



Braving New Worlds: Virtual Spaces for Enterprise Collaboration

Position Paper

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Introduction

Many of us recognize March 2020 as the point at which the day-to-day patterns of our lives changed dramatically. As of 28 April 2020, 54 percent of the global population was under a strict or partial lockdown, and nearly every country had containment measures in place to restrict the spread of COVID-19. Businesses (and governments and schools) scrambled to empower their people to do their work from home, with most believing they would be back in the office in a few short weeks.

Eighteen months later, the picture looks rather different: hybrid working is here to stay, business travel is forecast to decline permanently, and information workers are looking at a new complex interplay between co-located and distributed ways of working. Yet some businesses are resistant: Goldman Sachs CEO David Solomon famously called working from home an "aberration," being one of the first to insist its traders head back to the office in the face of opposition from competitors such as HSBC, Citigroup and Lloyds. Many other companies were less adamant than Goldman Sachs about a full-time return to the office but nevertheless announced plans for a September shift from primarily home-working to a mandate for being in the office at least a few days each week.

As the return to office day approached, however, tech giants Apple, Google and Microsoft have already delayed their mandated return-to-office date by at least a month; food delivery platforms Lyft and DoorDash have committed to remote working until at least 2022; and others (including DXC) are committing to a virtual-first model where remote work remains the norm for most employees. As we said in our report Shock Treatment: Developing Resilience and Antifragility, one shock is often followed by aftershocks – and there is continued volatility on the horizon. Office day seems set in sand rather than in stone.

Teams are more siloed in a digital work world

Collaboration trends in Microsoft Teams and Outlook show that interactions with our immediate team, or close network, strengthened with the move to remote work. However, our interactions outside of that team, or distant networks, have diminished.

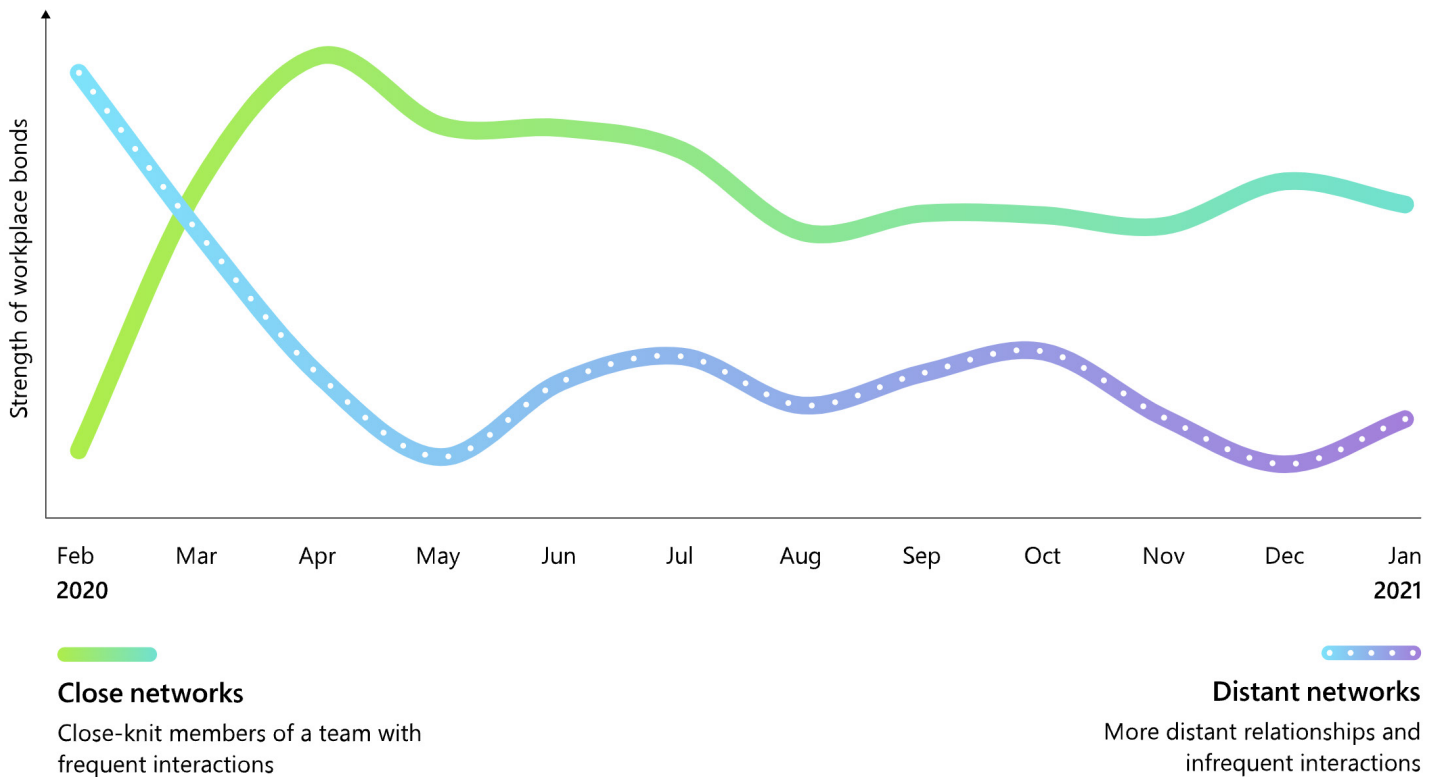


Figure 1. Microsoft's analysis of billions of email, Teams & Outlook interactions showing declining distant relationship interactions
Source: [Microsoft](#)

While Solomon and other firm office-first bosses may be perceived as out of touch or behind the curve, there are genuine challenges to communication and collaboration that arise from trying to be together while apart. A [study by the UK's Office for National Statistics](#) found that the out of sight, out of mind principle holds true for home-based workers whose colleagues are mostly in the office: workers who consistently worked mainly at home were less than half as likely to have received a promotion as workers who consistently worked mainly away from home.

The same study shows that home-based workers were also likely to work longer hours, do unpaid overtime, and generally be paid less than their primarily office-based peers (though the pay gap has been declining as home working becomes more common.) [Microsoft's 2021 Work Trend Index](#) found that teams are more siloed in a digital world, increasing the risk of groupthink and declining innovation as information fails to make its way across informal knowledge networks in organizations.

Further shifts are needed. We need to find ways to create a sense of shared space while breaking down the need to be in a specific place (the office.) Enter the virtual office.

Furthermore, workers who use Microsoft's collaboration software have more than doubled the time they're spending in Teams meetings, sending more messages and emails overall (45 percent more) and specifically out-of-hours (42 percent). While individual worker productivity has remained high despite the challenges of the past year and more, workers are reporting exhaustion, overwork and burnout.

Put simply, the collaborative tools at our disposal have been a great help for facilitating collaboration during an extraordinary time, but they have also contributed to great harm. Further shifts are needed. We need to find ways to create a sense of shared space while breaking down the need to be in a specific place (the office.) Enter the virtual office.

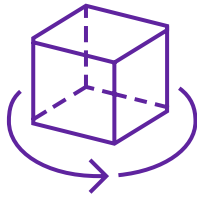
Throughout this paper we describe what immersive collaboration environments are, where immersive tools are well-established and where they have potential to grow, as well as the resistance factors that currently inhibit their adoption. Most importantly, we explore the fundamental questions around collaborative working practice that need to be answered before any change in collaborative tools can be sensibly addressed through the sliding scale of synchronicity (see Figure 10). To get to grips with these questions we participated in immersive collaborative meetings and events, interviewed 25 experts in the field including those who are building collaborative tools and those who are using them (or not, and why), and conducted a comprehensive review of current business and research literature on the subject.

We start with an overview of what immersive collaborative environments are and how they are already used.

Immersive collaborative environments: a virtual world for work

Immersive collaborative environments represent enormous potential to overcome some of the challenges faced by increasingly distributed teams. These include the lack of collaboration collisions, those semi-random encounters that allow co-located workers to share a piece of information or spark a new conversation that leads to a new possibility; gestural communication, which adds richness and depth to communications; and the ability to overhear and interject in a group setting.

Conversational turn-taking tends to become much more formalized in standard video-conferencing software: overlapping threads and interruptions are not particularly well-supported. This tends to make the experience of meetings more structured and formal than they might be in real life. This is not necessarily a bad thing – in fact, it can be a great equalizer for people who find it difficult to interject in co-located meetings. But depending on what the participants are trying to achieve with their meeting, it can be a limiting factor. To give one example, picture a design or ideation workshop in which participants convene, break out into small groups for exercises, then return to a plenary group.



For information workers, the space without place is still a nascent question.

In a co-located workshop, participants from each group might overhear one another or have side conversations with other groups; the facilitator might wander between groups, interjecting and supporting as necessary. Most video conferencing platforms support breakout sessions from a main meeting, but the groups have no way to interact with or overhear one another. This is a substantially different experience, which encourages particular types of collaborative encounters and reduces others.

