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Disaster strikes. Is your city prepared?

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Home sweet home: millenials find their niche in urban burbs

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Coeverything: blurring the boundaries of mixed-use spaces

Disruption caused by the coeverything movement has had varying impact across industries.



What's next for Chinese outbound real estate investment

Here's what to watch in Chinese investments.



Gillette Stadium: managing the home of the six-time Super Bowl champions

Gillette Stadium isn't just defined by on-field success, it's also a major facilities management achievement.



Royal Mail Group: a royally reliable and innovative partnership

How one of the oldest organizations in the world continually proves itself to be reliable and dependable.

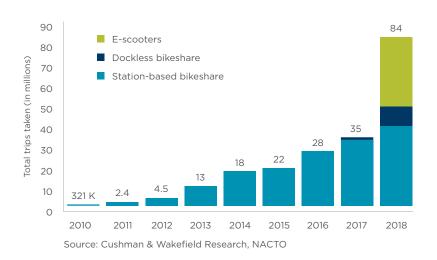
Rethinking the industrial workplace

Attracting and retaining a skilled workforce is becoming difficult, forcing employers to rethink what the industrial workplace looks like.

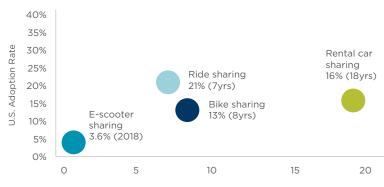
Micro-mobility mania Micro-mobility: Generally refers to single occupant modes of transportation such as bikes and electric scooters (e-scooters). E-scooters and bikes, referred to as micro-mobility, are reshaping transportation in cities around the world. The future of transit is filled with lightweight electric vehicles giving people the ability to travel and move quickly and cheaply. Micro-mobility is one of the fastest growing transportation trends in recent history in terms of adoption. Bike sharing has grown at more than a 14 percent compound annual growth rate (CAGR) over the last five years. However, the adoption of e-scooters has surpassed this—capturing 3.6 percent market share in the almost 150 U.S. cities where they operate since their launch in late 2017. Both have disrupted ridesharing services for short trips, which isn't surprising since 46 percent of car trips in urban areas are less than three miles¹, and micro-mobility options are often more convenient than taxis, public transportation or walking. They can also be cheaper—Quartz estimates that an e-scooter ride is \$3 to \$4 cheaper per ride for a one- to two-mile trip² compared to a ridesharing trip³. * All dollar amounts listed are in USD Based on percentage of people who use the service "Shared Mobility in the U.S.: 2018", (April 2019), www.nacto.org, accessed April 2019 According to a November 28, 2018 interview of David Estrada, a top policy expert from Bird by Governing.com. THE EDGE

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84 MILLION TRIPS ON SHARED MICRO-MOBILITY IN 2018



CURRENT ADOPTION RATE OF VARIOUS SHARED MOBILITY MODES



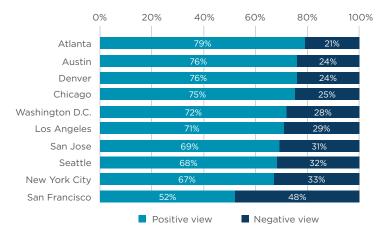
Source: Cushman & Wakefield Research, Populus, UC Davis

CONSUMER- AND CITY-LEVEL IMPACT

The increased availability of micro-mobility in cities has had an impact on consumer behavior. According to a recent NACTO survey, riders primarily use micro-mobility to travel to and from work and to connect to public transit. Because of this, many major cities have added bike and e-scooter lanes to ease pedestrian traffic on sidewalks, a trend expected to grow at a fast pace. At the city level, an increase in public transportation can result in increased transit-oriented development (TOD) premiums for real estate. In addition, the use of micro-mobility modes increases the "walk" or in this case "micro-mobility" zones around public transit modes. This enables the TOD premiums to be felt across a wider area and by more properties.

Consumer behaviors differ by mode of micro-mobility. Bike riders who pay annual fees primarily use the service on weekdays, with the number of rides peaking during rush hour, typical of a commuting pattern. E-scooter use is greater on the weekends and evenings, signaling that e-scooter use skews towards social and recreational use.

E-scooter sentiment by city



Source: Cushman & Wakefield Research, Populus

Cities are faced with some challenges that have arisen from the increasing popularity of micro-mobility. One major concern for cities is the number of dockless e-scooters piling up on sidewalks, leading some to add designated parking for e-scooters to alleviate congestion. For example, in-street zones have been created for dockless e-scooters and bikes in Santa Monica, California. And, in Washington D.C., street corrals have been created by repurposing on-street parking spaces.

Additionally, some cities are managing increased congestion by turning to geofencing, a virtual perimeter that limits where scooters can be driven and parked. In San Jose, California, geofencing is being considered to deactivate scooters when they're on sidewalks and reactivate when they are in bike lanes. In Santa Monica, Bird, an e-scooter sharing company, created a speed zone that geo-speeds scooters down to a maximum speed of 8 mph (from 15 mph) on beach bike paths .

Cities have begun implementing rules to regulate operators in their markets, which has resulted in a new source of revenue generation for municipalities. Some of these regulations have resulted in permits and/or licensing fees, with others including per trip and per vehicle fees. Relocation and vehicle impoundments have resulted in some hefty fines.

Despite the various complications that e-scooter sharing has brought to some cities, the public views them as a viable alternative for short-distance travel. According to a recent Populus survey of more than 7,000 individuals in 11 cities, support for micro-mobility is strong with more than 70 percent of those surveyed having a favorable opinion. Other forms of transportation, including bikes, ridesharing and public transit, garner approximately 50 percent positive consumer sentiment on average, illustrating the popularity of e-scooters.









CURRENT ACCEPTANCE LEVELS

- > Medium acceptance
- > Safety for the rider and pedestrians is a concern
- > Affordable

CONVERGENCE WITH TECHNOLOGIES / INFRASTRUCTURE

- > Usability in adverse weather conditions
- > Limited ability to multitask (check phone, answer calls, etc.)
- > Curb space and parking issues due to dockless nature
- > Vandalism, theft and maintenance are still issues and the business model is yet to be proven

ESTIMATED TIME FRAME FOR WIDESPREAD ADOPTION

> Immediate and escalating impact

ADOPTION TIMELINE

The pace of adoption depends on three preconditions being met: acceptance, convergence and scalability. These, in turn, depend on a variety of factors—regulatory and environmental factors remain wild cards (e.g., legal restrictions and labor disputes) as do declining overall travel demand (teleworking and eCommerce), growth of other mobility options such as the e-scooter, public transportation and increased congestion. All these inject significant uncertainty into the actual trajectory and direction of change of micro-mobility.

Safety, technology development and regulation will pose significant barriers to widespread adoption.

IMPLICATIONS FOR CRE

Investors and occupiers can prepare for the coming disruption in the near- and mid-term by redesigning and repurposing space to make room for micro-mobility parking and storage.

MICRO-MOBILITY IMPACT AND OPPORTUNITIES BY CRE SECTOR

SECTOR

CRE IMPACT OF WIDESPREAD ADOPTION

OPPORTUNITIES: REDESIGN/ REPURPOSING



Urban office space

 Office space for last-mile and micromobility-related companies increases

- Increase in micro-mobility related amenities for tenants (i.e., bike and e-scooter docks and charging)
- Some companies may provide employee commuter benefits including subsidized pricing
- Designated street-level parking for bike and e-scooters
- Enhanced wayfinding to integrate the modes of mobility



Suburban office and multifamily

 Office space for last-mile and micromobility-related companies increases

- Repurpose some parking to provide mobility amenities for tenants, bikes and e-scooters for short distance needs (from office to lunch, from apartment to supermarket, etc.)
- Repurpose excess parking into bike and e-scooter docks and charging



Retail

- Increased BOPIS (buy online, pick-up in store), moves more traffic through stores
- Improved access to 'off-the-beaten-path' locations
- Increase in home delivery due to constraints of shopping while riding e-scooters and bikes
- Allows for the repurposing of parking



Industrial

Increased demand for manufacturing capabilities



Data centers

· Increased need for data processing



Parking/gas stations Bike and e-scooter parking needs access to the office similar to many office parks' car garage access to the main entrance



Transit-oriented development

Positive impact as public transit users typically enhance their commute with scooters and bikes





What's trending in the occupier and investor worlds



WHAT OCCUPIERS

SHOULD BE THINKING ABOUT

Above all, occupiers should be thinking about their employees—and workplace experience is key in attracting, engaging and retaining top talent. The workplace has become an essential element of the employee value proposition. Companies can create an optimal employee experience by doing the following:

IMPLEMENT THE RIGHT MIX OF TECHNOLOGY

The proliferation of IoT and how it's impacting the workplace, the employee experience and even security (see article on page 17, "Your building may be smart, but is it safe?") is having a major impact on all organizations across industries. It's critical that companies understand how to manage the right mix of technology, including 5G technology, connected devices and the influx of PropTech investments. When managed well, technology can augment the workplace experience and positively impact employees—helping them optimize their time and experience. It is about convenience, efficiency and safety. When all of these are delivered seamlessly, it can dramatically enhance the employee value proposition, boost productivity and ultimately impact uptime and the user experience.

CONSIDER HIRING A CHIEF EXPERIENCE OFFICER

(CXO) While there's no doubt technology impacts the employee experience, imagine what companies can achieve if they view their current and prospective employees as "internal customers." A CXO's role is to deliver a well-designed, human-centered workplace that fosters growth and innovation from recruitment to exit. Cushman & Wakefield's CXO helps clients use real estate as a driver for talent acquisition, retention and engagement by considering the end-to-end employee journey and how the workplace experience supports the brand. This involves a deep understanding of employee insights and establishing a vision for enhancing workplace experience through amenities, service improvements, technology and culture.

TAKE A FRESH LOOK AT YOUR PORTFOLIO

The concept of coworking, flexible working and the need to minimize fixed costs has given organizations the opportunity to take a fresh look at their portfolios and assess what they can do to minimize their long-term liability commitments while maintaining the employee experience. Many organizations are using the confluence of all these factors to take a fresh look at their portfolio strategy and long-term commitments.

WHAT INVESTORS

SHOULD BE THINKING ABOUT

Global capital continues to flow for investors, which leads to ongoing pressure to create value on existing quality assets. As a result of this pressure, investors should:

IMPLEMENT THE RIGHT MIX OF TECHNOLOGY
Just like occupiers, investors should be focused on implementing the right mix of technology in order to create value for their assets. After all, rapid advances in digital technology, such as artificial intelligence (AI) and big data, are major factors influencing the asset management industry's competitiveness. Ongoing technology adoption is expected to not only strengthen investment capabilities, but to improve productivity through operational efficiency.

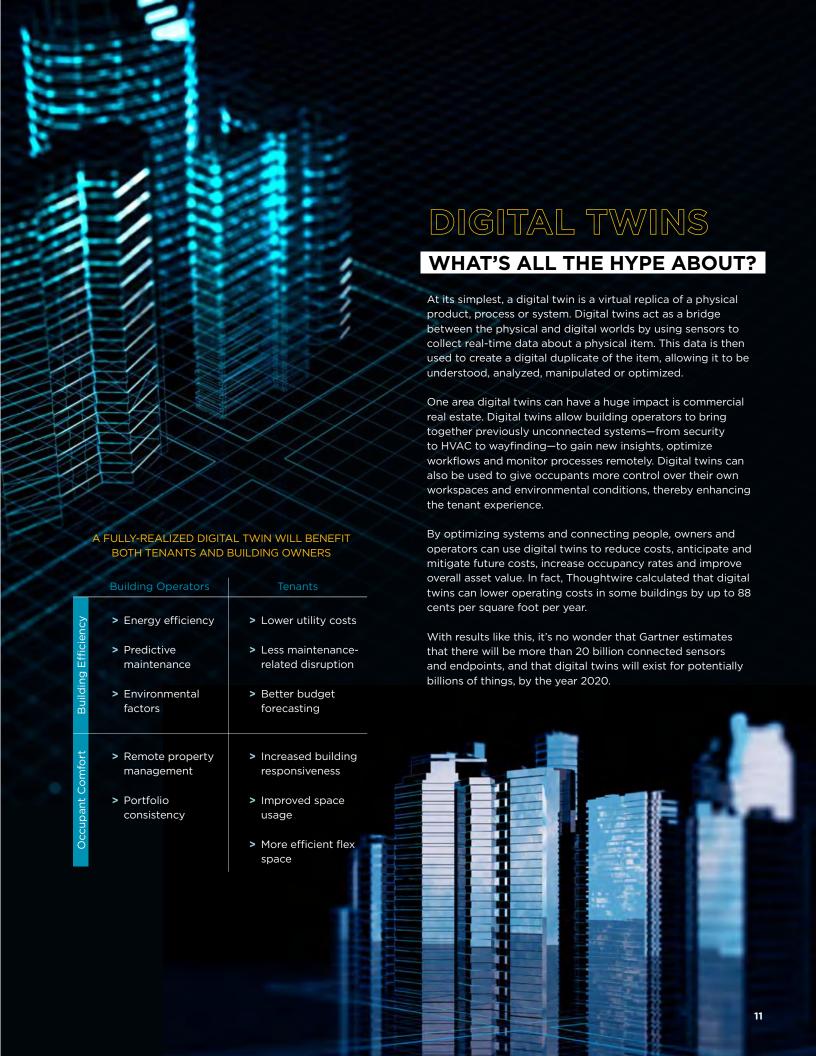
Digital twin technology (see page 11) is very attractive for property owners because they can use this technology to enhance sales. When faced with questions from prospective buyers or renters, investors can turn to their digital twin for answers about their property information.

