CUSHMAN & WAKEFIELD

the occupier edge

SIXTH EDITION | 2018

Insights and Trends

Keeping you on the edge of what's next

Contents

Be what's next.

Innovation and technology are disrupting every industry.

Although Commercial Real Estate has traditionally been a less disrupted industry than others – we're not immune. Change is coming and it's coming fast. We need to stay at the leading edge of the major trends in our industry, including blockchain and co-working, and understand how they are playing a part in the changing landscape.

It's important to stay current, agile, and educated. Are you prepared?

Take a look through the sixth edition of *The Occupier Edge*, authored by Cushman & Wakefield's very own future thinking experts. In this everchanging environment, you must stay on your toes – that's exactly what we are doing. At Cushman & Wakefield, we put our clients and our people at the centre of what's next.

In addition to blockchain and co-working, this edition of *The Occupier Edge* also touches upon how PropTech is disrupting the real estate industry, the multi-faceted approach of placemaking, and why GenZ is the future. We also feature how robotics are being used to improve user experience and efficiency of facilities.

Please feel free to contact our experts to learn more about any of the topics featured. We welcome the opportunity to work with you on strategic solutions to help make your business more efficient, successful, and profitable.

Please enjoy reading Cushman & Wakefield's *The Occupier Edge.*

Best,

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Innovating and influencing the CRE industry with PropTech

We live in a truly digital world. From mobile apps to the Internet of Things (IoT), information, services, and products can now be delivered almost instantly via the swipe of a finger or click of a button. These advancements in technology have positively impacted almost every industry in one way or another.

Yes, even the real estate industry – one of the slowest industries to evolve despite its enormous size.

In step with its industry, PropTech, or real estate technology, has been slower to take off as well – that is, until just recently. Short for Property Technology, PropTech refers to the myriad of startups and new technologies cropping up in response to decades of inefficiencies and antiquated processes in the real estate industry. PropTech is where technology and real estate come together to propel the industry forward, and it includes technology that impacts the entire real estate value chain – from dirt to disposition.

GAINING MAJOR TRACTION

Although still relatively new compared to FinTech or HealthTech, PropTech has been all the rage since it started gaining traction around 2013. With first generation PropTech companies emerging in the early 2000s, hosting property search engines such as Rightmove in the UK and Zillow in the U.S., PropTech is now flourishing thanks in large part to ample venture capital, an increased awareness of its importance, and PropTech accelerators such as MetaProp NYC (see Q&A section). In fact, according to CB Insights, approximately $6 billion in venture capital has been invested globally in PropTech since 2011, and about 70% was in the last two years. The volume of PropTech financing globally has been on a steady increase, rising 36% year on year, and projected to reach $3 billion by the end of 2017.

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PROPTECH TRENDS TO LOOK OUT FOR IN 2018

Looking ahead to 2018, there are several PropTech trends companies can't afford to ignore in this ever-changing landscape. Five of these trends are:

VIRTUAL REALITY (VR)

While VR has its obvious uses for sales and marketing, allowing investors to view properties virtually from miles away, it's also viewed as the next phase of Building Information Modeling (BIM) and as an enhancement to computer aided design. When used strategically, developers can use VR to create more realistic and detailed renderings, which transition into VR walkthroughs.

INTERNET OF THINGS (IOT)

The IoT refers to the network of physical objects (devices, vehicles, equipment, and buildings) that are connected to the internet through embedded devices and software, which allows these physical objects to collect, analyse and exchange data. This includes everything from cellphones, HVAC, lighting sensors, wearable devices and almost anything else you can think of. According to analyst firm Gartner, there will be over 26 billion connected devices by the year 2020 (with some estimating this number to be much higher – over 100 billion).

DRONES

Through drones, construction companies can now build knowledge into their projects and execute site monitoring missions so easily and safely that it becomes a daily routine, reducing costs and project delays. Drones not only save time (and therefore money), but also improve safety and mitigate risk. Instead of sending a human up onto a roof to conduct a survey, you can send a drone, which is just as – if not more – accurate.

BLOCKCHAIN

One of the more disruptive real estate technologies, blockchain provides information regarding all buyers, sellers, title work, reporting, lease comps and vendor work on any individual commercial property. Having this information at your fingertips cuts out paperwork, enhances market transparency and shortens the speed to transact from days/weeks/months to minutes or seconds.

GEOLOCATION

As mapping technologies have improved exponentially, location has never mattered more for the real estate industry. Now addresses come with a list of data attributes such as building types, sale values, and points of interest – the type of information that helps companies make much better and more informed decisions about their real estate.

REVOLUTIONISING THE REAL ESTATE INDUSTRY

Why all this attention now? Because these technology companies are literally revolutionising the real estate industry by providing new and more efficient ways to build buildings, monitor properties, and leverage financial data. Property search was an obvious place to start, but PropTech companies are now solving all sorts of complex problems within the real estate industry. Below are just a few examples of the growing number of solutions today's PropTech companies are coming up with:

- Organising, analysing, and extracting data from lengthy documents
- Automating HVAC operations
- Managing properties using simple digital dashboards
- Crowdfunding real estate projects
- Utilising robots for all facets of real estate
- Enabling smart technology for smart buildings

IS PROPTECH THE NEW FINTECH?

All of these solutions and trends are just the tip of the PropTech iceberg. PropTech is anticipated to have – and is already demonstrating – the same disruptive effect on traditional real estate models as FinTech had on financial models. In fact, 2017 was a huge year for PropTech in terms of fundraising and M&A activity – with many calling PropTech the new FinTech.

Although PropTech may not be evolving at the same pace as FinTech – in part due to the nature of the industry – the impacts of technology are undoubtedly being felt in all areas of the market. From artificial intelligence to virtual reality to drones, PropTech is literally transforming how real estate assets are being constructed, marketed, and managed.

And the more innovative PropTech companies that are introduced to the market, the more the entire real estate community is sure to benefit.

With PropTech, the possibilities are virtually endless.

The PropTech revolution

One company that has played a major role in moving PropTech forward is MetaProp NYC.

As entrepreneurs themselves, MetaProp NYC founders Aaron Block, Clelia Peters, and Zach Aarons saw real potential and opportunity in the real estate technology startup space and jumped on the PropTech bandwagon at the right place at the right time by founding the company in 2015.

Cushman & Wakefield has entered into an exclusive global partnership with MetaProp NYC, the world's premier real estate technology nexus. With this partnership, Cushman & Wakefield and our clients around the world will have access to the latest and most forward-thinking real estate technologies.

Cushman & Wakefield Chief Information Officer **Adam Stanley** sat down with Aaron and Philip of MetaProp NYC to talk about their company and the enormous impact it's had on PropTech and the real estate industry as a whole.

Adam: Tell me about MetaProp NYC and its inception. Why PropTech and why now?

Aaron: When I moved back to NYC from Chicago, I quickly realised there was a huge disconnect within the real estate tech community. Startup tech companies were doing their own thing without much support, venture capitalists didn't know where to invest their dollars and commercial real estate companies were hungry for innovative technology solutions. PropTech was quickly becoming the new FinTech, but there was a perfect storm of confusion brewing. Fortunately, I met two like minded entrepreneurs, Clelia and Zach, at the right time and we came up with the idea for MetaProp NYC. In simple terms, we like to think of MetaProp as a global real estate technology "nexus" that brings these three groups together all under one umbrella in order to better connect stakeholders. By positioning ourselves in the middle of these three groups, we are able to really influence and bring about change in this fast growing and exciting space.

Adam: You mention three groups – startup tech companies, venture capitalists and commercial real estate companies. How do you help this first group, the startup tech companies?

Aaron: Our first priority out of the gate was to develop an accelerator program for real estate tech startups, which we did in 2015. The program was the first of its kind and we proudly graduated our first cohort in January 2016. We then decided to formalise the program by partnering with Columbia University's Centre for Urban Real Estate (CURE) in 2017 to deliver two programs – an eight-week pre-accelerator and 22-week accelerator program. The pre-accelerator program mines for new innovative ideas while the accelerator program incubates up to 10 startups per year, offering up to $250,000 in financing, class-A office space, mentorship, advisory services and so much more.

We roll up our sleeves with these companies, going over business plans, assisting with communications and helping generate exposure for them. Helping early stage startups grow is the best part of my job. We put the spotlight on these companies so they can really shine.

Adam: How is your accelerator program different from other accelerators? What makes your program unique?

Philip: For starters, this is the only accelerator program of its kind. No other accelerator program offers the investment and advisory components as well. And our accelerator program is unique in that it offers a weekly guest speaker series, industry roundtables and demo days the startups can participate in. In essence, they get invaluable access to the best of the best in the industry. In addition, we also introduce the startups to decision makers, pilots and excellent sources of global investment capital and media. These are the types of connections that simply can't be beat.

Adam: How about the second group you mentioned, the investors? What's the upside for them? What do they gain?

Philip: While being introduced to potential investors is a huge advantage for the startups, investors who understand and want to invest in the real estate business are benefiting from the introductions as well. We vet, cultivate and foster real opportunities for investors from all around the world. From London to Paris to Tel Aviv, investors everywhere are interested in the next generation of technology and how it will impact the future of real estate.

MetaProp has two venture capital funds that co-invest with other currently established PropTech focused VC funds from all around the globe. Having some skin in the game incentivises us to partner with the best VC funds while delivering the best possible startups.

Adam: We're always looking to push the envelope when it comes to technology – our clients simply demand it. Partnering with MetaProp has given us invaluable access to cutting edge technology and innovation. Can you talk about how you work with companies like us to deliver on this?

Aaron: With startup companies being fostered and money being invested, it only made sense to start spreading the word about these technologies across the commercial real estate industry. After all, as you know all too well, real estate companies are always looking to innovate. MetaProp Advisors works with real estate companies like Cushman & Wakefield to bring the latest technologies and innovations to their people and platforms. Working closely with leaders like you, our advisory group sits down to discuss your goals and then aligns those goals with the right mix of technology. If we can help you do something smarter, faster and more efficiently, we want you to know about it.

Adam: Do you have plans to take MetaProp global?

Philip: We actually just announced the expansion of our accelerator program with the MetaProp Bridge @ Columbia University. This is the first cross-border PropTech accelerator of its kind and we'll be holding it over a 20-week period early this year. It will connect up to six PropTech startups from across Europe, the Middle East and Africa to investors, experienced mentors and diverse real estate, technology and institutional partners in North America. We're really excited about this venture and plan on introducing the Bridge program to Asia in 2019.

Adam: You guys have accomplished so much in such a short amount of time and clearly you're not slowing down anytime soon. What's next for MetaProp? Where do you see yourselves in the future?

Aaron: It's true – we've accomplished so much in only a couple years. It seems surreal to me that we currently have more than 200 mentors, 10 corporate partners and our VC team has already invested in more than 70 tech companies to date – companies that have raised more than $2 billion and employ more than 1,500 people globally.

But even though we've come a long way in a short amount of time, when it comes to PropTech, we're still in the first inning. I see a lot more investments in technology happening in the future – with PropTech applications being the new norm.

WHAT I DO KNOW FOR SURE IS THAT WE LOOK FORWARD TO BEING RIGHT THERE IN THE MIDDLE OF IT ALL GOING FORWARD, NAVIGATING THIS CRAZY AND CONTINUOUS CHANGE FOR COMPANIES LIKE CUSHMAN & WAKEFIELD FOR YEARS TO COME.

MAKING SMART DATA DYNAMIC

Data is everywhere. But, identifying meaningful data that truly impacts decision making is a challenge. PwC understood this challenge and built an industry-leading business intelligence platform to collect, analyse, and predict real estate needs across their domestic portfolio. Success was found not in collecting massive amounts of data, but rather refining the business questions and mining for smart data which allowed PwC to select relevant data sources, synthesise those sources, and specifically define when, where, and how much space would be needed.

Just as PwC developed methods to predict their need for space at the office or city level, Cushman & Wakefield leveraged its expertise to generate smart data about the market. Combined, these platforms now provide insights and precise information covering the end-to-end real estate lifecycle, enabling PwC to make better, faster, and more comprehensive real estate decisions.

We sat down with PwC Directors **Peter Barnett** and **Steve Adams**, and Cushman & Wakefield's **Jeff Green**, Managing Director, Global Occupier Services, to discuss their relationship, innovations, and what the future holds.

Top: PwC Chicago reception.
Bottom: PwC Seattle reception.