How can we create the advantages of a shared space without having to be in the same physical place? This is a problem that has already been explored at length in industrial design, manufacturing, and, to some extent, location-specific work, and the benefits of virtual models ranging from virtual reality (VR) training exercises to digital twins are already recognized in those spaces. To give a few examples already in practice:

- WalMart has been using VR to train employees for the Black Friday rush since at least 2017.
- Computer-aided simulations for Hajj crowd control have been in use since at least 2000, with recent innovations including VR and augmented reality (AR) training simulations for pilgrims to make their journeys easier.
- Molecular researchers have been using VR to simplify complex 3D modelling tasks since at least 2018.
- More recently, Rolls Royce has been using VR not only for in-house operational enhancements, but al-so for customer training.

For more information on the growing prominence of digital twins for operational improvements read *Digital Twins: A Guide to the Labyrinth* by my colleague Bill Murray (Figures 2 and 3 show examples from that report.) For design, training and manufacturing the case is clear: these technologies are already in use. But for information workers, the space without place is still a nascent question.

One way to accomplish this might be through the virtual worlds commonly encountered in massive multiplayer online games. What do we mean by virtual worlds? Researchers offer this definition:

First, they are places and have a sense of worldness. They are not just spatial representations but offer an object-rich environment that participants can traverse and with which they can interact. Second, virtual worlds are multi-user in nature; they exist as shared social environments with synchronous communication and interaction. While participants may engage in solitary activities within them, virtual worlds thrive through co-inhabitation with others. Third, they are persistent: they continue to exist in some form even as participants log off. They can thus change while any one participant is absent, based on the platform itself or the activities of other participants. Fourth, virtual worlds allow participants to embody themselves, usually as avatars...such that they can explore and participate in the virtual world¹.

¹ Tom Boellstorff et al, *Ethnography and Virtual Worlds: A Handbook of Method*, Princeton Press, 2012

We will explore examples of virtual worlds in practice in our case studies below.

Despite much hype among technologists about the metaverse (a virtual world that blends aspects of digital technologies like video-conferencing, gaming, cryptocurrencies, social media and more), a near-future vision of converging digital and physical worlds does not seem to be coming to an office near you any time soon. Even continued disruption of face-to-face collaboration does not seem to have advanced this field at the same pace as some other reported accelerations of digitization. But some businesses clearly see the potential for growth in this area:

- In early 2021 Microsoft purchased Bethesda Game Studio for \$7.5 billion and first used the term enterprise metaverse during the Build keynote in May 2021.
- The UK's National Health Service is experimenting with AR glasses to minimize the amount of time staff spend in high-risk areas.
- PwC is holding immersive VR meetings in visually stimulating environments to combat zoom fatigue.

IOTICS case study: From siloed systems to a digital twin ecosystem

Running and maintaining train services is a significant challenge. The dependencies between stakeholders in the UK rail network make it a **complex adaptive system**. Between 10 and 33 percent of trains are 'off diagram' (where the physical asset is working a different service from that originally planned) on any one day, making it very difficult to track assets. IOTICS' digital twin ecosystem weaves together the digital threads of many stakeholders, accurately modelling a fractured but evolving multi-party system and so surfacing real-time insights, accelerating decisions, reducing costs and increasing efficiencies.

How do you start? From wherever you are. Rolls-Royce Power Systems, for example, had **simulacra** of assets, as-built and as-maintained, and used IOTICS to create a whole-life **digital twin** of its assets: a digital thread of meaningful events to contribute to, and benefit from, the broader rail ecosystem.

- IOTICS' overlay architecture models existing sources of data (ERP, MES, PLM, etc.) and integrates **simulations** to create machine-readable **digital twins** of assets, providing a whole-life digital thread of **personalized** events powering customer service **propositions**

- Digital twins of trains create digital threads of services based on **personalized** operational requirements of configurations
- Virtual entities such as train operators' service schedules and maintenance priorities are twinned, and digital threads **predict** the end-of-day location for priority maintenance
- Digital twins of network schedules provide real-time infrastructure insight to **predict** performance to timetable

- IOTICS' digital twin ecosystem interweaves the digital threads of events, alerting when a train goes off diagram, **predicting** a change in end-of-day location, alerting relevant stakeholders, to drive rapid OODA loops and **preventative** measures
- The secure interplay of data elevates from siloed system-centric views, enabling ecosystem members to develop new **personalized propositions**, enhance operations, **predict** performance patterns for today and tomorrow's services and deploy **preventative** measures.

Continued >

Component to ecosystem

Network ↑

Service

Train

Engine

Part

Simple
Complicated
Complex
Complex adaptive

Rolls-Royce Power Systems' whole-life digital twin of its train ecosystem

For more information see here:

<https://www.imeche.org/news/news-article/%27human-buy-in%27-needed-for-digital-twin-deployment>

<https://www.manufacturingglobal.com/technology/covid-19-digital-twins-future-manufacturing>

<https://vimeo.com/393668517>

<https://www.iotics.com/wp-content/uploads/2020/03/RUSSIAN-NESTING-DOLL-WHITE-PAPER-03242019.pdf>

Figure 2. Iotics/Rolls-Royce case study from Digital Twins: A Guide to the Labyrinth

The current reality is that many businesses are still just getting used to industry-standard video and chat collaboration suites. They are not yet building a virtual office to replicate the dynamics of the physical HQ, let alone exploring what they could do with virtual environments that could never be achieved in the office.

Despite this, the current reality is that many businesses are still just getting used to industry-standard video and chat collaboration suites. They are not yet building a virtual office to replicate the dynamics of the physical HQ, let alone exploring what they could do with virtual environments that could never be achieved in the office. Two research interviews were particularly revealing in this respect: one large image processing firm reached out to me to discuss its exciting new virtual communities platform, which turned out to be an industry-standard messaging-board style social networking site for large enterprise businesses. The second, a bank, had been lauded in the press for its new virtual room for underwriters and brokers, which upon investigation turned out to be a custom-built version of another popular enterprise collaboration suite, the main feature of which is that it has a calendar integration for all members so they can see when others are available for meetings.

Just getting to the point in a research interview where the interviewee and I were speaking about the same concept. when talking about virtual worlds or immersive collaborative environments was frequently a struggle. This is a major clue to the (im)maturity of this way of working as it currently stands. However, several signals indicate that what is today an outlier may become more common in the mid- to long-term future:

1. The fact that AR is making such headway in other types of work suggests that effective collaboration between frontline workers, R&D, design and their information-work counterparts may require the information workers to become fluent in these tools.



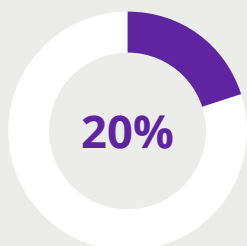
Figure 3. Image from a DXC/Uniper joint meeting in a virtual space

2. The organizations that build our working tools are investing heavily in this area: nearly 20 percent of the Facebook global workforce is focused on AR and VR, with CEO Mark Zuckerberg announcing in June 2021: “Our overarching goal across all of these initiatives is to help bring the metaverse to life,” followed by the launch of its new VR office product Horizon Workrooms in August 2021. To achieve its ambitions, Facebook appears to be rapidly draining Google of its VR talent base, including a recent key hire of the former director of Google’s AR/VR team. Microsoft Mesh is making concerted effort to move beyond the well-established AR/VR usage in manufacturing, utilities and logistics, including a strong play to end the need for business travel with holoportation to give information workers a more realistic sense of gathering together without the physical logistics of travel. Whether you want this future or not, our digital and physical realities will become increasingly entwined.
3. Businesses are increasingly recognizing the dynamics of social immersive gaming tools for training (e.g., the Working Effectively in Small Teams training by Fernando and Gloria Flores which takes place in World of Warcraft)² and team camaraderie³. This isn’t just about the actual tool of the immersive collaborative environment, but the dynamics it encourages. Research by Nancy Baym and others (cited above) shows that there is strong potential for encouraging camaraderie among teams through shared online gaming experiences – though the benefits are limited where participants feel this is an obligation rather than a voluntary experience.
4. Finally, while hybrid work that mixes remote and in-person working is touted as the now-normal, businesses may find that this amalgamation doesn’t encourage the collaboration and camaraderie that they assumed it would. If only half the employee base is physically in the office at any given time, the opportunity for collaboration collisions is still vastly reduced, and employees may find themselves still on constant video calls with their colleagues who are elsewhere

One solution to this disjointed experience is a place that is nowhere: the *virtual office*.

² Gloria Flores, Learning to Learn and the Navigation of Moods: The Meta-Skill for the Acquisition of Skills, 2016

³ Nancy Baym, Building Social Capital through Gaming with Co-Workers, Microsoft AI and Gaming Research Summit 2021



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The distributed place: Imagining the virtual office

You walk through the doors of your office building, running into a couple of colleagues in the lobby. You exchange cheerful greetings and a promise to catch up later on a project your teams are working on jointly. You jog off to your desk to check emails briefly for anything urgent before your first meeting of the day.

As you make your way to the conference room you fall into step with a team member, having a brief exchange about one or two important questions you'd like to get clarification on in the meeting. You're glad they've brought this up because you've hesitated over how to phrase your question, and now you've got confidence that they will raise it in the meeting if you don't.

You arrive at the meeting room where another colleague begins a brief presentation on your project. You feel your attention wandering – but then another colleague suggests changing things up. Suddenly the chairs disappear from the room and on the tabletop in front of you is an interactive 3D model of the data from the presentation. The team begin walking around this model, pointing out things that weren't obvious from the slides.

