Technology in the Workplace

We all know that technology is dramatically influencing work and how we structure and use the workplace. And it is the chief enabler of mobility. Yet — it’s challenging to manage the integration of technology into the workplace: Our current models for ‘making’ workplaces have much longer lifecycles than many of the technologies we build into them and don’t encourage new capital investments after the initial fit-out. Below, we try to provide some insights into three technology categories that we believe are relevant to workplace design, identifying the opportunities for each technology to impact the workplace and the broad directions and pace of evolution for each technology.

Technology is driving fundamental change
Technology is changing every aspect of our lives, and is perhaps the most powerful driver for workplace change - in large part because of its impact on work itself. Instant access to data and each other anytime/anywhere untethers us from the office; while exponentially increasing computing power increases our capabilities in mind boggling ways. And the speed of technology evolution and adoption just gets faster – even the earliest mobile technologies were adopted 10 times faster than the initial adoption of the personal computer – forcing us to constantly leap frog to quickly adapt to the new, new thing.

Technology advances are also entering the business market differently today. Until recently, technology innovation was initially taken up by business and then migrated to the consumer – the PC and printers were in wide-spread use in the office before we all had them at home. Now the direction of innovation has reversed, with business adopting new technology after the consumer market - we used tablets and instant messaging personally before they were widely embraced by businesses.

As consumers, we can all attest to personal challenges with new technology– have you tried to link Netflix from your tablet to your ‘smart’ TV? Technology’s evolution in the workplace is similarly challenging, as we typically implement major work place changes at specific, broad intervals - like when
a lease expires - while technology is constantly evolving. The business challenge, then, is to effectively integrate technology’s fast paced changes into the more ‘static’ workplace. Understanding how to assess technology lifecycles, and being thoughtful about the physical interface between technology and the workplace are ways to avoid implementing solutions that may be obsolete in the short term.

To that end, we have identified three broad technology ‘categories’ that have and will likely continue to impact the workplace directly. We’ll explain how each technology categories’ tools enable business processes, talk a bit about how quickly the category is evolving, and comment on what, if any, interface is needed with the physical workplace. Some technologies overlap - impacting more than one area – which reinforces value in partnering with ITS to develop an integrated technology infrastructure aligned with the overall workplace strategy.

Communication and Collaboration
With individuals and teams working in a range of locations and across time zones, effective communication and collaboration is crucial. The appropriate tools and technologies enable both real time and asynchronous methods of collaborating and information sharing, including:

- collectively sharing, viewing and revising documents from multiple users and locations using enterprise cloud cloud-based storage tools like DropBox or content management solutions like SharePoint. This category of technology is relatively stable; most enhancements are to improve capacity and the user experience. Little is required of the physical workplace, except the ability to access the network for any enterprise tools.

- easily viewing information from different users’ devices remotely or in person using Microsoft Communicator or desktop wireless devices like Barco’s ClickShare, which allows individuals to seamlessly transition from viewing information on one person’s device to another’s without an awkward cable reconnection. Evolution in this technology category is primarily focused on simplifying the interface and user experience. The current devices are small – the Clickshare base unit is smaller than a box of tissue - and easily accommodated in a cabinet or credenza – no other physical accommodation is needed. Prices are also coming down

- facilitating ever more realistic virtual meetings between team members across multiple locations using both fixed and mobile video conferencing. With enhanced speeds on mobile devices and increased network bandwidth, users are able to participate in high quality video conference meetings from virtually any location. New services like BlueJeans can seamlessly connect different devices and technology platforms, making these tools even easier to use. While HD Telepresence-dedicated suites are still the state-of-the-art and will continue to be used, other simpler, less costly systems are bridging the quality gap, and may be “good enough” in most situations. Image quality and the move to mobile platform are where improvements and changes are being made. The more state-of-the-art technologies require highly specialized spaces. There are also spatial considerations for the low-tech and mobile versions, since camera angle and the back ground visual and noise disruptions can affect the quality of the communication.
User Experience

While organizations are providing workers the flexibility to determine when and where they can do their best work, they are also striving to make the office ‘the place to be’ in part by improving user experiences. ‘Push’ technologies that streamline way-finding, locating colleagues, finding available workspaces and using equipment are part of this effort. And by personalizing the interface – identifying colleagues and preferred workspaces like ‘friending’ someone on Facebook – individuals get information that is most relevant to them. A GPS-enabled smart phone coupled with a robust Wi-Fi network and the appropriate apps and software enables users to:

- receive graphic illustrations of real time space availability using wireless networks and mobile apps to link work space plans housed in an Integrated Workplace Management System (IWMS) database with smart phone GPS location services. The continued improvements in wireless capabilities and the functionality of apps will soon make it possible to ‘push’ this data to the user as they approach or enter the workplace, passively delivering information to assist in their finding the kind of spaces that best support the work they need to do.
- identify and/or reserve available workspaces using apps that provide the full functionality of reservation systems like AgilQuest, Condeco or LiquidSpace on a smart phone or tablet. This will streamline flexible desking programs and conference room reservation management, both of which are integral to providing a dynamic work environment that supports a more mobile population.
- check-in to reserved conference rooms and/or individual workstations using Near Field Communication (NFC) or Bluetooth Low Energy (BLE) chips that are embedded in workspace signage and linked to an IWMS or Workspace reservation databases. The check-in process is seamless, which encourages adhering to check-in protocols, which in turn improves utilization.
- expedite locating colleagues by sharing their location and/or ‘seeing’ their colleague’s location on their smart phone – the secure, corporate version of Foursquare. This too is accomplished using mobile apps and wireless networks to link IWMS based plans with socio-metric badges, smart phone GPS location and/or IP address triangulation.
- quickly master unfamiliar AV technology by receiving room-specific instructions on their mobile device from apps that linked to an AV database. If integrated with mobile devices’ GPS location systems or Bluetooth Low Energy (BLE), the user’s specific location may be established, allowing this information may be automatically ‘pushed’ to the user’s device as they enter the room, significantly shortening set up time.