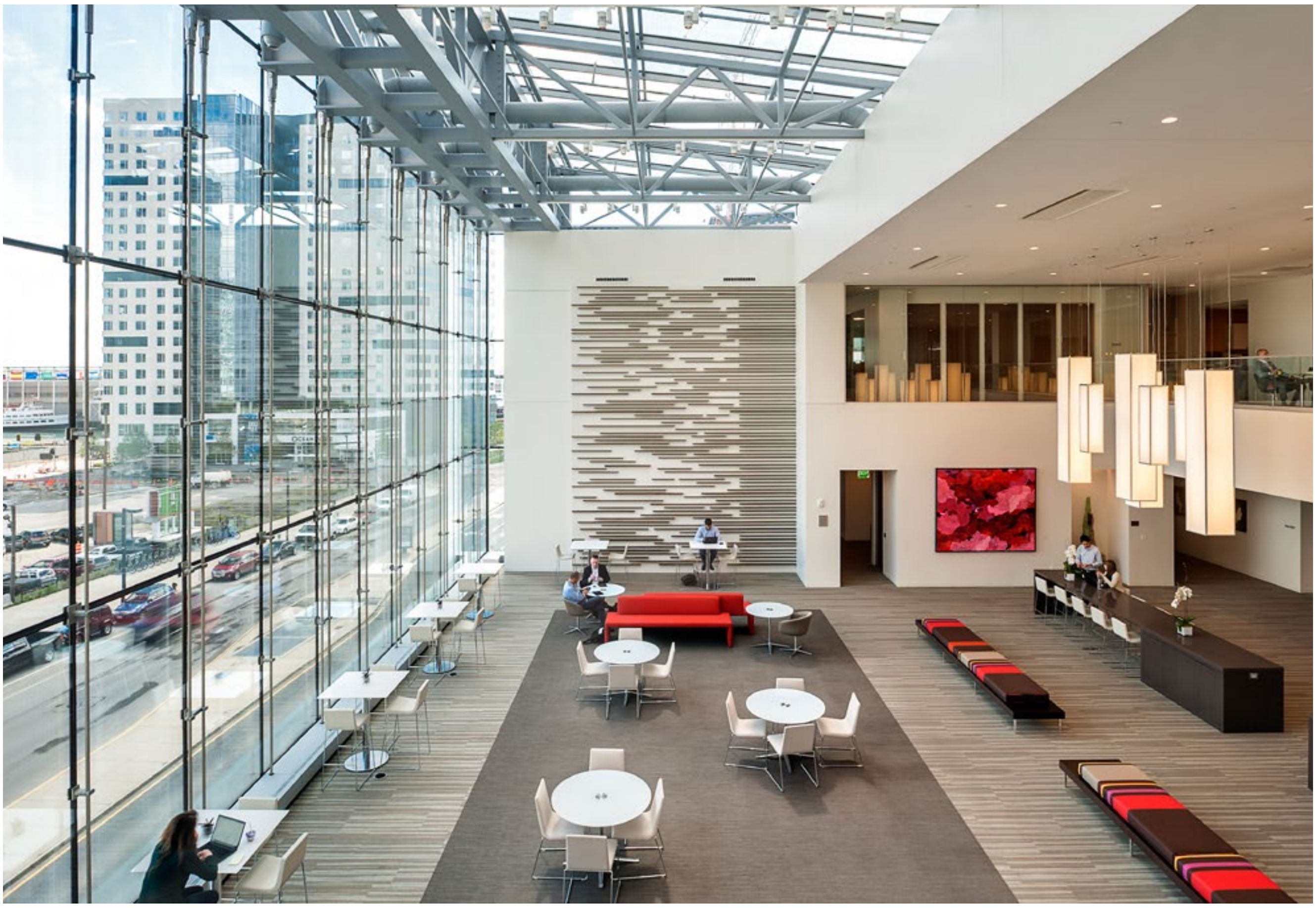
PwC is a pioneer when it comes to leveraging market intelligence and data in real estate. Why collaborate with Cushman & Wakefield on this solution?

Peter: PwC has done a great job using the data we have to occupy the right amount of space at the right locations. We pride ourselves on being forward-thinking and strategic when it comes to these types of portfolio decisions. But we also realise that there is access to a wide range of data now – from market trends to vacancies to traffic patterns – and we wanted a way to take that market intelligence and layer it with our PwC data to make smarter decisions for our portfolio and our people. We wanted to make real estate data a real differentiator for our firm.

We approached Cushman & Wakefield, with whom we have a longtime collaborative relationship, because they are one of the leading real estate organisations and have access to this type of market intelligence, innovative technology, and more. Leveraging their BI platform, we've combined all our data with Cushman & Wakefield's market intelligence, aggregating information and taking out data points that weren't necessary or relevant. At the end of the day, we've created a mutually beneficial dashboard in an intuitive and digestible format that delivers actionable insights for our Real Estate Strategy Directors.

Steve: We live in a world where the pace of information is coming in faster and faster. Although we had solid internal intelligence at our disposal, local market intelligence wasn't as accessible and was harder to track down. Some of our Strategy Directors would pore through a hard copy of local commercial real estate reports while others conducted research online. Collaborating with Cushman & Wakefield on this dashboard placed helpful information at our fingertips in a much more consistent way. Not only is the format easy to use and accessible, but it's digestible and provides fresh information. Instead of just delivering data, it's "smart" and relevant.

Through the dashboard, we might find that we don't need to do anything in one market, but there may be another market where we need to act as soon as possible because there's little or no space available. The value that we're seeing in this relationship is receiving the right amount of data in the most consumable way allowing our Strategy Directors to make the right decisions.

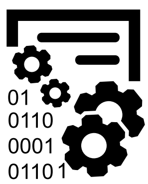


Jeff, tell us more about your BI platform.

Jeff: Our goal was to create a change management tool that can easily access current market and building-level trends, enabling PwC to make actionable decisions for their portfolio based on current and forecasted market conditions. Our platform enables anyone to visualise and analyse data with greater speed, efficiency, and understanding. It connects users to a broad range of data through easy-to-use dashboards and interactive reports that bring data to life. We were able to connect PwC-specific lease data points with current and relevant building-level data and with market/submarket level data in order to deliver a data visualisation solution. We designed it so the structure and graphics "tell the story" of each market and location. Peter and Steve are terrific to work with and have always provided us with the overall vision and goals for the dashboard.

How is the look and feel of the dashboard unique?

Steve: When data reports were created in the past, we would have to weed through reports (PDFs) that were typically 30 pages long – this was obviously inconvenient and inefficient. Having so much data at hand was debilitating because it was impossible to decipher what actions and the right direction to take. This dashboard provides us both with a 30,000-foot national view and then a 10,000-foot view so that Strategy Directors can narrow in on specific properties. By selecting their market or region with a few simple clicks, areas of opportunities and concerns are revealed. From absorption to occupancy levels, all the portfolio essentials are provided, saving everyone time.



Jeff: It's unique in that it is an easily accessible tool that provides the level of data PwC needs to know to make actionable decisions. Additionally, all PwC property codes are tied to a Strategy Director – when the Strategy Director pulls up their portfolio, they can look at overall metrics and drill down to a specific property code. Leveraging their research backgrounds, the tool's creators, **Michelle McMurray** and **Chris Owen** of Cushman & Wakefield, were attuned to the user-experience and applied their robust understanding of the macro and micro views of the market – which influenced the platform. Working together in this way, we're able to create cultures of innovation at every turn – that type of spirit is what made this project so special.

Top: Peter Barnett (left) and Jeff Green (right).

Below: PwC Hallandale Beach Experience Centre.

What types of decisions will this dashboard ultimately help PwC make?

Peter: This dashboard will continue to enhance the speed and efficiency at which we want to make decisions going forward. Leveraging our own PwC business intelligence, we know when we need to extend a lease, terminate a lease or even relocate based on how occupancy is changing and how growth for each business is evolving. When we couple that ability to forecast into the future with information that Cushman & Wakefield provides around a market's landscape, we'll be able to access much more than local market conditions. For instance, if PwC needs to terminate a lease and move offices, this dashboard provides other pieces of the puzzle, including market trends, what local brokers can provide, major players in the market and even transportation/ transit updates that could impact how people get around. Having this type of information readily available in a digestible format is going to be a major advantage for our Strategy Directors.

What's the future look like for this dashboard and BI overall?

Jeff: This dashboard not only provides PwC with smarter data in real time that they can turn into actionable insights, but it's providing Cushman & Wakefield with a "voice of the client" intelligence. Through this process, we're able to enhance our data and BI strategy by building upon and continually revisiting data sources and considering the user experience. For Cushman & Wakefield, BI is a business advantage.

Steve: PwC has a long history developing innovative tools in-house – we pride ourselves on being a data and BI pioneer. However, when it came to real estate data, we saw the value in not trying to do it all ourselves, but to thoughtfully collaborate on a solution instead. This is just the first step with this tool. As we learn more and refine the process, I anticipate many exciting uses of this tool going forward. At the end of the day, if data is not harnessed correctly, it can be debilitating and even exhausting. If harnessed correctly, it can open a world of possibilities – and we can't wait to explore them.

OFFICE SPACE ACROSS THE WORLD

$

Hong Kong is the world's most expensive office location

#2

London dropped to second place, but at $22,665 per workstation remained twice as expensive as Paris or Frankfurt

!

Working patterns and the rise of technology are likely to disrupt future rankings

1.5%

Average annual cost per workstation rose by 1.5% globally in the last 12 months

The cost of locating

100 workers

in Hong Kong

=

300 in Toronto

500 in Madrid

900 in Mumbai

Office Space across the World surveys occupancy costs across 215 office markets in 58 countries worldwide. Using data collected from our extensive network of local Cushman & Wakefield offices, we rank occupancy costs per workstation for prime office space globally. Readers can model total occupancy costs and compare cities on our Occupier Metrics toolkit.

Read the full report: https://cushmanwakefield.turtl.co/story/osatw

Hong Kong and London are by far the most expensive office markets in which to accommodate staff, but secondary cities are beginning to compete in the digital age in ways not possible during the industrial age. Beneath the established global contenders, the likes of Stockholm, Austin, and Seoul moved up our cost rankings. Austin, which rose to 21 on our list, is still 40% cheaper than Silicon Valley and has become a tech hub in its own right.

Limited availability and strong demand from mainland Chinese corporations pushed Hong Kong costs up 5.5% to $27,431. In contrast, costs in London have fallen 19% since 2016 – largely as a result of currency depreciation – to an average of $22,665 per workstation per annum. Paris, also in the top 10 albeit nearly half the cost of London, saw costs fall too.

Escalating rents have driven a growing number of multinational corporations to decentralise to lower cost areas. As a comparison, for the same cost of accommodating 100 staff in a Hong Kong office, 300 can be accommodated in Toronto, 500 in Madrid, and 900 in Mumbai.

At a global level, the average annual cost per workstation rose by 1.5% over the last 12 months. This was driven by the Americas where costs increased by 4.2%, and Asia Pacific, where they rose by 3.4%. EMEA posted a fall of 1.3%. Currency fluctuations have produced some of the biggest changes in rankings. For companies looking at their local costs, this factor will exercise them more than property markets over the next year.

Along with rising occupancy costs, workplace density – the number of workers within a given space – also increased at a global level in 2017. Employers, especially in traditional "power cities" like New York, London, Tokyo, and Hong Kong, want to be as efficient as possible to accommodate rising workplace populations and get the best value from increased occupancy costs.

By 2025, more than 45% of Fortune Global 500 companies are expected to come from the emerging markets compared to just 5% in 1990.

There are discernible trends affecting the ranking of office markets. The phenomenal growth of the technology sector has spawned a new generation of firms less wedded to traditional global power cities than banks and financial institutions. Technology also enables employees with a laptop and internet connection to work anywhere, changing the corporate landscape as central office buildings increasingly assume a different role in fostering collaboration.

As workstation costs rise, it's crucial that employers get the most out of their workforce by providing work environments to help attract and retain the best talent in a globally competitive marketplace. There's a tipping point when density is too high, or the amount of collaborative space is too low. Both can be a hindrance to people getting their work done. As competition heightens between spaces and cities, consideration of user experience and employee well-being is imperative.

In the longer term, we expect there will also be some rebalancing of occupancy costs across the world as talent and business orientate towards emerging economies.

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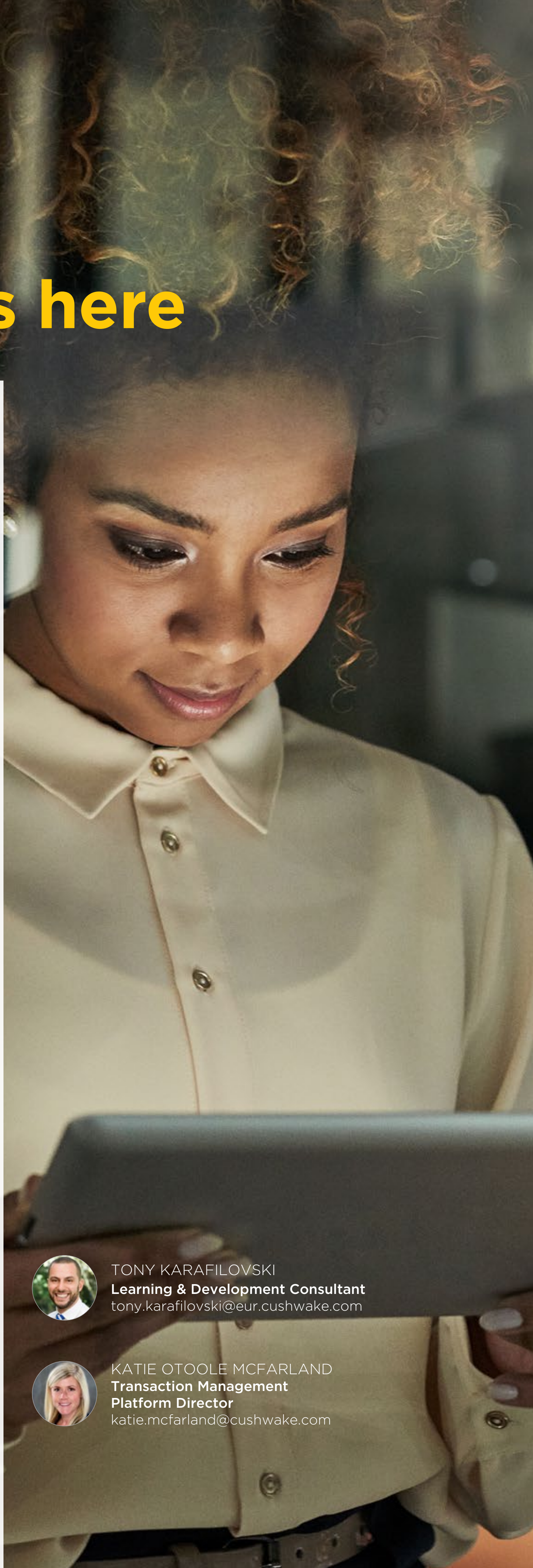

Generation Z is here

THE FIRST CLASS OF GEN Z - BORN AFTER 1995 - IS STARTING TO ENTER THE WORKFORCE NOW. THE MOST CONNECTED AND EDUCATED GENERATION TO DATE, THEY ARE KNOWN TO BE EARLY ADOPTERS, THE BRAND INFLUENCERS, THE SOCIAL MEDIA DRIVERS, AND THE POP-CULTURE LEADERS OF TOMORROW.

Totaling nearly two billion people globally, Gen Z doesn't just represent the future, they're creating it.

As the oldest among them head into college and start their careers, we're beginning to see trends emerge.

HERE'S WHAT WE KNOW:

- They were born into a world impacted by terrorism, the global recession, and climate change – which has shaped the way they think.
- They see digital as a tool to connect with others.
- They have "anything is possible" mentality.
- They've grown up turning to YouTube and the internet to source answers.
- They will work hard to achieve their ambitions.