One team member expands the data until it fills the room and teammates are able to walk around inside it, seeing finer-grain detail than the tabletop model. As you manipulate a few data points, a team member calls everyone over to their side, asking a question about a seemingly unusual pattern they've identified.

The team agree this finding is significant and list further steps to test how they might use this insight. After the meeting you wander over to the coffee area, where you run into the colleagues you saw in the lobby earlier. They're excited to hear about the findings from your meeting and they have a few ideas for how they might contribute to the next phase of experimentation. You all teleport to the beach for a change of scenery while you continue the discussion.



Figure 4. Energy company Uniper conducts a virtual meeting

All of these features are readily accessible through existing commercially available immersive collaborative environments. [Read more about Uniper's experiments with virtual meetings on its blog.](#) With apologies to the father of cyberpunk William Gibson: the virtual office is already here, it's just not evenly distributed.

The ambient workplace

We've talked about the specific ways that AR and VR are already recognized as driving business value for design, innovation and communication. Typically these are time-bounded tasks: a person or team will use a specific tool to achieve a specific end goal such as attending training, working on a complex 3D design, managing or maintaining a real-world system through a digital twin, or showing how a hypothetical design might be used in practice. But the value of immersive environments is also in the tacit knowledge and informal knowledge networks that get created through a sense of shared environment.

In fact, much organizational decision-making is made through these informal knowledge networks. As much as we may like to believe our organizations are data-driven, often the data that drives decision-making in reality is who has what information at that time. Who's in the in-group? Who was informed, when, and by whom? This metadata about where informal knowledge comes from and all the richness of power relationships that it imparts in organizations⁴ has a simple everyday moniker: gossip.

⁴ Nancy Kurland & Lisa Pelled, Passing the Word: Toward a Model of Gossip and Power in the Workplace, The Academy of Management Review, April 2000

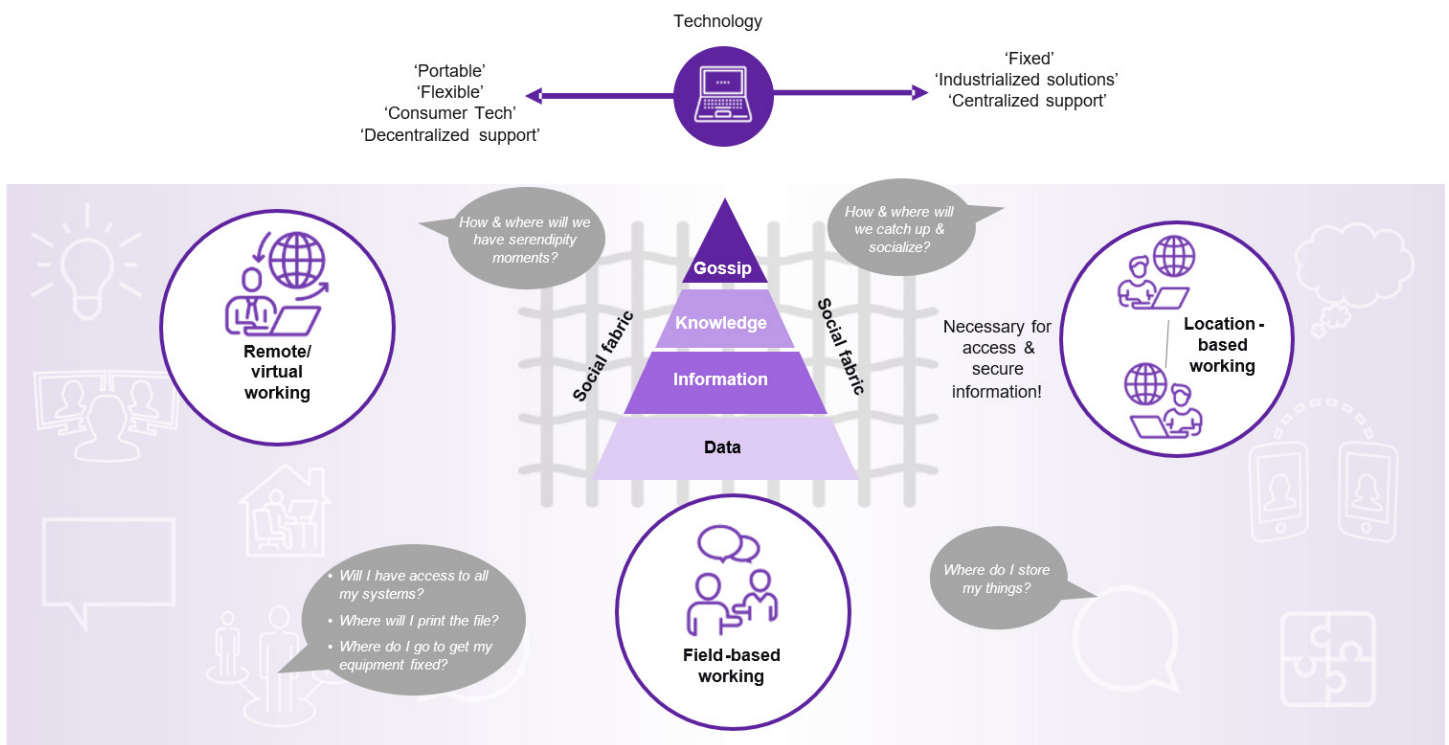


Figure 5. The gossip hierarchy in organizations



There are deeper cognitive reasons for considering a move to more immersive collaborative technologies: our memory and cognition are spatially oriented.

In distributed teams, gossip can be hard to come by. We saw this already in the Microsoft research cited earlier showing that second-order networks and weak ties declined dramatically as many people's work pivoted from face-to-face to Teams-to-Teams. In our prior work on maximizing collaborative potential, *Reconfiguring the Collaborative Workspace*, we spoke about the importance of designing "micro-moments of trust" in low-stakes ways which allow teams to develop the camaraderie and resilience to withstand challenges as they arise. Free-flowing informal communication networks are an essential part of the infrastructure to allow these micro-moments to arise. In a physical office, the cafeteria, the hallway, the coffee point or even the whiteboard can act as beacons that are gathering places for informal knowledge to arise and to combine in productive ways. In a distributed working world, teams need to find new ways to create these beacons.

One interviewee at a global firm in the healthcare industry described the struggle to recreate the "ambient workplace" when a previously very on-site team was sent home during lockdown in 2020. In this team's case, rather than exploring a virtual campus, they had taken to leaving an open video conferencing channel on all the time, which people could join whenever they were not in other meetings or doing solo focus work.

This gave them the opportunity to recreate the hum of background chatter that they normally would have had on the office floor: to catch up on purely social matters, to reach out in an open forum for advice or help, or simply to share a joke and shift focus for a few minutes between tasks. Other teams are experimenting with virtual coffee hours, with specific time set aside for social catch-ups during the week, and with using a few minutes at the start of some meetings for social sharing, games or team-building. We explore further methods of creating a digital cafeteria in our earlier report; we've included a brief appendix of these techniques at the end of this paper. A virtual campus can enhance this, but there certainly are other options teams can try.

At Health Care Service Corporation, which operates the health plans in Illinois, Montana, New Mexico, Oklahoma and Texas, Robert Holzer and Stephen Moody of the company's technology exploration team described how they could see the potential of immersive activities for lean back activities (i.e., those that required very little interaction with space or representations of objects) like delivering a presentation or having a discussion.

This team said that they genuinely felt the added camaraderie benefits of moving around a shared virtual environment; it immediately felt much more connective than a video conference, and did put back some of the loss of communicative fidelity they sensed when sitting on Teams calls all day. Their conversations simply felt more real in the virtual environment. However, they felt that lean forward activities like ideation sessions (which they previously ran in person with sticky notes and markers) were still too fiddly compared to either their in-person experiences before the pandemic or the other workarounds they've developed since.

For novice users it takes some time to get up to speed with navigating the virtual landscape and manipulating the environment. In experiments that took place during the course of this research, we watched users appear halfway sunk through the floor in shared VR spaces because their real-world setup was incorrect (see Figure 3), or flailing about in wild, unnatural spasms as they attempted to control their avatars. While these issues are resolvable with time and training, the added benefit of being able to place a sticky note precisely on a virtual board simply doesn't outweigh the speed and ease of use of existing shared-whiteboard tools paired with a video conference, for example.



Figure 6. Lean back vs. Lean forward activities

Your brain works spatially

There are deeper cognitive reasons for considering a move to more immersive collaborative technologies: our memory and cognition are spatially oriented. This is one of the oft-cited reasons that VR training exercises, even for non-spatial tasks, are so much more effective in learning retention than other forms of training⁵.

You may be familiar with a memorization technique known as the memory palace, where specific facts are stored in an imagined physical place. This technique has been used as far back as the ancient Greeks as a memory aid, but a similar Aboriginal method of memorization – tying facts to landscape features accompanied by short narratives – has recently been proved even more effective⁶.

For information workers staring at the same screen for eight or more hours per day with little differentiation between tasks, the world of work may seem like one long Groundhog Day tunnel of undifferentiated documents, emails and meetings. At least physical meetings gave people the opportunity to (slightly) change context by moving from room to room. To optimize our mental working environments, we need better tools that help us make the most of our cognitive power instead of working against it.

