A Perspective on Agile Working in Historic Buildings

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1.0 Introduction

This paper was commissioned by Historic England from Ramidus Consulting in February 2018. The overriding purpose of the commission was to explore and discuss the potential for agile working in historic buildings.

The Heritage Lottery Fund report, *New Ideas Need Old Buildings* (2013) suggested that, nationally, there were over 130,000 businesses operating in Listed buildings alone. The report was clear in its view that historic buildings have an important role in supporting modern businesses. The report stated that

> *the commercial businesses based in the historic buildings of our major cities are more productive and generate more wealth than is the average for all commercial businesses across the whole economy.*

And that

> *innovation, new products, new services – indeed, new economic growth – flourish best in cities possessing a good stock of historic, distinctive buildings. New ideas need old buildings.*

Across the UK, the businesses based in Listed buildings are highly productive and, according to the HLF report, make an estimated annual contribution to UK GDP of £47bn and employ approximately 1.4 million people. This represents 3.5% of the UK's Gross Value Added, and 5% of total UK employment. And that is just Listed buildings; adding the non-Listed historic stock would lift these figures dramatically.

Around 10% of the 130,000 businesses referred to above are 'commercial' firms including: accounting, advertising and communications, architecture, art, design, employment agency, finance, legal, marketing, music, publishing, real estate and so on. Many of these will occupy office and studio space. They are also likely to represent the growing numbers of firms that exercise greater choice over where and how they work – so-called agile working.

Growing numbers of firms are no longer tied to traditional office environments, and in this direct sense, historic buildings potentially take on a new dimension. They might be particularly attractive to firms and workers who place a premium on heritage, authenticity and distinctiveness. They are also likely to be attractive to start-ups in creative, professional and cultural organisations looking for 'something different'. This paper explores these postulates.

It was not intended to undertake primary research to do this, but rather to gather together as much existing learning as possible and to build on much practical experience and knowledge of best practice in agile working, and to translate this into the historic building context.

1.1 Buildings as responsive environments

In 1994 Stewart Brand published a book called '*How Buildings Learn*'.[1] The book was an exposition of how physical structures evolve over time, responding to the different requirements of their occupants, taking on new appearances and performing new functions.

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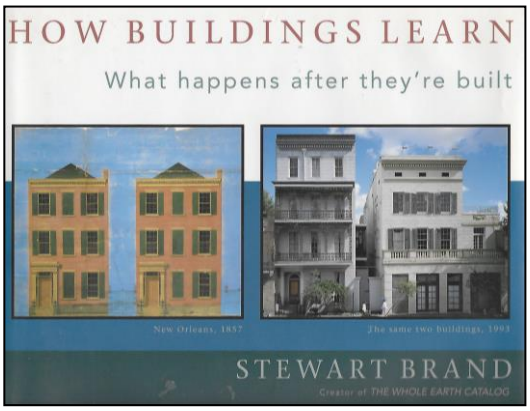


At the time of his writing, in the 1990s, many old high street bank buildings were converted to wine bars and fashionable eateries; their banking halls offering high, vaulted ceilings and period settings.

Had Brand been writing in the technology-driven era that followed, then many more examples would have been available.

One example might have been the Tea Building, on the junction of Shoreditch High Street and Bethnal Green Road, in London. The eight-storey building was originally completed in 1933, having been designed for meat processing. By the late-1930s, food brand Lipton was using the building for processing and packaging tea. Lipton vacated the building in the 1970s.

The building was then occupied by Securicor, for use as a warehouse and storage facility. Following a period of under-use, the property was bought in 2001 by Derwent London, who transformed the building into flexible and studio space.

Today, the c260,000 sq ft building is home to creative industries, housed in reconfigurable and affordable studio space across eight floors, as well as galleries and communal area. The property's occupiers include: artists, designers, fashion labels, marketing agencies, media firms and retailers. The building also has a private members club, restaurants and a hotel.

What Brand and Derwent demonstrated clearly, in different ways, was that older buildings can be adapted and re-purposed for modern work.

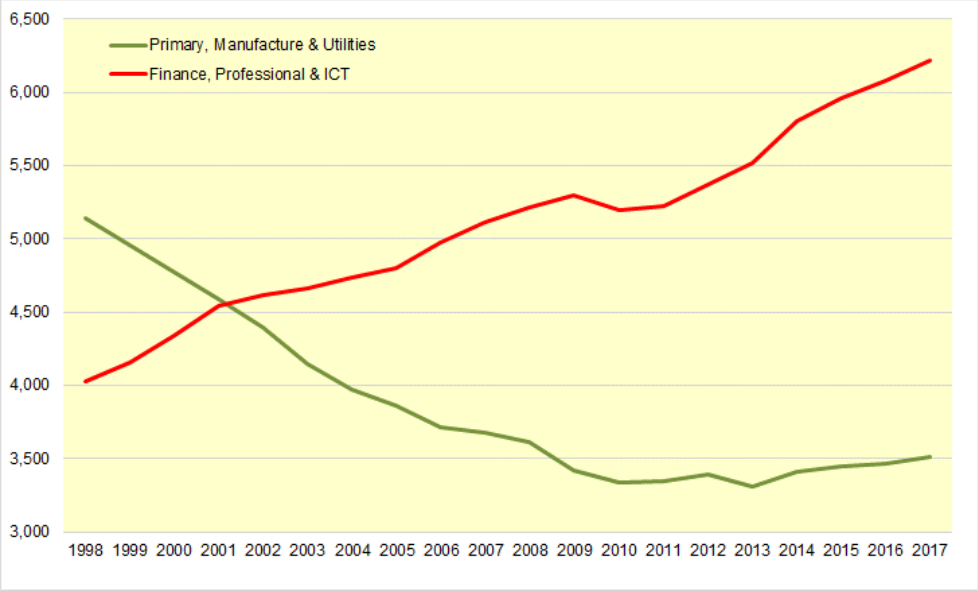
2.0 New economy, new work

In this section we summarise the emergence of the knowledge economy and its potential impact on demand for space. In particular, we highlight how corporate change and the ubiquity of technology are leading to a growth in small- and medium-sized enterprises (SMEs) and rapidly changing workstyles – generically referred to as agile working. We close with some thoughts on implications for work environments and historic buildings.

2.1 Changing economic landscape

Over recent decades there has been a very significant shift in the national economy, from a largely product-based one to a largely service-based economy. Just after the turn of the century, the number of 'office economy' jobs overtook 'maker economy' jobs for the first time (Figure 1). Over the past two decades the number of jobs in Primary & Manufacturing industries has fallen from 5.1m to 3.2m; while the number of jobs in Professional Services, Finance and ICT has grown from 4.0m to 6.3m.[2]

Figure 1 The economic switchover: from making to servicing



This fundamental restructuring of the national economy has seen the emergence of what is widely referred to as the 'new economy' or 'knowledge economy'. And the change has seen major shifts in demand for real estate, with important implications for historic buildings.

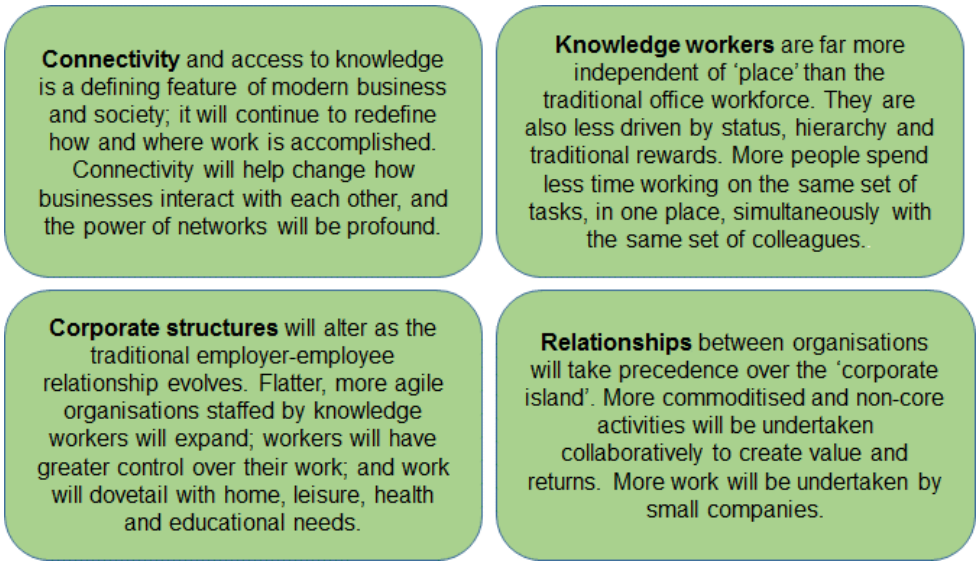
The new economy is typified by knowledge and technology-intensive jobs and economic activity; and investment in knowledge-based assets or 'intangibles' that have been enabled by "*powerful and cheap computers and the 'general purpose' information and communication technologies*".[3] Oxford Economics underlined the link between the knowledge economy and technology, arguing that it "*will transform many aspects of the global marketplace*".[4] The report described the role

of the internet as a shared platform, together with mobile technology, cloud computing, business intelligence and social media.