FOCUS ON CITIES RATHER THAN COUNTRIES

Amidst the geopolitical noise caused by Brexit, U.S.-China trade relations and more, investors should shift their focus to cities rather than countries when considering where to expand their portfolios. Many investors manage property in the same five to ten major cities, but there are countless other locations that offer ample opportunity for strategic development. At the city level, investors should look at principle demographic information, construction, tenant interests, universities and millennials to determine where to invest.

UNDERSTAND TENANTS' EVOLVING WANTS

It's important to know your tenants and what's important to them. Providing quality customer experiences extends far beyond daily operations and requires cultivating meaningful relationships with your tenants. Property enhancements such as a website, tenant portal or mobile app can help in this area by providing multiple communication touchpoints, faster service delivery and customized experiences. Knowing your tenants, how they communicate and how they want to be communicated with helps property managers deliver the right solutions for a seamless tenant experience.







RENEWING NORTH AMERICA

CHICAGO

In Chicago, theMART is a 4.2 msf landmark building that was originally designed to be the central marketplace for wholesalers and retailers. According



to **Wendy Katz**, Executive Director, Cushman & Wakefield, "The building was transformed in 2012 when the owner

restacked and converted showroom space into office floors for Motorola Mobility, prompting numerous companies to follow. Then, in 2017, the 86-year-old landmark was further renovated, transforming it into the hottest office destination in Chicago."

theMART was designed to complement the creative energy and talent of its tenants and visitors, reflecting both the functionality and aesthetic of its historic roots. The \$40 million renovation's centerpiece is The Grand Stair: a majestic 50-foot-wide timeless marble staircase connecting the first two levels, serving as a meeting place with stadium seating and a projection wall.

LOS ANGELES

Downtown Los Angeles is the perfect example of an area in transition. Finance, accounting and law firm tenants have historically been the mainstay of downtown LA, but the recent revitalization and unique historic landmarks available there have played a huge role in attracting new tenants to the area.



"The Bradbury
Building is an
architectural gem and
a great example of the
downtown's growing
attraction for creative
tenants," according to

Mike Condon, Jr., Executive Managing Director, Cushman & Wakefield. "The building opened in 1893 and its atrium has been the backdrop of films like Chinatown and Blade Runner. Upon its transformation, our leasing team pulled in a number of new tenants, including Swell Creative Group, a creative agency specializing in strategy, design and production, and ToneDen, a social marketing platform that relocated from Sunset Gower Studios in Hollywood."

612 S. Broadway is another great example of an adaptive reuse space. This historic 63,649 sf building, which was originally home to Desmond's Department Store, is being converted into creative office space with ground floor and rooftop retail. Upon brokering the sale of the property, Condon commented, "For the past few years, we have seen a lack of flow between the northern and southern ends of the South Broadway or 'SoBro' District in Downtown LA, with the Bradbury Building and Grand Central Market on the northern end and the upcoming Apple store and the Proper and Hoxton Hotels set to open to the south. The sale and redevelopment of 612 S. Broadway, along with a pivot to creative office for the Broadway side of St. Vincent Jewelry Center, represents the final connection point between these two micro-markets, propelling Broadway into a truly interconnected and walkable thoroughfare that will remove one of the last undeveloped pockets along the corridor. Broadway is set to become the best street in all of LA."







TORONTO

Heading north to the third largest city in North America, The Bank of Montreal (BMO) in Toronto caused a stir in 2018, according to **Derek Snyder**, Vice Chair, Office Leasing, Cushman & Wakefield,



when it announced plans to transform 346,000 sf of the former Sears department store into a progressive urban campus.

Located in the heart of downtown, the new workplace will become the home to 3,500 of the bank's employees, spanning over four massive floors of 95,000 sf each, above Nordstrom in Toronto's iconic Eaton Centre. The new urban loft will be fully equipped with advanced digital technology, open floorplans interconnected with stairwells, multiple collaborative work areas, rooftop terraces and 17-foot-high ceilings with 12-foot vision glass, allowing natural light to pour into all corners of the former department space.

Clockwise from left: the Grand Stair at the MART, Chicago; the Bathhouse Studios, NYC; BMO Campus at Eaton Center, Toronto

NEW YORK CITY

New York City has seen its fair share of adaptive reuse. With landmarks located on practically every block

of the city, there have been plenty of opportunities for developers to get creative.





The Bathhouse Studios: This landmarked property located in the East Village was formerly a New York City Public Bathhouse that was converted to a space for photography, film and events by famous photographer Eddie Adams. The buyer will be using the property as a residence.

The Edward Ridley & Sons Department Store: Also known as "The Pink Building" and the largest department store on the Lower East Side in its day, this landmark was sold and then converted into office and retail space. The buyer plans on utilizing the air rights to develop a residential component to the property.

S. Jarmulowsky Bank Building: Known as the first "strictly high-class tall bank and office building" on the Lower East Side, this landmark is being repurposed into a 116-room hotel with six venues including bars, lounges, restaurants and event spaces.

German Dispensary: This landmark building built in 1883 was repurposed and then leased to a female-focused coworking space called "The Wing."

Converting these spaces for residential use has its challenges. "Commercial buildings don't always covet light and air like residential buildings do," said DeCheser. "But certain properties convert to residential nicely. And these are often smaller properties with soaring ceiling heights and parking garages. The challenge lies in the difference in code requirements. Residential use requires a certain percentage of window openings and rear yard. But, who wouldn't want to live in a converted firehouse?"

80 Forsyth Street, which was originally a synagogue, and 8 Thomas Street, which was built to be a soap manufacturer showroom are additional examples of buildings that have been transformed for residential use in New York City.





Clockwise from left: Hotel Europjski, Poland; Dalton Mills, Keighley; Victoria Mills, Shipley



Adaptive reuse is a hot topic across



Europe. According to Federica Barbarino, Architect, Senior Project Manager, Cushman & Wakefield, "In Italy and across Europe, there are so

many historical tight-knit cities with very few green fields available, which makes focusing on the existing buildings more of a necessity than a trend. After all, we don't have a lot of excess space to work with."

ENGLAND

King's Cross, London has always been recognized as a major transport hub for the north of England, but today this area is far more evolved. Originally built in the 1850s for the purpose of receiving coal and freight from the north of England by train, this disused Victorian rail yard has found a new life for future generations. Marshall's Mill is another example of a historic site that has been converted into a workspace and microbrewery.



John Percy, Head of Development and Place, Cushman & Wakefield, added, "Our urban places are the powerhouses of the economy. So, it's

perhaps unsurprising that views on how best to maintain and regenerate these valuable spaces are diverse and many."

Old mills have been transformed for a variety of purposes, from residential apartments and office spaces to leisure and destination retail. New developments that complement mill buildings can be found throughout West Yorkshire, including Victoria Mill in Shipley and Ledgard Bridge Mill in Mirfield.



Stephen Miles, Partner, Development and Planning, Cushman & Wakefield, recently authored a report focusing on West Yorkshire's textile

mills, detailing how vacant and underused mills can result in revenue generation, accommodating growth needs and acting as a catalyst for regeneration. He noted that there are more than 1,500 remaining textile mills in the West Riding of Yorkshire, of which around 150 have been converted and are in use. Therefore, there are approximately 1,350 that are either underused or vacant. Bringing a vacant or underused mill back into productive use could generate a significant benefit for the local area.

PORTUGAL

Ana Gomes.

Associate, Head of Urban Development, Cushman &

Wakefield, worked on behalf of a buver



to acquire the former Lisbon Amusement Park. When the park opened in 1943, it was literally out of town. Today, the area is one of Lisbon's most sought after addresses for both residential and office space. The five plots totaling more than 538,000 sf of development land were sold through a public auction and reached record prices. The project to transform the park to include offices, residential and retail space will undoubtedly change the face of the city.

NETHERLANDS

Several transformations have taken place in Amsterdam and Rotterdam as well. According to John Konijn, Head of PDS



Netherlands, Cushman & Wakefield, "We have made several exterior and interior improvements in Amsterdam that have greatly enhanced some of our older

buildings. For instance, we transformed the exterior of the Ruyterhuys, an outdated 1980s building with blue accents, into a sleek and modern building. We also transformed the outdated interior of the World Trade Center Rotterdam into an innovative and much more efficient workplace in combination with upgrading the sustainability of the building to a high standard with a BREEAM label. These changes have added significant value with tenants now viewing the buildings in a whole new light."

POLAND

Founded in 1857, Hotel Europjski was built to set and surpass standards of luxury in Poland. According to Anna Gorska-Kwiatkowska, Landlord Representation Manager, Cushman & Wakefield, "In 1954, the decision to restore the building to

its former role was made. The Europejski Hotel, under the management of Orbis, quickly returned to pre-war traditions. From the very beginning, the

purpose of the reconstruction was to create an elegant hotel in the center of Warsaw."

In 2018, after an almost five-year-long reconstruction period, Europejski once again became a prominent symbol of Poland to guests from all around the world. The intent of the owners was for it to represent everything that is best in Polish culture and craftsmanship. The building also offers office space and a collection of 12 boutiques.



Wynyard Place, Sydney

ADAPTIVE APAC

AUSTRALIA AND NEW ZEALAND

Sydney is the perfect example of a city that has reaped the many benefits of adaptive reuse. According to Sophie

Herdegen, Retail Leasing Executive, Cushman & Wakefield, "What was previously one of Sydney's most notable nightlife hotspots, Omnia Potts



Point is now a premium mixed-use retail and residential space. It's a really smart use of this high-end building, comprised of 135 luxury apartments with a single 19-story tower offering sweeping Sydney skyline views in every direction."

Matt Hudson, National Director, Head of Retail Leasing Australia and New Zealand, Cushman & Wakefield, was recently appointed to lease Wynyard

Place in Sydney. "Wynyard Place is transforming Wynyard railway into a world-class urban precinct in the heart of Sydney's central business district," said Matt. "Few places can offer everything

that Wynyard Place does-day and night dining, extensive retail options, amenities, productive and engaging workspaces and unparalleled transport options.



The development will also include the restoration of Shell House and 285 George Street, breathing new life into a historic Sydney landmark. Wynyard Place is the perfect example of 'what's old is new again' when it comes to adaptive reuse."

Your building may be smart, but is it safe?

dvancements in technology have changed the workplace dramatically. It wouldn't be unusual to simply scan your employee badge and have an elevator take you directly to your floor, where you could pick up your custom-made cappuccino on the way to your climate-controlled office.

It doesn't get much smarter than that.

But, all too often, building operators are introducing more smart technologies to the mix to improve operational efficiency, comfort and functionality without having a management strategy in place. And that, in itself, is not so smart—or safe.

Unfortunately, since many emerging technologies fall outside the scope of traditional IT, often little to no attention is paid to the potential cybersecurity risks created by smart office technology.

In fact, a recent survey of building automation system (BAS) operators found that only 29 percent had taken action or were in the process of taking action to improve cybersecurity for their internet-connected systems.

If compromised, internet-connected smart building devices could negatively impact the physical office environment. For example, cybercriminals could gain control of devices that regulate data center temperatures, causing fans to shut down and servers to overheat. Not only do these devices impact your physical surroundings, but if they share connections with enterprise IT networks they could also open a backdoor to your company data.

According to a global study conducted by IBM Security and Ponemon Institute in 2018, the average cost of a data breach is \$3.86 million*, up 6.4 percent from 2017.