⁵ Eric Krokos et al, Virtual memory palaces: immersion aids recall, Virtual Reality, 2018

⁶ David Reseret al, Australian Aboriginal techniques for memorization: Translation into a medical and allied health education setting PLoS ONE, 2021

One of the biggest challenges of adopting more immersive methods for communicating and collaborating is simply our long-ingrained habits around informational design and presentation: we have a critical failure of imagination to communicate intangible ideas in tangible, visceral ways.

The informational lexicon of most executives is dashboards, slides and reports. We almost exclusively receive and discuss informational artifacts in a corporate context through a combination of visualizations and words in 2D. The minute you use slides in a 3D world, you've already decided to ignore many reasons you might choose to be in a virtual collaborative environment in the first place. You might as well be on a video call.

This is one of the reasons that adoption of immersive collaboration tools has been so much faster for physical use-cases in manufacturing, design, architecture, the hard sciences, etc., than for information work: we simply have no frame of reference for presenting abstract data in an immersive way.

Or more accurately, we're only used to doing so on a flat plane, since all those slides and dashboards are already attempts to realize abstract constructs; to give ourselves a physical artifact that allows us a discursive space to create meaning, to challenge one another, to agree on our informational context, and most importantly to take action.

There is a small but powerful information revolution happening through companies like [Alaira](#) in the UK, which creates immersive data visualizations to help companies explore their information in a more intuitive way. But this field is still very much in its infancy, and the primacy of PowerPoint remains strong.

Most of the in-practice use-cases we describe below – and indeed collaboration software in general – have yet to fully capitalize on the spatial organization capabilities of the brain, but the possibilities are beginning to form.



We have a critical failure of imagination to communicate intangible ideas in tangible, visceral ways. We simply have no frame of reference for presenting abstract data in an immersive way.

Virtual world use-cases in practice

As part of our research we collated case studies of novel ways immersive collaborative environments are being used in practice.

DXC research (formerly Leading Edge Forum): The Ways and Means of Industrialization Study Tour



Figure 7. Virtual study tour done by DXC research (formerly Leading Edge Forum)

In preparation for our 2021 report *New corporate behaviours arising from the industrialization of technology*, Simon Wardley chaired a study tour that was very different from our usual in-person roadshows. Instead of five days on the road with senior executives, we hosted a series of online sessions with leading technology companies to understand current changes in practice. We also hosted several online learning sessions in Virbela to foster a sense of community, encourage shared sense-making, and create immersive learning. Virbela is a virtual world platform that can be accessed through a desktop computer or a VR headset. Participants create virtual avatars and navigate through a low-resolution but lifelike space. Similar examples by other providers include AltspaceVR, Microsoft Mesh, Mozilla Hubs and Spatial, along with lower-resolution 2D examples like Branch, Gather.town and Sococo. Our learning experience of running the study tour in Virbela was as follows:

- Initial sceptics tended to be won over by the tool's power to foster more engaging conversations than other types of multi-user conferencing applications. While many think they already have existing (or even too many) collaboration tools at their disposal, the real experience of Virbela often won them over to new possibilities for distributed teams or ad hoc groups working together more effectively.
- Persuading prospective users to try the technology in the first place might be a barrier to widespread adoption. Experiences like our immersive study tour or other events could be a safe experimental zone to encourage trying new experiences and seeing benefits (or failures) without big consequences.

- All users were offered a 30-60 minute training session to help them get up to speed with the platform prior to participating in any content sessions with the study tour group. While this helped mitigate some problems, many still struggled with the basics of navigating the virtual world itself. Of the total study tour attendee group, about two-thirds agreed to participate in an induction session, some of whom were unable to do so because of problems with corporate firewalls and other technology barriers. Of those who participated in an induction session, about two-thirds showed up for the first immersive learning session, and two-thirds of those lasted until the final session.
- Users who lasted through the sessions reported finding it more engaging than a typical video conference, citing the ability to have side-conversations due to the spatial-aware audio, to overhear and join in to another group, and to congregate around a shared collaborative object (e.g., a whiteboard or presentation) within the tool.
- Going to the beach: several attendees in a breakout group, spontaneously and without the help of facilitators, decided to leave the events area to explore one of Virbela's shoreline areas for the duration of their discussions, demonstrating that one can become adept at using Virbela quickly and without being taught.

The virtual scrum experiment

Uniper, a large European energy company, sent the majority of its staff home during the early part of the pandemic, keeping a bare minimum of on-site personnel. Like many other businesses Uniper found that it was able to collaborate at least as effectively in a distributed way as it did in the office.



Figure 8. Energy company Uniper conducts a virtual meeting



Meeting participants reported that the avatars created a sense of “togetherness” that goes beyond what they experience through video conferencing, which they found valuable.

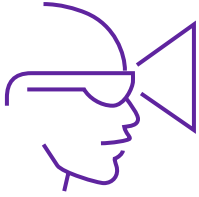
Also, like many other businesses, there is one group of people with whom it had always collaborated remotely: Uniper’s workforce is primarily based in Germany and the UK, but it also works with a large DXC technology support team based in India.

Key staff from DXC and Uniper hold regular scrum meetings to keep projects and programs on track. Previously, Uniper’s CTO Damian Bunyan and a half-dozen or so of his team would visit India on a regular basis to build camaraderie and do the kind of on-the-ground problem solving that is difficult to achieve solely through conference calls. These visits came to a halt like most business travel in 2020. While seeking new ways to keep the informational richness of in-person collaboration without being able to travel, Bunyan and his team decided to explore VR meetings in Spatial.io, joined either through the browser or with Oculus headsets.

Bunyan perceived an opportunity that could last after travel restrictions are lifted: spinning up a virtual meeting is far less expensive in time and travel than sending several team members to India multiple times per year. While Bunyan doesn’t see a move to VR as the standard way of commuting to the office in the future for distributed teams, he believes it can add a democratizing effect to put everyone in the same space and have a shared experience for occasional meetings to complement existing video conferencing software and collaboration tool suites. It also gives a very different sense of informational fidelity than a standard video call; points that may get passed over or managed around during a regular meeting can literally take up more space in a virtual collaboration space. “When a post-it note is three by three feet It’s not easy to ignore,” says Bunyan.

Meeting participants reported that the avatars created a sense of “togetherness” that goes beyond what they experience through video conferencing, which they found valuable. There are of course challenges to overcome. In one virtual scrum I attended, some participants joining via headsets hadn’t correctly set up their environment so they appeared to be hovering halfway through the floor of the room (Figure 8), or their limbs would contort wildly in positions that would make anyone in a real meeting call for medical help. People struggled with manipulating objects in the virtual world, and with motion sickness and headaches from the headsets.

All of these problems are resolvable through training and experience, as well as the increasing fidelity of the technology itself, but they can still be a significant barrier to adoption for a team who seems to be doing well enough through other less immersive collaboration technologies. An interviewee who builds virtual worlds described learning to operate in a virtual immersive space as similar to learning to read: at first you’re simply struggling to grasp the black-and-white text on the page; this takes a lot of effort and concentration. Over time as you become more fluent at reading, you spend less time concentrating on the text and more time fluently experiencing a sense of immersion within the story that the text is trying to tell. Very few people are fluent in navigating virtual worlds yet, especially in a workplace context.



A virtual world presents the opportunity to create spaces that wouldn't be feasible in a real working environment.

The virtual campus

One company which does use a virtual campus as its ambient workplace is Virbela, who we mentioned in our earlier case study about the study tour. One benefit that co-founder Alex Howland spoke about is the ability to use the space to instantly navigate to more creative environments. When we become habituated to a space, our thinking becomes routine and familiar; we sometimes overlook innovative possibilities because we are so surrounded by the familiar. This is one reason off-sites are a popular management technique; getting people out of their normal surroundings gives the brain a nudge to think differently. Of course, those off-sites often require a lot of planning and coordination, not to mention the cost of transportation and hiring another space. In Virbela, as we saw with our example of the study tour, you can simply teleport the whole team to the beach. Another advantage for a team is the ability to instantly reconfigure space to suit requirements: in a real-world establishment, moving the desks or knocking down walls has a huge time and monetary cost – and the results are difficult to reverse. In a virtual world, the team can reconfigure the office at the touch of a button, so if a mooted change hasn't worked out it can be changed again with ease. Moreover, a virtual world presents the opportunity to create spaces that wouldn't be feasible in a real working environment: as we've already discussed, this is a well-known use case for examples like training for dangerous, rare, or difficult to replicate situations, but it can also be a way of connecting with new imaginative environments. If you want to have your desk in the forest or in space, this is achievable in a virtual world.

Having said that, spatial norms and habits from the real office are so ingrained for many of us that even a virtual world can't shift them: Howland described how even the Virbela team, who can build whatever they want in their own virtual world and change it in a heartbeat, still habitually choose the same seating patterns in virtual meeting rooms and nest at particular desks (if I sit second to the left from the door, I always sit second to the left from the door. That's *my* seat). I think this speaks to two points. Cognitively, even a low-resolution virtual world can create enough of a sense of *embodiedness* to give people a sense of ownership over their habitual patterns in the space. And anthropologically, people are reflexively human and react with human social and spatial responses even in disembodied interactions. In our prior research we introduced anthropologist Edward Hall's notion of *proxemics*⁷: that space has social meaning. Even in digital interactions, our sense of spatial meaning remains strong.

