the office was crucial for new staff and informal training and learning.

> *…those trainees that came on board in March and have never met their bosses. Never been into the building.…for them, that's unsustainable.… the whole business could not carry on unless we can get back into the building and get back in quite quickly.* (LS).

Since the beginning of the pandemic, organisations have had to try to facilitate product and process innovation under different operational models with ongoing, sometimes abrupt, shifts from mainly office-based to remote homeworking to hybrid working. Whilst in the short-term, it was perceived that there had not been substantive adverse impacts on productivity and performance, it was argued that remote working – by reducing collaboration and communication - could harm productivity and performance in the long-term. So, generating creativity and innovation through collaboration was perceived as a key function of the office (FS1).

Across all interviewed organisations, the impact on creativity has been an important negative consequence of the lack of face-to-face interaction since March 2020. The effect appears more clearly with development/innovation of products or acquiring new clients (Con2). One respondent noted that for R&D "*people need to* *be physically together to write code and to design*" (TMT1). Whilst there are emergent techniques that attempt to encourage creativity in an online context, they seem to be a poor substitute for face-to-face interaction. One respondent pointed out that, whilst their particular organisation had been performing well during the pandemic, there was concern about a lack of innovation.

> To *"improve the business, innovation, continuous improvement … to really be generating innovation and creativity, you need to be face-to-face … when people spark off each other and interact with each other.… there's some really good tools and facilitation that has happened to be developed …, but … it happens better face-to-face"* (Man1).

The interviews overall showed that the office has not lost its role, but its function will centre on innovation and creativity, alongside collaboration, social inclusion and learning. Therefore, offices will continue to play a fundamental role within global city markets, although dynamics of occupation, supply and demand are likely to shift as we move into the longer-term, following portfolio rationalisation, and the embedding of flexible workspace. Although institutions aim to adjust their occupational densities and requirements (section 4.3), they will continue to require space and contribute to the interconnected externalities at play in urban relations and experiences (as per Krugman, 1999). The necessity to strengthen corporate culture and maximise externalities coming from agglomerations in most instances, ruled out the possibility of going back to a decentralised model or a hub-and-spoke system, confirming once more that Covid-19 alone is not likely to level-up or smooth the cyclical spikes of urban economies (cf. Leamer and Storper, 2014). In the longer-term if a structural shift emerges it will be a question of the magnitude of change against the nature of the city, as local real estate market contexts and capital flows are varied and dynamic (Lizieri and Pain, 2014).

The CBD office continues to be regarded as a critical operational hub for corporate office occupiers. Whilst there has been some debate about potential decentralisation and dispersion of office space, this is unlikely to be significant. Limited enthusiasm was shown for the use of satellite or peripheral co-working offices, albeit they might be appropriate for staff for whom WFH was not suitable (e.g., colleagues with caring duties, a lack of space). On membership opportunities or hub-and-spoke models, views are divided. The perceptions that most provision was in city centres and was relatively expensive was discussed. One isolated respondent felt that their 'technical sites' might prove suitable for transformation into decentralised satellite offices (TMT3). However, most felt that the so-called 'hub and spoke' model offered few of the benefits of a single hub.

> *For us the hub-and-spoke thing doesn't really work… Because that goes against what we're trying to do in terms of collaboration, bringing people together. You end up with splintered teams. (*FS2).

In other words, decentralising offices would be against the new nature of offices, that in the contemporary digital world will have to *"connect people* [by bringing them to] *the same place"* (Man1). In contrast to their expectations about the quantity of office space, and following a brief cost-benefit analysis, most respondents did not foresee any significant change in the location of office space i.e., in central and urban locations.

Conclusions

In the second half of the last century, secular shifts in the composition of the economy led to a rapid expansion of office development and office-based employment. In the twenty-first century, as mobile technologies became more prevalent and effective, CRE and office managers had the option, albeit not widely exercised, of abandoning fixed workstations and moving towards more agile working experiences. However, in a very short time the pandemic appears to have produced a critical juncture and a Kuhnian paradigm shift in ways of office working. In relation to the ongoing impacts of this shift, we explored the responses to the ongoing pandemic of corporate office occupiers, and through a 'theory of change', which connects perspectives on real estate, economics and economic geography literature, considered the potential impacts on cities across varied temporalities. This critical juncture for corporate office occupiers connects to the transformation and dynamics of cities, with global and local contexts inherently important in relation to what happens next. Certain CRE responses will be necessarily short-term and temporary, while others will be structural and permanent with uncertain impacts in the longer-term for both the office market and the urban form.