Technology-enabled knowledge work has wrought major changes in how workers and employers engage with one another. In a recent article on the future of work, *The Economist* described an 'old model' in which workers tended to receive security, benefits and a regular salary 'for life', while employers in return received a stable workforce in which they could invest.[5] The 'new model' is very different, and the implications are profound for both large organisations and small.

Redefining corporate work Adapted from recent work undertaken for the Corporation of London[6], Figure 2 summarises the 'new model', under the headings connectivity, knowledge workers, corporate structures and relationships. One of the defining features of globalised, technology-enabled business in the 21st century is the speed and ubiquity of change. Businesses must be capable of continuously adapting to changing market conditions; they must be fleet of foot. This is achieved through flatter, leaner and more agile organisational structures and business processes which, in turn, have been largely responsible for driving 'agile working', a workstyle that is more mobile and collaborative than in the past, and one which depends upon a high level of connectivity.

Figure 2 The evolving corporate landscape



Source: adapted from Ramidus Consulting (2015)

The critical nature of connectivity, changing corporate structures, the priorities of knowledge workers and the reduced importance of the 'corporate island' in favour of more complex web of supply chain relationships are all altering the nature of demand for space. To take one example of the increasing adaptability and flexibility of organisations: the growth of a 'contingent' workforce. In growing numbers of corporate organisations, an increasing proportion of the workforce is not directly employed; they are consultants, contractors, interims, part-timers and supply chain partners.

As organisations reduce the 'corporate island' model, the power of networks, involving collaborative production and multi-disciplinary skills, is coming to be realised. More commoditised and non-core activities are being undertaken by specialists; more work is being undertaken collaboratively, and more work is being undertaken by small companies. Whether large occupier or small, connectivity and access to knowledge are defining features of tomorrow's business and society.

Collectively, these features of corporate change are altering the traditional bedrock of demand: large, relatively unchanging and predictable 'corporate islands' that were largely process-based and which could plan ahead with a comparatively high degree of certainty. Businesses today operate within short-term planning horizons, responding to an ever-changing economic landscape and seeking to maximize their flexibility to adapt.

The rise of SMEs One of the effects of corporate change and technological innovation has been a sharp increase in SMEs, and particularly micro businesses. Indeed, the knowledge economy is transforming business structures by, for example, enabling small firms to compete directly with large corporates for the same business, as barriers to entry are lowered.

Statistics indicate that most of the growth in the UK in recent years has come from SMEs, which account for over 16 million people and nearly 60% of private sector employment. Overall the number of SMEs has increased by 2.2 million (+64%) since 2000.[7] Within this total, the number of firms with 0-4 employees increased by 2.1 million. Similarly, the number of self-employed in the UK increased from 3.3m people (12.0% of the labour force) in 2001 to 4.8m (15.1% of the labour force) in 2017 – a rise of 45%.[8]

Obviously, these are not all knowledge businesses, but the trend is important: the fastest growing SME jobs are in professional, scientific and technical professions. Moreover, it is within this most dynamic part of the economy that potential occupiers of historic buildings are to be found.

2.2 Emerging workstyles: agile working

The changing corporate landscape and the ubiquity of cheap and powerful technology is having a profound impact on the way that people are working – both at the company and individual level.

A combination of changing corporate structures and evolving workstyles is bringing about profound change in the nature of demand for commercial property. For example: "*the role of the office is increasingly acknowledged as enabling people to interact and collaborate*"; it is "*expected to provide a wider range of settings in which individuals and groups [can] work in more dynamic ways compared with much of the more solitary work of the past*", and the office is "*becoming less a place to go to work on a set of prescribed tasks, and more somewhere to visit and interact with colleagues*".[9]

Knoll make the point that while the first-generation office was about paper and manual processes, and "*Office 2.0*" was about technology, especially the personal computer, email, and emerging mobile devices, "*Office 3.0"* will take account of the possibilities and benefits of the current generation of technology and the flexibility

being demanded by corporations, and exploit them to create people-centred, productive spaces. This new space will be "*built around the shift from asynchronous work to synchronous collaboration, in which several people work on the same content at the same time*".[10]

One of the most important implications of this emerging corporate landscape for our work here, and which is common to both large and small occupiers, is the spread of 'agile working'. Using technology as a key enabler, agile working involves a more mobile and collaborative workstyle; it involves working in a variety of settings: the office, at home, at client/partner premises and on the move.

Laptops, tablets and smart phones in many organisations now barely distinguish between personal and business use, and in growing numbers of businesses there is a 'bring your own device' approach. Similarly with telephony: fewer and fewer workers have a traditional desk phone; and it is likely that this once indispensable piece of office equipment will disappear altogether during the coming decade. Figure 3 illustrates the impact of these agile workstyles on space use in office workplaces.

Figure 3 The changing space budget

Source: Ramidus Consulting (2015)

Agile working is not a single workstyle: it is defined here as an approach that allows work to be undertaken where, when and in what kind of setting is most conducive to completing whatever tasks a worker has to undertake. For some, work might continue to involve sitting at the same desk in the same building for most of the typical day. But for growing numbers it means something different.

Technology provider TeamViewer recently released the results of a survey of 1,000 UK office workers, in which they found that workers are "*overwhelmingly turning their back on the standard 9-5 office life with 72% agreeing that it's not relevant for the 21st century*".[11] The survey found that 79% of people rate work-life balance as more important than salary, and that many already spend an average of 2.5 days per week working remotely. While the results of yet another agile working survey from a technology company might be questioned in terms of vested interest, it is

already common practice for organisations to have shared desking environments – with fewer desks than people – as part of an agile working strategy.

A diverse, demanding workforce Tomorrow's workforce will be more demanding: the knowledge worker has transferable skills and no longer feels tied to a single or limited number of employers as was the case in the past. Such workers demand choice and quality in the workplace. Similarly, as work, home and leisure become increasingly blurred in terms of when, where and how they are undertaken, so the workplace will have to provide workers with greater flexibility, particularly the ability to work in an agile manner. In short, the workplace will have to work harder to attract and retain highly skilled workers: it will have to provide an experience and choice rather than simply a place to go to 'do work'.

The changing demographics of the workforce are necessitating a re-think of established approaches to workplace design. For example, younger and older people have different requirements for acoustics, heating and lighting. But age is only one factor in a more diverse workforce. At the same time, tomorrow's workplace will be more multicultural; it will have more working parents; it will house an increasingly diverse workforce in terms of disability, ethnicity and gender, and it will cater for a workforce that expects more in terms of quality, wellbeing and support.

In short, it will become less and less appropriate to provide a 'vanilla office-scape' in which the same basic design and layout caters for a generic demand. At the same time, growing numbers of reports highlight the importance of health and wellbeing in the workplace.[12,13,14] Growing concerns about the physical and mental health of workers is likely to encourage employers to rethink building interiors[15], and encourage the provision of workplaces that reduce stress, anxiety and depression: it has been estimated absence from work due to poor physical and mental health costs the UK economy more than £14bn a year.[16]

One key component of the fundamental changes that are taking place is that they affect all workers – whether they are one employee among some thousands or whether they are a single person business. The ubiquity of technology, and the freedoms and flexibility that it offers are available to all. Thus, as the workplace becomes more sociable, collaborative and interactive, individuals who previously might have been confined to the relative isolation of their homes can find co-workers and sociability in co-working spaces.

Many surveys and research reports have reported on the priorities of the future workforce; but the common themes focus on choice, flexibility and experience. And these priorities, combined with an increasing blending of 'work' and 'life' affect all generations, and dynamic, responsive and experiential work environments will become the new norm.

2.3 Implications for the workplace

Given the changes taking place, there has been much debate about the future role of the office, and much of this has focused on its demise. The premise for this thinking, broadly, is that technology dispenses with the need to be tied to a place. Some forecasters have suggested that knowledge workers will become nomadic, moving from place to place, connected only by wireless data and smart devices.

But the debate is a binary one. There is no shortage of predictions about the future direction of workstyles and the workplace. The problem with many predictions is that they tend to paint a one-dimensional picture of the future: '*everyone will be working flexibly*'; '*the office as we know it will die*'. Many are also deterministic: "*the technology allows freedom from the desk, so workers will discard desks*".