⁷ Edward T. Hall, *The Hidden Dimension*, Doubleday, 1966.

AR for site-specific collaboration with remote teams

Another example from Uniper, this time focused on new ways of site-specific and information worker collaboration. Uniper typically runs regular safety inspections with interdisciplinary teams of engineers who walk around each plant looking for signs of trouble and discussing follow-up plans. During the strictest lockdown period they were only able to send one person on-site, but they still needed the combined expertise of the interdisciplinary team. To achieve this, the team used headsets with cameras on them to enable plant safety walkthroughs, with just one person doing the walkthrough on-site while others dialed in and asked the walker to look at particular aspects of the environment in order to assess conditions.



Figure 9. A healthcare worker using HoloLens to collaborate with other team members

Source: [Microsoft](#)

Similarly, during the course of the pandemic several London hospitals adopted Microsoft's HoloLens technology to enable just one member of a healthcare team to conduct rounds while sharing live data with the entire healthcare team. This enabled the hospitals to rely on the full strength of the expertise of their teams while limiting risk and reducing the usage of high-demand protective equipment. This move was specifically in response to COVID-19, but it's clear that the technology has potential to facilitate distributed real-time collaboration for many future healthcare situations, including training the next generation of healthcare providers.

Distributed working: Synchronicity vs. Autonomy

The benefits of virtual worlds for distributed teams are primarily focused on those who wish to come together for real-time collaboration, either for focused working sessions or through incidental brush-past interactions (water cooler/elevator/ coffee machine moments.) But there is another possibility for distributed teams – one which has long been touted by those whose work was distributed even before the pandemic. Some believe that the key to distributed work isn't a place to get together, but a way to make work more autonomous (i.e., optimizing for solo focus work and minimizing the need for synchronous collaboration.)

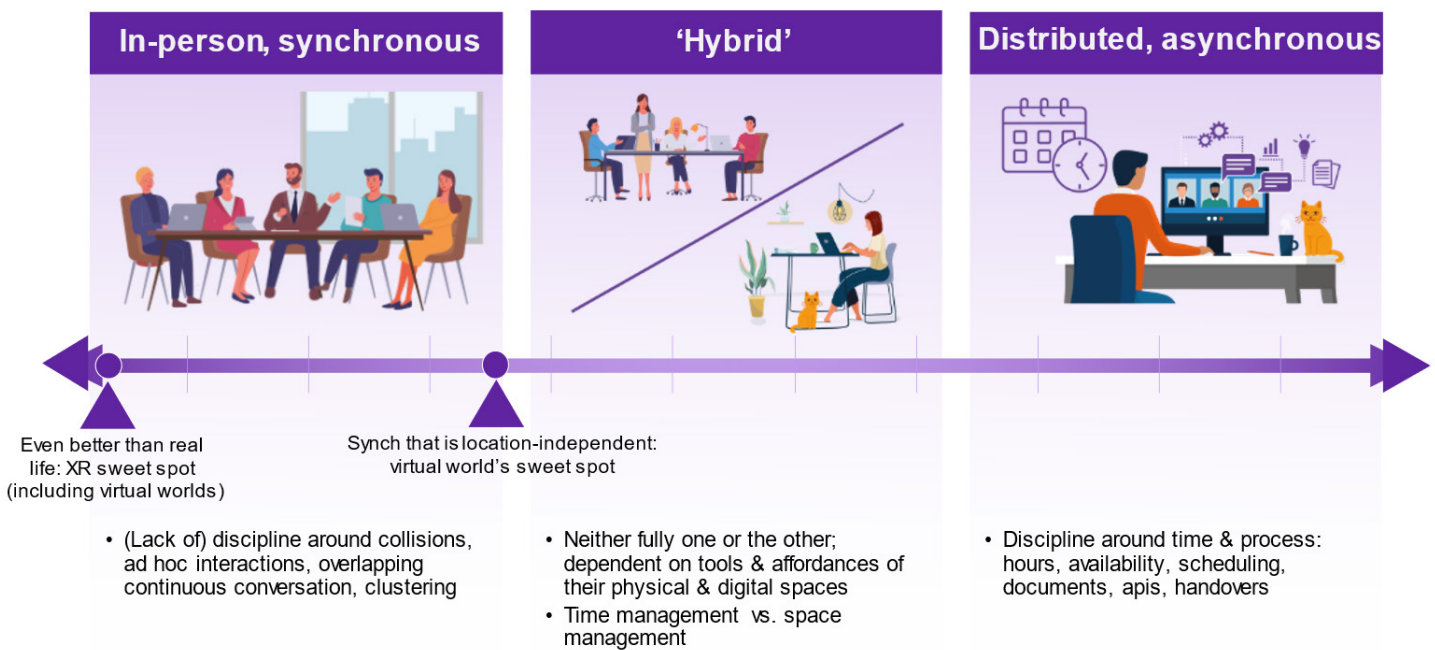


Figure 10. The sliding scale of synchronicity

Teams grappling with the future of their working paradigms need to consider where on the sliding scale of synchronicity shown in Figure 10 they want to fit their day-to-day working practices, as this will have strong implications for how they design their flow of work. These are not mutually exclusive categories: an autonomous (distributed, asynchronous) company might choose a virtual world for occasional one-offs, and a synchronicity (in-person, synchronous) company will certainly need to have a strategy for solo focus time for its teams as well as ad hoc interactions. The scale provides useful directional poles to orient around. Below we describe three case studies to illustrate different points on this scale.

Automattic: The hierarchy of distributed work

Automattic is a global distributed software company whose most notable work is Wordpress.com, the content management system used by bloggers and by major corporations including BBC, Condé Nast and UPS to host their websites. Automattic has been working in a distributed way since its founding in 2005. Founder Matt Mullenweg published his model Five Levels of Autonomy in a blog for distributed teams as a practical guide to answer the question “How remote do we go?”



Figure 11. Matt Mullenweg's Distributed Work's Five Levels of Autonomy
Source: <https://ma.tt/2020/04/five-levels-of-autonomy/>

Mullenweg describes his thesis of distributed work in a pyramid, with the most location-specific jobs at the bottom. Those are jobs which simply cannot be performed independent of their location, and Mullenweg argues that far fewer of these roles are actually location-specific than many companies believe. Jobs that are totally supported autonomous working are at the top. “This is when you consistently perform better than any in-person organization could. You’re effortlessly effective. It’s when everyone in the company has time for wellness and mental health, when people bring their best selves and highest levels of creativity to do the best work of their careers, and just have fun,” Mullenweg says in the blog. Mullenweg recognizes that this extreme is a utopian ideal rather than a likely reality, but posits it as a goal to aim for. Mullenweg describes Level Four as a paradigm where synchronous meetings are “respected and taken seriously” with clear agendas, pre-work and post-work. Talent can be recruited from around the world because the team is excellent at documentation and handovers (called baton passes) and workers are evaluated on outcomes rather than notions of when and how work needs to be done.



How should teams proceed?
The question is not really
one about tools, but about
collaborative practices.

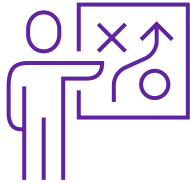
GitLab, a software development platform for software developers, operates on a fully-remote model, with over 1,300 team members distributed across 65 countries. Its *Remote Manifesto* has been featured in leading business publications including the *Journal of Organizational Design*, INSEAD and HBR. Social media software firm Buffer, which we previously interviewed for our report *Reconfiguring the Collaborative Workspace*, is also a remote-first company. The intangible nature of software development makes it especially easy to redesign workflows to optimize for solo focus time and to make collaborative handovers or collective thinking processes very clear. However, these types of tasks are not unique to software development, nor do the benefits of autonomous work need to be restricted solely to distributed teams: many of the principles used by Automattic and GitLab echo the principles developed by Cali Ressler and Jody Thompson in their models for a *Results-Only Work Environment* (ROWE) established at Best Buy between 2005 and 2007 to stem attrition to nearby competitors. Best Buy at the time, like most corporations, was a firmly in-office culture. ROWE was primarily designed to give workers – all workers – more flexibility over their time through better, more explicit expectations around results. The ROWE founders are adamant that these benefits apply not to one specific team or type of worker, but everyone from the receptionist to the call center associate to the CEO. Not a single person, in their view, gets left behind. The principles of ROWE enable workers to have more flexibility about when they work, which also paves the way for more distributed working. if you can communicate asynchronously, it doesn't matter where you are. ROWE is now enjoying something of a renaissance as companies grapple with what their next working patterns and practices will look like.

Amazon: APIs, not meetings

Amazon has long been known for its strong culture of documentation. For example, meetings begin with several minutes of silent reading to ensure that everyone has, in fact, read the memo. Another way this plays out at Amazon is the (possibly apocryphal) *API memo* issued by Jeff Bezos in 2002. Whether or not this document actually existed, the seven principles in it have become the basis of much contemporary API architecture at Amazon and beyond. The memo essentially enforces the primacy of documentation as the way to collaborate: if you must have a conversation to explain the API, you've missed the point.