A cyberattack could lead to millions of dollars in damages. Plus, the risk of a data breach could also threaten the safety of your tenants, visitors and employees. This has become more prevalent recently due to smart devices' ease of infiltration, typically caused by installation companies commissioning systems without the secure configuration or ongoing management of an IT professional.

* All dollar amounts listed are in USD.



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THERE'S NO TURNING BACK

With the ever-growing amount of benefits smart building technology offers, it's safe to assume the real estate industry's adoption will only continue to increase in years to come—and that's a good thing. But, if not managed correctly, this technology is sure to expose owners, buildings, tenants and thirdparty providers to cyber risks with potentially serious consequences.

So, how can you forge ahead with innovative smart technology while ensuring the safety of your assets? With so much at stake, it's more important than ever to have a solid strategy in place when it comes to securing your smart buildings. Below are steps you should consider taking when protecting your properties from cyber threats:

1. SECURE YOUR ARCHITECTURE

When designing how a building's systems will communicate, ensure its architecture supports secure connections, especially internet or third-party connections. Some systems should be segmented from other aspects of the network. Additionally, all aspects of smart systems need to be analyzed to make sure the proper controls are put in place to mitigate potential risk.

2. ENSURE PROPER MAINTENANCE

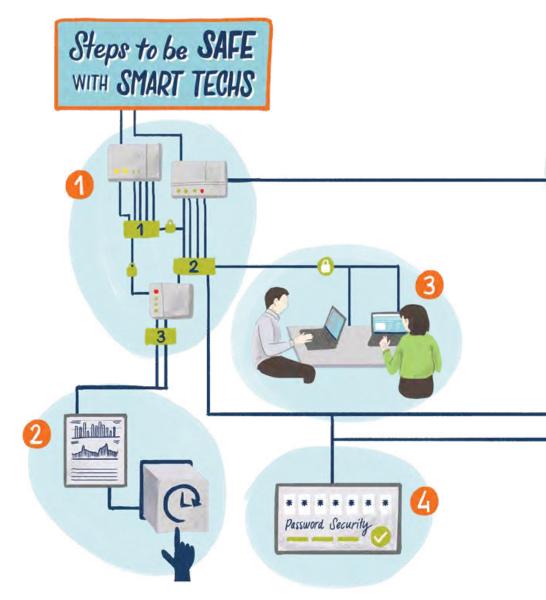
Like any system, your smart building technology needs to be properly maintained, which includes patching and/or updating systems on a regular basis to repair security holes and improve functionality.

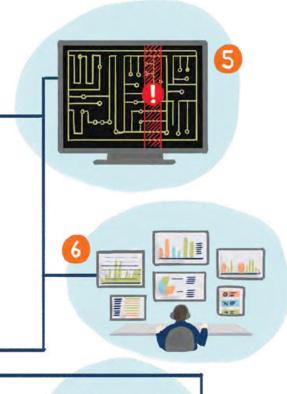


It is important to establish rule-based access control to make sure the right people can access the system—and that they do so in the right ways to avoid security breaches.

4. IMPLEMENT STRONGER **NETWORK SECURITY RULES**

Safer password practices can go a long way in preventing an attack. Never reuse or share passwords between devices and avoid making these passwords predictable. Never store passwords in clear text.





7

Cushman & Wakefield taps Kudelski Security as its expert on smart building technology: "Security is often an afterthought, which presents a myriad of cyber security challenges—from protecting client and visitor data to ensuring physical systems are not compromised," said Andrew Howard, Chief Technology Officer, Kudelski Security. "Security enhancements offer the opportunity to not only change the status quo, but to also improve the overall experience and invoke confidence."

5. SCAN NETWORK ACTIVITY

Security incident and event management (SIEM) systems can be used to scan network activity between the internet connection point, BAS system and embedded devices to identify suspicious activity on the network. In addition, use application security scanning tools to identify flaws in software and applications before they are deployed.

6. MONITOR, MONITOR, MONITOR

Ongoing monitoring and auditing is critical to ensuring the system is running smoothly and alerts are properly addressed.

7. TAP THE EXPERTS

In essence, smart buildings are fundamentally no different than any other technology system, which is why it's so critical to partner with security and technology groups who specialize in this type of work. Bringing in the right partner can take a lot of the guesswork and stress out integrating new office technology into your portfolio.

SECURITY AND SAFETY IS A MINDSET

When it comes to smart building technology, safety is a must-have mindset. Securing your building from cyber attacks should be an ongoing journey, not just a one-off audit. Once you have the proper strategy and controls in place, you can more confidently and securely enjoy the proliferation of IT devices coming together to seamlessly enhance your day-to-day experience.

BEYOND BUILDINGS

By 2025, it's expected that there will be more than 75 billion connected IoT devices—that's everything from thermostats to lightbulbs to cars to pacemakers. Placing security at the forefront of every connected device is imperative.

Here are some basic safety precautions we should all take to increase our odds of preventing cyberattacks:

- Read the terms and conditions when signing up for or registering a new device
- 2. Change the default password on any connected device
- Jupdate firmware and software regularly, especially when you first connect the device
- 4. Carefully consider the data that you are providing as well as the possible associated risks
- 5. Stick with major brands that have been widely adopted, especially for products such as security cameras, door locks and garage door openers
- Avoid clicking on links or attachments from unknown sources



Data centers: from niche to mainstream

ach day, we produce 2.5 quintillion (or 2,500,000,000,000,000,000) bytes of data. More than 90 percent of the data that exists was generated in the last two years with a run rate that increases constantly. From smartphones and their millions of data-generating applications, to the billions of emails sent each hour, to the expected 40 terabytes of data each prospective selfdriving car will generate each day—the need to process, analyze and utilize this data requires more processing capacity than ever before. Enter the data center, once considered a niche real estate outlier, now the source of billions of dollars of annual speculation, development and investment dollars in markets across the globe.

Data centers are now considered to be their own asset class and investors are lined up to purchase this type of asset for the following reasons:

- Higher returns than traditional asset classes
- > Higher quality and longer-term tenants
- > Recession-proof income
- Sticky tenants in the sector with the highest growth rates

For several decades, data processing was a sideline for businesses, and data centers themselves reflected that, often being jammed into office buildings. Facilities could be as simple as a server rack in a storage closet, while larger data centers were built in underutilized industrial parks or converted spaces close to major telecommunications

exchanges. Fast forward to the present day and data centers occupy campus-sized deployments and have grown into globallyrecognized carrier hotels with valuations to match iconic office towers

Entering this diverse and lucrative market is a tantalizing proposition,

given the prospect of high returns. Primary data center markets in the U.S., including Chicago, Dallas, Northern Virginia, Los Angeles and Seattle, along with international hubs such as Singapore and Dublin are expected to double or triple in size within the next three to five years. Investors in key markets can expect far greater immediate returns compared to Class A assets in other real estate sectors, with cap rates still above 7 percent on quality data centers in these locales (see chart above). With increasing

A SNAPSHOT OF U.S. CAP RATE COMPARISONS

Markets	Data Center	Downtown Office	Downtown Retail
Chicago	9.06%	6.10%	5.50%
Dallas	8.10%	6.90%	6.60%
Northern Virginia	6.40%	5.20%	5.10%
Los Angeles	6.10%	5.50%	5.50%
Seattle	5.60%	4.90%	5.70%

investor demand and availability of capital for data center assets, recent transactions indicate that cap rates in this segment compressed during 2018 while rates were mostly steady in other market segments.

Several large investment managers, pension funds and sovereign wealth funds have taken the entrepreneurial route, creating new companies either by acquiring a large portfolio of assets from an established fund or telecommunications company, or by



Going the development route naturally takes longer and avoids rehabilitation pitfalls. It also presents opportunities for the following:

array of hands-on operators on the

wholesale side. While this method

can be several million dollars per

cooling and backup systems.

allows for immediate returns, capital

expenditure on data center renovations

megawatt, and older data centers often require the greatest upgrades for power,

- > Develop a scalable site (up to 100 megawatts)
- > Select a location of low-risk and low latency to major markets and exchanges
- > Select a location that minimizes power costs and taxes while taking advantage of incentives
- > Develop a design that is efficient (PUE below 1.3), scalable and can accommodate high-density racks

for data center tenants. Each data center requires an ecosystem of focused personnel, from engineers maintaining servers and cooling equipment on the floor, to outside brokers and advisors assisting with new tenancy and further expansion.

DATA CENTERS OFFER AN ATTRACTIVE RETURN IN COMPARISON TO OTHER COMMERCIAL REAL ESTATE ASSETS AND UNPARALLELED GROWTH POTENTIAL. WITH THE RIGHT STRUCTURE AND TEAM SURROUNDING THE **DEVELOPMENT OF THESE** ASSETS. INVESTORS CAN ENJOY LUCRATIVE BENEFITS FOR THE NEXT SEVERAL YEARS.



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Timber towers: the transformation of concrete jungles

"A long time ago in a galaxy far, far away, skyscrapers of steel, concrete and glass stood tall..."

This may be the story you'll tell your grandchildren decades from now as the construction industry increasingly seeks eco-friendly alternatives to the building materials that compose modern skyscrapers. While there are ideas of bamboo high-rises and bioplastic buildings, plyscrapers—skyscrapers made of wood—are the most feasible alternative.

The first 70-story, 1,148 foot plyscraper is initiating the transformation in Japan¹, 1,400 years after the country built the oldest wooden building in the world—Horyu-ji Temple in AD 607².

Timber has its advantages

The tallest wooden building structure in the world is the Mjøsa Tower (85.4m/279 feet, 18 floors) in Brumunddal, Norway (to be completed in 2019), followed by the Brock Commons University of British Columbia (53m/174 feet, 18 floors) in Vancouver, Canada. Although these mid- to high-rise buildings can hardly be called skyscrapers, plans for plyscrapers are on the horizon across the globe. Some examples are Japan's W350 plan or Oakwood Tower in London, a conceptual wooden version of the Empire State Building designed by a Finnish wood product producer.

W350 is a plan put forward by Sumitomo Forestry, a leading timber and building material company. The company aims to build the plyscraper, which will be 90 percent wood, in the city core of Japan.



In addition to the use of fire-retardant materials, the plyscraper will consist of elements like fire-resistant trees and water screens. To create a living environment for different creatures, wooden balconies and water features will be included in the building's design.

Project Name	W350 Plan	
Proposed Location	Japan	
Developer	Sumitomo Forestry (with Nikken Sekkei as Partner)	
Planned Completion	2041	
Height	350m / 70 stories	
Site Area	6,500 sqm	
Gross Floor Area	455,000 sqm	
Uses	Retail, office, hotel and residential	
Materials	Structural - Wood 9: Steel 1 Interior - Wood only	
Estimated Cost	JPY 600 billion (~USD 5.5 billion)	

Authorization received from Sumitomo Forestry

Government policy is also in favor of the W350 plan. Seeing a decline in forestry, the Japanese government has been promoting the utilization of timber to revitalize abandoned forests. They also plan to use and showcase timber in the construction of the main facility for the 2020 Tokyo Olympic and Paralympic Games.

From an economic perspective, using timber reduces the need to import building materials overseas. Although Japan is one of the world's largest timber importers, it has a forest land rate of 68.5 percent, ranked second of 34 Organization for Economic Cooperation and Development (OECD) member states³. As defined by the Forestry Agency, the rate of forest land of each prefecture's rate of forest

land is calculated by dividing the area of forest land by its total area. The government aims to raise the self-sufficiency rate of timber from 28 percent to 50 percent by 2020, and encourages the use of domestic materials through regulation relaxation and support in developing local technology. By actively consuming timber, the government expects the production of timber to increase, accompanying revitalization to local economies and serving as a driving force for Japan's economy in the future.

Return of the wood

Reportedly, concrete and steel buildings account for 8 percent and 5 percent, respectively, of carbon dioxide (CO₂) emissions globally ⁴. Steel and concrete also contribute to the urban heat island effect: a rise of temperature in city core compared to surrounding suburbs⁵. In addition, steel, concrete and glass require a large amount of energy in its production, transportation and disposal. In fact, 40 percent of emissions by cement is the result of burning fossil fuels for the calcination process. In terms of embodied energy (EE), a calculation of energy consumed to produce a building, wood requires 2.0MJ/kg EE, while concrete and steel require 12.5MJ/kg EE and 10.5MJ/kg EE, respectively-more than five times that of wood. Life-cycle assessment of materials has become a widely adopted practice as more people become concerned with the processing and disposal of a product, and wood has proven to be an organic, environmental-friendly construction material.