However, the evidence seems to be pointing in a different direction, with offices being re-confirmed as a locus not only for work activity, but also for important natural requirements relating to socialising, learning and belonging. The office workplace is likely to continue to have an important role, albeit one that will change significantly. It is rapidly moving away from being a static backdrop for process-based, largely routine and solitary work, to an increasingly actively curated environment, managed more like a hotel than a traditional office, with a high level of service and experience for 'guests'.

The office is becoming more of a hub for an increasingly mobile workforce that also utilises a range of work settings. Space allocation in the workplace is changing significantly with the traditional mix of desks and offices yielding to a richer palette of work settings.[17] The emerging priority roles for tomorrow's workplace will be to energise or motivate people and make them productive and effective; it will provide for social interaction and knowledge transfer; it will provide workers with more personal control and it will provide a wide range of support services.

These features of changing workstyles have important implications for historic buildings. As we will see in the following section, physical demands on the office environment are changing, which means that a greater variety of building types can satisfy modern workstyles, including historic buildings.

3.0 New work, new workplace

This section discusses the impact of economic and corporate change, along with the emergence of agile working, on the physical attributes and management of the workplace. The underlying suggestion is that many of the assumptions about workplace design that have held sway for the past three decades are in fact being challenged by new corporate structures, the rise of SMEs and new workstyles.

While in the past people commuted to the office to access the paraphernalia for work – phone, personal computer, filing and stationery – tomorrow they will do so for different reasons. These include socialising, collaboration, opportunity and culture. Moreover, they are more likely to exercise greater choice over where they work.

3.1 Workplace: a new purpose

Tomorrow's workplace will enable and encourage collaboration via a live network and promote the free flow of ideas as real estate, technology and people become more closely connected. It will also convey an organisation's values to customers and the public. This new workplace functions as a hub for firms, rather than as a place for task-based work.

The workplace will witness the collision of social networks and physical space to enhance the work experience, connecting people based on their location, knowledge and preferences. The role of the office will become an enabled connector, transforming the office from an inert container to a live network. This new role fits with the features of the workforce described in Section 2.2, in which work is no longer rigid, hierarchical, planned, supervised and sequential. Instead innovation is encouraged through creating and sharing ideas, through iteration and experiment in an environment that promotes teamwork, trust and conviviality.

Workspace enabled by the IoT will connect people directly, promoting social and professional networks, enhancing communications, increasing encounters, and encouraging innovation, thereby enhancing competitive advantage. According to Knoll, social networks will merge with buildings to create real-time real estate: a live social network where people are brought together because they are in the same space at the same time and have something in common. This location-aware world "*where serendipity can be engineered will be the inevitable consequence of this era of knowledge-based work*".[18]

The overriding point is that the workplace will evolve from being an inert backdrop to work activity and an expensive overhead, to a *business driver*. It will act as a hub for the firm and its qualities, in terms of design and services offered, it will assist in recruitment and retention, it will be a tool to improve productivity and wellbeing, and it will provide the setting for interaction, collaboration and innovation.

3.2 Workplace: design and fitout

During the past three decades, buildings have been designed with 'deep' space to accommodate large numbers of people at high densities, in open plan, with systems furniture. Raised floors, drop ceilings, risers and highly-specified M&E environmental control systems have been employed to cope with enormous amounts of ICT hardware, and the consequent power demands and heat output.

De-specified buildings However, the changing nature of technology and the changing corporate landscape and workstyles described above are challenging the underlying assumptions of this 'one-size-fits-all' design approach. Workplace design in the future will increasingly be about simpler design: 'loose fit buildings'. Thin client terminals and centralised computing power have already begun to cede to cloud-based technology; with smart phones, laptops and tablets, together with wireless technology such as 4G and Wi-Fi, removing all the physical limitations of the past. The technology has left the building: people now connect with each other, rather than with a physical space: their building, their office, their desk.

The key point here is that many buildings that were thought to be obsolete in terms of their ability to cope with new technology, including many historic buildings are, in fact, perfectly capable of accommodating modern businesses. As our case studies demonstrate, buildings that were previously deemed to be inappropriate for modern occupiers, including historic buildings, are witnessing a renaissance in demand.

Beyond the demands of the institutional investment market, future design priorities are likely to mean that new buildings will become simpler. Shallower floorplates, lower structural heights, natural ventilation and natural light will all grow in importance. And as the office 'hardware' declines in importance, so the fitout and 'software', including management, services, concierge, will assume greater importance (see below). More importantly, from the perspective of this paper, modern businesses will no longer be limited to new buildings. As the 'tech revolution' has shown in many parts of the South East, most extremely in Shoreditch, older stock – both office and industrial – can be brought back into contemporary usage.

Many older buildings are ideal for refurbishment and occupation by smaller organisations for whom being 'within a community of shared interest' is the critical requirement. Some providers now specialise in providing such space: Workspace PLC has 68 properties spread across 3.5m sq ft and over 4,000 occupiers.

The workplace fitout A workplace fitout that facilitates choice, support and a life balance is an important recruitment tool. Office design will continue to evolve, working towards more hospitable, supportive and experiential places than ever before. A key element in achieving this will be an adaptable fitout, with physical design and floor plans that allow spaces to be configured and reconfigured to meet the changing needs of a more open, and more social workforce. Tomorrow's fitout will integrate technology, place and people in a more seamless manner.

Tomorrow's workplace will be shaped more by the people that choose to occupy it on a particular day for a specific task, interaction or activity than has been the case in the past. Rather than the 'one-size-fits-all' uniformity of the paper-factory office era, less rigid, multi-function, multi-setting workplaces are now emerging. Digital technology is a key enabler to this trend, but it is happening in response to the workforce trends described above, and the resulting demand to create more stimulating, experiential environments that provide choice, support and variety through the working day.

Some organisations are leading the way, but most have a long way to go. One oft-cited example of the former is the Interpolis insurance company building in Tilburg, The Netherlands. The scheme design involved Dutch artists creating a diverse

series of activity spaces linked by a network of streets and paths. Many of the spaces look and feel more domestic. In creating a diverse range of workplace settings (ranging from places for concentration and contemplation to settings for collaboration and co-working), Interpolis goes some way to addressing a common criticism expressed by many knowledge workers, especially older ones. This is that too much new workspace design neglects the human factors and wellbeing of the individual in favour of the team.

As corporate organisations discard their ‘corporate island’ approach in favour of a more agile, networked approach, office buildings will become ‘less generic’ and less single purpose, and will instead work harder to provide choice and flexibility for the individual and the firm.

The future office will provide an interesting blend of business and domestic design attributes; a pleasant, welcoming atmosphere in which to collaborate, innovate, socialise and learn. A richer palette of work settings, which might be tailored to individual requirements and available ‘on demand’, will be provided in a highly connected environment, with a far more sophisticated, or smarter, management regime. Buildings will be greener and healthier, and they will have the ability to create experiences rather than simply provide static backdrops.

Hybrid space The growing trend towards creating ‘sociable workspaces’ and providing greater choice in workspace settings are leading to a growth in the ‘hybridisation’ of space. Whereas in the past there were distinct places for distinct activities – living, working, learning, buying, relaxing and so on – future buildings and neighbourhoods will fuse more activities, using shared, software-based platforms, with major consequences for buildings and connectivity.

As the occupier market evolves, the property supply industry is beginning to adapt its approach to leasing buildings. For example, there is a much greater acceptance of mixing retail and office space within single buildings. And owners have begun to offer public access to parts of some new buildings. These trends suggest that buildings are becoming less ‘monolithic’, more integrated with their locale and more ‘permeable’.

Owners are also likely to become more accepting of multi-let buildings. They are likely to start catering for the needs of the small occupier market in terms, for example, of designing buildings for greater divisibility, with implications for base building design in areas such as building depth, configuration and servicing.

These changes are likely to have a major disruptive influence on the traditional office market. The amount of space required; the nature of buildings; workplace design and workplace management are all evolving quickly and will alter the traditional profile of demand. Landlords will need to design and mange buildings not only as multi-let spaces, but also as multi-use spaces.

3.3 Workplace management

The changes in workstyles described above are increasing the demand from occupiers for *'experiential workplaces*'. They are looking for flexible, amenity-rich and experience-driven workplaces, which seamlessly integrate physical space, services and technology, to create an enhanced user experience. By implication, the management of the workplace is becoming more significant than building design.

Workplace management is increasingly bringing together the fragmented parts of the design, construction, real estate and facilities sectors into an integrated management function. Allied to HR, Procurement and Technology, there is emerging a recognisable, integrated workplace resource management function.