Some have described this model as low trust: "Organizing into services taught teams not to trust each other in most of the same ways they're not supposed to trust external developers"⁸. However, another way of viewing this is that it enables autonomy of those who interact with those teams and wish to consume their outputs. I don't have to walk over to the HR team to ask them for something; I consume their API in a manner that is convenient to me. This is an oversimplification of the benefits and challenges of this approach, but it largely encapsulates the method by which formalizing data and workflows can enable team autonomy and reduce the need for informal ad hoc collaboration.

8 *The Secret to Amazons Success Internal APIs*, API Evangelist, 12 January 2012



Don't mimic what you have in the office – focus on what you could never do in the office.

Traders: The social graph of money knowledge

Sociologist Daniel Beunza has spent decades studying the working habits of bankers, particularly financial traders. The disruption to working patterns over the past year and more gave Beunza an unprecedented opportunity to research the effects of distributed collaboration among bankers: would the social realities of the trading floor be replicable in a distributed environment? Given the nature of their work, many might assume that bankers are among those whose job could be done in a completely location-independent way. However, Beunza's findings point in the opposite direction: quite apart from many people's homes having poor connectivity which introduces communicative friction to many working interactions during lockdown, Beunza knew from prior work that even though the technological tools already existed to enable distributed trading, bankers rely heavily on social contagion to interpret the market data flashing across their screens. Social cues, impromptu conversations and the sense-making that results from the constant wash of social interaction across a trading floor is absolutely critical to how these traders (typically presented as rational data-heads) make decisions. In fact, banks whose workers who returned to the trading floor faster (or who secretly never left) outperformed their remote-first counterparts.

While many scoffed at Goldman Sachs boss David Solomon's characterization of remote working as “an aberration,” Solomon is simply reflecting the bottom-line financial realities of his industry: bankers in fact do not perform as well in a distributed environment as they do in person. Arguably these findings might change if we can raise the social fidelity of collaborative tools: currently optimized for the exchange of information, they offer very little social context of the type absorbed intuitively on a trading floor. This may not be an impassable divide between the physical and digital worlds but rather a design challenge to overcome.

Using the sliding scale

Now that we have explored some of the underlying potential challenges and benefits of adopting an immersive collaborative environment, how should teams proceed? The question is not really one about tools, but about collaborative practices. Teams must first ask this fundamental question before choosing their tools.

The sliding scale of synchronicity shown in Figure 10 has several uses:

- 1. Align teams on how they are working now.** What unspoken assumptions does your team have about how and when work gets done? The scale can act as a means of surfacing assumptions about response times for messages, and how the team communicates priorities, briefs requirements in advance, escalates and handles change. By examining these unspoken assumptions, the team can make focused, intentional choices about what ways of working it wants to adopt.
- 2. Instigate discussion of how teams want to work in the future.** What does the team feel it is missing in its current ways of working? Where are the repeated tensions, frustrations, delays and limitations? This is about more than roles and functions, but also those incidental moments of communication:

The fundamental business question arising from this period of disruption isn't when or how to adopt more immersive collaborative tools: it is how businesses want to organize their collaborative experiences.

how does the team notice and recognize them? What new agreements would have to be negotiated to change? What would the team be leaving behind by changing its habitual ways of working? What is holding the team back from adopting change?

- 3. Keep pace with the industrialization of immersive collaborative tools.** Builders of the world's most widely adopted collaborative platforms have declared their intentions. The enterprise metaverse is coming, and you don't want to show up halfway when it does. If your company is still getting to grips with video calling, experiment with some low-risk projects. Host a coffee hour or company party in a virtual room, try running one virtual meeting, or do a presentation in VR. Most immersive environments offer an in-browser experience so you can try it out without committing to buying new headsets.
- 4. Inspire builders of collaborative environments.** Don't mimic what you have in the office – focus on what you could never do in the office. Sticky notes in a virtual environment may feel familiar but they are mere shadows of what could be achieved through innovative data visualization, 3D modelling and spatial navigation capabilities. This is not an argument for technology for its own sake, but for matching the technological capabilities at our disposal to cognitive abilities that are currently being underserved.

A more immersive internet is coming to you, whether you want it or not. The industry leaders who create our collaborative toolkits are making big bets that today's toys are tomorrow's tools.

Conclusion

The fundamental assumption that led to writing this paper was that continuing disruption to co-located working would lead businesses to seek more immersive digital tools to support collaborative effectiveness among increasingly distributed teams. As we conducted research through early 2021, this assumption was tested: many executives were adamant that their businesses were going back to the office, either in full or in a hybrid working model, in the autumn at the latest. Their rationale for resisting a shift to virtual collaborative platforms was largely this:

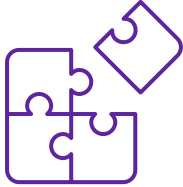
We've kept things rolling well enough through this temporary disruption. If we're going back soon anyway, why invest in yet another communication tool with all its complications of interoperability (can I get the data/reports/presentations I need in there?), upskilling (why is my avatar flailing around?) and permissions management (is that account supposed to have access to this part of the virtual office?).

But the big autumn reopening planned by many companies has already shifted once and may continue to slip further into the future. What had been temporary working re-arrangements are becoming more permanent, necessitating a rethink of how we collaborate and communicate effectively in a more distributed future.

Furthermore, the world's most notable technology providers, led by Microsoft and Facebook, are continuing to bet heavily on a metaverse future of mixed physical/digital realities: a more immersive internet is coming to you, whether you want it or not. For the present, adoption of immersive collaborative environments continues to be largely experimental, in small pockets or for test events or exploratory use-cases rather than an accepted norm of business operations, especially for information workers whose outputs are largely intangible. The industry leaders who create our collaborative toolkits are making big bets that today's toys are tomorrow's tools, but to achieve widespread adoption, immersive collaborative environments need to evolve. As Figure 12 shows, the paper coffee cup handle which mimics the appearance but not the function of a ceramic mug is just a poor imitation of what came before, not a functional replacement like the insulated sleeve. Similarly, virtual worlds need to evolve to reflect the changing needs of new collaborative experiences.



Figure 12. On the left, form follows prior design, not function; on the right, form follows function



“Whether we are interacting with others and with information and data, in a shared physical space or mediated through digital tools, all working environments are in our mind. We must develop the mental models and shared concepts to invite others into our mental working environments so that we can collaborate.”

What emerged as we conducted this research is that the fundamental business question arising from this period of disruption isn't when or how to adopt more immersive collaborative tools: it is how businesses want to organize their collaborative experiences. A business that wants to enable asynchronous working requires different working practices and digital tools to support those workflows from those in a business that wants to retain the benefits of being together while continuing to be physically separated. The longer this period of disruption goes on, the more permanent the patterns that started out as temporary will become. It's time for businesses to make core decisions about working patterns that prioritize either synchronous working and constant availability for quick chats and side conversations, or asynchronous working with far better documentation and negotiation about boundaries and expectations. Making decisions about working practices will then enable businesses to understand their needs around working tools.

The value of virtualizing physical components to manipulate and experiment in industrial use-cases for designing physical components, manufacturing and architecture, and for modelling situations that are rare, dangerous or difficult to replicate are already recognized; extending these benefits to entirely conceptual work like software engineering requires overcoming the failure of imagination which is causing virtual meetings to replicate the norms of in-person ones. As one interviewee said, “if you produce a sticky note in a virtual meeting, you've already lost.”

The purpose of physical activities in conceptual meetings like design workshops is to enable a conversation about conceptual intangible ideas: having collaborative experiences like these in physical realities limits us to the physical constraints of the environment. We communicate our conceptual ideas despite – not because of – those physical constraints. In a virtual environment, we're limited only by the constraints of our imaginations. To understand the real value of immersive collaborative environments for information workers, we need to focus on the conceptual work itself and what we want to achieve, not on building meeting environments that look like the offices we just came from. In our report *Reconfiguring the Collaborative Workspace* we said, “Whether we are interacting with others and with information and data, in a shared physical space or mediated through digital tools, all working environments are in our mind. We must develop the mental models and shared concepts to invite others into our mental working environments so that we can collaborate.” The investment that Microsoft, Facebook and others are making is that a virtual collaborative environment will become the space where we can send that invitation.

Appendix 1: Building distributed collaboration beacons

Change provocations

- **Open the gates.** Organizations will become ever-more porous. As more and more organizations move to becoming *platforms* with shifting boundaries between consumers and producers¹³, teams will need increasingly to seek mechanisms for involving outside perspectives for co-creation and collaboration. The Blandings team is already embracing this way of working through opening the doors to secondments, site visits and other means of encouraging outside-in thinking. Managing this effectively requires developing mechanisms for frequent team onboarding and disembarking so that

visitors can get up to speed quickly and feel like one of the team. Fluidity and porousness also demand digital ability and etiquette if the successes of an open way of working face-to-face is to flow through to virtual settings.

- **Surround sound.** Soundscapes in the office came up over and over again in our fieldwork and interviews. While this is the special bugbear of those in open-plan offices and cubicles, building a sense of shared experience is also a concern for distributed teams. This could include a team soundscape.

AGENCY

Open the gates

We believe organizations will become ever more porous

How can you help your team bring in fresh perspectives? How can you ask powerful questions at the right time to help your team see things in a new way?

