

ULI Asia Pacific Leadership Symposium in Collaboration with the World Economic Forum: Disruption—Buzzword or Reality?

The inevitability of change may be one of few constants in an unpredictable world, but its impact in modern times is perhaps most forcefully seen in the capacity of new technology to disrupt the status quo.

Perhaps surprisingly, this ability to disrupt is due not so much to the transformative nature of recent advances in technology—radical as they have been—as it is to the increasing

speed with which they are being adopted by consumers. According to a study by the McKinsey Global Institute, for example, it took 38 years for the number of radio users worldwide to hit 50 million after wireless technology was introduced in the first decade of the 20th century. By contrast, modern digital platforms such as Facebook or Twitter are reaching the same milestone in just 12 months or less.

For the real estate industry, the implications of this ongoing torrent of disruptive technology are as daunting as they are welcome, and especially so given that we now stand on the brink of a further wave of innovation—dubbed the “fourth industrial revolution”—that promises to jump-start another round of evolutionary change. From new construction materials to autonomous vehicles, three-dimensional (3-D) printing to virtual-reality software, ever-faster wireless communications to “smart” interactive machines, new types of technology are going to have a profound impact across a whole spectrum of activities that will change the way real estate is built, sold, managed, and occupied.

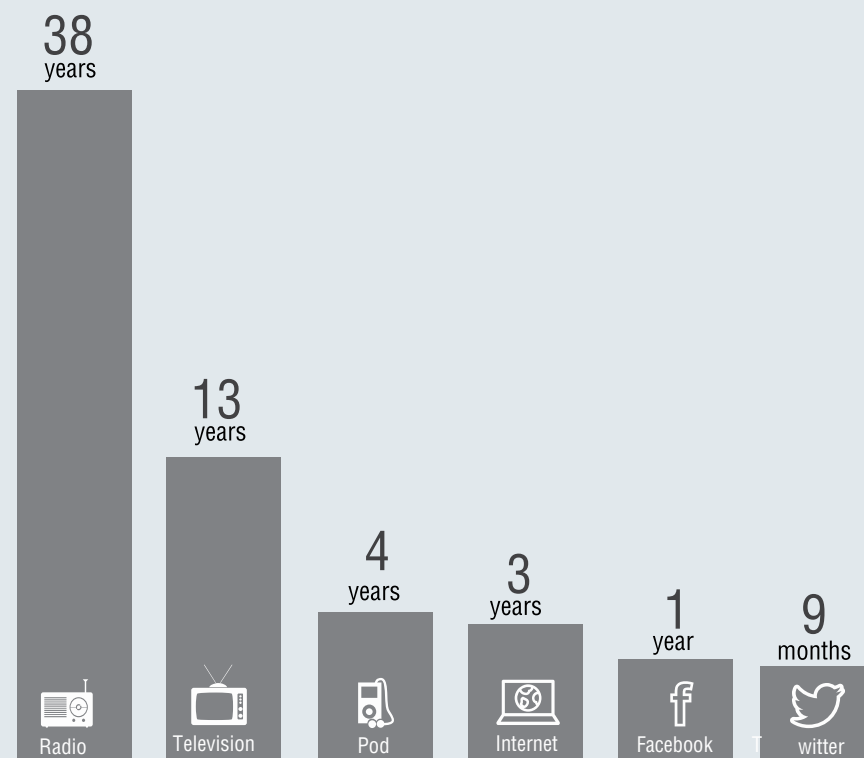
With this in mind, the Urban Land Institute and the World Economic Forum held a symposium in Hong Kong in December 2015 that aimed to explore how the emergence of this brave new world of technology might affect different aspects of industry practice and investment over the coming years. Experts in various disciplines spoke before a diverse invited audience of some 50 senior real estate figures, followed by interactive roundtable discussions that further explored the issues raised. This article provides an outline of these exchanges.