And, in common with other corporate and consumer activities, workplace management must deliver an *experience*, not just a process. As a recent report for the RICS noted:

> *we consider the delivery of a consistent, high-quality, cost-effective built environment and associated services as 'table stakes' in today's economy. Whether facilities are managed in-house or by a contracted service provider, they are a strategic business resource, and must be managed as such.*[19]

Workplaces will become ever more stylised, attractive (in the sense of attracting workers to them) and experiential. They will increasingly provide concierge-type services for employees; and spaces that transition from daytime to evening activity. They are moving, inexorably, towards *a space as service* model, whether provided internally or by a third party provider (serviced office or co-working environment). As one observer put it:

> *One prediction for the decade ahead is how the title of facility manager might morph into new-economy renditions such as Net-Zero Facilitator or Director of Workplace Experiences, as buildings — and the workplaces they house — determine a lot about an employee's level of engagement, and thus a company's competitive edge.*[20]

Workplace management will increasingly be about using building automation and data to manage experience. This is because real time data will create a building that *knows*, and "*can begin to provide a dashboard view of how well it is aligning space to activity and demand*".[21] Big data will inform design and facility management, "*providing information on everything from wait time for elevators or the coffee line to people's circulation patterns, allowing for new decision making and creative solutions*".

Wearable technology is part of the wider, smart buildings agenda, in which occupiers have more control and choice over their environment using real time data to generate dynamic office environments and personalised experiences. Wearable apps are likely to change the way we work, not only enabling individuals to control their environment and interactions with others, but also as a corporate tool to enhance business processes. As noted by Arup and the University of Reading:

> *The key will be to ensure that wearable technology and applications are able to leverage business data to highlight the right information at the right*

> *time, to drive the right business action. Built-in analytical software will make observing trends and patterns derived from the data simpler for both for the user and the aggregator*.[22]

Arup and Reading also suggest that wearables have the potential to influence workplace design and further health through more informed building operations and greater influence over occupant behaviour. They are a means for the building to stay up to date with the needs of inhabitants, and there is strong potential to use these devices in future scenario modelling in planning and development. Advantages of wearables in the workplace include increased awareness of health, more information on how the body and mind respond under various conditions, and potential integration with health service providers.

A key trend in changing occupier needs over recent years has been the requirement for flexibility. Ultimately, this has led to the flexible space market, and increasingly, commercial space is being consumed as a *commodity*, with transfer of risk to the property sector.

4.0 From feudal to functional

One of the most important trends in the commercial property market over the past decade has been the decline of the institutional leasehold model, based on the 1954 Landlord & Tenant market in favour of a far broader range of occupancy choices. The feudal language of the Lord of the land and his tenant has been supplemented with a range of options that are far more functional and relevant to the business models of today's companies.

4.1 Models of provision: the flexible space market

It is easy to portray a very positive picture of agile working in the context of self-employed people and SME's taking advantage of new technology to exercise much greater choice in where and how they work. Such people are normally pictured occupying office space, using laptops and enjoying a relatively prosperous and secure business setting.

But, in considering the role of historic buildings, it is important to recognise (a) that not all small businesses want good quality office space and (b) that many want space that can support a range of activities in economic, or affordable, space. This point was made in a recent study that highlighted the difference between 'privileged' sectors and 'precarious' sectors.[23] Noting that self-employment has increased by around one million people, from almost four million around the Financial Crisis to nearly five million in 2016, the study identified 'privileged' firms as including: accounting, engineering, finance, health, IT, legal, management consultancy, public administration and real estate, where the mean annual income is typically above £30,000. By contrast, 'precarious' firms are typified by cleaning, construction, food, hairdressing, joinery and plumbing and retail, where the mean annual income is around £20,000 and less.

The focus of this paper is on knowledge-based agile working, and therefore on office environments. But the importance of this broader array of firms as potential occupiers of historic buildings should not be forgotten (see also section 4.2 below).

The flexible space market will play an increasingly important role in providing the kind of space required by small, modern, knowledge-based businesses which (as we described above) increasingly interact with large businesses in a complex web of supply chain relationships. Their occupiers also require good quality space and many of the design attributes enjoyed by larger organisations.

According to recent research from JLL, upwards of 30% of all commercial office space might be consumed as 'flexible space' by 2030. [24] Just like Airbnb is the largest "hotelier" and owns no physical room inventory, Simonetti & Braseth predict that the largest commercial landlord of the future will own no physical space.

They argue that the rise of co-working, serviced offices and on demand meeting spaces enables a flexible real estate strategy that seamlessly connects a corporate headquarters to a network of on-demand workspaces. They predict that, by 2030, most companies' real estate requirements will be outsourced and consumed on-demand while only 20% taken via traditional long-term obligations.[25]

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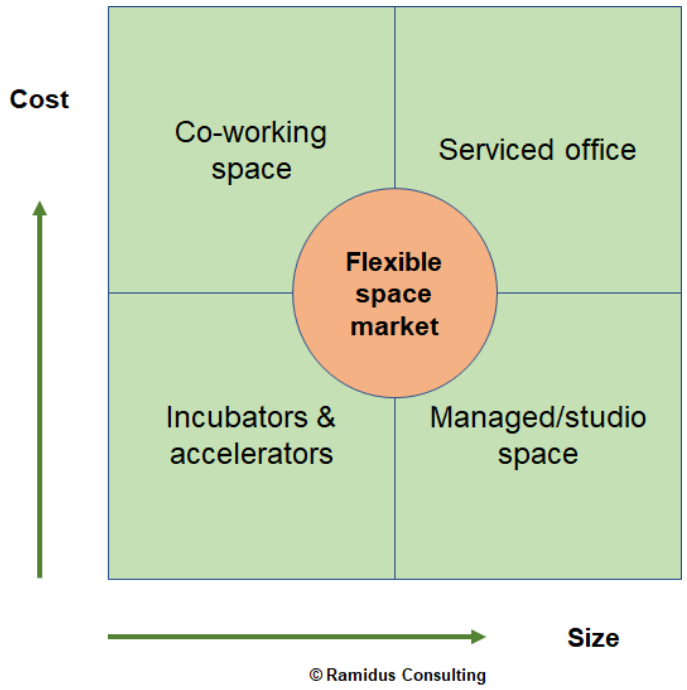
The question here is whether historic buildings could play a role in accommodating flexible space models. Flexible space is provided in a number of different formats (Figure 4).

Serviced offices are, perhaps the largest and most established form of flexible space, having arrived in the UK from the US in the late-1980s. Across the UK, according to a 2014 report, the serviced office sector comprises over 80,000 businesses, which employ over 400,000 people and occupy almost 70 million square feet.[26] These numbers will have grown substantially since 2014, but there is no comparable, more recent data.

Serviced offices comprise mainly private offices, leased on flexible terms, in fully fitted out space inclusive of service charge, rates, reception services and other services dependent upon provider.

Figure 4 the flexible space market



Managed spaces are similar to serviced offices in terms of flexible occupation, but also provide for larger occupiers and for more specialist users. Managed offices are fitted out and leased/licensed by an operator to the occupier's specification, who then pays a monthly licence fee.

Managed space can also provide hybrid space which mixes studio, of maker space with office space. In these circumstances, some occupiers require specialist equipment or support services. These centres provide businesses with flexibility, they reduce start-up costs and they support small scale (technology dependent) manufacturing and product prototyping that is otherwise unaffordable.

Incubators and accelerators involve the additional provision of mentoring, advice and business support, and occupiers are encouraged to enter into formal growth programmes. Incubators accommodate start-ups, but are focused on a specific

sector with sponsorship from larger firms and public institutions. While the space types are similar the underlying tenant is typically different. Accelerators offer growth programmes in which start-ups spend time working with a group of mentors over a set timeframe, often with the opportunity for seed funding at the end of the program. Space is typically open-plan with plenty of collaboration space.

Co-working spaces are a relatively recent phenomenon and have grown extremely rapidly. While the differences with serviced offices are sometimes blurred, co-working spaces provide a 'less corporate' style of space than serviced offices, and respond to "*technology enablement, the growth of the tech, online and creative industries … and an increase in micro businesses and independent workers*".[27] And they provide "*clubs where members can work alone or interact with like-minded people on a pay-as-you-go basis"*.[28]

Co-working spaces are seeing new work communities develop in which digital-enabled people are working free of the traditional corporation and clustering with others in more radical social space that brings like-minded people together and mentors entrepreneurship. This combination of individual independence and group sharing is what makes co-working so attractive to so many people around the world.

Originally coined by Bernie DeKoven in 1999, the co-working term now covers a variety of approaches. Co-working involves the sharing of workspace, typically but not exclusively, by self-employed people, very small firms and start-ups. Large organisations also use co-working spaces for project teams and ad hoc requirements, as well as for start-up operations. Operators include Hoxton Mix, Liquidspace, NearDesk and WeWork. Also, providers of more traditional serviced/managed office space such as Regus, The Office Group and Workspace Group are allocating more of their buildings to co-working spaces.