How do you make space for fresh perspectives? How do you deepen rapport inside & beyond the inner circle to allow 'outside-in' thinking?

What is your collaboration strategy? How do you invite outsiders & newcomers into porous & temporary teams?

Surround sound

Building a sense of shared experience could include a team soundscape

Do you need different sounds for different types of work? Are headphones for creating a mood-scape, or just telling others to back off?

Are there shared team soundscapes? Is sound (or silence) a matter of individual preference? What about a team playlist to build rapport & shared psychological states?

What do your working spaces sound like? Is there a consistent soundscape throughout your offices/working environments? Is variety intentional?

Key change provocations from an agency culture

From Dr Caitlin McDonald et al, *Reconfiguring the Collaborative Workspace: Making the Most of Time, Space & Attitude*, LEF, November 2019

Change provocations

- **Planning makes possible.** Unlike other workplaces, Mundipharma employees were far less likely to report feeling overwhelmed by communications technologies. While we all have to adjust our schedules to accommodate unanticipated needs at times, the reflective periods which seem to be endemic to the Mundipharma culture appear to be a form of enabling constraint: by building in this time, Mundipharma employees master their schedules, their schedules don't master them.

- **Understand your company's attitude and operating system.** What is the fundamental guiding principle at the heart of your business that reaches everything you do? Getting to grips with this central working principle is critical to embedding the right behaviours and mindsets for effective working – together. By peeling back the layers of the onion, looking deeper under what everyone is saying to understand their underlying mindsets and shared assumptions, it becomes possible to get to the heart of why your team works the way it does.

STANDARD

Planning makes possible

Unlike other workplaces, Mundipharma employees were far less likely to report feeling overwhelmed by communications technologies

What regular rhythm of thinking & collaborating time keeps you on top of things? What would it take for your thinking time to feel supported?

Is the team all in tune about what it means to 'be working'? How are you reducing anxious presenteeism & encouraging productive presence?

What signals & social nudges demonstrate that you value focus time as well as collaboration? Do people have 'room' to sit & think?

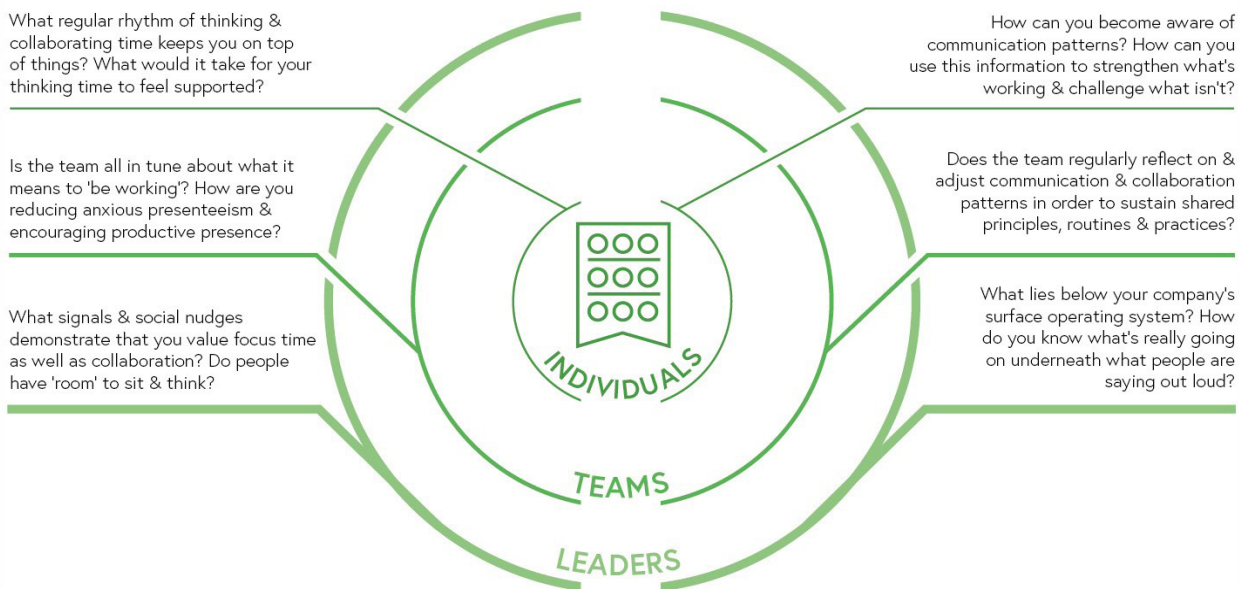
Understand your company's OS

What is the fundamental guiding principle at the heart of your business which reaches everything you do?

How can you become aware of communication patterns? How can you use this information to strengthen what's working & challenge what isn't?

Does the team regularly reflect on & adjust communication & collaboration patterns in order to sustain shared principles, routines & practices?

What lies below your company's surface operating system? How do you know what's really going on underneath what people are saying out loud?



Key change provocations from a standard culture

From Dr Caitlin McDonald et al, *Reconfiguring the Collaborative Workspace: Making the Most of Time, Space & Attitude*, LEF, November 2019

Change provocations

• **Jazz it up.** Repeating routines creates the confidence and sense of familiarity to move from place to place, jump into the mix, connect and improvise. A high level of trust, in other words, increases a team's ability to be flexible. This flexibility can be a powerful tool for workforce inclusivity, giving you access to different perspectives from people who might not otherwise have been able to contribute. What are the strategies that help a deep-rooted face-to-face collaboration practice move to more abstract-feeling virtual settings? What additional transparency mechanisms do you need to build to keep everyone in harmony, or in comfortable chaos?

• **Build beacons.** Whether you're always on the go with no fixed desks or working in the same place every day, gathering points such as whiteboards give people focal points to rally round. For teams that aren't typically co-located but who regularly pass through a particular space, a whiteboard or other physical messaging point can be an important way of keeping in touch asynchronously. Digital tools can also be a means for creating these focal points, but moving things online requires more clarity and structure to ensure everyone is on the same page about customs, norms and habits.

ORCHESTRATION

Jazz it up

The confidence to jump into the mix, connect & improvise flexibly is a powerful tool for workforce inclusivity

Build beacons

Whether you're always on the go with no fixed desks or working in the same place every day, gathering points like whiteboards give people focal points to rally round

How can you take advantage of your role in different scenarios to provide the backing for others & take your turn to play solos?

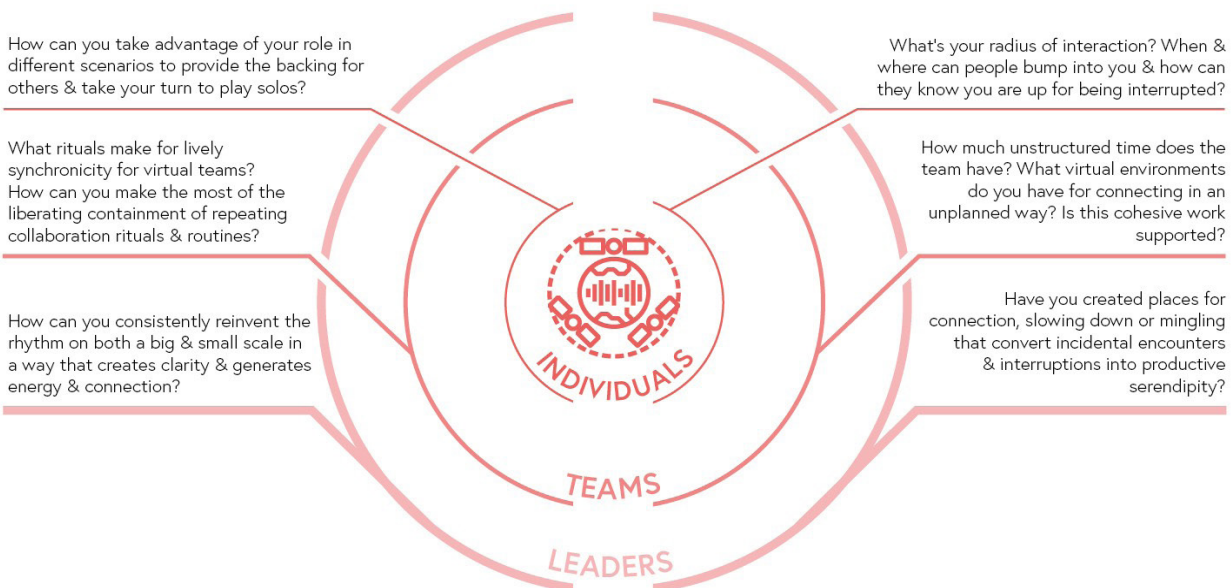
What's your radius of interaction? When & where can people bump into you & how can they know you are up for being interrupted?

What rituals make for lively synchronicity for virtual teams? How can you make the most of the liberating containment of repeating collaboration rituals & routines?

How much unstructured time does the team have? What virtual environments do you have for connecting in an unplanned way? Is this cohesive work supported?

How can you consistently reinvent the rhythm on both a big & small scale in a way that creates clarity & generates energy & connection?

Have you created places for connection, slowing down or mingling that convert incidental encounters & interruptions into productive serendipity?