The Fourth Industrial Revolution and the “Internet of Things”

Over the last 250 years, there have been three distinct industrial revolutions, each of which radically altered the landscape of global

Adoption of digital technologies is accelerating

TIME TO REACH 50 MILLION USERS



SOURCES: Press reports; McKinsey Global Institute analysis. (Graphic courtesy of McKinsey & Company.)

industry. The first involved the advent of steam-powered manufacturing, the second the introduction of electricity, and the third, beginning in the 1970s, the adoption of information technology. Although this third event is still ongoing, it is set to be overtaken by a fourth revolution whose impact will be no less profound. It is part of what is also known, rather inelegantly, as the “internet of things,” and in turn involves the ability of different machines and raw materials within the manufacturing process to communicate and interact with each other.

According to Nicholas Holt, Asia Pacific head of research for residential and commercial property consultants Knight Frank, in the first industrial revolution, “within the factory, there were new machines, and the workers had to work them, they were the cogs. But in the fourth revolution, the machines will be the cogs between the other machines. Intelligent machines will be talking to each other—sensors in products, in the manufacturing machines, will communicate and control the output.”

“THE PARTNERSHIP BETWEEN ULI AND WEF IS A NATURAL ONE. TWO GLOBAL ORGANIZATIONS WHOSE HALLMARK IS THOUGHT LEADERSHIP AND WHOSE MISSIONS FOCUS ON DIRECTING EXPERTISE FROM BUSINESS, GOVERNMENT, AND ACADEMIA TOWARD ADDRESSING CHALLENGES IN AN EFFORT TO MAKE THE WORLD A BETTER PLACE.”

—John Fitzgerald,
Chief Executive, Asia Pacific
Urban Land Institute

Holt outlined various potential implications for manufacturers:

- A shift in labor-market dynamics, with fewer workers needed in factories but more in the logistics and technology sectors.
- A reversal of the flow of manufacturing industries from developed to emerging markets, as lower labor costs negate the cost advantages of emerging-market factories.
- A shift toward more customized products and new delivery systems will bring changes to the logistics industry, with warehouses requiring greater sophistication and proximity

to markets. Future facilities may therefore differ significantly from currently ones, potentially using driverless vehicles and even drones to allow for fast delivery within a ten-mile (16 km) radius.

- The creation of “smart” cities will bring greater efficiencies to large urban centers. Sensors positioned in strategic locations will allow planners to adapt the internet of things for their own purposes, leveraging “big data” to address a multitude of issues such as waste management, traffic congestion, parking, and energy use. Some cities, such as Songdo, South Korea, and Masdar in the United Arab Emirates, are already making these ideas a reality.



The Future of Retail

The fourth industrial revolution also promises fundamental change for the retail sector. On the downside, because the internet of things will allow consumer goods to be replenished automatically, new products—for one's fridge, for example—will be available automatically from factories via e-commerce channels, cutting out retail outlets altogether.

At the same time, though, fixed retail is “far from dead,” as Holt put it. Upcoming innovations are already beginning to offer novel ways to engage with customers. According to Kiril Popov, a business intelligence manager at the Fung Global Institute in Hong Kong, three separate new trends will underpin this transformation in shopping practices:

- “Omnichannel 2.0” involves the blending of retail channels and the proliferation of shopping platforms. As Kirov says, “Different channels are actually merging into one single shopping experience from a consumer point of view to create a seamless process.” For example, customers might use a personal computer to check store inventory over the internet, use an iPad to purchase a product, and then pick it up at a local store. The speed of omnichannel growth reflects the rate at which so many fixed retailers are embracing web-based shopping, although plenty of traditionally web-based retailers are also moving in the opposite direction, opening real-world stores. One challenge posed by the emergence of this trend is the difficulty facing landlords who charge tenants rent based on a percentage of sales—an economic model that becomes hard to enforce when goods are purchased online. Another aspect of omnichannel is the fast-growing use of social networking platforms such as Facebook, WeChat, or Pinterest to buy goods, often with a single click.
- Experiential shopping is a further evolving area. Its goal is to engage consumers by making the physical shopping experience fun and convenient. This is an important goal because, as one of the roundtable participants observed, traditional shops currently lack the pulling power to compete with e-commerce: “If we in the physical [space] are only going to be about price and commodity, we have a big problem—what we need to do is to create non-commodity-type brands and curate the experience of shoppers so they have an experience they can't have online.” One example would be Seattle-based retailer Hointer, which has partnered with Macy's to open a store where all shop inventory is displayed on mannequins or hangers tagged with QR codes. By scanning the codes on a smartphone, shoppers can add items to a virtual shopping cart, send them automatically (and in different sizes, colors, and styles) to a designated fitting room, choose which items to buy by swiping a credit card at a kiosk, and return unwanted items to the back-end warehouse by dropping them into a chute in the fitting room wall. Says Kirov, “You can accept a recommendation or you can try dozens of items in just a few minutes—it's about making shopping fun.”
- Finally, greater personalization will allow brands to better engage customers. In the online area, this might be done by way of services that create algorithms based on individual consumer profiles to compose a menu of brands and styles with appeal to specific types of individuals. Alternatively, in the offline world, personalization might be achieved through use of services such as Beacon, which uses location-based sensing technology embedded, for example, in store mannequins to allow personalized marketing messages to be sent to mobile devices carried by shoppers in the store.