It is important to recognise that flexible space is being consumed by the smallest and by the largest firms. With regard to the smallest firms, the critical point is that large numbers of people are *doing things differently*. They are part of a growing, contingent, workforce that owes no allegiance to a particular employer or a particular place. For small firms, the flexible space market provides choice and flexibility for growing numbers of small businesses seeking to have a presence in the commercial property market on terms that suit their business models. Contingent workers and small firms, both critical components of the national economy, could be a major influence on the nature of employment space provision over the next decade.

The flexible space market will also provide further agility and flexibility for larger corporate organisations that wish to take temporary, or project space, on less onerous terms than those offered by traditional leases. Over the next decade, most large, corporate organisations will migrate towards some form of networked, "hub and spoke" model. The largest occupiers will maintain at least one corporate headquarters in a key city to provide a 'corporate hub', to bring employees and clients together, nurture the corporate culture, encourage collaboration and learning, and to instil a sense of 'shard purpose'. Elsewhere, they will occupy flexible space which will afford them the ability to change their occupational footprint speedily and cost effectively.

WeWork is a leading example of the new kind of provider. While only arriving in the UK in 2014, it has grown to be its largest private sector occupier, with over two

million square feet of space. It has been busy signing-up start-ups and micro-businesses, but its ambitions are much greater. It is now signing up 'Enterprise Customers', providing large chunks of space to corporate customers and providing the WeWork 'experience'. In the USA, WeWork has already signed up large corporates including Bank of America, HSBC, IBM, Mastercard, Microsoft and Salesforce. WeWork started its enterprise product in mid-2016, and it now contributes nearly one-third of its revenue.

Corporate occupiers have also entered the co-working market, a move exemplified by the Google Campus in East London and the O2 Workshops in the West End. The scale of this activity in just one city indicates that co-working as a growing global trend is unlikely to be reversed.

4.2 Affordability, clusters and mixed use

Given the heritage factors associated with historic buildings and the cache that they often attract, together with rapidly spreading agile working practices, there is clearly an opportunity for historic buildings to play a growing role in the flexible space market. The rise of the flexible space market also reflects a number of other occupier drivers that are relevant to historic buildings.

Affordable space Many historic buildings, particularly obsolete industrial buildings have, over the years, provided accommodation in secondary and even tertiary spaces, on rents and terms that are affordable. This sometimes happen in advance of area regeneration. The phenomenal growth of 'Tech City' in London was a good example. When tech firms started clustering here in the early-2000s, much of the building stock was redundant industrial space, and most of it was cheap (affordable). This has since changed radically, with rents in the area rising sharply.

Nevertheless, historic buildings can play a key role in providing affordable space. The Bootstrap in Dalston is a good example. The centre comprises a group of former light-industrial buildings: Colourworks, Fitzroy House and The Print House (with local listing). Social enterprise Bootstrap Company provides affordable workspace and support for local start-ups, social enterprises, charities and businesses. The charitable status of the provider exempts the businesses from local business rates. Any profits generated from rental income are used to fund Bootstrap Campus, the charitable outreach arm of the company.

Clusters Business clusters are now a well-understood phenomenon. They occur where businesses who operate in similar, even competitive markets, gather together in the same building or district.

The Exchange in the iconic Somerset House on the banks of the Thames in London accommodates small businesses and freelancers working in the creative industries. The dedicated co-working space was created in 2011 in response to agile working trends. Appealing to entrepreneurs, start-ups and freelancers, the Exchange soon became a popular option for those wishing to explore flexible, communal working, rather than a dedicated workspace in a beautiful and unique setting. Membership is charged on a user tariff basis, billed monthly in advance and is on a monthly-rolling contract. Further tariff details can be found below.

Within the Exchange is Makerversity which provides space for professional makers, combining "*co-working space with clean and messy workshop space, machines and tools*".[29] The website emphasises the importance of bringing people with all kinds of creative and technical expertise together; and describes the mission as "*to inspire and support makers and grow communities of maker businesses in city centres around the world*". Makerversity provides creative workspace alongside cutting-edge making and prototyping facilities for entrepreneurs, designers, inventors, technologists, craftsmen or engineers.

Mixed use Agile working has been described here in terms of the widespread adoption of technology to enable choice in where and when work is undertaken. Also as part of the 'choice agenda', businesses are becoming more discerning in their locational choice, and are favouring areas that provide leisure and health, retail and leisure and cultural attractions.

Given that many agile working activities are compatible with other uses (because they are neighbour-friendly), there is also scope to encourage mixed use activities in historic buildings. For example, agile working can take place on upper storeys where there are retail and leisure uses on the ground floor. Similarly, it can provide street frontage activity where there is residential on upper floors. Restrictions on mixed use tend to occur when goods access is required, or where

An interesting example of mixed-use in historic buildings would be Paintworks in Bristol. Paintworks is a living and working scheme in an emerging district of the city, Totterdown, offering commercial space to creative businesses.

Dating back to 1850, Phoenix Wharf, was a paint and varnish factory built by Bristol paint maker Colthurst & Harding. Extended and altered over the next 100 years, it was taken over by Courtaulds and fell into decline as manufacturing became centralised elsewhere. As the 12 acre site was vacated, units were let out to other firms and the site transformed into Central Trading Estate, but again fell into decline. The site was bought in 2003 by Verve, who prepared plans for the current scheme, and conversion commenced in 2004.

The scheme is now a vibrant part of town with a blend of homes and workspaces. Within the latter, there are over 50 creative businesses. The website describes the development thus:

> *Considerable effort has gone into the intimacy of the street scene, the public areas and hub spaces. This is in deliberate contrast to insular "lifestyle" residential accommodation and soulless anonymous business parks.*

The scheme claims to offer a *"place where "lifestyle" living and working is not just marketing hype, but somewhere people do actually want to live, want to work and want to interact with others".* Moreover, the project shows how agile working can be fully compatible with residential uses in historic buildings and, indeed, how they can complement one another.

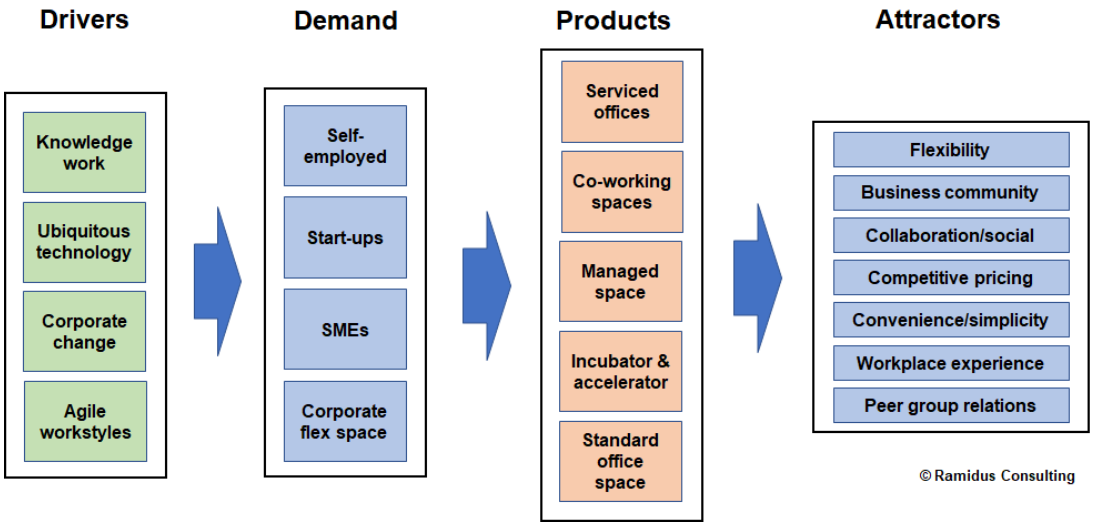
4.3 New models in historic buildings

We have described in earlier sections of this paper the changing economy, the rise of knowledge work and evolving demands on the workplace. In this section we

have described the importance of the flexible space market in terms of offering costs and terms which are acceptable to smaller businesses and we have referred to affordable and mixed use space.

Figure 5 pulls these strands together to provide a visual summary of 'drivers' of change; the resulting range of firm 'types', and the products that they are increasingly being offered. The diagram illustrates how historic buildings might respond to the various strands discussed thus far by breaking down the nature of demand, the various products to be offered and potential attractors.

Figure 5 The demand profile of agile working in historic buildings



The final column, attractors, seeks to summarise those features that historic buildings might need to provide in order to attract demand. For example, flexibility provides for 'easy-in, easy-out' terms; while workplace experience describes the added value provided by an environment that is well-managed.