Wood serves as a carbon sink, storing up carbon until it is burnt or decomposed. Research shows that constructing with timber from sustainable forests reduces carbon footprints by around one-third compared to steel and concrete. The Wood



Innovation and Design Centre of University of Northern British Columbia reduced CO_2 emissions by more than 400 tons by replacing concrete and steel with wood in their own facility. Using timber also reduces a building's weight and minimizes foundation and ground reinforcement work. The construction period would also be reduced, saving personnel and equipment rental expenses. With so many benefits, the industry seeks to bring wood to the forefront and has labeled it as a game changer.

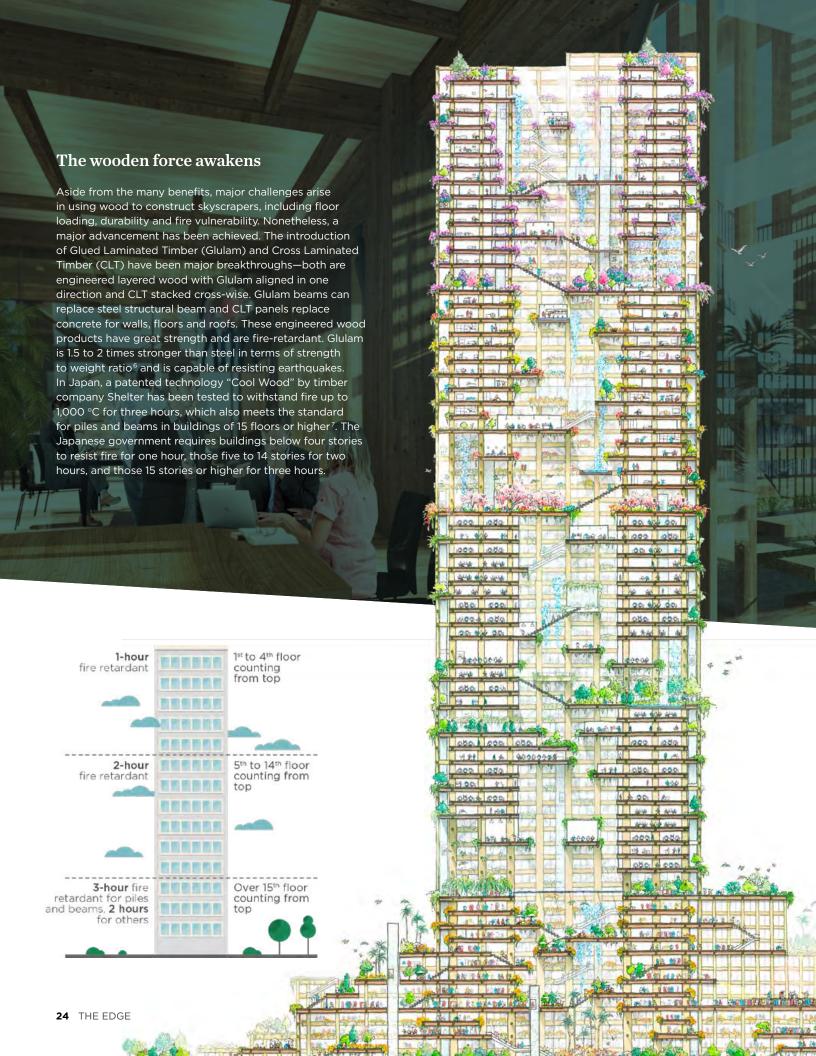
¹ Press Release of Sumitomo Forestry (Feb 2018)

² Oldest wooden building, Guinness World Records

³ Global Forest Resources Assessment 2015. Food and Agriculture Organization of the United Nations

⁴ "Plans drawn up for world's tallest wooden skyscraper," BBC News (Feb 2018)

⁵ "Vegetation Limits City Warming Effects," NASA





A new hope

Humans want to connect to nature—we see this in the cross-cultural tradition of integrating landscaping and gardening with our homes, workplaces and communities. Buildings like Oasis Hotel of Singapore and ACROS Fukuoka in Japan have exteriors covered in plants and vertical farming structures that bring vegetation indoors. Now, plyscrapers are paving the way to replace traditional building structures and materials with organic ones.

With the implementation of plyscrapers, cities all over the world will transform from concrete jungles to sustainable, forest-like metropolises.



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⁶ "Advantages & Benefits of Glulam," techlam

[&]quot;COOL WOOD," Shelter

[&]quot;CO2 Absorption of Forest," Kanto Regional Forest Office of Japan

[&]quot;Wooden 'plyscrapers' challenge concrete and steel," Reuters (Feb 2017)

^o "Cross-Laminated Timber vs. Concrete/Steel: Cost Comparison using a Case Study," World Conference on Timber Engineering (Aug 2016)



ropTech, short for Property Technology, refers to the myriad of startups and technologies cropping up in response to decades of inefficiencies and antiquated processes in the real estate industry. In essence, PropTech is innovation developed for the real estate industry and is an essential element to help solve challenges and drive positive change.

At the core of Cushman & Wakefield's PropTech strategy are partnerships with venture capital funds, universities and startup accelerators like Plug and Play, a global innovation and startup accelerator platform. Plug and Play recently launched a Real Estate & Construction program, enlisting Cushman & Wakefield as a founding partner.

Cushman & Wakefield's Global CIO and Chief Digital Officer Adam Stanley joined Plug and Play's CEO, Saeed Amidi, to discuss trends impacting CRE, why it's important to embrace PropTech and the benefits of global partnerships.

YOU CAN'T CREATE ANYTHING OF **VALUE IN A VACUUM, SO IT WAS** IMPORTANT TO LINK THE CREATIVE SPIRIT OF PLUG AND PLAY'S GLOBAL **NETWORK OF STARTUPS WITH** THE EXPERTISE OF CUSHMAN & **WAKEFIELD. TOGETHER, WE CAN** DIAL IN ON THE CHALLENGES FACING **COMMERCIAL REAL ESTATE AND CREATE SOLUTIONS.**



How has PropTech impacted CRE?

ADAM That's a big question. From our vantage point, as an organization that is involved at every stage of the real estate cycle—from financing construction to managing leased space—it's been exciting to see the impact PropTech has had on the industry in a relatively short time. The first step of a project used to be literally seeing the potential of a site, but now we can use real-time data to predict how a site will perform now and into the future.

PropTech makes us smarter and more efficient. That means we can use our partners' technology to make quick decisions, sending resources to areas that need it, giving our clients the human touch that they have come to expect.

It's an exciting time to be in the industry.

SAEED PropTech is booming. Just a few years ago, there were a handful of startups focused on CRE and now there are more than 4,000. That's astonishing growth that demonstrates how ready the industry is for innovation.

PropTech has impacted the industry in ways most people can't see. Of course, you can show a client how to use 3D technology to visualize a space or showcase the impact of drone videos. These are two examples of things happening now, but there are many other things going on behind the scenes that will have an immeasurable impact on the industry. Actually, that's not true—you can measure the impact!

What I mean is, when you deploy an IoT product like our startup Bare Conductive, which uses digitized stickers and paint to collect data on occupancy and space utilization, you are changing how your company collects and understands data, and thus how your company actually operates. From a business standpoint, it's quite remarkable.

You mentioned IoT. What is that, and what are the trends you're seeing in how it relates to PropTech?

ADAM The Internet of Things (IoT) is a fancy way of describing how different devices talk to each other, sharing data that we can then examine to make better decisions. For instance, a beacon might monitor how many mobile devices are active in a certain area during a point in the day, then communicate that information to sensors that divert energy when few people are around.

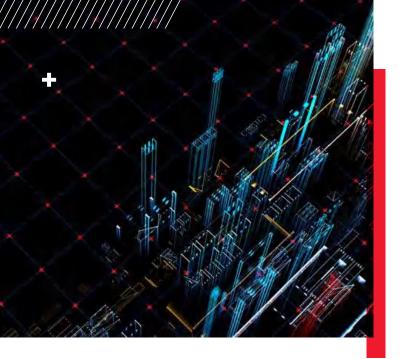
The applications of IoT within the industry are as diverse as our service offerings. When you think about all the types of technology that are coming to market now and what they can do in tandem, it's mind-blowing. Robotic Process Automation is reducing the time spent on repetitive tasks and improving the accuracy of the outputs. Drones and artificial intelligence (AI) technology are powering building site inspections and capturing building images which transform into augmented reality and digital twin models. Robots are supporting facilities management teams with cleaning, grounds crew maintenance and security. Blockchain solutions are creating more secure and transparent transaction solutions.

SAEED IoT is one of those terms that people have heard a lot lately, but might struggle to understand. It's a matter of interconnectivity, data being shared between devices and platforms. That's the key to everything-looking at the bigger picture.

At Plug and Play, we've developed a reputation for attracting the best startups and pairing them with the best corporations. Our accelerator programs have a vetting process that includes deep-dive discussions between startups and anchor partners to ensure the ideas they are bringing to Plug and Play will bring the most value to our corporate partners, and in turn, their clients.

When you look at the startups we have in our Real Estate & Construction program, you can start to imagine how these different data sets interact: Bare Conductive's digitized paint turns the walls of a building into an IoT device, giving real-time data to WheelMe, which creates robotic wheels that can be attached to furniture. Meanwhile, Visual Estate develops 3D tours of spaces based on a simple blueprint, and XAP 360 uses Kespry drones and AI to conduct comprehensive roof inspections, identifying damage and estimating repair costs.

In a world where everything is connected, you can make smarter business decisions faster.



Both Cushman & Wakefield and Plug and Play are global organizations. Why is a global presence important when thinking about PropTech?

SAEED While Silicon Valley has felt like the epicenter of tech and innovation—and it's importance can't be denied—there are exciting startup scenes producing important work across the world. The fastest growing startup scene is not Silicon Valley, Austin or Seattle—it's Tel Aviv.

Identifying emerging markets gives our partners an advantage. Most of the cities contributing to venture capital growth are outside the U.S., and when it comes to research and development, the U.S. is outspent by comparatively small countries like South Korea and Germany.

Piloting new technologies in different continents and rolling out the best solutions will create great value for real estate owners and corporations.

ADAM Innovation can come from anywhere. If we're serious about moving forward, we can't afford to ignore or discount ideas just because they don't come from traditional innovation centers.

We have to remember that different areas of our business and geographies benefit from different systems, technologies and approaches—there is no one-size-fits-all approach. Pairing two global organizations allows our collaborative research, investment opportunities, startup pilots, proof of concepts and innovation efforts to benefit not just one another, but the greater PropTech ecosystem.

It also ensures that, although time and resources are often spent on technologies ready for market today, our combined years of expertise continue to support the innovation pioneers of tomorrow.

* All dollar amounts listed are in USD.

PropTech has facilitated a lot of changes in a short time. What's next?

SAEED Demand for PropTech is not letting up. It's become a hugely important and competitive industry, and real estate's investment in technology is expected to hit \$20 billion* by 2020. That means there are immense opportunities not only for entrepreneurs, but for occupiers and service providers who can propel their businesses forward with what, in some cases, amounts to tweaks in code.

Specifically, we'll see more innovations in sustainability and eco-friendly building practices, and automation and AI will become commonplace. Workplace trends will also drive PropTech innovations as millennials take on more leadership roles and Generation Z enters the workforce.

ADAM PropTech will keep pushing the envelope of what we can imagine. At Cushman & Wakefield, we look forward to transforming the industry and riding the wave of change that is dramatically changing this space. We will integrate technology and innovation into our workflow and will find new ways to utilize the massive reams of data PropTech programs are producing.

Augmented reality (AR) will allow us to reimagine CRE, pushing the limits of what we've known was possible. We may find new ways to use blockchain technology in the next few years, enabling smart contracts that include a public ledger of ownership and assets. And data will allow the hype of digital twins to become a reality of predictive and value-driving analytics for investors and occupiers.

FINALLY, IT'S IMPORTANT TO SAY:
TECHNOLOGY CAN'T REPLACE
THE HUMAN CAPITAL WE HAVE AT
CUSHMAN & WAKEFIELD—IT'S AN
EXTENSION OF THE EXPERTISE THAT
MAKES OUR TEAM SO VALUABLE.





Millenials find their niche in wrban burbs



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HOMEOWNERSHIP: A THING OF THE PAST OR A DECISION OF THE FUTURE?

In the early-2010s, after the mortgage and suburban homebuilding industries crashed, there was a sizable uptick in the preference to rent versus own—more specifically, to rent in the city. However, the U.S. has already passed the peak of urban renting. A Brookings report, which analyzes recent census population data, found that 2012 was the peak of the back-to-the-city movement and urban cores now need to start worrying about being overbuilt.