The push to mobile platforms and the related enhancements to the user interface and integration with other systems are the primary focus in the evolution of these tools. We expect to see some consolidation between these functions since there is so much overlap. New sensor technology – BLE, NFC, socio metric badges – are changing rapidly, but are also becoming increasingly less costly. The principal impact on the
work space is the need for a robust wireless network to pull user and location information and push user defined and relevant specific data.

**Portfolio Management**

Today, the workplace needs to balance efficiency and adaptability with supporting the effectiveness of the workforce. Keeping pace with the changing demands for workspace will require a broader understanding of workspace utilization and internal mobility patterns. To accomplish this effectively, location, utilization and people data needs to be passively compiled from multiple sources without interrupting the users’ day to day performance. The same technologies that improve the user experience of the workplace may also provide the FM with the data required to more proactively increase utilization and reduce real estate costs by:

- **compiling and analyzing occupancy and utilization data from a range of new sources.** The wireless network integrates IWMS plans and databases with mobile devices’ GPS systems, NFC and/or BLE devices to provide real time user, utilization and occupancy data. New analytical tools can process and communicate this information in real time to support day to day facility decisions, like guiding user’s to specific floors to concentrate occupancy and reduce energy costs while also generating historical trend data for strategic portfolio decisions.

- **deploying a Workplace as a Service (WaaS) model, linking with third party business centers or coworking sites using existing apps like LiquidSpace.** As the WaaS model is refined and more locations are operational, FM’s can reliably use these externally managed spaces to accommodate fluid demands for work spaces without increasing their organization’s real estate portfolio.

- **predicting workplace demand** using “Big Data” to compile and analyze multiple data points with software that utilize complex algorithms that closely predict human behavior. Current behaviors are identified and quantified as the baseline, which can then be used to predict future behavior by ‘gaming’ different external factors.

*Evolution in this category focuses on improving the integration between different systems and expanding analytical capabilities. These tools have a highly beneficial impact on the physical workplace: they should improve its utilization. Most are also now web based, which limits the dedicated hardware required and facilitates accessing the information from any mobile device.*

All these new insights on utilization and demand are best leveraged when easily adaptable work spaces and furniture components can be rearranged – perhaps even by the users themselves - to quickly respond to changing business requirements and demand. User occupancy and use data – who uses what spaces when, for how long and for what activities - will help the FM team move from the traditional event-based workplace management to a more flexible, ongoing, continuous improvement-based workplace strategy.

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‘Connecting the dots’ is the challenge – defining what data to collect, how to collect it and then more importantly how to analyze it. Location Intelligence provides a framework to integrate our second and third categories. It is an enterprise process that uses software to link different sensors, devices, workplace and people databases to generate a range of data points about both the physical workplace and the people using it. Compiling and analyzing these data points and then strategically broadcasting the results provide both end users and FM professional useable information that supports more effective and flexible use and management of the workplace.

**Backing the Right Hardware Horse**

This rapid pace of change begs one more question – how does an organization know which technologies to bet on: how do you avoid investing in Betamax instead of VHS? Which hardware will provide longer term functionality and value? Unfortunately, there is no simple answer, since none of us can predict the future. Having said that, one approach that may be useful is to identify and invest in the underlying technology that supports or enables other functions or technologies. For example, the technologies that improve the user experience while facilitating portfolio management, like IWMS and wireless sensors, all build on a one underlying technology – a robust Wi-Fi network. One approach would be to put the greatest focus on the network and mobile devices that access the network; and add or update relatively inexpensive connections and sensors as they are available.

At Allsteel we consider the impacts these technologies have on work, workers and the workplace - including increased mobility, choice, flexibility, and a balance between focus and collaboration - because it is imperative that we provide furniture components that ensure workers are as effective as possible in these environments and enable efficient, constant adaptation.

On a more tactical level, we also consider how these technologies interface with our furniture and architectural products. Given the huge differences in the life cycle of furniture categories vs. technology categories, and the unpredictability of ‘the next big thing’ in any technology category, Allsteel believes the most appropriate way we can support our customers is by providing innovative, flexible workplace solutions designed to “play nicely” with technologies but not embed them. One of our senior leaders uses this analogy to explain our position: We can provide you with a really great box of cereal, designed to have a reasonable shelf life. You may want fruit with your cereal; and we could add dried fruit to our
A box of cereal, and it would be good. But it would not be great, and it would not be the best, freshest, most nutritious fruit available. Better that you add your own fruit each day, or, when you want, the occasional banana or even peanut butter.

**References + Suggested Reading**


“IDC Predictions: Competing on the 3rd Platform” by Frank Gens, IDC #238044, Volume 1, November 2012


**Allsteel Workplace Advisory (WPA)**
The WPA team listens. And we apply research and our extensive workplace experiences and insights to assist organizations develop and implement a situationally appropriate workplace strategy: one that aligns with their organizational culture and business goals, supports their workers’ ability to work effectively, utilizes their real estate assets as efficiently as possible, and is highly adaptable to changing business and work practice requirements.

**About the Author**

**Eric Johnson** is a key member of the Workplace Advisory team at Allsteel. He effectively integrates the breadth of workplace considerations - design, talent, operations and technology - to creatively and optimally support changing work practices and an increasingly diverse workforce. Eric’s career has included corporate facilities, interior design, strategic workplace consulting, and workplace and mobility program design, implementation and management. He has also taught graduate level workplace change and strategy; and is a certified interior designer, and a member of Corenet Global and IFMA.