5.0 New workplaces in historic buildings?

In this section we explore how historic buildings might attract firms and individuals practicing agile working. We begin by looking at areas (rather than individual buildings), and then explore facets of building design and management that might play an important role. Given that this paper has not undertaken any empirical work, the discussion here is based on secondary sources and the author's wider experience of the priorities of modern businesses.

Given the demand profile set out in the previous section, what attributes of historic buildings are likely to make them attractive to agile workers and firms? Here we suggest four groups of attributes: public realm, physical, management and cultural.

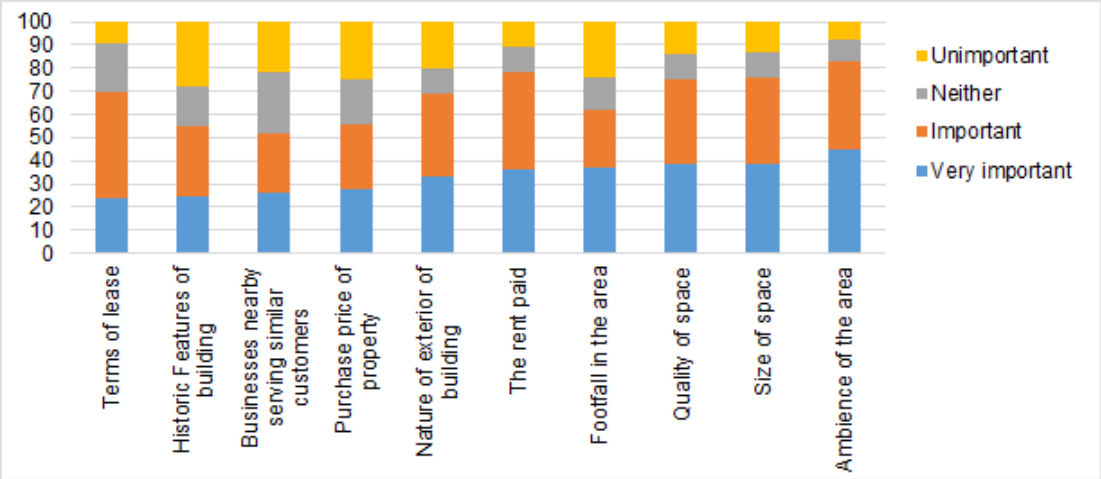
It should be emphasised that the following is not a comprehensive 'design guideline' for re-use of historic buildings. But within the scope of this paper, the features provide a practical list of attributes that can help cater for agile firms and workers.

5.1 Public realm

The Colliers International report of 2012 asked a sample of occupiers about their reasons for choosing the building which they occupied.[30] The most striking finding was that the area's ambience was cited by 45% of respondents as being very important and a further 38% as being important (Figure 6). Colliers note that this demonstrated that "*the ambience created by historic townscapes is a main reason why certain types of businesses like to locate in them*". Further

> *Almost all of the 20 businesses interviewed in Soho, split between restaurants and TV and Film production companies, said that the ambience of the area was a very important factor in them locating there. 80% of the architects interviewed in Clerkenwell said the same.*

Figure 6 Reasons why businesses surveyed located in their building



Source: Colliers (2012)

The data show that the presence of other businesses that serve similar sorts of customers (clusters) is also an important consideration in many instances. It is of most significance in places where an intense concentration has emerged. It is, therefore, of greatest significance for the creative industries of Clerkenwell and Soho (55 and 40 businesses in listed buildings respectively).

A Heritage Lottery Fund report argued that new businesses can set up in older buildings with lower risk because of lower costs; that they are suitable for a huge variety of business use and that their character and colour help create distinctive leisure quarters and an atmosphere that fosters creativity. All of this forms "*a rich diversity of use from which the new ideas that economic development depends upon can flow*".[31]

Recent research has emphasised the importance of public realm, suggesting that the 'space between buildings, or the public realm, was becoming "*more important as workers expect their high quality, well serviced and supportive workplaces to be mirrored outside the building*". The work stated:

> *The quality of public realm is becoming increasingly important to many occupiers as they seek to create and reinforce a sense of community and belonging within their buildings. Occupiers wish to see a much greater emphasis on the creation of public places that provide memorable experiences for employees and support a variety of work/ life needs*.

The Project for Public Spaces define placemaking as an overarching idea and a hands-on approach for improving a neighbourhood, city, or region. It inspires people to collectively reimagine and reinvent public spaces:

> *Strengthening the connection between people and the places they share, placemaking refers to a collaborative process by which we can shape our public realm in order to maximize shared value. More than just promoting better urban design, placemaking facilitates creative patterns of use, paying particular attention to the physical, cultural, and social identities that define a place and support its ongoing evolution.*[32]

It is possible to identify at least six key requirements for a placemaking-led approach.

- Driven by a clear vision.
- Is a pleasant place to live, work, learn or play.
- Creates a positive and permeable relationship with existing communities.
- Creates spaces for collaboration and coming together.
- Caters for a mixture of users.
- Vibrant beyond 9–6.

The regeneration of the King's Cross railway lands in London provides a good example. Here, the large, historic granary building was re-purposed to accommodate Central Saint Martins art college, along with restaurants, cafes and public space, satisfying all of the criteria listed above.

5.2 Physical attributes

The following list sets out a range of factors that need to be considered when considering the suitability of an historic building to meet the demands of modern, agile businesses, as outlined above.

- **Space configuration**, including overall layout, depth and sub-division helps determine how well space supports collaboration, a sense of community and physical communication.
- **Net to gross ratio** is a measure of the amount of usable space compared to the overall space in a building (the latter including plant rooms, circulation space, sanitation, basement areas, and other space unusable for normal activities). If non-usable space becomes excessive then the viability of conversion to modern use might be affected.
- **Structural heights** refer to the distance between floor and ceiling. High ceilings provide for a sense of volume and space and are normally associated with natural light.
- **Horizontal circulation** will determine how easy it is to get around the building. Tortuous routes and long corridors are shunned in favour of simple, open space with clear 'signposts'.
- **Vertical circulation** refers to stairs and lifts which will need to enable ease of access for occupiers and visitors. Lifts should provide for both passengers and goods – preferably separately.
- **Structural loading** refers to the ability of floors to accept high loadings. This is not generally a problem in historic buildings, especially industrial structures; but can be important for certain kinds of equipment and storage.
- **General physical condition** will become a factor where, for example, damp, decaying brickwork, water ingress are issues.
- **Thermal insulation and solar control** might be important factors depending on the physical aspect/prominence of the building.
- **Adaptability** is a less tangible term but refers to the ability to alter a building's characteristics. Extending the footprint of the building; inserting additional (mezzanine) floors, ability to install additional plant and services, and potential for modern lifts and disabled access.
- **Utilities** are critical in terms of the capacity of incoming utilities, and having modern cabling and water supply. To this must now also be added the ability to provide a high speed broadband service throughout the building.
- **Air handling and environmental controls** Most modern buildings are air-tight with sophisticated controls managing heating, cooling and humidity. The lower levels of heat generated by modern IT equipment should obviate the need for such systems.

There will, of course, be a raft of regulatory requirements with which to comply. Listed building and other conservation measures, for example, might limit adaptability. Fire regulations, disabled access and many other issues will also determine overall suitability. Deloitte state that work to listed buildings requires sensitivity and care in relation to the historic fabric and previous uses of the building, and that "*works proposals must be drawn up in careful consultation with statutory authorities and advisory bodies*". It suggests that surveys of the building must "*make realistic assessments of its capacity to be adapted for the proposed use*".[33]

5.3 Management attributes

The following list describes the non-physical aspects that needs to be provided in a modern, agile workplace.

- The **entrance and reception** will set the tone for the building. They should be of appropriate scale and impact.
- **Spaces for interaction and collaboration**, including cafes and refreshment areas, meeting rooms, break out areas
- **Workplace services** including virtual office, hot desking, Wi-Fi/broadband, video conferencing, photocopy/print, gym
- Related to some of the physical attributes, **acoustics, lighting and standby plant** will be key factors that will affect overall occupier satisfaction. Fire separation is a related factor.
- **Curated public space** might be allied to the reception or another part of the building; but could be an important attractor in terms of creating a business community and integration with the wider community. If there opportunities to use atria or 'internal streets', then this will add to the ambience of the space.
- Provision of **showers and cycle facilities** is now *de rigueur* when catering for the needs of modern businesses.
- **Sustainability** is a topic in its own right and too extensive to be dealt with adequately here. Suffice to say that that building should be able to demonstrate its sustainability features, ion key areas of planning and building regulations, whole life carbon plan, occupiers requirements and emerging regulations.
- **Access** is an important factor, partly for occupiers to access the building and park cars, where this is seen to be appropriate, but also in terms of access by the public, for the disabled, and for service vehicles, for loading and deliveries.
- **The cleaning and maintenance** regime within an historic building targeting agile firms will be as important as in a new building. Occupiers are looking for a quality experience, which includes cleaning and maintenance.