Additionally, homeownership continues to decline across Europe. In the UK, almost half of 25- to 34-year-olds rented their home privately in 2017. The largest increase in the proportion of renters is in the 35- to 44-year-old demographic with the proportion doubling from 13 to 26 percent during the past 10 years. European cities that are popular tourist destinations such as Barcelona, Athens and Prague have been impacted by short-term rentals. Homes are increasingly being bought and converted into Airbnb properties, pushing rent levels up and local residents out of the urban centers.

In APAC, cities face congestion problems as a result of being overbuilt. According to a study conducted in 2017, Dhaka, the capital city of Bangladesh, was found to be the most stressed city in Asia and the seventh most stressed city in the world due to its dense population and heavy traffic congestion. Four Indian cities—Delhi, Mumbai, Kolkata and Bangalore—are also included in the top 10 list of Asia's most stressed cities.

Massive pressure on cities to accommodate growing populations created the need to develop costeffective and self-sufficient areas to live—another reason why "urban burbs" have been on the rise. Urban burbs have an ample availability of developable land, a rapid growth of supportive infrastructure and lower land prices, which make these areas attractive to investors.

NOW WHAT?

In the U.S. in 2014, 529,000 people between 25 and 29 moved from cities to suburbs, while only 426,000 did the reverse. For the younger end of the spectrum (ages 20 to 24), the flow's direction was even more pronounced, with 554,000 becoming city dwellers and 721,000 trading cities for suburbs.

The trend of population shift away from city centers in the U.S. has prompted stakeholders in city development and urban planning, including government authorities and developers, to focus on holistic development of suburbs. Further, given the emphasis on attracting and retaining talent, companies have become increasingly sensitized to this shift.



This movement is reflective in Australia as well. In 2017, Rochedale (a suburb of Brisbane) saw the biggest population surge at 123 percent of people in the age group of 25 to 34 years, followed closely by Caversham (a suburb of Perth) at 52 percent, Arncliffe (a suburb of Sydney) at 45 percent and Tusmore (a suburb of Adelaide) at 43 percent.

In Europe, this trend varies city-by-city, partly depending on complex variables such as mobility context, cost of housing, the location of new jobs and the overall attractiveness of the city versus the suburbs. In the UK between 2001 and 2011, the number of residents aged 20 to 29 had nearly tripled in city centers, making up 49 percent of the total population in large city centers.

HOW DOES THIS IMPACT CRE?

In the U.S., at more than 70 million strong. millennials are now the nation's largest age group—making up 30 percent of the voting age population and almost two-fifths of the working age population. They've seized corporations' attention, but have these corporations been able to respond effectively to the seismic shifts in millennial behaviors? There are numerous examples of large-scale workforce relocations to urban cities, with the sole purpose of becoming more competitive in the hunt for millennial talent. These same companies have redesigned space, selected neighborhoods and added amenities solely with millennials in mind. Has it been worth it?

It is difficult to say how much of the millennial's housing-based migration has impacted CRE markets, but one thing is for certain: there has been a noticeable suburban renaissance. Since 2009, the overall non-central business district (CBD) office vacancy rate has improved by 4.4 percent in the suburbs across the top 85 U.S. office markets compared to a 2.6 percent vacancy rate improvement across CBDs. As people move into the suburbs, they may want employment options near their homes rather than long commutes into urban cores.

In Japan, where talent movement is observed to be more induced than organic, the country is practicing "creative depopulation," where companies, mostly in the technology sector, are opening satellite offices in the outskirts of major cities, encouraging employees to settle there. This is a win-win situation for millennials who are looking to start families and to raise their children in a good environment away from the congested city life. As of 2017, roughly 43 companies had opened satellite offices in nine towns in Tokushima

Remaining agile as these demographics continue to shift, particularly as the next economic downturn emerges and CBD demand softens, should remain an important priority for large employers and real estate developers.

Coeverything

BLURRING THE BOUNDARIES OF MIXED-USE SPACES

The boundaries of space and use are blurred as we live in an increasingly "coeverything" world. The sharing economy has eliminated market inefficiencies while providing cost savings for consumers and tapping into the demand for increased access. The shorter-term sharing of homes, music and vehicles are bleeding into slightly longer-term sharing of offices, retail space and apartments—representing shifts in consumer habits and varying degrees of disruption.



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Lessons in sharing from other industries

Disruption caused by the coeverything movement has had varying impact across industries. For example, ridesharing disruption has negatively impacted traditional taxi and car services in places like New York City and London¹. Over the past four years, the daily trip total for New York City yellow taxis has decreased by 36 percent and the daily farebox rate has dropped by 29 percent. At the same time, ridesharing apps have increased their daily trips ten times over at the expense of existing market leaders, from 60,000 in January 2015 to just more than 700,000 in December 2018. Similarly, the number of licensed taxis in London increased by only 1 percent between 2005 and 2018, while the number of privately hired vehicles (including ridesharing vehicles) increased by 120 percent—and almost all of that growth occurred after Uber entered the London market in mid-2012².

Other industries have better adapted to coeverything disruption. Music streaming services, which were devastating to the broader music industry initially, have created new revenue streams that have generated topline growth. Over the past five years, streaming has led to dramatic declines in music sales but has driven revenue growth, according to the Recording Industry Association of America® (RIAA)³.

Recorded music revenue in the U.S. peaked in 1999 with \$12.8 billion⁴ of CD sales representing 88 percent of total sales volume and hit its lowest point in 2014 since 1989 (not adjusted for inflation), with total sales below \$6.6 billion and CD revenue at \$1.8 billion. Since then, the decline in music sales has continued, but streaming services have led to growth in overall sales. In 2018, streaming services accounted for approximately two-thirds of recorded music revenue:

- > Paid subscription: \$4.7 billion (47 percent)
- On-demand streaming (ad-supported): \$760 million (8 percent)
- Limited tier paid subscription: \$747 million (8 percent)
- Other ad-supported streaming: \$251 million (3 percent)

While not immune to downsides, the hotel sector has continued to thrive in the era of homesharing. Even with new competition, the leading public, global hotel brands⁵ have reported positive growth over the past few years. The top four largest companies according to the Forbes Global 2000—Marriott (ranked #421), Hilton (#775), Wyndham (#1,370) and Accor (#1,431)—all reported 2018 annualized growth of revenue per available room (RevPAR) between 3 and 8.5 percent.

VALUATION OF FIRMS*

CARS

Uber \$85 billion⁶ Founded: 2009

Lyft \$20.08 billion Founded: 2012

Hertz Global Holdings \$1.47 billion

Founded: 1918

Avis Budget Group \$2.62 billion Founded: 1946

HOTELS

Airbnb \$38 billion⁷ Founded: 2008

\$18.14 billion Founded: 1996

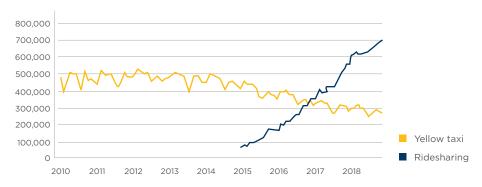
Marriott International \$45.42 billion

Founded: 1927

Hilton Worldwide Holdings \$25.77 billion Founded: 1919

* For all publicly-traded companies, data provided by MarketWatch as of April 9, 2019

TRIPS PER DAY



- $^{\rm 1}$ NYC Taxi & Limousine Commission (TLC) via ToddWSchneider.com
- ² UK Department for Transport (DfT), Taxi and Private Hire Vehicle Statistics, England: 2018
- ³ RIAA
- ⁴ All dollar amounts used throughout this article are in in U.S. dollars (\$)
- According to the Forbes Global 2000 list of the largest publicly-traded companies
 Based upon targeted IPO valuation in April 2019 according to the Wall Street Journal
- ⁷ Based upon Airbnb's internal 409A in 2019 according to recode













The future of coeverything in real estate

Certain sectors in coeverything have reached maturation, meaning that growth is still likely, but disruption has largely run its course. Other sectors that are younger or have a longer growth trajectory may continue to upend traditional CRE offerings. What does the future look like for these sectors?

Coworking

Coworking has become a popular buzzword over the past few years, but the concept of flexible office solutions has been around for decades. Small companies and freelancers can find office space in locations and submarkets where they may not be able to obtain a traditional lease due to costs or lack of credit. Larger organizations can leverage coworking to pursue opensource talent networks with knowledge transfer among tenants while managing unpredictable headcount, focusing on brand, employee experience and fostering community engagement. Coworking is expected to become the "new normal" for a portion of many occupiers' portfolio planning and landlords' investment strategy.

Property type: Office Lifecycle: Growth













Coliving

Coliving apartments offer a sense of community and cost relief in desirable submarkets while maintaining the amenities and finishes many renters have come to expect. Alexander Albert, Senior Director of Real Estate at Common, a U.S.-based shared-housing startup, said: "We see a huge demand for people wanting to embrace and take part in the coliving movement, which brings community and affordability to today's residential renter. And, this trend is just in the beginning stages—there is so much more in its future."

Property type: Multifamily Lifecycle: Introductory





















Industrial warehouse & distribution

Third-party logistics providers (3PLs) have long provided shared services and expertise needed to assist companies with warehousing and distribution needs. New companies, such as FLEXE, have emerged over the past few years to provide different types of flexibility and cost savings for tenants in the ecommerce fulfillment, retail distribution, inventory and overflow space.

Property type: Industrial Lifecvcle: Mature





Server & cloud storage

The data center industry continues to use colocation as a model, in which companies can lease space and services for their computing needs alongside other enterprises with similar requirements. These arrangements reduce costs for clients while removing the hassle of managing the bulk of their IT services (see article on page 20, "Data centers: from niche to mainstream").

Property type: Data Center Lifecycle: Mature







Pop-up shops

In an increasingly digital world, pop-up shops are an avenue for online brands to dip into physical store space. It is beneficial for small business operators hoping to build an in-person connection with new customers and for larger companies who want to temporarily occupy space in high-traffic locations. Additionally, pop-ups can help established brands efficiently test new concepts or build public relations buzz.

Property type: Retail Lifecycle: Growth











Food halls

Food halls, the coeverything dining solution, allow for sharing amenities like eating areas and kitchens. These marketstyle hubs offer convenience and higher traffic to food service providers in an industry where the median lifespan of a restaurant with five or fewer employees is between 3.75 and 4.5 years overall.6

Property type: Retail (dining) Lifecycle: Growth











Coeverything has furthered the evolution of the mixeduse trend by providing flexible options for integrating complementary uses at a single site. Quite literally, the walls between living, working, traveling and shopping are breaking down, delivering customizable operations for customers, occupiers and investors.

⁶ "Only the Bad Die Young: Restaurant Mortality in the Western US."





THE WAR FOR SKILLED LABOR

In the past, a 700,000-sf warehouse would typically employ approximately 350 to 400 workers. Now, an eCommerce distribution center of that size can require double the workforce, putting stress on the volume of available skilled labor. Other industries also vie for warehouse and manufacturing workers, and the increase in demand is putting a strain on other sectors like landscaping, ports/shipyards and construction.

So, how can warehouse and manufacturing employers make their jobs more attractive to workers?

Improve the workplace.

Wages, workplace amenities, training, shift scheduling and culture all play an important role in the war for skilled labor.

MODERNIZING THE INDUSTRIAL WORKSPACE

One way for industrial landlords and developers to attract workers is to provide a comfortable, safe and fun working environment. Taking a cue from the office environment, many industrial properties now include gyms, outdoor break areas, walking trails, electric vehicle charging stations, daycare centers and activities like ping-pong, foosball and basketball courts.

Other enticing amenities include improved connectivity through wireless access points and automation that helps with moving heavy items.

However, the greatest interest for workers seems to lie in their overall comfort. People often picture warehouses as sweltering, expansive workspaces - but when proper cooling and heating systems are deployed, those perceptions disappear. A temperature-controlled space is just one way to ensure workers' wellbeing.

Easy access to food and public transportation is also important. Many large distribution and warehouse centers have been built in remote areas due to a lack of available land. In these scenarios, workers prefer the convenience of onsite dining options like food trucks and cafeterias, and transit options like shuttle services or access to bus routes.

Skylights and windows are also being built into warehouses more frequently. These features not only save energy, but also expose workers to natural light, which helps maintain healthy immune systems, improve sleep and increase productivity.