How is Gen Z different than previous generations?

While Gen Z is comprised of today's children and teenagers, within a decade they will comprise almost one in five workers, with many working in jobs that don't even exist today. It's important companies start recognising their defining attributes now, so that they can start planning for this tech-savvy generation in the near future. After all, considering everything that has happened on the political and technological fronts already in their brief lifetimes, Gen Z is shaping up to be a very different generation from the previous generations.

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Millennials tend to be more collaborative and teamwork oriented; Gen Z is more entrepreneurial and want to be judged by their own merits rather than those of their team.

Millennials also display a love for ambiguity and choice in work style and workplace, while Gen Z requires more structure and predictability in the workplace.

ACCORDING TO A RECENT ERNST & YOUNG SURVEY, GEN Z RANKED "FEELS MY IDEAS ARE VALUED" AS ONE OF THEIR TOP PRIORITIES WHEN ASKED WHAT THEY WANT FROM THEIR EMPLOYERS.

Clearly these are all just generalisations and it's important to remember that every individual is unique, yet all of these data points factor into how companies should be planning the workplace of the future.

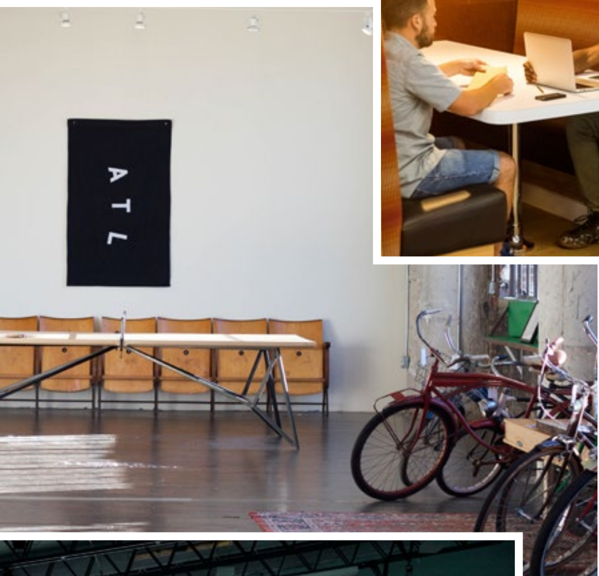
Cross-generational learning

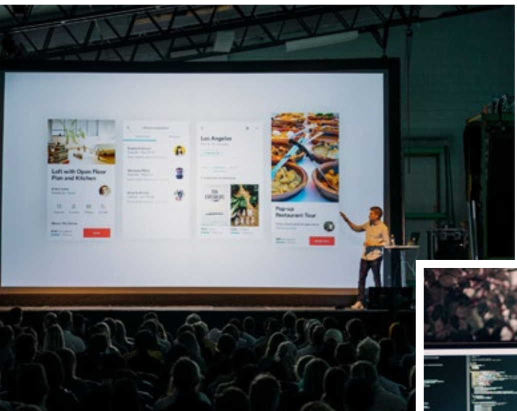
While there are important differences between generations, it's important to note these differences can also be complementary – providing significant opportunities to learn from each other. Staffing agency Robert Half recently asked companies where the biggest differences (and therefore opportunities for learning) lay between generations in the workplace. 30% said "communication skills," 26% said "adapting to change," 23% said "technical skills," 14% said "cross-departmental collaboration," and 7% noted "no differences." To combat these differences, Robert Half suggests encouraging more collaboration across generations, facilitating more mentoring, and sharing knowledge and best practices across generations.

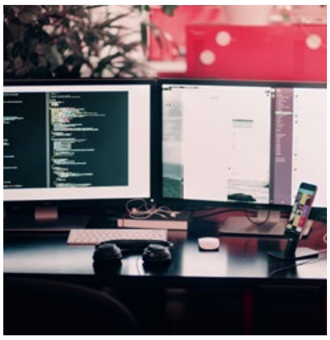
Still early in the game

Raised in a fully technological world, Generation Z will be an interesting generation to watch develop. Although we're still fairly early in the game – considering the oldest of this generation are just entering the workforce – we do know that technology, independence and hard work are paramount to these employees and with technology at their fingertips, "anything is possible."

The reality is Gen Z is coming and it's coming fast. Having a basic understanding of "who they are" and "what motivates them" will go a long way towards building out the ideal workplace of the future – a workplace that appeals across all generations.







Seven ways companies will attract the next generation

It's never too early to start planning for the future of work. Taking what we've learned – and what we're still learning – companies should consider the following:

1. **Speak to Gen Z's independent/entrepreneurial nature:** A full 72% of Gen Z high school students say that they want to start a business. This can be tied back to their independence and desire for financial success. Being highly motivated and willing to work hard to achieve their dreams, these budding entrepreneurs can make great employees.

2. **Provide opportunities for learning and growth:** Gen Z is ambitious and eager to advance in their careers. Higher education and training courses are more important to them than flexible schedules and open work environments.

3. **Communicate face-to-face:** Your millennial employees may prefer to communicate over email, but Generation Z likes to talk face-to-face. In fact, 53% of Generation Z said they prefer in-person discussion over instant messaging or email.

4. **Reevaluate your workplace design:** If more Gen Z craves face time, what will that mean for your workplace design? Will the "working from home" pendulum swing back the other way? This should be kept in mind when designing your future workspace so that you can accommodate everyone.

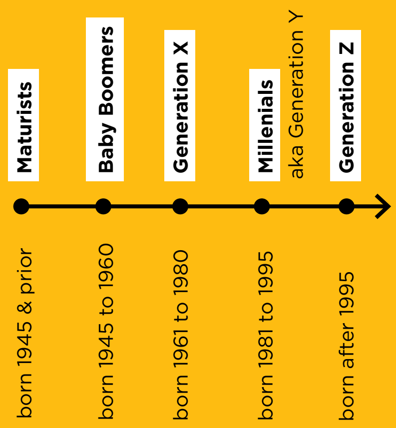
5. **Cater to their desires/needs:** Gen Z expects the workplace to conform to their desires and needs. They are similar to millennials – and even boomers – in this way. It's not uncommon for companies to provide certain amenities or host special events with the employees in mind.

6. **Build a tech-centred workplace:** According to David Stillman, a Gen Z expert, 90.6% of Gen Z said "a company's technological sophistication would impact their decision to work there." A workplace that relies on old technology simply won't cut it. If you want to attract young, bright employees, you'll need to continuously upgrade your technology.

7. **Motivate them with money:** While making a difference is of the utmost importance to Gen Z, they are also motivated by money. This generation wants to win, they want to succeed, they want to make money, and they want to have the best tools at their disposal.

HOW GENERATIONS X, Y, AND Z MATCH UP IN THE WORKPLACE

Companies today are responsible for solving an unprecedented challenge: up to five generations working side-by-side in their workplace. Each generation brings its own life stage, communication preferences, priorities, and more.



The three key trends that have had the most impact on generations are parenting, technology, and economics. For instance, many Gen Z folks grew up in the Great Recession where they experienced their family and parents losing their jobs. The struggles they faced caused them to value money more and to work more independently.

Although companies can't meet every individual's needs when it comes to the workplace, each organisation's training and development should evolve in line with the growing needs of the different generations. In order to manage expectations, managers should be up to speed on the various generations and their accompanying workplace behaviours and preferences. To ensure a well rounded and informed approach, Cushman & Wakefield is including XYZ Learning in its internal Manager Academy syllabus.

From defining attributes to technology to workspace preferences, the chart on the right details how the last three generations match up.

	GENERATION X	GENERATION Y	GENERATION Z
Born	1961-1980	1981-1995	Born after 1995
Defining events	Ronald Reagan Fall of the Berlin Wall Recession, oil shocks Latch-key kids	Internet Social media Portable computing 9/11 Invasion of Iraq	Tablets, smartphones Economic downturn Global warming Social media Sandy Hook
Defining attributes	Self-reliant Skeptical Motivated by money Crave security Work/life balance is key	Confident Tolerant They want it NOW Social connection is key	Order and structure Strong work ethic Independent Entrepreneurial
Technology	Mobile phone and email	Online search engines and social media	Tablet, smart phone, visual social media
Work behaviours	Motivated by money and career Less concerned with social causes	Enjoy seamless mash up of work and personal life Feel job should contribute to greater good	Motivated by money May value practical career choices Less developed face-to-face skills Leaders in online collaboration Susceptible to distractions
Aspiration	Work-life balance	Freedom and flexibility	Security and stability
Workspace preferences	Comfortable with traditional workplace Accepts and uses new workspace ideas with practical application	At ease with an open, unstructured workspace with high degree of choice and flexibility	Will favor a clear layout with visual access Need spaces for heads down work and blended online/face-to-face collaboration

At the forefront of our clients' everchanging needs

CUSHMAN & WAKEFIELD'S GLOBAL OCCUPIER SERVICES (GOS) NEVER STANDS STILL. WITH AN EVER-GROWING AND EVOLVING PLATFORM, THE GROUP CONTINUES TO PUSH THE ENVELOPE TO DELIVER OPTIMAL, CUTTING-EDGE SERVICES AND SOLUTIONS TO ITS CLIENTS.

We recently sat down with **Steve Quick**, Chief Executive, GOS, and **Richard Middleton**, Global Head of Strategy, GOS, to talk about the group's momentum, high-level strategy and how they are staying on top of occupier trends in order to position the business for success. From harnessing robust proprietary data to leveraging the Internet of Things, the group takes great pride in staying at the forefront of its clients' ever-changing needs.

Steve Quick

Richard Middleton

Can you tell us about GOS' high-level strategy for 2018?

Steve: Our overall goal is to become the industry's best transactions and portfolio strategy provider. In other words, we want to help our clients make the best possible decisions about their portfolios so that they can achieve the best possible results. In order to do this, we need to stay on top of – and be implementing where and whenever possible – cutting-edge occupier trends such as artificial intelligence, smart building tactics, big data analytics, and technology advancements such as PropTech and the Internet of Things.

We fully realise and acknowledge that technology is a continuum and we need to embrace its evolution in order to sustain efficiencies and ongoing growth for our clients. If we can do it better and faster, we should and we will.

Richard: As part of our strategy, we globalised select services to provide consistency and accuracy across the board. This allows us to better visualise holistic data and provide better insights into market dynamics, providing our clients with the type of game-changing information that will help them achieve their greater portfolio ambitions.

You mention that technology plays a major part in your overall strategy. Tell us how PropTech is revolutionising the industry.

Steve: There's no doubt about it – when it comes to technology, the future is now. And PropTech, also referred to as real estate technology, is here to stay. From organising and extracting data from long documents to utilising robots to enabling smart technology for smart buildings, PropTech is changing the way we are approaching commercial real estate – for the good. Trends within the PropTech umbrella that we are on top of include Virtual Reality, the Internet of Things, drones, and advanced Geolocation mapping technologies among other things. These smart technologies are already having a real impact on our clients' bottom lines and we can't wait to see how it all continues to play out in the future.

At the end of the day, PropTech has revolutionised the commercial real estate industry by helping us design, build, lease, manage and operate our properties faster and more efficiently than ever before.

Talk about the current state of facilities management (FM) and how Cushman & Wakefield is positioning itself within this space.

Richard: Historically, the FM space has been about managing clients' costs on their behalf, maintaining equipment, and managing contractors. But in recent years, it's become increasingly apparent that:

1

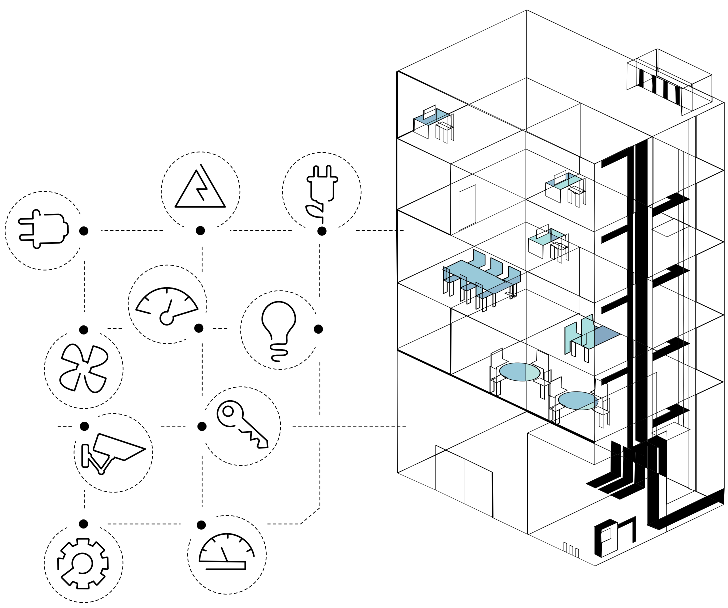
Clients are looking for the employee experience. FM has evolved from cost and uptime to focusing on the employee experience, employee journey, and customer journey. The "experience" is that extra ingredient that we are focused more on now. Our "Experience per Square Foot" model provides the perfect example of how we are proactively responding to this trend.

2

The Internet of Things (IoT) is changing how we provide FM on a day to day basis. With the introduction of 5G and the advancement of sensors, the IoT has become more cost effective and possible. We are currently leveraging a partnership with technology firm MCS Solutions to make IoT a reality.

3

Leveraging the right partners under the right circumstances provides multiple benefits. We are self-delivering FM in geographies where we can add real value for our clients and we are deliberately utilising strategic relationships in certain parts of the world where we can't.



Why do you think GOS will continue to thrive going forward?

Steve: When we brought our legacy firms together to become the Cushman & Wakefield we know today, the goal was to build a much better real estate company. Many different people with different experiences coming together from different companies have provided us with a unique perspective. We can harness our talent and take action quickly to benefit our clients and enhance their experience. At the end of the day, we truly believe our strategy validates our overall vision.

GOS NEXT

What's GOS' next move?

Richard: Going forward, we need to take advantage of the momentum we've built, further our differentiation, and advance our strategic vision. We also need to continue to look at different industries outside of real estate for inspiration – whether it's science, technology or even healthcare.

Steve: Our clients deserve the very best intelligence, tools, and solutions the industry has to offer and we are confident we have the right mix of talent in place to give them everything they need. 2018 is shaping up to be a game-changing year for us and we can't wait to make our next move.