All of these attributes will take place within, or under, the nature of the contract between owner and occupier. Section 4.0 discussed flexible space models, including serviced offices, co-working spaces, managed space and incubators.

5.4 Cultural/social attributes

Physical and management attributes are relatively tangible and definable. However, it is also clear that historic buildings have a set of attributes that we might call 'cultural' or 'social', which help separate them from more typical commercial buildings. Here we list some of these attributes given their role in the design and management of workspace.

- **Caché** Historic buildings often convey a certain caché, given their rarity value, physical position and general appearance. They can often present a stark alternative to corporate office buildings, which might be simply one of many similar buildings clustered close together.

- **Alternative style** Similarly to caché, historic buildings can express something about those who occupy them. There is a sense that they are ‘alternative’.
- **Community** By their physical characteristics, such as configuration, it is often possible for historic buildings to engender a sense of business community. Modern businesses are highly networked, and so an environment that supports interaction is a positive.
- **Quality** Many historic buildings are built with structures and materials that convey permanence and quality.
- **Mixed use** Reference was been made in section 4.2 to modern businesses seeking to enjoy being part of a wider community with retail and leisure services. This is potentially a key role for historic buildings.

6.0 Case studies

This section examines a small number of case studies to illustrate how historic buildings have been re-purposed in practice. The case studies – from Derbyshire, Leeds and Newcastle upon Tyne – are relatively brief, but they nevertheless highlight a number of issues raised in the earlier parts of this paper, and these are brought together in the overview section.

6.1 Cromford Mill, Derbyshire

Designed by architect Purcell for client The Arkwright Society, and with funding from the Heritage Lottery Fund, European Regional Development Fund and Derbyshire Economic Partnership, this case study describes the transformation of a building dating back to the Industrial Revolution.

One of the birthplaces of the Industrial Revolution, The Grade I Listed Cromford Mills was built in 1771 and forms part of the Derwent Valley Mills World Heritage Site.

The mill, constructed by Sir Richard Arkwright, was the world's first successful water powered cotton spinning mill, combining traditional cottage weaving techniques with water power to industrialise the cotton cloth manufacturing industry.

The refurbishment of Building 17 was initiated by The Arkwright Society following their purchase of the site. Funding from the Heritage Lottery Fund and the European Regional Development Fund was secured to redevelop the Grade I listed site into a combined visitor centre serving as a gateway to the World Heritage Site and workspace for creative industries on the upper floors. Purcell worked closely with Derbyshire County Council and the East Midlands Development Agency to ensure the flexibility of spaces to suit the developing local market for 'dry' media businesses and start-ups focussed on the software design, publishing, music production, architecture, graphic design and website design industries.

The conversion of the upper floors comprised the creation of open plan office spaces, meeting rooms, reception space and a media centre for small creative businesses, designed around the concept of agile working. The careful introduction and placement of services to minimise the impact on historic fabric and to enable flexible working was a key consideration in the conversion.

Building 17 was in a poor state of disrepair due to lack of maintenance and unsuitable, previous interventions, compromising the structural integrity of the building and resulting in its inclusion on the Heritage at Risk Register. The conservation works were further complicated by the extensive contamination of the site as it was previously used as a colour pigment works. The industrial character of the building was preserved through the development.

The success of the conversion has been acknowledged through various means, through the popularity and use of the building, through the receipt of a Europa Nostra Award for Cultural Heritage in 2017 and through the removal of the building from the Heritage at Risk Register. The Europa Nostra Jury commented:

"The adaptive reuse of this building, which incorporates respectful and reversible interventions, addressed problems of contamination with innovative research. The result is a building with a social function that offers the perfect gateway to the World Heritage site of the Derwent Valley Mills".

We gratefully acknowledge the help of Katharine Barber of architect, masterplanner and heritage consultant Purcell for her help in preparing this case study.

6.2 The Round Foundry, Leeds

The Round Foundry was developed as an engineering works, off Water Lane in Holbeck, Leeds, in the late-18th century. It was originally built in 1795–1797, and one of its co-founders, Matthew Murray made his name as a great engineer. He produced textile machinery, steam engines and the first locomotives for the Middleton Railway.

The Round Foundry developed to become one of the world's first specialist engineering foundries. In 1875 fire swept through the facility, destroying a number of the original buildings, including the large rotunda that gave the Round Foundry its name.

A Perspective on Agile Working in Historic Buildings

Today there are a total of seven listed buildings, including the Grade II Round Foundry (today's Media Centre), Marshalls Mill, Marshalls Court and 101 Water Lane. The site, just eight minutes' walk from the central rail station was developed in the late-1990s as office space by regeneration specialist Igloo. Marshalls Mill opened in 2001 and the Round Foundry in 2003. The web site describes the development as combining "*city centre convenience of public transport, road networks and parking with village atmosphere and the real soul and character of Leeds's heritage*". Appealing to modern businesses, the web site also boasts the "*critical business benefit of ultra-fast, fibre broadband with up0 to 1GB per second in both download and upload*".

Today, the development provides accommodation almost 100, mainly creative businesses, ranging from single-person start-ups to multi-national businesses. The scheme comprises almost 160,000 sq ft of office accommodation, ranging from 1,000 sq ft to 28,000 sq ft. The project provides independent shops, restaurants, bars and cafés set in a number of cobbled courtyards that try to retain as much of the character of the old foundry as is possible

The Round Foundry today accommodates an array of creative companies including architects, artists, designers, film-makers, games developers, digital consultancies, and advanced manufacturing. The brands in occupation include the following.

> All Response Media (advertising and marketing); Bolder (brand management); Bloom Agency (digital Communications); Eyzon (recruitment agency); Finn (PR agency); Flashtalking (advertising); Harvey Nash (recruitment); Kings Bench Walk (chambers); Mediacom (media planning); Sewell Group (brand management); Touch (communications agency); Urban Consultancy (landscape consulting); We Are Boutique (media and PR) and Zeal (digital and creative agency).

The Round Foundry Media Centre provides high quality, contemporary serviced office space specifically for creative, digital and media businesses, on very flexible terms. It offers flexible work spaces and virtual office services; a postal address and professional telephone answering service, high speed internet access, AV equipment and a range of catering options.

The redevelopment of Round Foundry has won a number of architectural awards including: 'Best Creative Land Use' and 'Best Urban Centre', Yorkshire Urban Renaissance Awards 2005; 'Project of the Year', RICS Regeneration Awards 2005; 'Excellence in Architecture and Built Environment'; 'Best Commercial, Industrial and Retail', RIBA Yorkshire White Rose Awards 2005, and 'Best Neighbourhood in UK and Ireland', Academy of Urbanism 2015.

Demonstrating the commercial success of the redevelopment, Igloo Regeneration sold the site in 2015 for £31.5m.

We gratefully acknowledge the help of Centre Manager Alison George in preparing this case study. Images courtesy of Round Foundry Media Centre.

6.3 Toffee Factory, Newcastle upon Tyne

Toffee Factory sits within the Ouseburn Valley area of Newcastle near the Quayside. Newcastle City Corporation purchased the land in 1872 to build a two-storey sanatorium for imported cattle. By the turn of the century the buildings stood unused, and Newcastle Corporation set out to find an alternative use. In 1906, it approved a request from sweet maker Maynards to lease some of the space. The firm extended its leases and grew on site. However, the site once again fell into disuse in the late-1950s when the factory ceased production. In 1993 the site was badly damaged by fire, and the building shell lay derelict until it was transformed into the Toffee Factory in late 2011.

The site's latest phase of life got underway in 2010 with the formation of 1NG by Newcastle City Council, Gateshead Council and ONE, the government's regional development agency for the North East. The East Quayside and Ouseburn Estuary area was earmarked for attention, and funding was made available by ONE for major projects in this area as early work by 1NG.

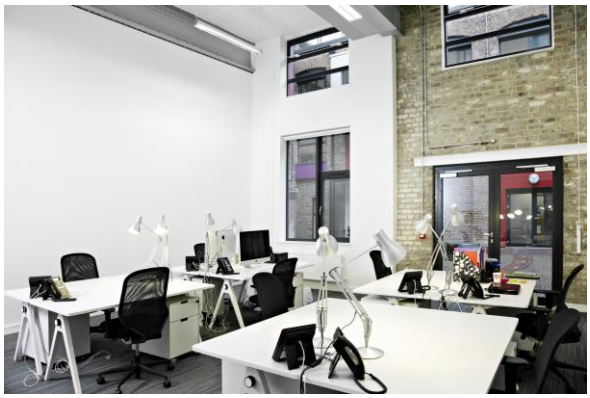
A JV between Carillion and Igloo was established in 2012 to develop four sites around the Toffee Factory. Local architect, xsite architecture, was selected to design the conversion of the Toffee Factory shell into high quality office space for creative sector businesses. The building is managed by Creative Space Management, a multi-award winning facilities management and consultancy company, owned by Newcastle City Council.