A study conducted by Northwestern University found

that having windows in the workplace provides workers with 173 percent more light exposure during the work day and an average of 46 more minutes of sleep each night.

PERCEPTION IS REALITY

Skewed perception of the industrial sector is a contributing factor to the shortage of skilled workers needed to fill warehouse, manufacturing and logistics jobs around the globe.

In a recent study, World Bank Group reported that order-picking jobs have evolved over time to become monotonous and unrelenting in order to meet the high demand of same-day and next-day fulfillment. The reputation for fulfillment centers tends to include low wages, a lack of career prospects and an impersonal atmosphere that prospective workers—especially millennials—find unappealing.

Better pay and benefits will always attract workers, and on average, U.S. warehouse workers make \$13.60/hour, which has increased by 30 percent in the last 10 years. EmployBridge, one of America's largest industrial staffing firms, agrees that companies must offer more attractive wages in order to secure quality talent. According to Brian Devine, Senior Vice President at EmployBridge, "Our data shows in certain markets, employers are paying up to \$2 more per hour to attract and retain workers, particularly during peak seasons."

In addition to pay, manufacturing and warehouse employers also recognize that flexible work schedules can help with retention. For long-haul truck drivers, forklift drivers and warehouse pickers, low-wage standards combined with long and often overnight shifts make it difficult to fill vacant positions. Long-haul truck driving is an example of a particularly challenging position because it requires long periods of time away from home and family with little flexibility.

HOW TO KEEP THEM COMING BACK

The World Bank Group study found that employee recruitment and retention are equally important and often share similar strategies. In both scenarios, workers are searching for a long-term career path that, for warehouse and manufacturing workers, can sometimes be difficult to define. Professional development is one way to address these ambitions, and opportunities that correlate with advancement can be a win-win for both the employer and employee.

While some companies view training as costly and perhaps unnecessary, others embrace training and employee education as a means to increase productivity. Many countries in Europe, including Switzerland, Austria and Germany, embrace vocational schools that provide hands-on training in specific industries

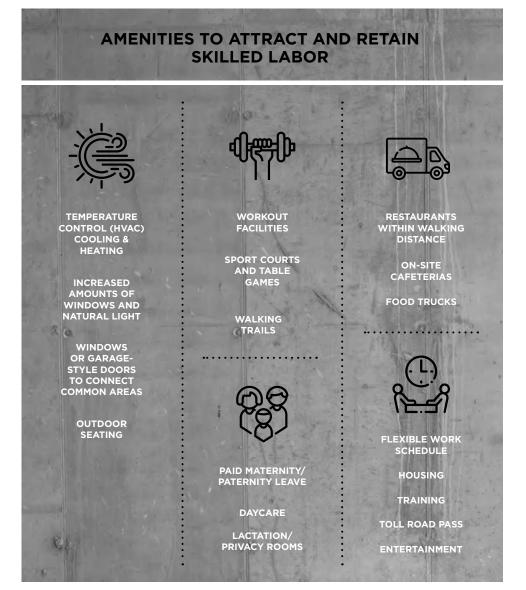
Germany uses a "dual system" where students spend a few days a week in the classroom and the other days working in a business. This, combined with the country's successful apprenticeship system, are acknowledged by many as a key contributor to the country's excellence in engineering and logistics. Germany also has a culture that values manual, applied labor, which may account for the significantly low youth unemployment rate of 6 percent.

In the U.S., Prologis, one of the world's largest REITs, recently announced the Prologis Community Workforce Initiative

(CWI), which will help customers expand their talent pipelines and create opportunities in local economies. Through CWI's collaborations with local workforce programs, the initiative provides mentorship, skills training, internships and job placement services for people interested in pursuing careers in logistics, distribution and transportation—sectors currently experiencing a significant labor shortage. EXP, a Southern California nonprofit that helps young people gain career experience, is CWI's first partner and will help Prologis fill warehousing internships around the ports of Long Beach and Los Angeles.

PUTTING WORKERS FIRST

The boom in industrial real estate and eCommerce has had a defining impact on the warehouse and manufacturing labor pool. There is a limited number of individuals to fill these positions, and as we look to the future, a new generation of workers is asking for a better workplace experience in this industry. Early adopters may very well find that a modern workplace warehouse is the answer to securing longevity in this space.







supply chain executives



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PISASTER STRIKES, IS YOUR CITY PREPARED?

n today's world, staying safe is becoming increasingly complex. From cybersecurity and infrastructure failures to natural disasters and terrorist attacks—whether the events are man-made or natural, the human, physical and economic impacts of such crises are immense.

But to what extent has a higher frequency of incidents affected how a real estate portfolio has been constructed or managed? Creating safe environments is a real differentiator for those looking to invest in or attract talent at a national, city or company level. In this regard, being prepared for potential crises should be a priority for all real estate stakeholders.

In response to a growing need for preparedness, Cushman & Wakefield created the Prepped Cities Index. The Index includes variables at three main scales—national, city and building—and is designed to inform areas of strength and weakness to best prepare for the future and anything it may hold. It outlines action points for governments, investors/landlords and corporate occupiers, highlighting the role each plays in mitigating the impacts of any acute events. Ultimately, a more prepared city is likely to have locational advantages for occupiers, which in turn will attract a greater level of real estate investment and therefore help drive economic growth.



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JAMES SHEPHERD

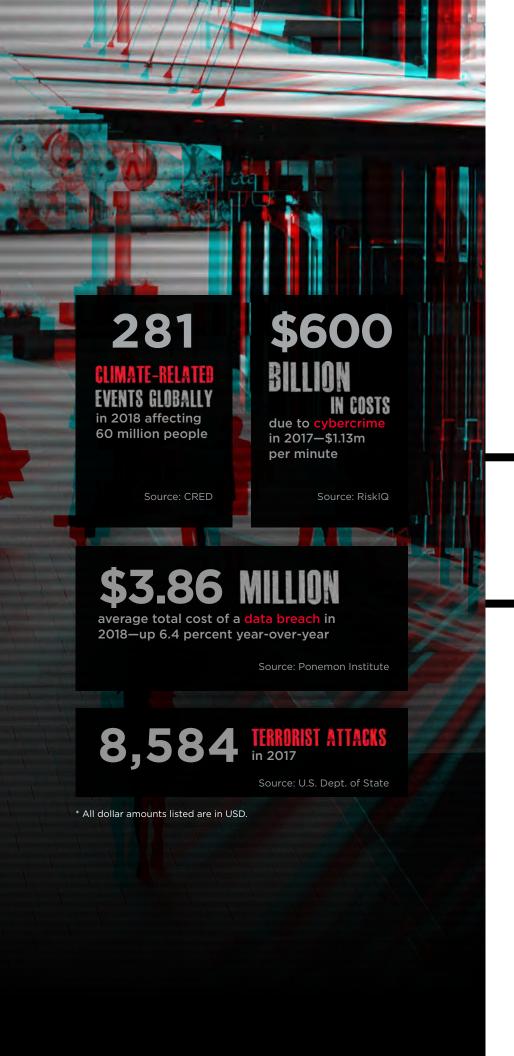
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THE PREPPED CITIES INDEX

The Index focuses on the office sector and is separated into two broad components—(i) The Built Environment and (ii) Governance and Environment. From there, the Index is further split into eight main indicators¹.

BUILT ENVIRONMENT

The built environment and those that inhabit it ultimately experience the impact of any adverse event. The real estate industry can play a direct role in being prepared at the ground level.

GOVERNANCE & ENVIRONMENT

As most hazards are unpredictable and their occurrence is uncertain, only appropriate planning and preparation can limit their consequences. This is the role of strong and coordinated governance at the national and local level.

¹A full review of the methodology and reasoning for including variables can be found in the Asia Pacific version of The Prepped Cities Index - https://www.whatsnextcw.com/preppedcities/

INDICATORS OF A CITY'S **PREPAREDNESS**



RENTAL VOLATILITY

Any volatility that exists in the market is likely to be exacerbated after an extreme event.



OBSOLESCENCE

Newer buildings are more likely to meet higher design standards and practices.



SUSTAINABILITY

More sustainable buildings place lower demands on national power grids and water resources.



GOVERNANCE

A strong and stable government can more effectively set and execute a policy agenda.



TERRORISM

The severity, frequency and threat of terrorism in a city.



TALENT

Cities with strong demographics, or the ability to attract overseas workers, can build stronger workforces.



SUSCEPTIBILITY

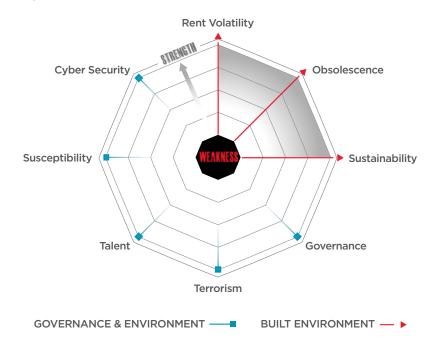
Some cities are more susceptible than others to natural disasters, though all cities require robust disaster management plans.



CYBER SECURITY

Level of digital security within a city.

Note: exercises of this nature have inherent subjectivity due to the number and type of variables included in the Index, which can affect final rankings. Applying weightings to the variables can also produce different results. Below are the unweighted results.



In this global edition of the Prepped Cities Index, 22 major markets are highlighted:



U.S.

Chicago, Dallas, Los Angeles, New York, San Francisco and Washington DC

EMEA

Amsterdam, Frankfurt, London, Madrid, Milan, Moscow and Paris

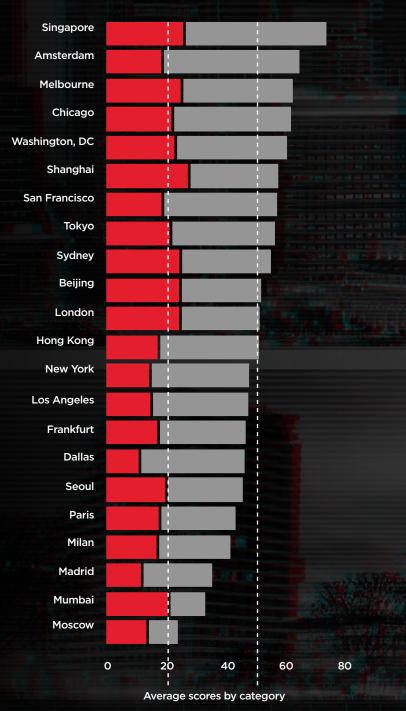
APAC

Beijing, Hong Kong, Melbourne, Mumbai, Seoul, Shanghai, Singapore, Sydney and Tokyo

THE RESULTS

BUILT ENVIRONMENT

FIGURE 1: INDEX RESULTS



THE BEST-PREPPED CITIES

Singapore tops the Index, ranking #1 of the 22 best-prepped cities. Singapore demonstrates a solid performance across most indicators, but especially in obsolescence, sustainability and cybersecurity.

These scores are strongly linked by its top-ranking score for governance. The Singaporean Government has directed policy to achieving 80 percent green certification of all CRE buildings by 2030, as well as launched the National Cybersecurity Strategy in 2016. Singapore's greatest areas of weakness lie in rental volatility and susceptibility to natural disasters. However, it does have strong disaster management plans in place.

Amsterdam holds the #2 spot because of its strong standing in the Index's Governance & Environment component. Following Singapore, Amsterdam scored well for political stability following the re-election of the sitting government. Digital security is also one of the city's strengths, ranked fourth globally by the Economist Intelligence Unit's global ranking of 60 cities. Within the built environment, results are somewhat mixed. On average, Amsterdam's Grade A buildings are young, but a comparatively low 25 percent of total stock has received institutional investment at this grade; and new supply through to 2022 is just 3 percent of existing stock.

GOVERNANCE & ENVIRONMENT

REGIONAL TRENDS

Looking at the results more widely, cities located in Asia Pacific (APAC) tend to score well on obsolescence because of healthy levels of new supply over recent years and local market convention. Buildings in Tokyo must have been constructed after the year 2000 to qualify as Grade A stock. Similarly, there has been a strong focus on sustainability initiatives in this region, with Australia enacting that all space more than 1,000 sm (10,750 sf) requires a National Australian Built Environment Rating System (NABERs) sustainability rating before being sold or leased.

Cybersecurity has been high on the agenda for some governments, especially in Japan ahead of the 2020 Olympics. However, results are more mixed for this indicator, with Chinese and Indian cities scoring in the bottom quartile. Cities in APAC score relatively poorly for environmental susceptibility with many encountering significant threats from typhoons and other natural disasters.