Autonomous vehicles: navigating the journey, the destination, and the impact

Rapid urbanisation combined with increasing demand for goods and people to be moved in mass and at speed means that mobility matters more than ever. Logistics companies, mobility platforms, and vehicle Original Equipment Manufacturers (OEMs) are competing to lead the way, and have invested some $80 billion globally in Connected Autonomous Vehicles (CAVs).

However, the fast pace of change and wide range of trends driving investment in AV technology means identifying some short- term priorities to ensure the sector can meet the changing expectations of occupiers, developers, landlords, and regulators.

Defining Autonomous Vehicles

AV technology, while developing rapidly, is still largely in the prototype or testing stage. This is particularly true for those technologies required for vehicles to be truly "driverless." Unexpected benefits or disadvantages are likely, some of which may not be realised until AVs reach high market penetration.

AVs are not necessarily "driverless" as some vehicles may self-navigate only in certain environments or certain circumstances and may still occasionally require human drivers. Nevertheless, the case for increasing the amount of driving tasks that can be automated is based on potential to minimise human error, which is responsible for more than 90% of vehicle crashes.

The table below summarises the Society Automobile Engineers (SAE) International standard definition of automation levels. Each level refers to the degree to which driving tasks can be automated, and in which environments.

The impact that AVs will have on CRE depends not just on advances in levels of automation, but the operating models of vehicles. For example, non-connected AVs may have less of an impact on car ownership that CAVs, as the latter supports ridesharing and the deployment of self-driving fleets.

Level	Description	Examples and Scenarios
0 No automation	Human required for all tasks and must monitor road at all time	Majority of existing cars
1 Driver assistance	Computer assistance for either steering or speed control. Human work and monitoring essential	Jaguar off-road cruise control
2 Partial automation	Steering and speed controlled by Advanced Driver Assistance System in defined use cases. Human monitoring essential at all times	Tesla Autopilot or Mercedes Distronic Plus Includes adaptive cruise control, lane-keeping assist and automatic emergency breaking
3 Conditional automation	"Automated Driving Systems," with vehicle monitoring environment to make decisions. Human control available to intervene, for example, in adverse weather conditions	Tesla Autopilot, including the remote parking function Volvo is aiming for full autonomy on motorway by 2021 using autopilot option on a premium vehicle
4 High automation	All safety-critical driving functions are automated within Operation Design Domain (ODD). This technology is applicable to driverless shuttles operating in private or managed environments such as worksites	Ford aims to deliver fleets of geofenced Level 4 AVs for commercial ridesharing by 2021 Toyota expects Level 4 vehicles to operate within specific areas in the next decade
5 Full Automation	A vehicle requires no driver either for tasks or monitoring environment, in any domain	Bosch and Daimler are aiming for Level 4 and 5 by 2020

RETHINKING DISTANCE

When it comes to real estate and property valuation, location is key. Whether it is proximity to natural resources, similar firms, or simply the right kind of people, occupiers and investors are willing to pay more for a property located where they want to be. Connectivity to transport is no exception – whether this be an airport, mass transit, or a road network.

If widespread CAV use makes commuting either more productive, attractive or simply cheaper, the relative importance of distance reduces, and that of other locational factors like amenities or built environment design increases.

CAVs could theoretically prompt the reappraisal of the time factor in commuting, meaning that the value of location and proximity to the city centre is potentially adjusted. It has been argued that this reappraisal of the trade off between location and mobility not only makes suburban living relatively more attractive, but could eventually reduce the importance of travel time as a limiting variable in urban planning. (Maurer, 2016)

CITY CORES

City cores with high levels of connectivity and public transport provision are less likely to see AVs have a transformational impact on CRE. The sheer scale and density of people that need moving within urban cores means CAVs are unlikely to replace mass transit. This is particularly the case in cities like London, where population growth and high-density development puts pressure on existing road space. Similarly, CBDs will continue to enjoy a locational premium based on their density of amenities, skilled people, and economic activity.

However, CAVs will become part of the range of transport available in a city core, either in the form of ridesharing or driverless shuttle buses. OEMs and ride hailing companies are already making major investments into on-demand, autonomous and electric vehicles. General Motors announced a $500 million investment in the ride service Lyft, with the aim of building a new generation of autonomous taxis. Ford has invested $1 billion in Argo AI to create a fully autonomous vehicle for use in predefined areas by 2021. Daimler has a deal with Uber to roll out their self-driving vehicles as part of the platform, with Uber also investing in 24,000 AV-ready vehicles from Volvo. The axiom that the world's largest taxi company owns no vehicles is no longer quite true!

RETAIL

Assessing the impact of AVs on current retail locations requires understanding – not just shifts in customer behaviour and perceptions of convenience, but existing changes to retail, including the rise of online shopping, and the experience economy.

- **An improved and more accessible driving experience is likely to extend catchment areas.** This is based on a willingness of people to travel further, and the provision of enhanced mobility for those previously unable to drive, including the disabled and the elderly.
- **A lower cost of driving and parking may mean the reappraisal of the relative benefits of retail locations.** The benefits of improved accessibility, potentially reduced congestion, and decoupling parking from retail locations could benefit centrally located shopping destinations.
- **A reduction in the number of visitors parking onsite is likely to lead to a reduction in the amount of parking required.** This freeing up of land could offer opportunities for landlords to diversify land use onsite. An example for this would be providing additional amenities or selling land for residential development.
- **If online retail can harness new AV technology, the economics of home delivery may improve sufficiently to meet demand for online deliveries.** Thus, the positive impact of AVs on retail locations will be tempered by the increasing popularity of online retail.

LOGISTICS

The use of automation in warehouse environments is not new – many companies use software applications for sorting or restocking goods. In contrast, current limits to dexterity of hardware (i.e., robots) and their high cost, in comparison to human labour, means such technology is not yet widespread and is primarily limited to assisting workers.

However, there are reasons to suggest AVs will play an important role in logistics within the next five to 10 years. Urban logistics is expensive – 50% or more of total supply chain costs in Europe – meaning that manufacturers, retailers, and third party logistics companies are looking to technology to improve efficiencies and reduce costs. Investment by logistics companies in AV may also be prompted by changes to employment legislation, which could make existing courier systems less flexible and more expensive. City targets to reduce congestion could also mean a push for new solutions.

A large proportion of logistics vehicles spend much of their time operating in more predictable environments, or "operation design domains," to use the SAE terminology. This makes partial and conditional automation of freight vehicles relatively achievable, and indeed desirable, given the expected benefits of automated breaking, lane changing and cruise control on safety and fuel efficiency. Growing demand for online deliveries, in terms of scale, product lines, and customer services, means that companies are looking to innovative solutions to meet real estate and delivery infrastructure needs. One option is for delivery companies to invest in fleets of CAVs to replace delivery vans. This has the advantage of reducing labour costs and operating beyond the restrictions of working hours. Without a delivery worker on board, the proposed scenario is that these CAVs essentially operate as a set of lockers on wheels, allowing the customer to retrieve their goods by entering a code. As with passenger carrying CAVs, it is feasible that such systems could operate within geographically defined areas within the next five years. However, the question of exactly how customers retrieve goods and whether a human worker is required for customer services purposes will need to be resolved if labour-saving benefits are to be fulfilled.

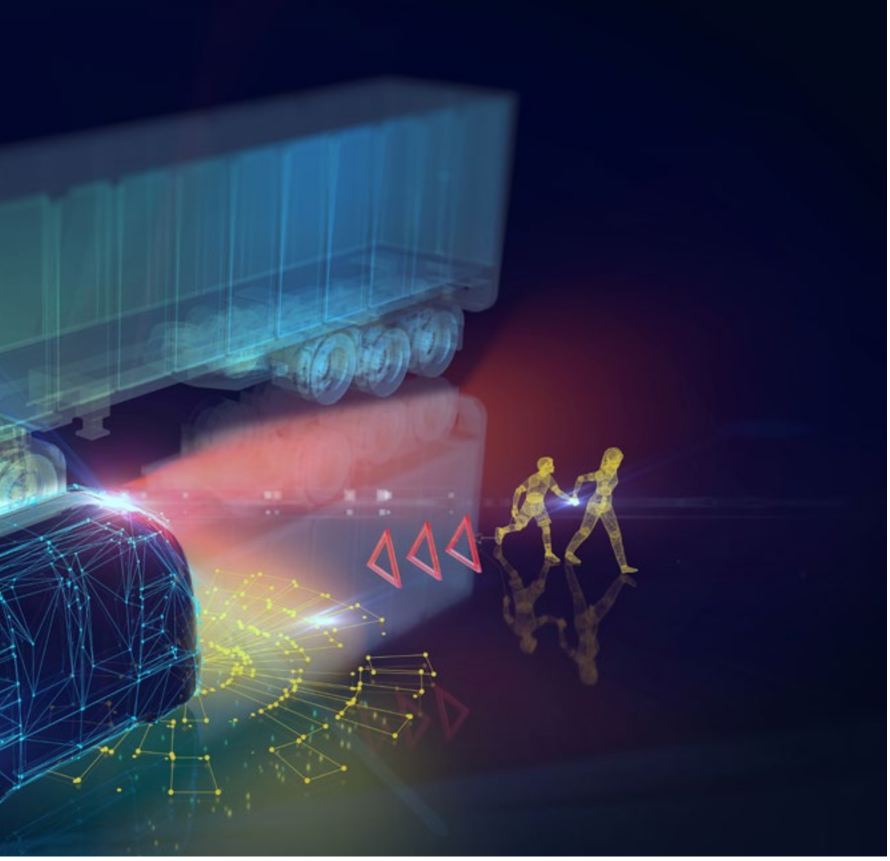
PARKING

A reduction in carparking spaces is not necessarily contingent on the deployment of AVs, but could be prompted by improved connectivity, expansion of Mobility as a Service, or a commitment to a "car park free" vision, or simply the ability to get better value from land.

Carparks may be sold or redeveloped for retail, office, or even logistics space – often depending on land values and the initial design of the car park. In 2017, Westfield Europe submitted plans to convert an entire floor of the car park at Westfield Stratford City to retail use based on exceptional demand from retailers for additional space.

Predictions as to the exact reduction of parking spaces are difficult, as it depends on locations, AV usage, and end-user needs. The fate of existing carparks will depend primarily on ownership, design, management, and land values. For example, it is feasible that publicly owned carparks (for example those held by TfL) are ringfenced for the development of housing, with set quotas of affordable housing. Such a model has already been proposed by the New York Regional Planning Agency.

Research suggests that a near complete removal of parking spaces and road space simplification within a new development would gain an estimated 15-20% additional developable area. A reduction in parking is also likely to be viewed positively by planning authorities and could become a branding or sales point for new developments as "AV only" zones.



One of the more eye-catching innovations is the use of drones for delivering goods. While there are clear advantages in terms of avoiding traffic and being able to deliver within specified time slots, the scalability of drones for delivery has been questioned. Drone delivery is unlikely to have a major impact on the built environment as their use is likely to remain a niche solution in urban areas. However, drone use in surveying, construction, management, and marketing is on the rise, particularly in the U.S., where one in five drone exemptions has been for real estate purposes.

One means of avoiding the challenges of concerns around safety is to deploy drones that operate on the ground – droids. These are small pods that operate on pavements, and can carry up to 15kg. London-based company Starship Technologies has carried out 60,000 miles of deliveries across 100 cities in a range of countries, partnering with companies such as Just Eat with a focus on decreasing the cost and increasing the efficiency of on-demand last-mile delivery. However, the limited pavement space for these AVs means scalability is a challenge, and reduction in congestion is unlikely, particularly if the solution is compared to the relative fast pace and low cost of bicycle couriers. Delivery giant UPS began trialling an electric-powered bike trailer in London in 2017, allowing couriers to carry up to 200kg of parcels.

Uncertainty around the impact of AVs on driving behaviour and parking needs leaves cities and developers with a range of options. The challenge for the CRE sector is to view advances in CAV technology in the broader context of changes to urban density, end-user behaviour, and mobility solutions. For some, this may mean simply monitoring the social, technological, economic, environmental, and political landscape to ensure decisions around design, location, and accessibility can adapt to trends. One is to design carparks with adaptability built in, including lightwells, and other floors.

For others in the CRE sector, a response to AVs may be shaped around a long-term vision for the sustainability of a development, using AV technology to achieve specific goals around congestion, on-demand transport services, and public realm management. While it takes courage for developments to go parking free, planning and investment in alternative options, including ridesharing credits and drop-off points, and working with a range of transport providers, may give end-users confidence in a parking free vision. Finally, landowners must decide what they want to do with surplus parking, and planning authorities will need to decide how much to intervene with the market.

The message for the sector as a whole is that while advances in AV technology are not to be ignored, decisions around investment, design, and management should place people before vehicle, regardless of who is behind the wheel.

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MOTIVATING AND LIMITING FACTORS AFFECTING AV TECHNOLOGY

SOCIAL

Cultural attachment to vehicle ownership.

Concerns around security threats and algorithmic morality.

Reduction in car ownership, particularly in younger age groups.

Densification of urban core.

Consumer expectations for on-demand travel and delivery.

TECHNOLOGICAL

Lack of ubiquitous internet.

Technological limitations to full AV, for example, in adverse weather conditions.

Increase in internet coverage.

Data storage and processing.

Battery and charging technology.

ECONOMIC

R&D budgets impacted by economic policy (ie., tax breaks), market conditions (especially for business R&D) and macro-economic trends (both private and public R&D).

ENVIRONMENTAL

Concern that AVs may detract from investment in, and benefits of, active and public transport.

Question as to extent to which AVs will reduce congestion, especially in city centre if vehicle numbers not managed.

Commitments by national and regional governments to reducing air pollution and congestion, or to reduce car ownership or car use within certain parts of a city.

Emphasis on air quality and public realm in terms of well-being and competitiveness.

POLITICAL

Negative performance in trials or in roll-out may lead to legislation restricting use.

Differences between national and regional legislation.

Resistance to technologies that may impact labour market such as the automation of goods vehicles or that may be seen to restrict the freedom of motorists.

