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HOW ROBOTICS AND THE INTERNET OF THINGS ARE TRANSFORMING REAL ESTATE

By Amanda Marsh

We often hear commercial real estate is inefficient and slow to adapt to technology. But the proliferation of robotics and the internet of Things (IoT, or everyday objects connected to the internet) has made the industry ripe for disruption.

"While IoT and robotics aren't touching everything in commercial real estate, it's drastically changing efficiency and optimization for both the landlord and tenant," said Whitebox Real Estate co-founder, president and managing director Grant Pruitt, SIOR, of Dallas. "There's so much more information that could be harvested to the point where data feels overwhelming."

"Overwhelming" could also describe IoT's sheer size. McKinsey estimated 2015's $900 million market would grow to $3.7 billion by 2020, while IHS Markit forecasted that will account for 30.7

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billion connected devices in 2020, more than doubling to 75.4 billion by 2025.

Commercial real estate IoT applications could include building management systems, security cameras, multi-use sensors and trackers, customer/occupant recognition, and smartphone-enabled comfort adjustment, to name a few.

"The internet will be a part of everything you see, do, and touch," said Newmark Grubb Knight Frank executive managing director Geoffrey Kasselman, SIOR, LEED AP, of Chicago. "It's been unleashed, but it's not even close to hitting its stride."

IoT has many benefits for commercial real estate users, from tracking space utilization to improving the overall tenant experience, Pruitt said. But while embraced by many building owners and managers, there is still pushback from others who don't understand why they need IoT or should spend the money.

"There needs to be some sort of financial incentive beyond overall efficiency savings to get them to upgrade their buildings, and right now, there's not a lot available," he pointed out, noting government money could help.

On the robotics side, the industry is already beginning to experience the effects of driverless cars. While the impact might not be as large for cities with efficient transit systems,, cities built around automobiles — like Dallas, Los Angeles, and Atlanta — will see new real estate opportunities emerge.

"Driverless cars mean you don't have to park where you are, so garages become prime real estate for alternative uses, whether office, hotel, retail, or multi-family," Pruitt said. "And cars can park densely, using less of a footprint than traditional garages."

Self-driving trucks aren't far behind, noted Real Miami Commercial Real Estate partner Daniel Zelonker, SIOR, CCIM, of Coral Gables, Fla. Logistics companies are beginning to invest in vehicles that allow 24/7 deliveries and more affordable deliveries. They'll also be safer and more fuel efficient, added RD Strategic principal Richard Delisle, SIOR, of Mundelein, Ill.

Office buildings will also be disrupted by such hyper efficiency. Many buildings are only occupied from 9 a.m. to 5 p.m., Kasselman explained, meaning even though a property could be 100 percent leased, its real occupancy is only 33 percent because it's empty two-thirds of the time. Through the right design and technology deployment, buildings can be occupied closer to 24 hours a day and allow for a mix of uses.

The Changing Building

IoT and robotics are already changing the physical characteristics of office and industrial buildings. One of the biggest impacts is the need for high-speed internet connectivity.

"If your building doesn't have a high-speed connection, it will impact your rents and is often a detriment to a listing," Delisle said.

And in order to support mushrooming IoT devices, buildings need infrastructure using two or more power sources, Kasselman added.

"For industrial, the move toward robotics requires special building features, such as additional power and space to accommodate features like liquid nitrogen tanks increasingly used in the machining and fabrication," Delisle said. These are additional expenses on top of needed building retrofits and upgrades.

Additionally, the increasingly automated delivery process—which will eventually eliminate the need for humans to off-load, sort, and stock — means the sizes and utilization of employee restrooms, lunchrooms, parking lots, office space, lighting levels, and aisle spacing will also change, he continued.

"Staying ahead of the technology curve is critical, especially with the widening of the Panama Canal," noted Zelonker. While only three ports in the U.S. can handle the newly sized ships (which require a 50-foot or deeper channel, machinery that handles container rows 22 wide and adequate transportation), the number will grow, so industrial owners need to handle shipments as expeditiously as possible.

Look Into the Future

One technology the industry has not seen—but will come—is automated construction, Delisle predicted. This will revolutionize warehouse, residential, and office construction while mitigating its laborious, dangerous, and costly attributes.

He has spoken to many builders in the industry who have no exposure to or, appetite for this future trend. But Delisle warned professionals cannot stick their heads in the sand, as it's coming—likely within the next decade.

Pruitt particularly sees opportunity for 3D printing within the industrial sector, noting renting second-generation space is difficult due to tenants' specific needs, such as clearances and configurations.

 "I have a theory that we'll be able to quickly and affordably print a building, and at the end of the lease, knock it down and print out another for another user," said Pruitt. "It will be quick, cost-effective, and custom-tailored."

The Elephants in the Room

IoT's quick adoption within real estate harkens an important issue for all users, yet to which few are paying attention — cybersecurity.

One possible scenario: A landlord leases an infrastructure-ready building to a tenant, and that tenant deploys many IoT devices across the building. Those devices are then hacked, wreaking havoc on operations.

"If something goes horribly wrong, who is liable?" Kasselman asked. "Is it the landlord for a design flaw? The tenant, because it's their devices? What role will insurance play? It's the Wild West right now."

In October 2016, internet hacking group Anonymous orchestrated a massive cyberattack by overwhelming a wide variety of IoT-connected devices with large amounts of traffic. The attack brought down major websites like Twitter, Reddit, Netflix, and Spotify.

"It caused a temporary internet meltdown with shocking ease," he continued. "It's very disconcerting when you think of all the devices out there. For every solution IoT brings, there is an abundance of new problems created. The commercial real estate industry doesn't yet know enough to fully appreciate the opportunities, nor the liability and risk."

He also recalled the 2015 power grid hack in Ukraine, where hackers remotely took down 30 electrical substations, leaving a region without power for over six hours. It took months for the command and control centers to return to normal operations and make sure computer systems were safe moving forward.

"If it could happen there, why not Chicago, Boston, or Miami? What happens if we lose our internet for six months? We're remarkably vulnerable to similar scenarios domestically. We're also likely to see more cybercrime going after high-value targets such as banks and related assets, looking for usernames, passwords, Social Security numbers and bank accounts."

Most commercial leases have Force Majeure or "Act of God" clauses, he noted. How does cybersecurity fit into that? As a result, the legal and insurance industries will need to quickly adapt or rebuild to fully adjust to the IoT and robotics age.

The other elephant is the loss of jobs.

For one, driverless vehicles will reduce the need for roles like truck drivers, taxi drivers, concrete deliverers and forklift drivers, since everything from operations to offloading will be automated, Delisle pointed out—and a huge proportion of the labor force will be eliminated.

Industrial robotics have also been taking the place of human capital.

"Robots will ultimately take away any job that has repetition or could be replaced with relative ease," Kasselman explained. "They'll be connected to each other through IoT, talk to each other and have a layer of artificial intelligence that means they're constantly learning and improving."

There are benefits for the corporate owner, he continued; namely that five robots could take the space of two work stations and work 24/7 without breaks or calling in sick.

"Will those two employees have the right skills to be re-deployed or re-employed? Adaptive skills and retraining will have to be part of the unfolding story."

Zelonker posited the technology industry will need more people to fill the jobs making the robotics and IoT devices.

"I liken this to when tilt-wall construction was introduced to the industrial market years ago," he said. "People were afraid it was going to change the market drastically, but instead, it just moved us forward. Technology is good for real estate, and we're just in the beginning." ▽

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