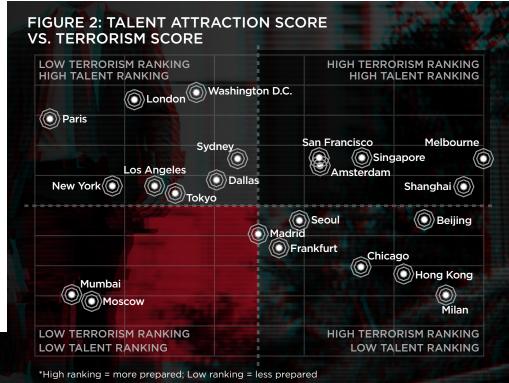
Cities located in the U.S. enjoy strong governance and low susceptibility to environmental disasters. Due to the scope and scale of America's intelligence agencies, they score very high on cybersecurity initiatives. Other areas of strength include the proportion of Grade A stock, with Los Angeles and San Francisco topping the global rankings with shares above 80 percent, and high levels of talent attraction led by Washington DC and New York. All markets in the U.S. fall in the bottom quartile on obsolescence reflecting the older average age of Grade A buildings. though like other mature markets, there are strong programs of building refurbishment in place and some cities, such as New York, have a robust pipeline of new supply under construction. Dallas and New York showed the highest average ages of Grade A buildings at 36 and 35 years, respectively.

For the most part, European cities are varied throughout the rankings. Strong points include a low-level of obsolescence and strong sustainability credentials, which is further reflected in the high level of institutional ownership. These traits are clearly reflected in London's Built Environment scores. Specifically, the city scores very high on sustainability reflecting occupiers' demand for modern, grade A space with high environmental ratings - a trend seen across global cities.

However, political turmoil, which has lingered since the Global Financial Crises and recently been resurrected with the minority government in the UK and forthcoming Brexit, has negatively impacted the region. With the exception of Amsterdam, all European cities ranked in the bottom half on this indicator. Interestingly, many continental European cities scored comparatively low on cybersecurity. However, it is estimated this is more a reflection of the greater emphasis placed on cybersecurity in the U.S. and parts of APAC rather than a fundamental lack of attention in Europe.



Finally, looking at individual city performance across individual indicators, there is relatively strong correlation between the talent and terrorism indicators (Figure 2), London. Washington, DC, New York, Paris and Sydney all score well in talent attraction—as global gateway cities they are a natural magnet for employees. At the same time, they suffer from higher susceptibility to terrorism, resulting in lower terrorism rankings. In contrast, markets such as Melbourne, San Francisco, Singapore and Shanghai still retain high talent attraction, but score better on the terrorism indicator.



NEXT STEPS

All stakeholders need to be aware of both the strengths and challenges in each city to prioritize which factors need most attention. At the government level, the Prepped Cities Index highlights what needs to be addressed from a policy perspective to be competitive. These factors mostly relate to terrorism, cybersecurity or natural disaster plans. However, issues such as talent attraction also have a government remit through migration programs as well as business-friendly policies and tax regimes.

For investors and occupiers, action points need to be focused at the asset level, notwithstanding maintaining an eye on overall policy direction. For example, in cities with high susceptibility to natural disasters, buildings should meet relevant codes and standards; or companies operating in markets with weak cybersecurity scores should focus on what they can do to safeguard their assets. Occupying or investing in assets that do not meet standards increases potential for adverse outcomes, whether they are at the operational or personnel level. We therefore recommend a four-stage plan on how to prepare a portfolio for the worst.



SELECTED CITY RESULTS Rent Volatility Rent Volatility Cyber Security Obsolescence Cyber Security Obsolescence SINGAPORE **AMSTERDAM** VEAKNESS VEAKNESS Susceptibility **m** Talent Governance Talent Governance Rent Volatility Rent Volatility #3 Cyber Security Cyber Security Obsolescence Obsolescence MELBOURNE WASHINGTON, DC WEAKNESS VEAKNESS Susceptibility Sustainability Susceptibility Sustainability Talent Governance Talent Terrorism Terrorism Rent Volatility Rent Volatility #6 #8 Cyber Security Cyber Security Obsolescence SHANGHAI . VEAKNESS VEAKNESS Susceptibility Sustainability Susceptibility I Sustainability Talent Governance Governance Terrorism **Terrorism** 46 THE EDGE





MEET DR. DOM

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Craft beer is everywhere.

To put the recent explosion of craft brewing into perspective, the majority of Americans now live within 10 miles of a craft brewery. Locally or regionally produced beers with a limited distribution have enjoyed loyal followings for quite a while, but over the last decade, the popularity of the trend has grown exponentially. As the "foodie" culture has grown, so has the appetite for higher-quality, innovative beers. Americans have become more urban and environmentally conscious, fostering a concern for how products are made and where ingredients are sourced. To that end, the premium price that craft beer consumers are willing to pay for elevated quality is driving the increased demand for craft beer production.

Growth in the craft brewing industrynamely small, independent brewing operations—has been progressing at a healthy annual rate by both volume and dollar value. Players active in the field range from the home-brew-enthusiastturned-professional to big-beer and venture-capital entities acquiring small independent brewers or creating alternative craft brands to compete with them.

To meet increasing demand, craft breweries are opening across the U.S. at a rapid pace. It's hard to find a market in the U.S. where locals haven't taken notice of the growing trend, and many boast that craft breweries are huge economic drivers in their area.

Between 2009 and 2018, the number of craft breweries in the U.S. has more than quadrupled to approximately 7,350 with nearly another 900 in the planning pipeline.

- Brewers Association

PHOTOGRAPHY BY MATT FURMAN





WHAT'S THE BREW-HAHA ALL ABOUT?

Craft breweries are an integral part of local communities, whether they serve as gathering places, tourist destinations, event venues or local landmarks. To foster loyalty from their local communities, craft brewers often build strong ties through volunteerism and charity, participating in events to help promote their brand while giving back. Craft breweries can create jobs, attract tourism and are marketed by cities as a local amenity to attract additional business.

Revenue generated by these businesses finds its way back into the local and state economies in the form of earnings, capital expenditures and taxes. The industry can also provide shorter-term impacts to local communities through large capital investments, equipment purchases and the build-out of new manufacturing facilities and brewpubs.

Breweries can attract customers to out-of-the-way locations by creating a destination with unique aesthetics, planned events and great beers. It is a promise of an overall experience that taps directly into the heart of their primary demographic—millennials (see article on page 29, "Home sweet home: millennials find their niche in urban burbs").

When the micro-brewing concept started, the brewery tour was the entertainment. Now, breweries often incorporate open spaces for programmed activities, like live music, film screenings, backyard-style games and even yoga classes, thus creating a fun environment that attracts both beer-drinkers and non-drinkers to enjoy a common social setting.

AND... WE GOTTA EAT!

Brewpub operators understand that beer and food are inseparable, and pairing the savory with the suds is a winning combination. As an alternative to maintaining an in-house restaurant concept, some microbreweries partner with local food trucks or host "bring your own" nights and welcome third-party delivery services.

And let's not forget to thank craft brewing for enhancing the food hall movement! Taking cues from the shared economy, the recent boom in food hall development across the nation has paralleled the momentum of craft brewing. When well-executed, a food hall showcases and celebrates the most popular artisanal culinary options in its locale. Because craft breweries identify and distinguish themselves through

MICROBREWERIES



Produce

>15,000

barrels of beer per year





Minimum
75% of product sold through off-site distribution channels

BREWPUBS



Include restaurant component



Beer dispensed directly from on-site storage



25% of total sales is beer sold on-site

REGIONAL CRAFT BREWERIES



Independent operators



15,000 to **6million**

barrels of beer per year

Source: Brewers Association

Produce



geographic regionality, they are naturally woven into a common community fabric, and are expected to become an extension of food hall development (see article on page 32, "Coeverything: blurring the boundaries"). However it's achieved, the pairing of good food and craft beers tends to enhance customer experience while driving an increase in sales.

TAP TO TABLE

As the number of brewers in the U.S. multiplies, incorporating a direct-to-consumer distribution component at brewing locations is becoming more vital. Shelf space in grocery and liquor stores is limited, and even local restaurants that boast the most taps must rotate brands to accommodate increased competition. As distribution channels become more congested, brewers are putting more emphasis on front-of-house retail efforts to grow business. There are added benefits to self-distributing on site, including more control of the sales process, greater connectivity to customers and higher margins as a result of not having to pay distributor or third-party retailers.

For example, under the Alcoholic Beverage Control's (ABC) rules in California, a beer manufacturer can have six duplicate licenses for retail locations. This is now going to be the main path of growth for regional breweries, leading to an even greater impact on real estate.

CRAFT BREWING IMPACTS RETAIL AND INDUSTRIAL OCCUPANCY

The CRE impact of the craft brewing trend has profoundly impacted both the retail and industrial sectors, particularly when it comes to redevelopment. The initial investment when opening a brewery is significant based on the necessary equipment alone, so well-trafficked commercial space can become unaffordable. Much of the development of brewpubs, microbreweries and regional craft brew facilities has taken place in reclaimed industrial and retail space versus ground-up new construction. Many rural and deindustrialized areas have an abundance of relatively cheap, underutilized real estate that is ideal for brewers since there is existing infrastructure for water, sewage and power. Abandoned mills and archaic brewing facilities are being redeveloped and vacant manufacturing space is being reclaimed. On the retail side, preferences have overwhelmingly leaned toward

freestanding urban locations versus strip malls or traditional restaurant/bar space.

Approximately 90 percent of the microbrewery deals tracked by Cushman & Wakefield have gone into industrial properties averaging 15,000 sf, though tasting rooms, restaurants or food areas and event space are common elements. The much larger regional brewery deals (50,000+ sf) have exclusively gone into industrial space, though it is not uncommon for some of these facilities to open smaller, off-site tasting rooms

Between 2009 and the close of 2018, the U.S. added 1,574 brewpubs, 4,017 microbreweries and 159 regional craft breweries. Roughly 75% of brewpubs have landed in retail or otherwise commercial space and average roughly 9,000 sf in size.

- Brewers Association, Cushman & Wakefield Research

CRAFT BREWERY SPOTLIGHT



Rock Row Portland, Maine

Waterstone Properties approached Cushman & Wakefield's Colicchio Consulting team about a food hall for their massive development Rock Row in Portland, Maine. The food hall will be a dining, tasting and beer experience with the entire second floor dedicated to beer, featuring an anchor brewery and multiple rotating tasting rooms so that Maine's finest is always on tap. It also presents the perfect opportunity to taste the custom Rock Row brew, available and brewed on site.



Oskar Blues Austin, Texas

Craft brewery Oskar Blues needed to expand its operations to keep up with rising demand for its products in all 50 U.S. states and around the world. With Cushman & Wakefield's help, they transformed a 50,000-sf industrial building in Austin, Texas, into a modern, open space with a 45,000-sf brewery, 5,000-sf tasting taproom and music venue and 2,700-sf outdoor balcony. The facility shows off its massive production room by creating permeable spaces connected with windows and glazing, allowing patrons to see from the porch to the brewhouse.

that have been in the form of both retail and industrial space. Based on these averages, this equates to just more than 82.4 msf of occupancy growth across both industrial and retail product types over the past decade and estimate that 16.7 msf of that number reflect positive net absorption impacting the retail marketplace. Growth in industrial space has dwarfed that, accounting for 79.8 percent of all craft brewing-related occupancy growth. We estimate that this trend has translated into 65.7 msf of industrial occupancy growth since 2009. Understandably, many question how the craft beer industry will sustain its growth in an increasingly competitive landscape. While many individual markets have already reached a point of saturation, this trend still has a long runway for growth on a national basis. One thing is for certain—craft breweries are providing experiential value across age groups, ethnicities and geographies. In particular, millennials value the sense of purity, authenticity and community that many of these establishments lend to their patrons.

Don't expect the beer industry to tap out any time soon.

Market

Seattle

Chicago

Portland

Denver

Phoenix

Orange County

Minneapolis

Denver

San Diego

Los Angeles

State

CA

WA

CA

ΙL

OR

CO

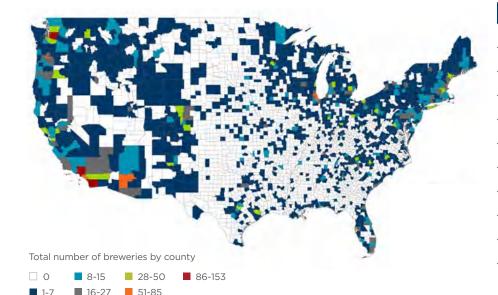
ΑZ

CA

MN

CO

EXISTING BREWERIES* IN THE U.S.