Safety performance of AVs during trials and early roll-out will be pivotal. Major increase in safety could prompt regulation phasing out cars without AV capacity. This follows legislation for increased automation of driving to improve road safety.

Government funding and support for R&D and AV trials.

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Real world data centre optimisation challenges

Does your business need a cloud or a data centre?

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From the perspective of C-suite executives, how does the company assess its current facilities and future technology trends? Data may reside in the cloud, but servers exist in the real world, and protecting them requires critical real-world solutions. It's more important than ever to revisit or establish your organisation's data centre strategy. Focusing on the optimisation of your data centre and development lab infrastructure will reduce the operating cost and potentially free up much-needed office space for growth and expansion.

To create a data centre strategy, corporate real estate (CRE) professionals must know the current production data centre status as well as the research & development labs in operation. This includes all production sites such as stand-alone data centres, purpose-built areas within occupied buildings, existing backup centres, and co-locations.

From purpose-built to co-locations: CRE confronts challenges in critical environments

On-premise data centres and critical environments are a fact of life for corporate real estate professionals and executives. Protecting the integrity and uptime of data is as critical to business success as any other facility management priority. The best way to help ensure the success of these initiatives is to address the challenges and manage the risks that might otherwise go unnoticed. That means understanding the business case for the data centre, helping executives rationalise their decisions, and making sure budgets account for higher operating costs and risk mitigation strategies. Research and development operations often require "pop-up" data centres within office space, which can bring additional complications. In many cases, R&D data and output are critical to business success, and it falls to CRE executives to create and manage these critical environments. Office environments are built to a different standard with a focus on human comfort. Using office space for server load presents many maintenance issues that increase operating costs. It's also vital to understand the flow of data and the requirements for IT interconnectivity to validate the need for servers to be located within a certain proximity.

As technology improves, increased capacity and computing power contribute to underutilisation of data centres that were built several years ago.

With the increased efficiency of servers, data processing expansion is occurring using the same footprint and power consumption. The resulting underutilisation of data centres creates optimisation opportunities.

At the same time, business development applications with aggressive speed-to-market goals fuel the proliferation of server farms in the office space. These "pop-up" on-site pseudo data centres and development labs often appear overnight in conference rooms, IDF closets, and even cubicles.

It is this ever-changing landscape of the corporate data centre and the management of digital information that requires every organisation to have a structured data centre plan that focuses on optimisation. The plan needs to incorporate the stand-alone data centre, co-locations, data centres within office space and the management of "pop-up" data centre created out of modified space.

When developing the plan, the machine load is only the first part of the consideration. A review of the existing portfolio is also required. This includes data centres that are currently in operation and also the space available within the data centre. Unoccupied space can provide the necessary area for expansion, but to make this work, it's essential to understand the organisation's expansion plans, including headcount.

Tackling resources & security regulations

Many resources have been put into the construction and management of corporate office space. To make this space into data centre areas may not be the best use of expensive real estate. When the pop-up data centre appears in the occupied space, it can be difficult for corporate facility managers to manage them efficiently. These unplanned areas create a significant strain on the facilities teams. The time and resources required to ensure availability are split, since their primary responsibility is to create and maintain quality workplaces for people. In addition, the operation of these spaces usually results in adjacent occupant complaints due to noise, loss of space, and comfort.

> The benefits of moving to purpose-built or co-location data centres include freeing up much-needed office space, especially for companies that are downsizing their data centre load.

Another significant consideration when deciding on data centre strategy is manpower. Does your organisation have the appropriate technical manpower to support the data centre? This includes the IT and data centre engineers and also the building engineer support. Change management, maintenance standards and procedures, and the appropriate security are some of the major processes and procedures to consider.

Security, data breaches, and corporate image are also significant influences on the location, management, and access to the data centre. While co-locations can be cost-effective and flexible, they are a shared space. Without specific requirements incorporated into the lease, you cannot guarantee restricted access to the servers. Emerging regulations, risk management requirements, and customer perceptions may require a dedicated space. With this information, an evaluation can be conducted to determine what the requirement for data centres will be and then the optimisation can begin.

A commitment to finding the optimal strategy

In today's quickly changing business world, the need for data centres is not only increasing, but it is ever changing. With the options of co-locations, purpose-built data centres, and pop-up data centre space available, it is challenging to create a data centre strategy for an organisation that can handle the current computing load and takes into consideration the future requirements.

Enterprise data centre construction continues, despite move to co-location and cloud

56%

of enterprises have increased the use of co-location or cloud data centres in the past three years

44%

have completed or started data centre new construction or major renovation during that time

27%

are currently considering construction or major renovation

Source: Building Operating Management Survey

Additionally, any strategy needs to include managing the pop-up customer requests that can arise seemingly overnight.

The optimisation of data centres ensures reduced costs and the creation of a data centre strategy ensures the ability to respond to ever-changing business needs. Collaborating early on with your advisor in IT, operations, and real estate to drive the assessment stages of the optimisation strategy can mitigate financial, security, design, and infrastructures risks. The decision where data centre and development space should go is specific to each organisation; there is no one-size-fits-all solution.

> Understanding your organisation's IT requirements today and in the future, enables your CRE team to optimise data centre strategy, using the best possible combination of co-location, purpose-built, and pop-up data centres. Addressing these needs proactively ensures that your company's data is protected and treated with the same level of importance as that other critical asset – its employees.

Innovative technologies driving facilities efficiencies

Every day we hear about how technology is disrupting industries and changing the status quo. Consider how Uber and Lyft have challenged taxis and delivery services. Square has changed the game for credit card payments. Airbnb reframes how people experience a new city and has challenged traditional hoteliers to stay relevant. Across telecommunications, media, publishing, retail, education, and beyond, disruption and innovation are pushing change.

The built world is also benefitting from digital transformation and technology advancements. From smart buildings to robotics, technology is changing the way the facilities industry maintains the places in which the world works, learns, and lives. There are five technology trends that will continue to influence these changes in commercial real estate facilities management in 2018 and beyond:

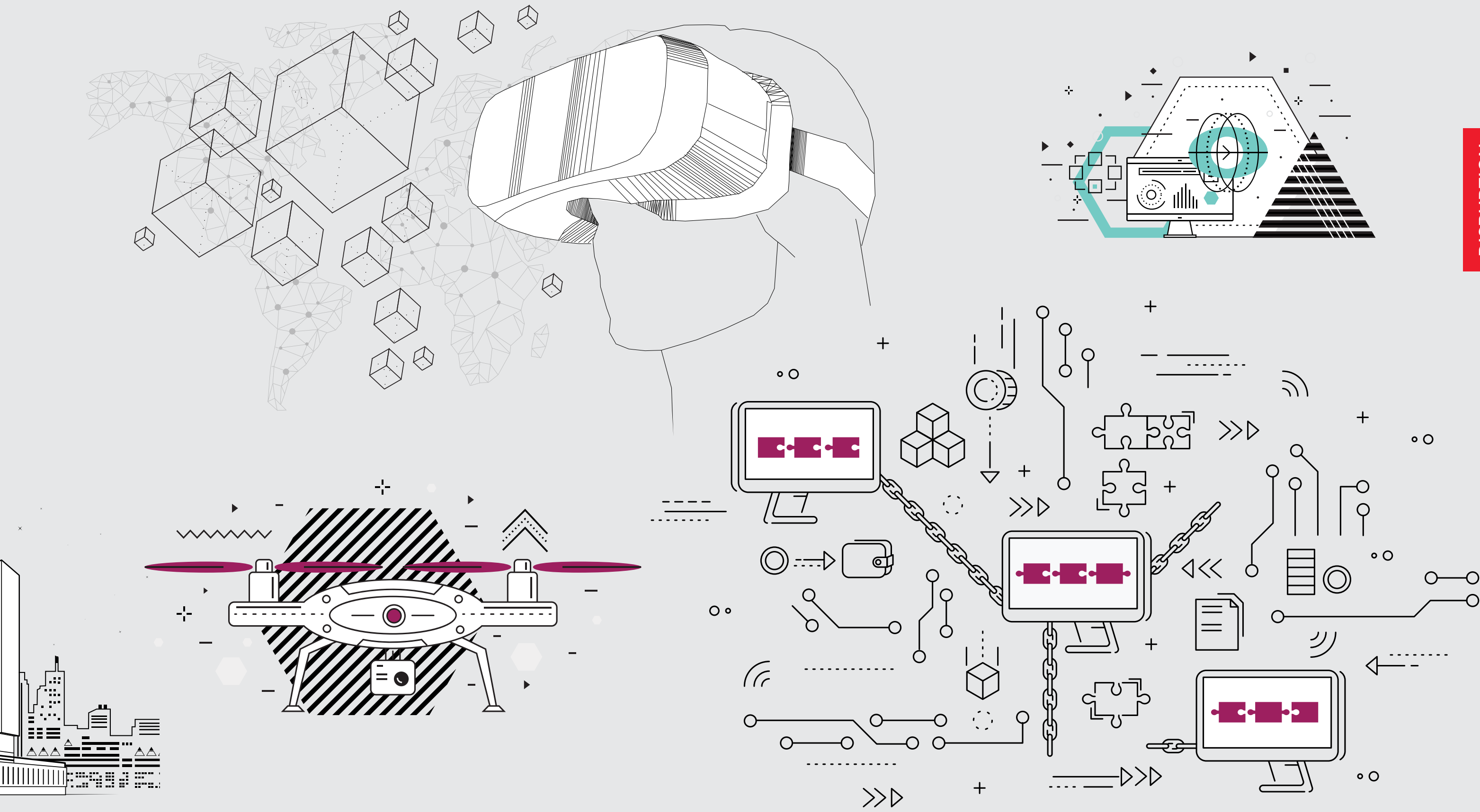
IoT 2.0

Alignment of Internet of Things (IoT) data with traditional real estate portfolio optimisation objectives such as maximising occupancy, reducing energy consumption, and increasing uptime of critical assets will become paramount. The other important facet of developing a comprehensive IoT strategy will be to enhance the occupant experience where systems communicate with one another to respond to their needs. For example, reserving a parking space and desk when you are on your way to the office, sending an elevator down when you arrive, turning the lights on, and adjusting temperature to your liking.

ARTIFICIAL INTELLIGENCE

Machine learning is already successfully combined with IoT toward making sense of all of the data. Eventually, machine learning will advance to the point where it not only can predict but take action, such as ordering a replacement part or scheduling a co-working space in advance of running out of conference room space.

> In our quest to make facility operations safer and more efficient, Cushman & Wakefield's Global Occupier Services and C&W Services teams are embracing innovation early, so we are positioned to move with change, rather than react to it.



DRONES

Drones are already in use for building health assessments, such as aerial roof and parking lot inspections, grounds keeping and security sweeps. Fully autonomous drones (aerial and terrestrial) will begin to take a foothold in commercial spaces and be utilised for indoor security, mail delivery, floor cleaning, window washing, janitorial quality checks, and even employee onboarding.

AUGMENTED REALITY

Maintenance programs will continue to be supplemented by computer-generated perceptual information that enables engineers to see equipment and spaces in 3D details with instructions on completing repairs. Combined with sensor data (IoT), augmented reality can significantly reduce repair times and allow multiple experts to virtually diagnose and troubleshoot the problem.

BLOCKCHAIN

Meaningful blockchain applications for commercial real estate will emerge in such areas as contract management / smart contracts, supply chain, and real estate transactions. The merging of IoT, blockchain, and AI will create the trifecta of collecting data from many sensors (IoT), cleanly gathering and distributing the data (blockchain), and analysing the results to focus attention on the right issue and opportunities (AI).

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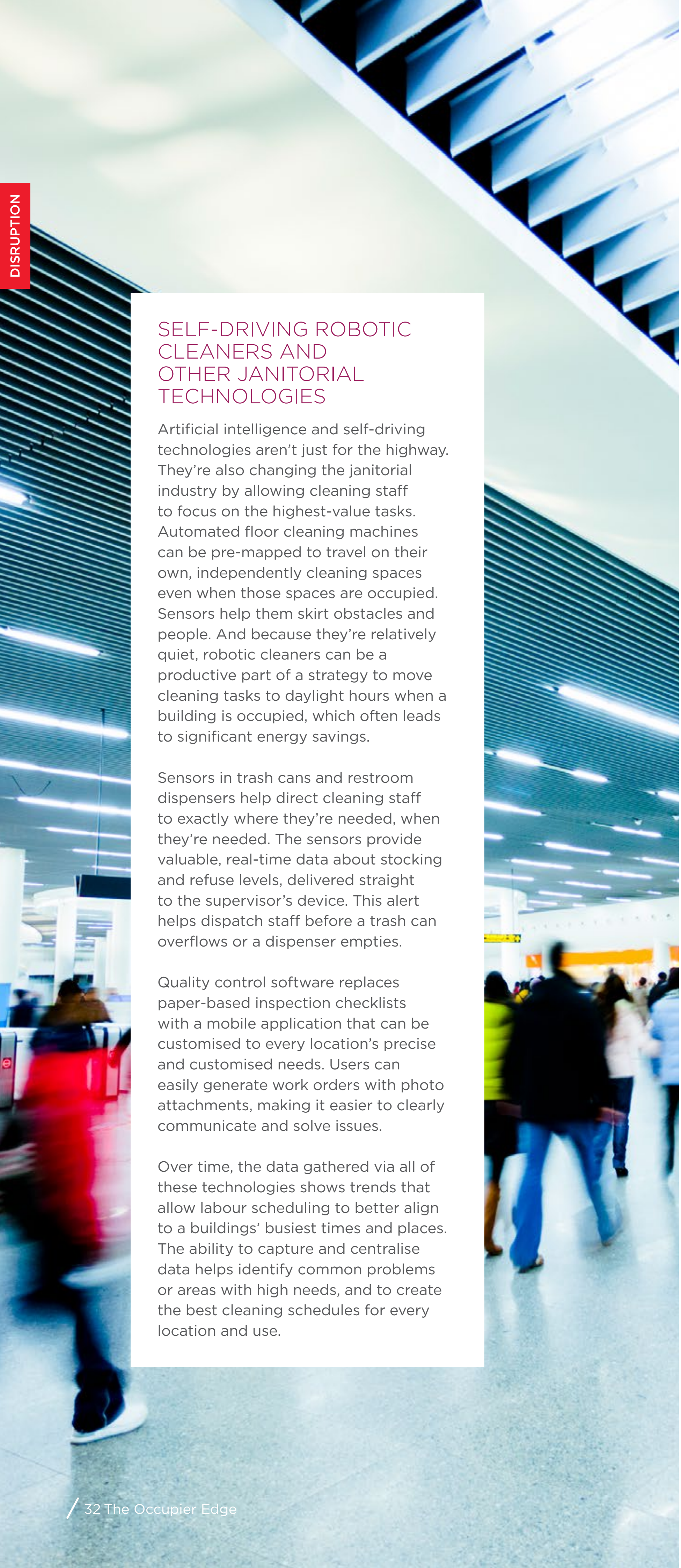

SELF-DRIVING ROBOTIC CLEANERS AND OTHER JANITORIAL TECHNOLOGIES

Artificial intelligence and self-driving technologies aren't just for the highway. They're also changing the janitorial industry by allowing cleaning staff to focus on the highest-value tasks. Automated floor cleaning machines can be pre-mapped to travel on their own, independently cleaning spaces even when those spaces are occupied. Sensors help them skirt obstacles and people. And because they're relatively quiet, robotic cleaners can be a productive part of a strategy to move cleaning tasks to daylight hours when a building is occupied, which often leads to significant energy savings.