Key change provocations from an orchestration culture

From Dr Caitlin McDonald et al, *Reconfiguring the Collaborative Workspace: Making the Most of Time, Space & Attitude*, LEF, November 2019

Change provocations

- **Quality kit creates trust.** The right tool for the right job is important in any workplace, but there's a special emphasis in distributed, multilingual teams on audiovisual equipment that supports communication. If you're struggling to hear the other side of the conversation because of background noise, low microphone volume or dropped and garbled calls, it's impossible to have an effective communication experience. If your team makes a lot of calls, make sure you have the equipment and the environment to support their productivity.

- **Camaraderie counts for a lot.** Having physical spaces that feel inviting, like home, to draw people in, both for focus time and to connect with each other intentionally or by chance, is important. And that needs to be mirrored in online canteen camaraderie. These don't need to be big times and spaces; they can also provide 'micro-socialization'. Knowing how to talk to someone in an informal way about something that isn't important to work is a core skill that becomes even more important when there is something critically important to discuss. It's better to build in plenty of practice time and allow informal trust to ripen through regular encounters than to depend on everyone knowing how to pull together automatically when an urgent situation arises.

SELECTION

Quality kit creates trust

The right tool for the right job is important in any workplace, but there's a special emphasis on audiovisual equipment that supports communication in distributed, multilingual teams

Camaraderie counts for a lot

Having physical spaces that feel inviting, like home, both for focus time & to connect with each other intentionally or by chance is important

Can you anticipate when you need quiet surroundings or privacy for calls? How do you avoid having to hang around in corridors making calls?

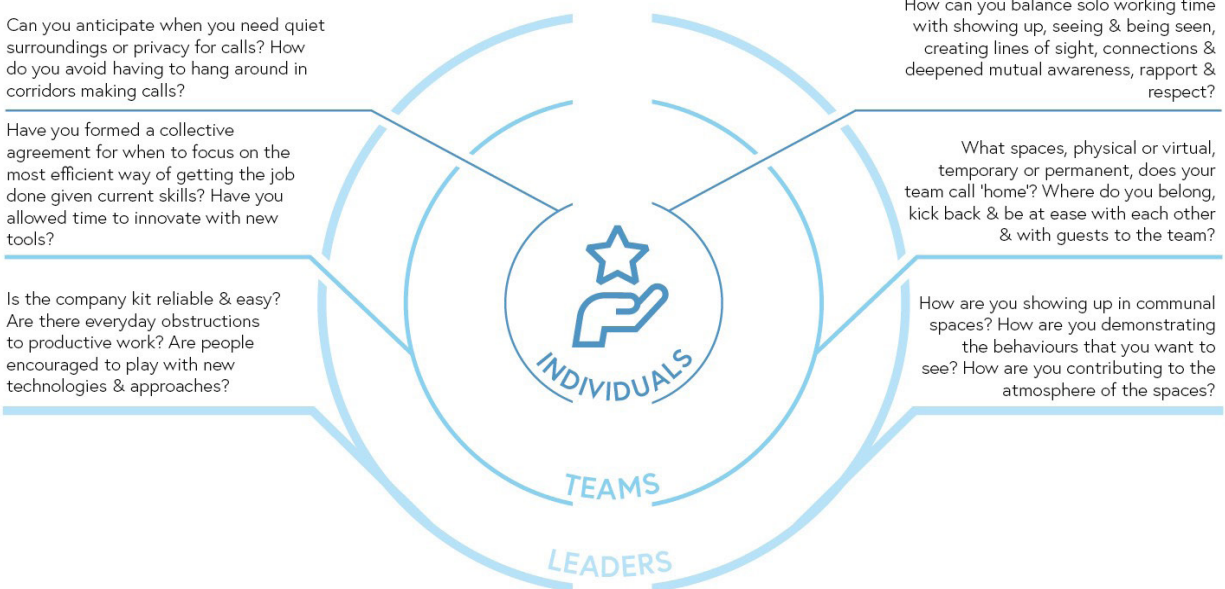
Have you formed a collective agreement for when to focus on the most efficient way of getting the job done given current skills? Have you allowed time to innovate with new tools?

Is the company kit reliable & easy? Are there everyday obstructions to productive work? Are people encouraged to play with new technologies & approaches?

How can you balance solo working time with showing up, seeing & being seen, creating lines of sight, connections & deepened mutual awareness, rapport & respect?

What spaces, physical or virtual, temporary or permanent, does your team call 'home'? Where do you belong, kick back & be at ease with each other & with guests to the team?

How are you showing up in communal spaces? How are you demonstrating the behaviours that you want to see? How are you contributing to the atmosphere of the spaces?



Key change provocations from a selection culture

Change provocations

- **Read the room.** Successfully navigating organizational culture requires an ability to understand unspoken expectations and norms. As organizations' physical spaces change, many of the traditional physical symbols we've depended on for *reading* the organization have disappeared. The underlying power structures are still there, but are more challenging to read since the new symbols and signs aren't yet settled.
- **Create a workplace that works for you.** With any proposed working environment change it's critical to empower teams to take an active role in considering how they want to work together in the new space: What's currently working that they want to keep? What new goals do they want to achieve in the new

space? What habits and practices do they need to develop to make that feasible? Again, this requires digging underneath the surface to find out not only *what* is important but also *why*. What meaning do teams attach to their current spaces, or imagined future spaces? What alternatives might allow them to achieve the same ends? For example, rather than focusing on the stated desire for what is basically more enclosed cubes, and instead looking at the deeper need for more focus time and confidentiality in calls, could Younger develop environments that support more activity-based working, with quiet spaces for reflection time and ample phone booths or other small meeting room spaces to take calls from? Or remove the cubes entirely and encourage more remote working?

CONDITION

Read the room

Successfully navigating organizational culture requires an ability to understand unspoken expectations & norms

A workplace that works for us

With any proposed working environment change, it's critical to empower teams to take an active role in considering how they want to work together in the new space: what's currently working that they want to keep?

What spatial clues do you use to tell you how this workspace works? How do you test your assumptions & fill information gaps?

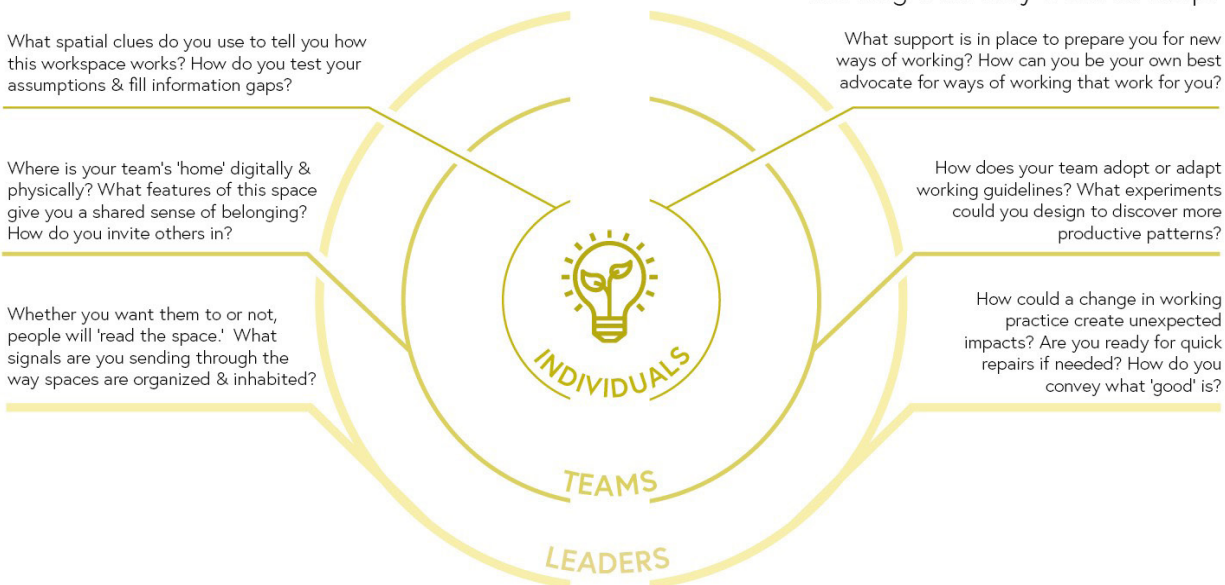
What support is in place to prepare you for new ways of working? How can you be your own best advocate for ways of working that work for you?

Where is your team's 'home' digitally & physically? What features of this space give you a shared sense of belonging? How do you invite others in?

How does your team adopt or adapt working guidelines? What experiments could you design to discover more productive patterns?

Whether you want them to or not, people will 'read the space.' What signals are you sending through the way spaces are organized & inhabited?

How could a change in working practice create unexpected impacts? Are you ready for quick repairs if needed? How do you convey what 'good' is?



Key change provocations from a condition culture

From Dr Caitlin McDonald et al, *Reconfiguring the Collaborative Workspace: Making the Most of Time, Space & Attitude*, LEF, November 2019



About the author

Dr. Caitlin McDonald is a digital anthropologist with DXC Research. She helps business leaders and teams learn to step outside their version of normal, suspend judgement, and consider things from many different perspectives. This gives businesses the leading edge through boosting customer empathy, finding new solutions to old problems, and enriching the insight power of big data through multidisciplinary approaches.

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