“THE WORLD IS IN THE EARLY STAGES OF THE FOURTH INDUSTRIAL REVOLUTION, A FUNDAMENTAL SHIFT IN HOW WE PRODUCE, CONSUME, AND RELATE TO ONE ANOTHER, DRIVEN BY THE CONVERGENCE OF THE PHYSICAL WORLD, THE DIGITAL WORLD, AND PEOPLE. A STRONG COLLABORATION BETWEEN ULI AND THE WORLD ECONOMIC FORUM CAN PROVIDE THE PERFECT PLATFORM FOR REAL ESTATE LEADERS TO SHARE INSIGHTS AND INNOVATIONS ON HOW BEST TO NAVIGATE THE FUTURE.”

—Dr. Michael Max Buehler
Practice Lead Real Estate Industries
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The Future of Commercial Real Estate Technology

Historically, the real estate sector has been notoriously slow to adapt to new technologies. Even innovations that emerged years ago, such as e-commerce, remain peripheral. Soon, however, the industry will have to come to grips with a wave of new opportunities presented by the introduction of less familiar and arguably even more potent technology—virtual reality software.

Until recently, almost all visualization of conceptual real estate (i.e., before it moves from drawing board to construction) was executed as a two-dimensional rendering—a time-consuming and lifeless medium. Although hardware that offers 3-D experiences has been around for years, it has never reached a level of sophistication where it could convince the business community to take it seriously as a commercial tool. Today, however, that is changing fast. Led by companies such as Oculus, virtual reality is finally likely to go mainstream in the near future.

What does this mean for real estate?

According to David Eisenberg, founder of New York-based 3-D graphics company Floored, new software will allow developers, brokers, and landlords better ways to pitch to potential clients. “It helps people communicate interactively in 3-D by showing, say, a retailer exactly what it’s going to feel like to navigate a space in a totally interactive way in a building that won’t break ground for another several years. It’s a way of selling real estate visually to people who don’t have the same vision real estate developers have.”

Nor is this type of software the province only of startups like Floored. Microsoft also is getting in on the act with the impending launch (in mid-2016) of an augmented-reality product called HoloLens, which works by overlaying computer-generated images over any given landscape, indoor or outdoor. As Eisenberg says, “For me, this is the killer real estate case—being able to show someone while you’re on site with them, whether it’s a hole in the ground, or an empty floor, or one you plan to change dramatically; to be able to project the virtual data on top of real-world data interactively.”

Another reason why this type of technology has promise is its potential to make investment and leasing processes more efficient. As one participant put it: “We can use this tech to make smarter, better decisions—if I can see virtually the building and the layout I’m going to invest in, and do it immediately and not wait till I get on a plane to New York, it will shorten my entire project horizon.”

The Future of Office and Coworking Spaces

Not all disruptive change is technology-based. The office sector, for example, normally a plain-vanilla world, is undergoing a revolution of sorts with the rapid growth of shared “co-working” spaces. Companies such as WeWork have introduced the concept of modestly priced, subscription-based office facilities offering use of common areas, together with a range of required amenities from coffee to wi-fi. The model has proved wildly successful, especially among technology startups, small businesses, and creative entrepreneurs. WeWork remains U.S.-centric but now operates in 21 cities worldwide. It has expanded so rapidly that it was the largest lessee of office space in New York City in 2014 and became the biggest in London last year.