The sensitively refurbished building provides high quality, contemporary serviced office space for a range of digital and creative businesses, from start-ups in a shared workspace to larger offices for established companies. Toffee Factory is now home to over twenty digital and creative businesses, including the following.

> 55 Creatives (design and media); Born Digital (digital marketing), Bumbl (digital marketing); CEAD (architecture); Cool Blue (Communications); East

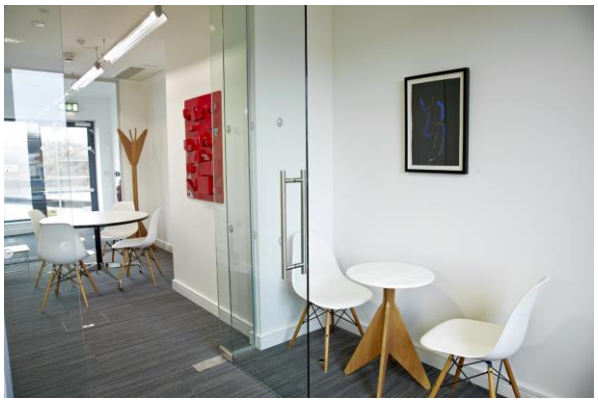
River (public relations); Evolved Digital (search marketing agency); Factory 35 (advertising imagery); Intersect (architecture); Luminous Group (3D data capture); Multiminded Digital (music production); Octo Design (product design); One Associates (landscape architecture); POD (urban design); Sharpe Recruitment (recruitment); Spotlight Reporting (business intelligence); Succinct (healthcare communications) and W Communications (PR and communications).

Offices at Toffee Factory vary widely in terms of their aspect, size and configuration. The web site describes the offices as fully finished with white painted walls (some have exposed brickwork) and neutral carpet tiles to provide a plug and play environment. They all have raised floors with internet, telephone and power points located in floor boxes. The web site also extols the scheme's sustainable features which include a highly efficient biomass boiler, passive ventilation via opening windows and a green roof.



Space is available via an "annual easy-to-read licence which allows for two months' notice at any point, providing a highly flexible working environment". Costs are inclusive of heating and electricity. Offices are accessible 24/7/365, and occupiers are able to "grow or shrink your business within the building at short notice, even taking on temporary project space as it is needed. Increasingly, people need greater flexibility than just a fixed office in a building".

The scheme is targeted at freelancers or portfolio workers in creative and digital businesses; Toffee Factory provides shared office facilities and virtual office services. It has a shared office with eight workstations, aimed new or early years companies. These workstations provide a foothold in "*the North East's newest creative industries community for less than £10 a day including telephone, internet and VAT*"



Toffee Factory can also provide a postal address and telephone answering service. This provides home-based creative or digital businesses with a professional address, messaging and customer interface for when they are out on the road or pre-occupied with delivering their core services.

Toffee Factory is within walking distance of the city centre and mainline rail station with good transport links by road and a frequent local bus, the Q3, dropping off near the door

The Ouseburn has a unique community feeling of its own with excellent pubs and places to eat on the doorstep: The Tyne Bar, The Free Trade, The Cycle Hub Cafe, The Cluny, The Cumberland Arms and Ouseburn Farm are just a stroll along the river away. There is even accommodation at the neighbouring Hotel du Vin. Meeting rooms are available for hire for internal companies for free. Toffee Factory also has an Event Space for external hire with a fixed projector and seating for up to 70 people

The success of Toffee Factory is recognised in the awards that it has won. In 2012, it won two RICS awards - Project of the Year and Regeneration. It then won three RIBA North East Awards - the "RIBA Award" (leading to shortlisting for the Stirling Prize), Building of the Year Award and Sustainable Building of the Year Award. RIBA judges said: "*The derelict Toffee Factory, with trees growing out of its ruined shell, has been reincarnated as a managed work space for the creative industries"* becoming a landmark in the regeneration of the Ouseburn Valley and a significant addition to Newcastle's architectural legacy.

We gratefully acknowledge the help of Customer Service Administrator Ruby Glover in preparing this case study. Images courtesy of Garrod Kirkwood.

7.0 Conclusions

It is evident from a raft of evidence that the nature of change in the wider economy is leading to fundamental changes in businesses. New businesses are being created and new *forms of business* are being created. This is leading to enormous change in the nature of work and in particular in workstyles. Technology-enabled, agile knowledge work is now mainstream rather than a fringe activity for a liberated minority of workers.

Workstyles Despite such fundamental change, and in spite of the repeated warnings of forecasters, there remains strong demand for *a place of work*. Offices continue as a locus for work activity but, in response to the changes taking place, are also satisfying a need for a more experiential workplace, including socialising, learning and belonging. It is no longer a static backdrop for process-based, largely routine and solitary work, but an increasingly actively curated environment, managed more like a hotel than a traditional office, with a high level of service for workers.

The emerging priority roles for tomorrow's workplace will be to energise or motivate people and make them productive and effective; it will provide for social interaction and knowledge transfer; it will provide workers with more personal control and it will provide a wide range of support services. It will act as a hub for the firm and its qualities, in terms of design and services offered; it will assist in recruitment and retention; it will be a tool to improve productivity and wellbeing, and it will provide the setting for interaction, collaboration and innovation.

Workplaces During the past three decades, corporate office buildings have been designed to accommodate large numbers of people at high densities, in open plan, with systems furniture. High levels of specification have been employed to cope with enormous amounts of ICT hardware and power demands and heat output.

However, as workstyles are changing so too are workplaces. They are becoming more stylised, attractive (in the sense of attracting workers to them) and experiential. They increasingly provide concierge-type services and spaces that transition from daytime to evening activity. They are moving, inexorably, towards *a space as service* model, whether provided internally or by a third party provider (serviced office or co-working environment).

Landlords are increasingly designing and manging buildings not only as multi-let spaces, but also as multi-use spaces. As corporate organisations discard their 'corporate island' approach in favour of a more agile, networked approach, office buildings will become 'less generic' and less single purpose. They will instead work harder to provide choice and flexibility for the individual and the firm. Office design will continue to evolve, working towards more hospitable, supportive and experiential places than ever before.

Alongside the workplace, the quality of public realm is becoming increasingly important to many occupiers as they seek to create and reinforce a sense of community and belonging. Public realm is now an extension of the office and should be designed and managed accordingly. Occupiers wish to see a much greater emphasis on the creation of public places that provide memorable experiences for employees and support a variety of work/life needs.

New models of provision To meet the drivers of change in workstyles and workplaces, new models of provision have emerged. Occupiers, or customers, need flexibility to match their uncertain business environments. The flexible space market will play an increasingly important role in providing the kind of space required by small, modern, knowledge-based businesses, who wish to match the quality of space and service enjoyed by larger organisations And it will also provide agility and flexibility for larger corporate organisations that wish to take temporary, or project space, on less onerous terms than those offered by traditional leases.

This paper has described four main models of provision: serviced offices; managed/studio space; co-working space and incubators and accelerators. Each has distinctive strengths for market demand segments. In addition there is demand for affordable space, perhaps in secondary quality space; for nurturing clusters and like-minded business and for mixed use, where agile working firms share buildings with other commercial and residential uses.

The role of historic buildings Changing workstyles, an evolving workplace design and management agenda, and new models of provision, all point to a major opportunity for historic buildings. As we have seen, many modern businesses make fewer demands on building design, alongside which there has been (and continues to be) a long-term shift in emphasis towards SMEs. Consequently, a much greater variety of building types can satisfy modern workstyles, including historic buildings.

Added to the equation the ability of knowledge workers to exercise greater choice over where and how they work, and there is clearly emerging a rapidly growing market for historic buildings to accommodate agile working practices. Indeed, we have described a few examples, and provided case studies to demonstrate how this has already been achieved in a small number of places.

Comparative advantage We have described the attributes of historic buildings that are likely to make them attractive to agile workers and firms. We list matters relating to public realm, physical features and management attributes. We also describe various cultural and social attributes that are likely to give historic buildings a comparative advantage. Among these, we include the caché often conveyed in stark contrast to corporate office buildings; their ability to offer an ‘alternative style’; their ability to engender the sense of business community, and the quality of their structures and materials, which convey permanence and quality.

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