Sensors in trash cans and restroom dispensers help direct cleaning staff to exactly where they're needed, when they're needed. The sensors provide valuable, real-time data about stocking and refuse levels, delivered straight to the supervisor's device. This alert helps dispatch staff before a trash can overflows or a dispenser empties.

Quality control software replaces paper-based inspection checklists with a mobile application that can be customised to every location's precise and customised needs. Users can easily generate work orders with photo attachments, making it easier to clearly communicate and solve issues.

Over time, the data gathered via all of these technologies shows trends that allow labour scheduling to better align to a buildings' busiest times and places. The ability to capture and centralise data helps identify common problems or areas with high needs, and to create the best cleaning schedules for every location and use.

CASE STUDY

A pilot program of robotic cleaners at one of the busiest airports in the United States is showing just how adaptable the self-driving machines are.

"While we're working with a number of corporations and institutions to bring the efficiency of robotics to the mix of cleaning options, the airport is a particularly exciting client to partner with," said **Matt Crews**, Vice President of Operations for C&W Services. "The robots provide an ideal way to clean large terminals and public spaces with minimal oversight, and passengers enjoy watching the machines in operation."

He adds that a similar test at a global automobile manufacturer's call centre was equally positive. "Even in a call centre environment where noise levels are a concern, the robotic cleaners ran during full occupancy and were very popular," Matt says. "People were gesturing us to come into their areas. Employees like to see that their space is being kept clean."

Ideal spaces for robotic cleaners have large, open, hard floor areas, such as manufacturing / industrial, warehouses, malls and retail space, universities, airports, schools, etc. The return on investment on using robotic technology for these kinds of spaces is less than 12 months in sites with more than 100,000 SF of hard floor area.

DISRUPTION

PREDICTIVE TECHNOLOGIES: MEASURE MACHINE HEALTH MORE EFFICIENTLY

Once upon a time, facilities professionals kept on top of physical assets by making rounds and taking readings. Today, we have systems that continuously monitor equipment and spaces, and foretell issues. Technologies range from simple sensors that can provide data on airflow, temperature, and vibration, to more sophisticated sensors that can "see" changes in multiple spectrums, "hear" sounds beyond human capability, and even "smell" for parts per billion of chemicals.

Pairing sensor technology with an "engineer in a box" or EIB solution, which uses artificial intelligence and machine learning language, helps navigate the ever-growing data flow available to facilities teams.

These systems offer many benefits over manual inspections.

- Wireless sensors enable more frequent data collections and allow for easy access at any given time (no waiting or scheduling special visits).
- Cloud-based data collection provides real-time, reliable data, often through configurable dashboards for robust waveform and data analysis.
- Analytics enable semi-continuous monitoring. Alarms are noted and service can be requested within minutes of a vibration anomaly.
- Installation is easy and safe.

Like people, EIB systems are not all the same. Many systems have limited learning capabilities. They all take time to learn the processes they are monitoring, and they all have various types of outputs/abilities to communicate. When considering EIB solutions, take into account the logic and learning programming that drives them, and potential limitations in memory capacity, inputs, and even bandwidth.

Reduced labour for manual inspections and monitoring, better advance identification of repair issues, and more efficient generation of readings and analysis mean most scenarios create a one-year payback in saved resource costs.

"For us, the high point is when we start demonstrating machine learning capabilities to our clients," said **David Auton**, Senior Director of Reliability Engineering. "Our goal is to take the magic out of condition based monitoring and then use science to make it as common as an appliance."

REMOTE MONITORING

A geographically dispersed real estate portfolio can pose a real challenge when it comes to preventive maintenance. It can be difficult to get in front of potential issues when there's not a maintenance technician on the site. But when systems support critical business processes, uptime is critical. Learning about a problem at the point of failure is too late. How do you get the benefits of the expert eyes and ears of a skilled technician, at a site where there isn't one?

One solution is to put your current systems to work for you. Introduction of an APC network management card to a UPS system allows remote monitoring of room temperature, humidity, utility power, UPS output power, UPS maintenance needs, and network issues. Monitoring is secure and can be performed online, and many systems also allow configurable notifications.

At about $300 each, the cards are relatively inexpensive, and only require one network drop to monitor the network and to send out alerts and alarms. The installation is simple enough for an IT department to execute, and an engineer can perform programming remotely.

Whether it starts with a C-suite strategy or the insights of front-line staff helping problem solve on the job, innovative thinking helps ensure facilities create a positive and lasting impression.

CASE STUDY

An ISP client has more than 45 networks across the country, in sites that have IT and office management staff but no O&M personnel. As a result, our client often realised issues existed only when a room's equipment had failed. They needed to find a way to monitor condition, power, temperatures, and alarms in real time. As the provider of mechanical, electrical, and plumbing (MEP) operations, C&W Services needed to help find a way to monitor conditions and help prevent connectivity loss at the site level. The solution we presented used network cards that the client's IT teams could easily install at the sites. The cards were put into place during network upgrades in remote locations, and immediately began delivering data that helps keep 45 networks in 18 locations online. The C&W Services team has coached the on-site office management team on how to respond to temperature alarms, low batteries, and other risks that are easily mitigated once they're known.

Now trending: occupier outlooks shaping real estate

The past two years have been marked by noticeable uncertainty. There has been unusual political and economic uncertainty from China to the United Kingdom to the United States. Many more questions have been raised than answered by the ongoing rise of technology developments pertaining to eCommerce, artificial intelligence, and autonomous vehicles. Commercial real estate certainly has not been spared from this ambiguity.

Corporate tenants are facing many challenges as they navigate through 2018. As global unemployment nears pre-Great Recession levels, no challenge is greater than the struggle to find, attract, and retain a high-quality workforce. There are three trends that are impacting how global corporations think about their real estate portfolio as a human resources tool that can assist with talent recruitment and retention as well as improve focus, teamwork, learning, and collaboration.

GENERATIONAL CHANGES
Millennials are, like all of us, getting older and they have become the largest generation in the workforce.

SPACE LAYOUTS
Paying close attention to office configurations can drive positive business outcomes while optimising cost layouts.

CBD AND THE SUBURBS
The future of the suburbs is bright, it just may look a little bit more like the urban core.

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GENERATIONAL CHANGES

Millennials, born after 1980, are now the largest generation in the workforce. Baby Boomers are beginning to exit into retirement as the oldest of them are now in their early 70s. A number of factors – including improved health and the economic hit of the Great Recession–have led to Boomers retiring at a slower pace than generations before them. However, now that they have been "unseated" as the largest working cohort, corporate decisions will be driven more and more by younger generations.

One concerning statistic from Gallup is the fact that millennials are the least engaged generation in the workforce. This has potential impacts on effectiveness and creativity in the workplace, but also will make it harder to retain needed talent. Millennials also indicate higher likelihood of looking for and expecting to be at a different job in the next year.

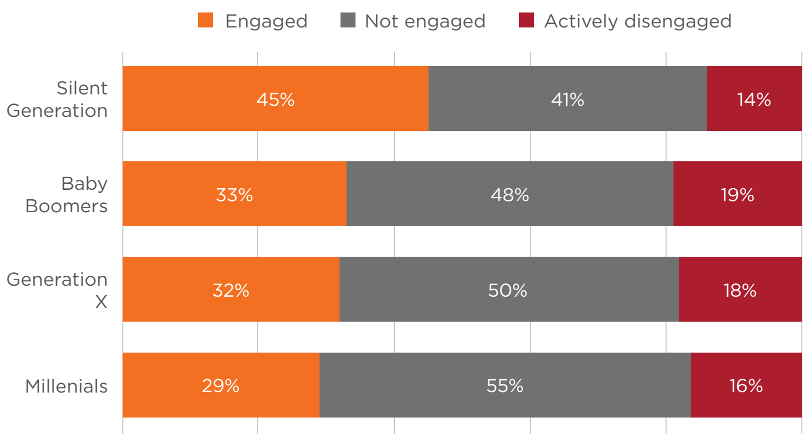
Accordingly, companies already stressed to fill open positions and find the right talent, will need to be focused on making their workplaces the desired location for employees.

According to a Deloitte survey of millennials, flexible work arrangements have a positive impact on how employees view themselves, their role, and their company. For example, millennials who currently work in a "highly flexible" workplace are more than twice as likely to have positive feelings about their organisation's financial performance. These workers are also considerably more positive on their own engagement, productivity, and personal well-being.

This points to both an opportunity and a challenge. As work location flexibility increases – with improved computer and communication technology, as well as the booming growth of co-working locations – companies must wrestle with how they "recruit" their own employees to be in the office. This is so crucial because in-person interactions are critical for developing trust, maintaining strong cultures, and enhancing collaboration.

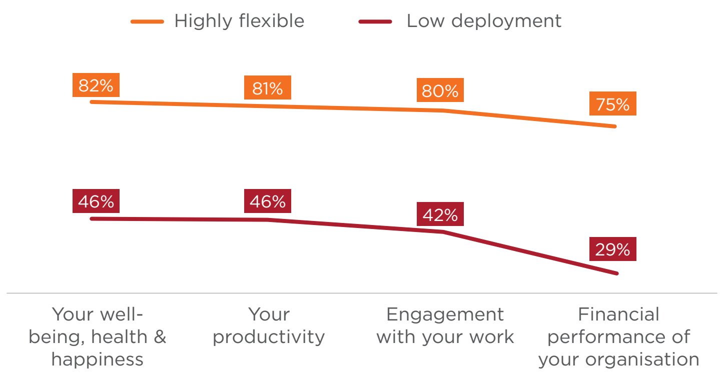
One way to think about this problem is through the quality and configuration of the workplace.

EMPLOYEE ENGAGEMENT BY GENERATION



Source: Gallup, Inc.

IMPACT OF WORKPLACE FLEXIBILITY ON MILLENNIALS' PERCEPTIONS



Source: The 2017 Deloitte Millennial Survey

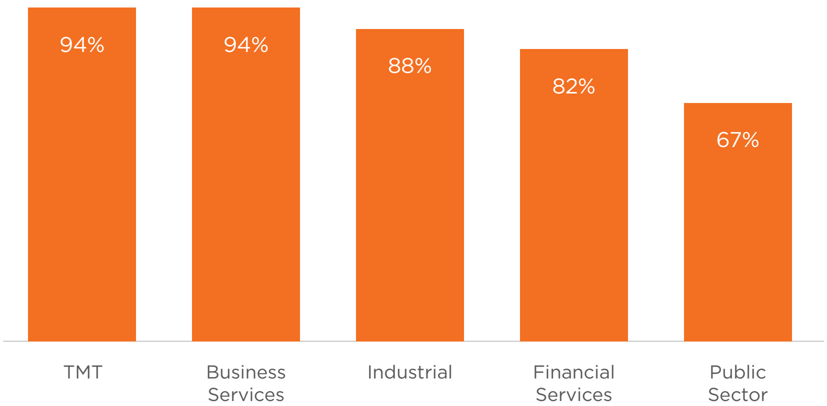
SPACE LAYOUTS

In a search for cost and space efficiency, office density has increased more than 8% since its trough in Q3 2009. At the same time there has been a movement away from "me" space (i.e., large offices) towards a dramatic increase in collaborative spaces. In a study conducted by Cushman & Wakefield, 41% of companies in the financial services, technology, media, and telecommunications (TMT) industries have dedicated over a fourth of their office space to collaborative space. While compressing workers' personal space, increased collaborative space provides the critical flexibility within the office for different types of work.

Flexibility is a key need in today's office space. While there is a belief that all young workers want to be in the busy and buzzy environment offered by a coffee shop or many of the newest co-working locations, workers of all ages want the right type of space for the various types of work they do.

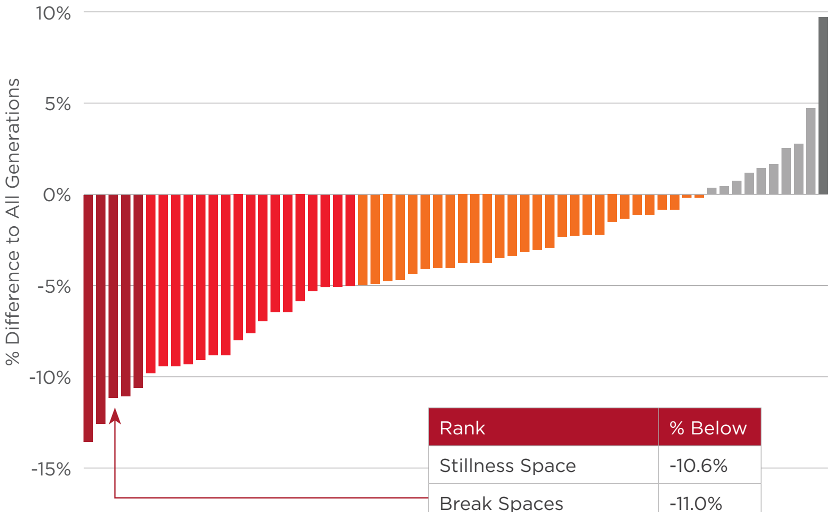
Accordingly, offices – especially those that have densified and limited individual offices – need to offer focus rooms for when privacy and self-execution are required. However, there also is a need for substantial conference room space for large meetings and meetings of two or three coworkers collaborating together. This is especially important given that millennials tend to be less likely than their older colleagues to believe they have the space they need in their current office. According to Cushman & Wakefield's workplace consulting product Experience per SF™, millennials are significantly less satisfied with access to stillness space and privacy, as well as space for breaks and communal work space (i.e., "space type we need").