Top takeaways

- ▷ The speed at which technological innovation is arriving continues to increase, as does the speed of adoption. New tech is therefore affecting the real estate industry on an unprecedented scale.
- ▷ The internet of things will disrupt the status quo in both small ways (ordering groceries) and big (managing citywide traffic flows). Interactivity will be key.
- ▷ As an industry, real estate remains generally conservative and behind the curve in responding to innovation.
- ▷ The millennial generation is an increasingly important part of the equation, partly because millennials are increasingly prominent demographically, and partly because they have an instinctive grasp of the potential of new technology.
- ▷ The mobile phone has become the main platform by which this innovation is being adopted by the consumer.
- ▷ We should focus on services rather than on hardware—apps are more important than tools.
- ▷ Shared workspaces will be big, transforming workspace use.



3-D model by Floored.

According to Henry Bott, head of Swire Property's digital team in Hong Kong: “On a global basis, these guys are really changing the way people work and redefining how people are occupying workspace. Their business model is to take long leases of ten to 15 years, with revenue derived from income from memberships on a monthly basis. And they’ve created a narrative and a brand that customers have bought into—just as Uber and Airbnb were the disruptors of their own industries, WeWork represents the disruption by the shared economy on the commercial office space.”

As a proportion of the whole, of course, companies like WeWork currently represent a tiny share of overall office floor space. But growth has been so fast that much bigger players are now buying into the concept, which will probably continue to see exponential growth, especially as the concept of flexible working grows and working habits of the millennial demographic become more mainstream. Roundtable participants agreed that coworking spaces “are now here to stay.” The main question, according to one, was “the delivery model and whether landlords would be directly providing shared workspaces or would lean towards a model where buildings have some fixed-lease space and some shared-occupation space sold on a membership basis.” The consensus appeared to be that many companies would opt for a shared-service provider within the office on a WeWork basis rather than getting into that business themselves.

The Future of the Built Environment

Another area in which innovation promises to revolutionize current practice is in the application of novel construction techniques and materials across the entire universe of man-made spaces otherwise known as the built environment. This encompasses a bewilderingly broad range of structures, both existing and theoretical, together with an equally mind-boggling range of novel and proposed building methods and materials, including

“DISRUPTIVE INNOVATION, THE INTERNET OF EVERYTHING, AND RAPID TECHNOLOGICAL CHANGE PRESENT HUGE OPPORTUNITIES FOR THOSE INVOLVED IN THE PLANNING, DESIGN, DEVELOPMENT, AND MANAGEMENT OF THE BUILT ENVIRONMENT. THESE NEED TO BE GRASPED IN ORDER TO BENEFIT THIS AND FUTURE GENERATIONS.”

—Nicholas Brooke
Chairman, Professional Property Services Limited

developments relating to building information modeling solutions, advanced materials, and new construction technologies.

According to Wilfrid Lau, director of engineering firm Arup, “future construction materials will be not only much stronger and lighter but also greener and smarter, while the use of robotics in construction will change some of the ways that things are being built today.”

For practical purposes, some of the most interesting of these new technologies include the following:

- Self-healing concrete that features bacteria implanted into the cement. When water seeps in after the concrete cracks, bacteria will grow to seal the fissure, creating a surface that can, in effect, fix itself.
- Three-dimensional printing of construction parts and building components. This is not exactly a new technology, but it has yet to see widespread adoption. It promises both to lower costs and radically reduce construction times.

- “Lego” buildings involving modular construction techniques, with different parts of a building prefabricated and shipped to the site. One example of this is architect Ole Scheeren’s award-winning Interlace development in Singapore.

The Future of Urban Mobility

Technological advances have been no less radical in the field of transportation, with some of the most ground-breaking advances revolving around the use of communications technology to make different transport mediums more efficient, either by way of machine-to-machine collaboration (taking us back to the internet of things), or by people using technology to create travel itineraries that are faster, cheaper, or more direct. Perhaps unsurprisingly, the biggest enabler of this process, as in other areas, has been the mobile phone.