Source: Cushman & Wakefield Research *Brewpubs, microbreweries and regional craft breweries



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TOP 10

County

King

Cook

Denver

Maricopa

Orange

Hennepin

Boulder

San Diego

Los Angeles

Multnomah

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"We're fast at building relationships across the firm. It's easy to call another office and say, 'Hey, let's work on this."

-Morgan Relyea Colt, Executive Director, Tenant Advisory Group, Houston

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What's next for Chinese outbound real estate investment

Cushman & Wakefield's 2019 Outbound Investor Intention Survey received responses from 51 Mainland Chinese Real Estate Investment Overseas (MCREIO), representing more than \$41 billion of offshore capital. At the same time, as the survey was closing, MCREIO hit a four-year low of \$15.7 billion in 2018, marking a decline of 63 percent year-over-year amid weakening Chinese investor sentiment, tightened policy control and growing economic headwinds.

^{*} All dollar amounts listed are in USD.



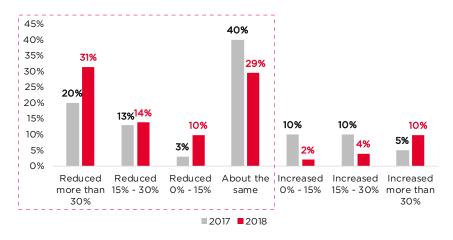
Figure 1: Cushman & Wakefield Investor Intention Survey – Survey Respondents' 2018 Overseas Real Estate Allocations Compared to 2017

s Chinese investors reined in their spending on overseas real estate, data from Real Capital Analytics (RCA) shows Chinese investors sold off more than \$12 billion of overseas assets in 2018, indicating the start of a massive shift in activity now weighted more heavily towards disposals. The frenzy of disposal activity was driven primarily by ongoing stiff policy control in China, led by a clampdown on lending to real estate developers and investors.

Reinforcing the significant slowdown in momentum for overseas investment, 84 percent of investors in China surveyed by Cushman & Wakefield indicated that they had either frozen or reduced their overseas real estate allocations in 2018 compared to 2017 (Figure 1).

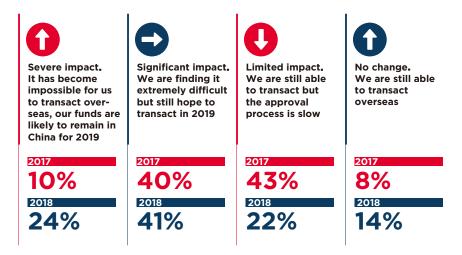
On the acquisition front, the top two sectors of interest remained office and residential, with senior care leaping three slots to take third place in the survey. Sectors shifting down a gear in terms of sentiment were led by the hotel sector, where interest plunged 50 percent.

According to survey results, 65 percent of respondents said that they were significantly or severely impacted by the prevailing outbound policy control, a sharp increase from 50 percent in 2017 (Figure 2). Moreover, only 18 percent of respondents said they believe the lending environment will improve in 2019.



Source: Cushman & Wakefield 2019 Investor Intention Survey

Figure 2: Cushman & Wakefield Investor Intention Survey - Policy Impact on Offshore Investment

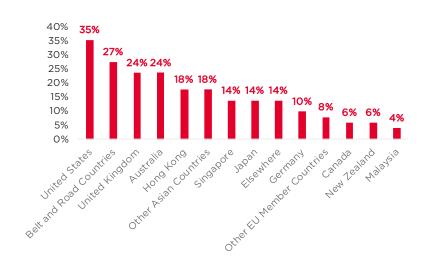


Source: Cushman & Wakefield 2019 Investor Intention Survey

MCREIO by destination

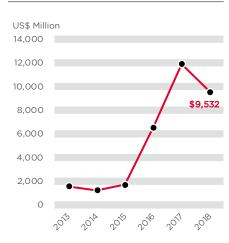
By destination, the U.S. and UK held on to their top-tier positions, ranking first and third in terms of sentiment despite ongoing U.S.-China trade friction and Brexit uncertainties (Figure 3).

Figure 3: Cushman & Wakefield Investor Intention Survey - 2019 **MCREIO Sentiment by Destination**



Source: U.S. Census Bureau, Cushman & Wakefield Research

Figure 4: Annual MCREIO Volume into Hong Kong



Source: RCA, Cushman & Wakefield Research



HONG KONG

Despite Hong Kong seeing MCREIO investment volume drop by 20 percent in comparison with 2017, the city still commanded a massive 61 percent of 2018's overall investment volume by destination. Therefore, Hong Kong remained the destination of choice for MCREIO in 2018 for the second year in a row (Figure 4).

U.S.

Although the U.S. fell from favor as the top destination by volume, there were still some signs of interest with \$2.3 billion deployed in 37 deals in 2018. However, when comparing this with MCREIO disposal volume of \$3.1 billion on the year, this suggests a net outflow of Mainland Chinese real estate capital from the U.S.

The U.S. government's order to Chinese real estate company HNA to sell a stake in 850 Third Avenue in New York in August 2018, coupled with tough rhetoric from the U.S. on trade with China, created considerable concern for MCREIO investors, potentially making some feel unwelcome in the U.S. Despite the negative attention in recent months, survey results revealed the lion's share of MCREIO interest was still directed at the U.S., with 35 percent of respondents indicating they were considering investing there in 2019.

AUSTRALIA

Ever popular in the eves of Chinese investors, Australia had a strong showing, overtaking the UK for third place in terms of real estate investment with \$1.7 billion of MCREIO deployed there in 2018. In previous surveys, Australia had always performed well from a sentiment perspective, but this had not necessarily been reflected in investment volumes due to challenges in capital deployment. MCREIO investors have cited extremely tough local competition against a limited pool of investment grade assets, and a challenging lending environment as reasons for their restricted activity in the country.

Interestingly, Australia now ranks neck and neck with the UK in terms of MCREIO sentiment, tying for third place at 24 percent of survey respondents considering investment in Australia in 2019.



UK

The UK slipped from second to fourth place by destination, recording just \$712 million of MCREIO acquisitions in nine deals. The country was firmly in negative territory from a disposal perspective as \$1.9 billion of MCREIO assets were sold off. Despite this and the recent negative attention regarding BREXIT, the UK maintained its position as one of the top three MCREIO investment destinations by intention for 2019, tying for third place alongside Australia.

GREATER EUROPE

Interest in Germany remained stable and allocations remained unchanged, securing tenth place in terms of total 2018 transaction volume. There were no MCREIO disposals in Germany in 2018. Europe, excluding the UK and Germany, saw very limited interest with a 40 percent reduction of allocations and just two investors indicating they maintained allocations to the region. Other countries that appear to have fallen from MCREIO favor, both in terms of 2018 transaction volume and survey results, include South Korea, Malaysia and Canada.

SINGAPORE

Singapore recorded \$650 million in MCREIO acquisitions in four deals. Similar to the previous year, there was significant disposal activity as \$1.4 billion of assets were sold off. Nevertheless, Singapore maintained fifth place in terms of 2018 transaction volume and seven investors indicated they had increased allocations to Singapore.

Looking ahead

According to survey results, views on RMB appreciation and global gateway property prices, particularly on sentiment by destination, have shown MCREIOs are becoming more prudent and selective under the guidance of prevailing government investment policies.

Contrary to the beliefs of some market commentators that disposal activity in the U.S. and UK has been a direct result of political turmoil, MCREIO's existing portfolios outside of China are heavily weighted to the U.S. and UK, and disposal volumes appear remarkably high in these markets.

Chinese banks' real estate lending is expected to remain tight for much of 2019, creating an environment that will continue to restrict deployment of Mainland Chinese capital overall regardless of geographic location. In a time of tight liquidity in China, Chinese investors are disposing of assets at a global level including China.

In 2019, Chinese outbound investment is forecast to remain flat amid the expectation that a tight real estate lending environment will remain in place and continue to restrict deployment of Mainland Chinese capital globally—but expect to see ongoing M&A activities in real estate operation platforms together with their underlying portfolios.



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Gillette Stadium: managing the home of the six-time Super Bowl champions

Gillette Stadium is home to the New England Patriots, one of the U.S.'s most successful National Football League (NFL) teams with six Super Bowl titles. Since opening in 2002, every Patriots home game has sold out and fans have enjoyed more regular season and postseason victories than any other team in the NFL. In 16 seasons, the 1.9 msf stadium has hosted more than 10 million football fans attending Patriots games.

Gillette Stadium isn't just defined by on-field success, it's also a major facilities management achievement—hosting more than 1,000 events every year—from NFL and Major League Soccer (MLS) games to monster truck rallies and concerts. C&W Services has been managing janitorial services at the site since 2002 and maintenance since 2011.

"Our team at Gillette Stadium is always planning for the next event," said **Kerri Roche**, Director of Operations, C&W Services. "They're always looking ahead. Even on the rare week when things are quiet, they're jumping on preventative maintenance."

The team at the site relishes this fast pace. "It keeps things interesting," said **James Carlson**, Facility Operations Manager, C&W Services. "Every day is different. One day I might be fixing a sprinkler and the next I'm passing MVP Tom Brady in one of the tunnels. There's a real variety here, no two days are the same."

On Patriots game days, James also needs to be on his 'A game.' "The real challenge is during the game," he said. "I'd estimate that between kickoff and the final whistle, we receive around 200 facilities requests.









In addition to being reliable and innovative, one of Cushman & Wakefield's greatest strengths is its flexibility. For example, when it rains on a Sunday in the UK, an extra quarter million parcels are added to the system because so many people sit home and buy online. Having the operation and footprint that Cushman & Wakefield has is key to solving for these types of issues.

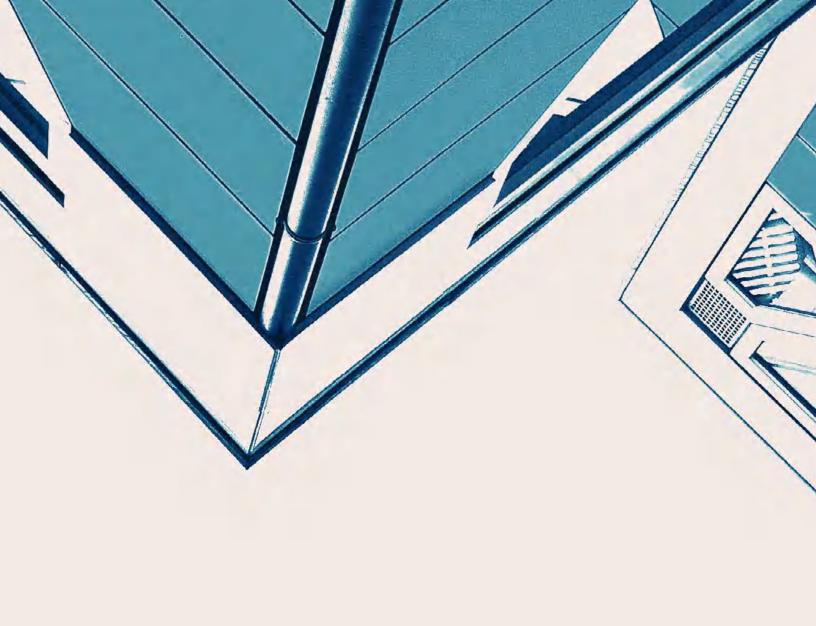
As the retail landscape becomes more online driven and the volume of parcels increases, the competition to deliver those parcels increases right along with it. Companies are delivering packages quicker, faster and better. RMG and Cushman & Wakefield are continually pursuing innovation in this fiercely competitive market to not only combat this, but to stay ahead of the curve. Upon taking ideas to RMG, Cushman & Wakefield partners with them on important projects that link to their operational needs, constantly improving upon what RMG can do.

With an infrastructure and brand loyalty second to none in the UK, RMG finds itself in a royally good place and looks forward to the next 500 years of mail delivery.

When RMG decided to streamline the management of its 2,000 postal sites from four real estate providers down to one in 2012, it came as little surprise that Cushman & Wakefield, with its own storied 100+ year history of reliability and innovativeness, would ultimately win the bid. After all, not only did Cushman & Wakefield have the depth and breadth of platform to cover RMG's extensive portfolio, but the real estate firm was also able to offer the innovative technology and digital solutions to RMG.

From remote islands to a tree that has its own postbox, Cushman & Wakefield has been up to the challenge of helping RMG deliver its mail since they first signed on as primary real estate provider in 2012 and they've never looked back.





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