COMPANIES UTILISING THE WORKPLACE AS A TALENT ATTRACTION AND RETENTION TOOL (PERCENTAGE)



Source: Cushman & Wakefield Research

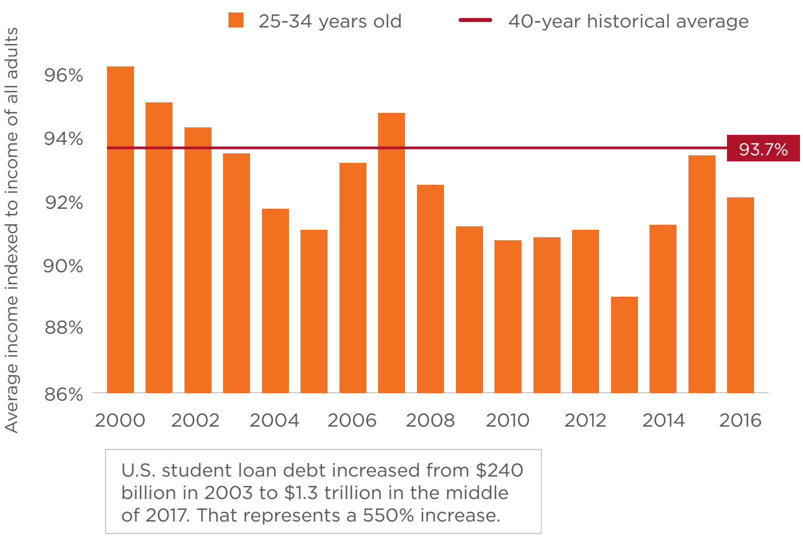
MILLENNIALS ARE MUCH MORE LIKELY TO SEEK IMPROVEMENT IN THEIR SPACE



Rank	% Below
Stillness Space	-10.6%
Break Spaces	-11.0%
Personal Privacy	-11.1%
Space Type We Need	-12.6%
Ergonomics	-13.5%

Sources: Cushman & Wakefield Research, Cushman & Wakefield Workplace Strategy Consulting

MILLENNIALS' INCOMES HAVE RECOVERED AT SLOWER RATE THAN OLDER WORKERS



Source: Cushman & Wakefield Research

CBD AND THE SUBURBS

Much ink has been spilled about how educated millennials only want to live and work in the urban core. It is true that this generation has rented for longer than previous generations and that many cities have seen increased development over the past ten years. This trend is not driven primarily by an antipathy for the suburbs, but there are several factors driving young workers to rent longer in urban or CBD settings.

One is financial. Millennials experienced the Great Recession very early in their careers or entered the workforce in its wake. This suppressed wages for younger workers. Historically, 25-34 year old workers have made 93.7% of the average worker. However, the average wage for this cohort has been below the historical average for 13 of the past 14 years (excluding 2007). Couple this lower than normal earning power with historically high student loan debt and millennials have had obvious reasons to delay major purchases, such as buying their first home.

The second factor in delayed movements to the suburbs by educated millennials is sociological changes that have delayed the age of marriage, child bearing, and home creation. According to the U.S. Census Bureau, in 1976 93% of women and 75% of men had been married by the time they hit 30 years old. In 2014, the numbers had dropped dramatically to 46% and 32%, respectively.

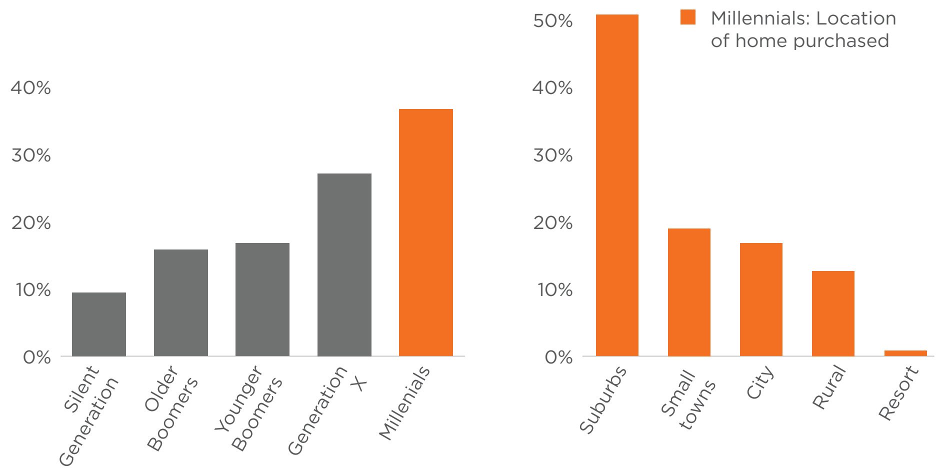
Millennials, like all of us, continue to age. They are seeing their wages grow, they are paying down debt. Many of them are getting married, and they are even starting households. In fact, in 2016 they were the largest group of buyers, accounting for 35% of all home purchases. And, half of those purchases took place in the suburbs. Only 17% of Millennial home purchases were in the urban core.

Now, while the suburbs will be the location of choice for millennials just as it has been for generations before, the types of environments they are looking for may be very different.

Millennials are more focused on proximity than their older colleagues. When asked to rate the importance of specific attributes in their home purchase, they place higher importance on proximity to work, to friends/family, and to public transportation. Occupiers in suburban locations will have more success attracting talent (of all ages) when they are in urbanesque environments with proximity to high-quality office space, multiple transportation options (i.e., public transportation, greenways, biking, easy highway access), and affordable housing.

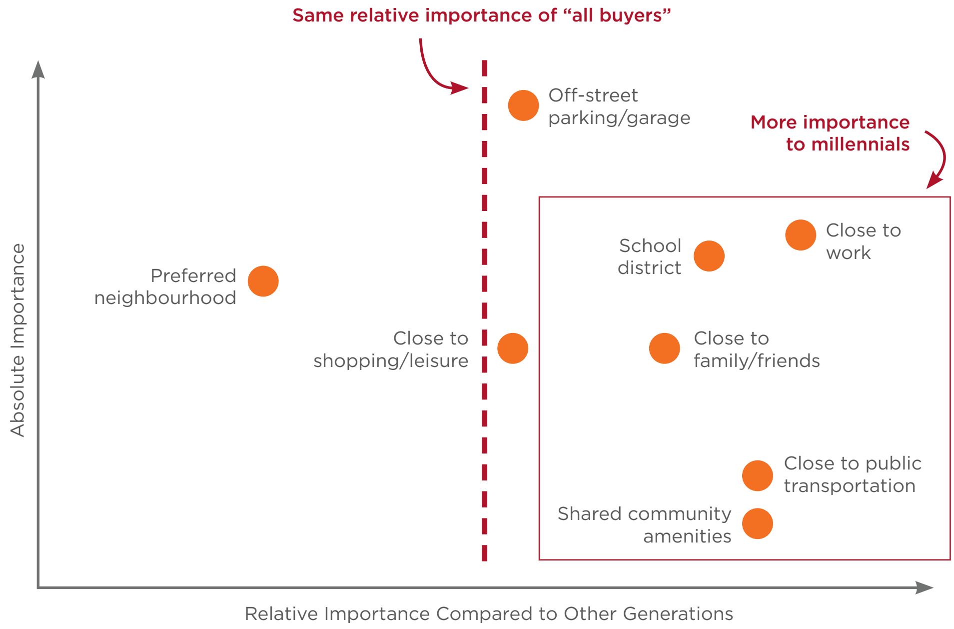
While the suburbs will be the location of choice for millennials, the types of environments they are looking for may be very different. Millennials are more focused on proximity than their older colleagues.

HOME BUYERS AND LOCATION OF HOMES PURCHASED (2016)



Source: National Association of Realtors 2016 Home Buyer and Seller Survey

IMPORTANCE OF SPECIFIC ATTRIBUTES (MILLENNIALS VS. ALL BUYERS)



Source: Zillow Group Consumer Housing Trends Report 2017

BLOCKCHAIN: THE INTERNET OF VALUE

WHATEVER BITCOIN'S FATE, ITS UNDERLYING BLOCKCHAIN TECHNOLOGY WILL TRANSFORM CRE

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"Bitcoin is Dead — Long Live Bitcoin" read the headline to a VICE News story in 2014, when the cryptocurrency was worth about $584. This year, when bitcoin was trading for $13,997, Bloomberg published a story entitled "Sorry Bitcoin Fans. Digital Currency is Still a Dream." In fact, bitcoin and cryptocurrencies, in general, have been declared dead more than 250 times by financial media over the past five years.

Much of the negative reaction is based on bitcoin's rise as a speculative investment and the idea that no one actually uses it to buy things. Oppositely, bitcoin can be used to buy everything from rap albums to diamonds and there are advantages of using cryptocurrencies instead of traditional currencies.

For example, take a real estate transaction – the efficiency, speed, and security with which you can close on a property sale gives cryptocurrency a natural appeal to real estate investors.

To date, the handful of real estate transfers using cryptocurrency have been mostly single-family homes, but that is changing. In September 2017, a homebuilder represented by Cushman & Wakefield, listed an undeveloped multi-family parcel near San Diego with a preference for payment via bitcoin or Ethereum. In December 2017, New York-based REALECOIN announced what it claims is the world's first real estate fund for cryptocurrencies.

Although gaining momentum, cryptocurrencies still face roadblocks. Most governments allow cryptocurrency exchanges, but legal and tax treatment varies as each country decides which transactions fit into the larger financial picture. Experts suggest it will take a year or two to iron out the kinks, but once that happens, investment sales using cryptocurrency could become the norm very quickly.

Even if the doomsayers are correct and cryptocurrencies fall out of favor, their underlying blockchain technology will revolutionise the financial world, starting with real estate.

"Disruptive and transformative"

According to a World Economic Forum report, "Blockchain, or distributed ledger technology, could soon give rise to a new era of the internet even more disruptive and transformative than the current one. Blockchain's ability to generate unprecedented opportunities to create and trade value in society will lead to a generational shift in the internet's evolution, from an internet of information to a new generation internet of value."

So how does it work? A blockchain is a digitised public ledger for keeping track of encrypted financial transactions. Verification and record-keeping of transactions aren't done by a person, but by the blockchain itself. The result is an extremely efficient method for transferring capital that is completely secure from a "where's-the-money-now" perspective, with information that can only be accessed by authorised people, such as parties to the transaction and government taxing bodies.

"In a blockchain transaction, you can set up a triple-blind verification process that protects information on individuals and buildings," said **Kevin Nolen**, a senior associate in Cushman & Wakefield's San Diego office with expertise in cryptocurrency deals. "At the same time, a corporate tenant using cryptocurrency can see where the money is going, whether it's for opex or capex, and other key information." Thus, blockchain is more transparent than traditional currencies in situations where transparency is needed, while retaining confidentiality in other situations, he said.

Governments around the world have had varied responses to the use of cryptocurrencies. On one hand, countries worry about the value of their own fiat currencies once a global alternative is widely available; on the other hand, a country that bans cryptocurrency transactions might be operating at a competitive disadvantage on the world stage – not to mention that such bans are hard to police and could fuel black-market transactions.

As of now, most of the world's major economies allow cryptocurrency transactions in some form, and the general direction seems to be greater acceptance of these transactions over time. Regardless of the fate of bitcoin, however, blockchain is poised to revolutionise capital flows in the real estate sector.

IN THE NEAR FUTURE, IT'S MORE THAN LIKELY YOU WILL BE ABLE TO PAY FOR A MULTI-MILLION-DOLLAR PROPERTY WITH A CLICK OF A BUTTON. TENANTS WILL BE ABLE TO MAKE RENT AND OTHER PAYMENTS AND TRACK THE RESULTS AUTOMATICALLY, WITHOUT HUMAN INTERVENTION OR CAPACITY FOR ERROR. THE REAL NEWS ABOUT BITCOIN FOR OUR INDUSTRY IS THE SPEED, ACCURACY, AND TRANSPARENCY IT DELIVERS TO ALL PARTICIPANTS.

WHAT CAN BLOCKCHAIN DO FOR YOU?

Blockchain, the technology that supports cryptocurrencies, offers many advantages over traditional methods for commercial real estate transactions, including rent payments as well as investment sales. Someday soon, everyone from corporate tenants to institutional investors will benefit from easier, cheaper, and faster transactions, as blockchain provides ways to:

- Shorten the title verification and transfer process from weeks to seconds
- Eliminate the need for title insurance and other costly closing fees
- Maintain anonymity and financial confidentiality for anyone other than proper authorities
- Provide a truly secure method for paperless transactions, streamlining cross-border lease, and sale deals
- Avoid human error when processing rent and other occupancy costs, using automatic payments and a full audit trail
- Unlock access to the market for a range of new capital sources around the world
- Track credit histories and other relevant information on corporate and individual participants

Diversity down under

Success in developing and maintaining a diverse and inclusive workplace can mean different things in various parts of the world. As a global company with a high-priority commitment to inclusion, Cushman & Wakefield is focused on ensuring that opportunities in the commercial real estate field are open to everyone. This commitment can be seen in Australia, where ongoing initiatives to include Indigenous Australians and people with disabilities have enriched Cushman & Wakefield's workforce, community, and client relations.

"As companies focus on hiring the best workers, it's more important than ever that we include people from every segment of our society. By making diversity and inclusion a commitment, we enhance our workforce by hiring talented people others may have overlooked," says **James Patterson**, Chief Executive for Cushman & Wakefield's Australia and New Zealand operations. "But it's more than that. Focusing on diversity brings new ideas and perspectives to the table, it lifts workplace morale, strengthens relationships with clients and vendors, and helps to fulfill our mission to improve the communities where we do business."