Significant recent developments include the development, as cars become smarter and more aware of their surroundings, of driverless vehicles, which are now ever closer to commercial reality. In fact, according to Andrew Pickford,



director of Infrastructure and Transport Advisory Services at transportation consultants MVA, the greatest barriers to driverless cars are no longer technology-related, but involve regulation, the insurance industry, and user acceptance.

Another development relates to the evolution of internet-facilitated transport services such as Uber, a company founded in 2009 that is now worth some US\$50 billion, with a presence in more than 50 countries. Uber, however, represents just the beginning of what is likely to be an avalanche of transport-related offerings. A new breed of businesses called “mobility services operators” (MSOs) is emerging that focuses on buying spare capacity within the overall umbrella of transport mediums and then reselling it, much as a cable-TV operator sells bundled services. Instead of individual consumers self-planning a more-or-less complicated itinerary, therefore, MSOs could do the

heavy lifting on a one-click, multimodal basis, very likely at a lower cost.

The most important point to bear in mind in all this, according to Pickford, is that “we should be focused on services rather than products, and not lose sight of the fact that the vehicle or the smartphone is just a portal, a means of improving those services.”

What’s more, as telecommunications technology continues to evolve, the ability of these products to deliver more sophisticated services will only increase. As Pickford adds: “What happens when we get to 5G speeds? Because while 3G and 4G are about consuming data, 5G will take us to new levels, giving us access to low-latency, deterministic services which drive the machine-to-machine culture—services which will allow, for example, cars to talk to each other, or any other machine, the electric meters in our homes, for example. This is the new era of the mobile space.”

Taken in combination, the impact of this wave of incoming innovation will only grow in force in the coming years, forcing real estate practitioners to adapt or go the way of the dinosaur. This is not only because new technology will likely create opportunities for greater efficiencies that will provide significantly better products or services, but also because the next generation of industry leaders is already steeped in the cyber-world dynamic.

As one roundtable participant noted: “There’s an enormous amount of change out there, but as one person on our table put it, the old-timers in the corner office are still making the decisions. Are we really going to wait until we have the millennials in the corner office making the decisions? We need to be advocating more engagement in corporate decision making, decentralizing the discussion, and educating the old-timers so they can see what’s out there.”

The Interlace by OMA/Ole Scheeren.



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The mission of the Urban Land Institute is to provide leadership in the responsible use of land and in creating and sustaining thriving communities worldwide. ULI is committed to:

- Bringing together leaders from across the fields of real estate and land use policy to exchange best practices and serve community needs;
- Fostering collaboration within and beyond ULI's membership through mentoring, dialogue, and problem solving;
- Exploring issues of urbanization, conservation, regeneration, land use, capital formation, and sustainable development;
- Advancing land use policies and design practices that respect the uniqueness of both built and natural environments;
- Sharing knowledge through education, applied research, publishing, and electronic media; and
- Sustaining a diverse global network of local practice and advisory efforts that address current and future challenges.

The Institute has long been recognized as one of the world's most respected and widely quoted sources of objective information on urban planning, growth, and development. Established in 1936, the Institute today has more than 36,000 members worldwide, representing the entire spectrum of the land use and development disciplines.

About the World Economic Forum

The World Economic Forum, committed to improving the state of the world, is the International Organization for Public-Private Cooperation. The Forum engages the foremost political, business, and other leaders of society to shape global, regional, and industry agendas.

It was established in 1971 as a not-for-profit foundation and is headquartered in Geneva, Switzerland. It is independent, impartial, and not tied to any special interests. The Forum strives in all its efforts to demonstrate entrepreneurship in the global public interest while upholding the highest standards of governance. Moral and intellectual integrity is at the heart of everything it does. Our activities are shaped by a unique institutional culture founded on the stakeholder theory, which asserts that an organization is accountable to all parts of society. The institution carefully blends and balances the best of many kinds of organizations, from both the public and private sectors, international organizations, and academic institutions.

We believe that progress happens by bringing together people from all walks of life who have the drive and the influence to make positive change.