Although it is largely a dramatic acceleration of a pre-existing trend and there is a need for caution in any generalisation, our findings are consistent with other emerging research, confirming that corporate offices intend to shift towards a form of flexible, hybrid working. Through this model, the institutions interviewed are attempting to reconcile contradictory drivers. Implicitly, the hybrid working model is attempting to capture the agglomeration benefits of CBD office hubs and reduce the diseconomies produced by unproductive travel time and disturbances. However, it is important to bear in mind that an alternative hybrid model remains largely unproven. At the time of writing, most interviewees have planned for, but been unable to implement, hybrid working plans. Nevertheless, hybrid working will produce changes in the location of production and consumption, occupation, investment and agglomeration.

The extent of adoption of hybrid working will be mediated through variations in local institutional structures, as firm specific strategies mediate the impact of the pandemic. Although WFH and hybrid approaches are likely to be formalised by institutions in the coming years, cultural and social elements of company operations will ensure there is an important ongoing role for office spaces, especially those in higher density city markets. However, whilst there can be lengthy temporal lags in adjustment in real estate markets, it is widely anticipated by CRE managers that hybrid working will see substantially reduced requirements for office space: significant changes in portfolios are anticipated across interviewees in the next decade. A reduction in demand and a linked increase in supply could increase office vacancies, rendering older configurations and designs obsolete. A significant proportion of surplus office space will need to be refurbished or re-purposed, redeveloped or become derelict.

Whilst there may be a need for less office space and drive towards portfolio rationalisation for interviewees, there is little suggestion that the location of offices will change fundamentally within cities. The main purpose of the office is expected to shift in a way that reinforces centralisation. As the domestic sphere is expected to be the location for more individual and 'focused work', the central office is expected to continue to provide a hub for employees to create, connect, collaborate, learn, build corporate culture and meet clients. Whilst office-based businesses have managed to operate effectively through the pandemic with a mainly WFH model, the office was expected to continue to play an essential role for the CRE managers interviewed. There was little expectation that the pandemic would lead to more decentralised and more numerous offices because they do not offer the agglomeration benefits of a central hub.

With the shift towards hybrid working there are expected to be spillover effects to other sectors, including changes in patterns of demand for retail, leisure, travel and hospitality services. With more WFH, the location of employees' consumption will change as well. Capital market trends have signalled an expectation that the retail and hospitality sectors will be more severely affected than the office sector in the long-term. In already economically disadvantaged areas, clusters of vacant retail, hospitality and office properties may emerge to create a self-reinforcing cycle of blight and decay in some neighbourhoods. Shifts in the location of production and consumption, occupation trends and investment flows, have invariably created spatial winners and losers.

At a macro-level, Lizieri and Pain (2014) highlighted the wider systemic risks created by clusters of highly inter-connected globalised financial organisations often simultaneously involved in office development, funding, investment and occupation, who were concentrated and locked together across a range of global cities. As a result, a combination of an economic shock and accelerated structural change in the office sector could have significant implications for the performance of investing institutions (including pension funds). At a micro-level, weaker office locations - including those that previously acted as dormitory - or feeder locations may see a material decline in their overall office stock. Increasingly anticipated significant structural changes in the office sector due to hybrid working could well require innovative regeneration strategies for post-service sector locations**.** Pre-existing local market dynamics will contribute towards the trajectory of change in cities, with established CBDs in global cities experiencing structural changes in very different ways to weaker regional office markets, as institutions prioritise central CBD locations.

Moving forward, additional research could address the longer-term impacts of Covid-19 on specific markets through granular examination of real estate market trends and economic shifts, from global cities to more regional markets, through both qualitative and quantitative analyses. Local context and global influence are indelibly connected to institutional responses to the pandemic, and therefore changes in urban form. Through our research we have offered inductive and novel insight into emerging trends at the level of large, corporate institutions where change in office use would have a significant knock-on impact on markets.

International variations of experiences within institutions offers another interesting avenue for research. Other market perspectives, in terms of actors and sectors, as well as policies, should and could be considered in more detail. Emerging quantitative analyses on such trends would also advance existing knowledge. We will continue with our longitudinal study and offer further research-based evaluation on office market changes in the coming years as we develop a growing understanding of how institutions will embed changes in office use in the 'post-Covid' city.

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Endnotes

[1] Information has been collected through the companies' website, the analysis of annual financial reports and official documents and databases that are publicly shared by the companies, some of those figures have been matched with the information provided directly by the interviewees. Due to ethical considerations and the guarantee of anonymity of all respondents we had to select the type of information shared in this article (i.e. leaving out any exact information, more specific figures on the size, nature and location of their RE portfolio and assets); employee figures have been rounded down by ranges to indicate the size and the nature of the corporations.

[2] For more info on current trends and how to calculate the average floorspace per employee see Knight Frank (2022) "*How much space does my business need?*", available at; https://www.knightfrank.co.uk/office-space/insights/culture-and-space/how-much-office-space-does-my-business-need/ . The figure was also confirmed by several of our respondents.