Let's RAP, then take action

A central focus of diversity in Australia involves outreach to Aboriginal people, consisting of Indigenous Australians and Torres Strait Islanders, who together comprise about 2.8% of the country's population. The Australian Parliament has a policy of Reconciliation which recognises historical mistreatment of these populations and seeks to create unity and respect between Aboriginal, Torres Strait Islanders, and non-Indigenous Australians.

In recent years, organisations in Australia have been encouraged to create their own Reconciliation Action Plans (RAPs) using guidelines from Reconciliation Australia, a not-for-profit organisation created in 2001. A RAP is designed as a practical plan for how a company will contribute to reconciliation by building strong relationships between non-Indigenous and Indigenous Australians.

Cushman & Wakefield launched its first RAP in November 2017, committing to a program of hiring and promotion, vendor selection, and community outreach that furthers the goals of reconciliation. "The culture at Cushman & Wakefield is all about collaboration and inclusion, and that means we wanted a deeper engagement with the indigenous communities across Australia," said Patterson.

As part of its outreach, Cushman & Wakefield has partnered with Indigenous Defense Consortium to identify opportunities for attracting Indigenous Australians to the company. The RAP addresses policies on employment and procurement sources, as well as sponsorship and community engagement opportunities, according to **Chris Bonney**, Indigenous Relations Advisor at Cushman & Wakefield. "We believe that creating indigenous employment opportunities will actually make us a better organisation," he says.

An early success has been the hiring of **Melissa Black**, an indigenous woman from Queensland, as Facilities Coordinator. "I knew this was a place I wanted to be, and a culture that I wanted to be a part of," Black says.

"Cushman & Wakefield is committed to utilising our strengths to influence positive change – in our workplace, our business, our supply chain, and in our communities," Patterson says. "The RAP is the roadmap for that change, but the scale of our success rests with each of us."

Be what's next

Diversity and inclusion policies align with Cushman & Wakefield's drive to "Be What's Next," a brand positioning adopted by the Australian team to encourage a non-traditional, forward-thinking approach to business. With that in mind, the firm's outreach is not limited to indigenous people, but also to people with disabilities. Nearly 20% of Australians have some form of disability, and among that group 86% experience barriers in self-care, mobility, communication, schooling, or employment. Many people with disabilities bring advanced skills and a strong work ethic to companies that open their doors to them.

To tap into this talent pool, Cushman & Wakefield's Australian team partners with Jobsupport, a not-for-profit organisation that helps secure employment for people with an intellectual disability. So far, the firm has hired four employees through Jobsupport, and **Ashley Palm**, a Client Relationship Manager in Global Occupier Services, assisted Jobsupport in securing a $350,000 grant to expand its operations.

Companies with a broad diversity agenda are 45% likely to outperform those that don't.

- McKinsey

Professionals hired through Jobsupport handle office support tasks, freeing up executives and administrative assistants to focus on more strategic tasks. "It has been a wonderful experience," Palm says. "The people we've hired bring a spark to our teams. They do their jobs with passion and diligence, and that boosts morale across the office. My advice to all companies is to do yourself a favor: employ someone with a disability."

In 2017, Cushman & Wakefield was the inaugural Accessibility and Inclusion Partner to Vivid Sydney, the world's largest festival of lights, music, and ideas, which attracted 2.3 million visitors. As the Accessibility and Inclusion Partner, Cushman & Wakefield helped provide accessibility infrastructure including wheelchair ramps, accessible viewing areas, dedicated drop off and pick up zones for people with limited mobility, audio descriptions for those with vision impairment, and Auslan interpreters at Vivid events for those with limited hearing. Our partnerships enabled members of the community who would not have otherwise have been able to participate in the festival to experience the magic of Vivid Sydney.

Warning: inclusion initiatives may be habit-forming

Its accessibility leadership in regard to Vivid Sydney 2017 earned Cushman & Wakefield the prestigious Excellence Award for Contribution to Community – Commercial from REA Group, a digital media company specialising in the property sector. Additionally, The Jobsupport program is a job placement service managed by Disability Employment Services, an Australian Government Initiative. Cushman & Wakefield Australia was awarded GOLD at the 2017 Annual Real Estate Excellence Awards (AREA's) in Melbourne, Australia and has been recognised for their efforts in collaborating with Jobsupport to provide opportunities to employees with intellectual impairments, by securing a $350,000 grant to further grow their business operations.

Public and industry recognition can be a powerful motivator, but the real value of engagement in diversity and inclusion centres are the many internal benefits. Companies, like Cushman & Wakefield, that make a commitment and follow through on it quickly learn that improvements in collaboration, productivity, and job satisfaction far outweigh the minimal time and effort it takes to create an inclusive workplace. If there's one thing our Australian team has learned, it's that diversity and inclusion can be habit-forming – once you start, the results are so positive that you're compelled to do more.

OUR INCLUSIVE JOURNEY

0.9% OF AUSTRALIAN CHILDREN **AGED 0-4 YEARS** HAVE AN INTELLECTUAL DISABILITY

5.3% OF AUSTRALIAN CHILDREN **AGED 5-12 YEARS** HAVE AN INTELLECTUAL DISABILITY

4.6% OF AUSTRALIAN CHILDREN **AGED 13-17 YEARS** HAVE AN INTELLECTUAL DISABILITY

18.3% OF AUSTRALIANS **HAVE A DISABILITY** (4.3 MILLION PEOPLE)

1.3M AUSTRALIANS HAVE A SEVERE OR PROFOUND CORE ACTIVITY LIMITATION
BY 2099 FORECAST TO INCREASE TO 4 MILLION

7% OF ALL CHILDREN AGED 0-17 YEARS HAVE A DISABILITY

10% OF CHILDREN HAVE A DEVELOPMENTAL DELAY

IN AUSTRALIA

EVERY 15 HOURS — A CHILD IS BORN WITH **CEREBRAL PALSY**

EVERY 7 HOURS — A CHILD IS DIAGNOSED WITH AN **AUTISM SPECTRUM DISORDER**

EVERY 2 HOURS — A CHILD WILL BE DIAGNOSED WITH AN **INTELLECTUAL DISABILITY**


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Chinese occupiers going global: stepping up and stepping out

Chinese companies are stepping out and expanding into the global marketplace. Today, many of these companies have vast resources at their disposal and are deploying capital around the world to ensure their outbound business investment vision is a success.

Chinese corporates are going global to penetrate new markets for business growth, procure natural resources, obtain the latest technologies, and acquire advanced management skills.

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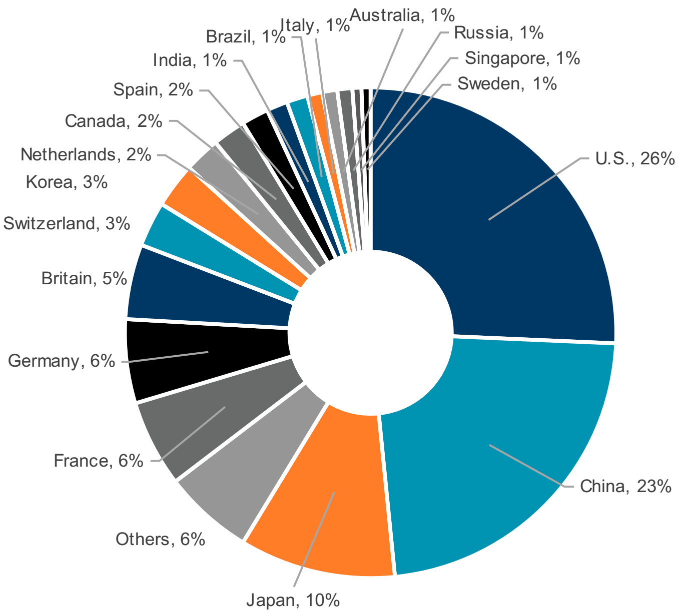
China's largest companies by annual revenue (annual revenue as of 2016)

Rank	State Owned Enterprises (SOEs)	Industry	Revenue (US$ billion)	Employees	Headquarters
1	China Petroleum and Chemical Corporation	Oil and Gas	1,930.9	451,611	Beijing
2	PetroChina Company Limited	Oil and Gas	1,616.9	508,757	Beijing
3	China State Construction Engineering Corporation Limited	Construction	959.8	255,878	Beijing
4	SAIC Motor Corporation Limited	Automobile Manufacturing	756.4	171,395	Shanghai
5	China Mobile Limited	Telecommunications	708.4	438,645	Beijing
Rank	**Privately Owned Enterprises (POEs)**	**Industry**	**Revenue (US$ billion)**	**Employees**	**Headquarters**
1	Ping An Insurance (Group) Company of China, Ltd.	Insurance	712.5	318,588	Shenzhen
2	Legend Holdings Corporation	Technology	294.7	75,000	Beijing
3	JD.com, Inc.	E-commerce	260.1	120,622	Beijing
4	Evergrande Real Estate Group Limited	Real Estate	211.4	83,372	Guangzhou
5	Midea Group Co., Ltd.	Appliance and Technology	159.8	96,418	Foshan

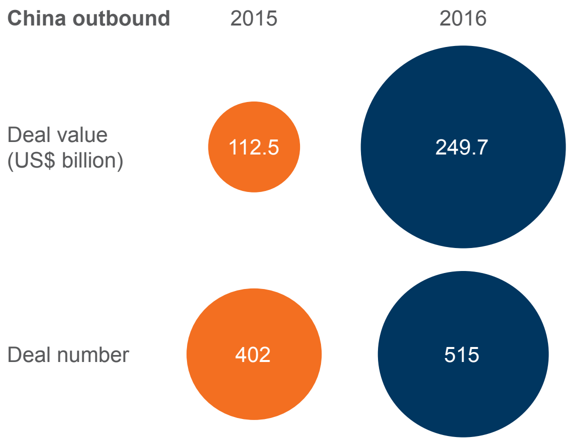
Source: China Fortune, Cushman & Wakefield Research

Figure 1: Fortune 500 companies divided by region (2017)



Source: Fortune, Cushman & Wakefield Research

Figure 2: Chinese M&A investment allocated globally – value and number of deals (2015–2016)



Source: Mergermarket, Cushman & Wakefield Research

There are three general categories of Chinese companies engaging in outbound business investment to date:

> Companies held by local government or the state government – State Owned Enterprises (SOEs)

> Companies held by private investors – Privately Owned Enterprises (POEs)

> China's unicorn companies

For Chinese companies looking to go global for the first time, two questions should be considered:

> Which market/s can our company penetrate and grow our business in?

> Which overseas companies could we acquire/partner with to garner value added technology and/or management skills?

Global merger and acquisition (M&A) activity allows us to see the latest trends in Chinese outbound business investment. When examining the figures for 2016, the amount of investment into overseas businesses by Chinese corporates globally saw no relief (Figure 2). In 2016, there was a rapid increase in the number of overseas M&A deals executed by corporates from China. The number of deals in 2016 increased 28.1% from the previous year reaching 515. What's more, the total transaction value of Chinese M&A investment during the same time period jumped by a larger 121.9% to US$ 249.7 billion.

The top five industry sectors favored by Chinese companies in 2016 were the chemicals and materials sector, the energy sector, the financial services sector, the computer software sector, and the internet/e-commerce sector.

Within the four major global geographies of the Americas, Europe Middle East and Africa (EMEA), Asia and Oceania, there were seven notable markets which received the most Chinese outbound business M&A investment in 2016, and these were the U.S., Canada, the UK, Germany, Singapore, India, and Australia (Figure 3).

The three big geopolitical themes that are expected to impact Chinese overseas business investments at the forefront of Chinese companies' minds are the Belt and Road Initiative (B&R), Brexit, and the U.S. "America First" policy leaning.

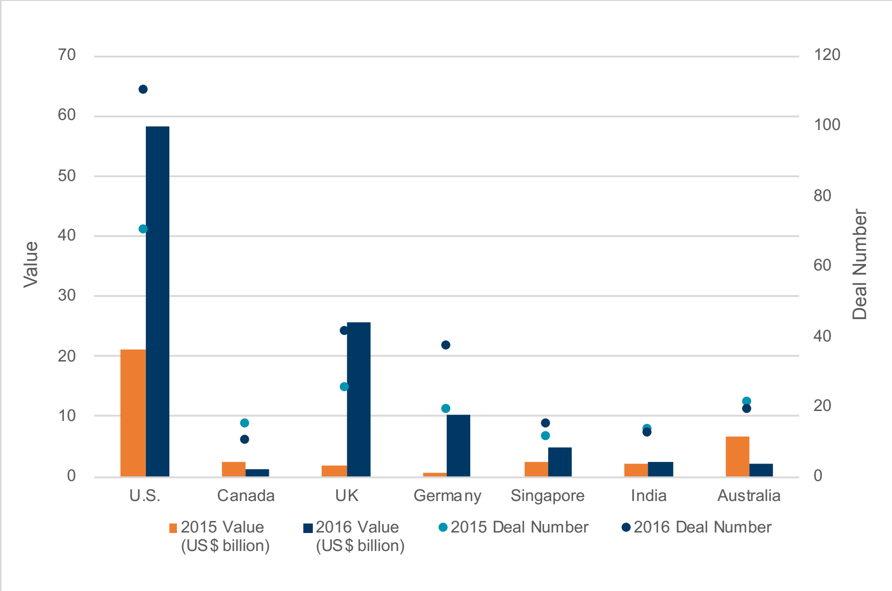
Since its announcement in 2013, the B&R Initiative has garnered a huge amount of interest in China and across the globe. Countless Chinese corporates have all expressed a willingness to get involved in this massive infrastructure plan, which will be built to ease connectedness and better facilitate global trade.

As for Brexit, no doubt when the UK leaves the EU, Chinese-UK and Chinese-EU relations will need to be redefined, and this redefinition will depend on whether a hard or soft Brexit is sought. Existing cross-border agreements will need to be reviewed and renegotiated, and this will affect Chinese FDI placed in both the UK and in the EU.

Lastly, the U.S. Administration's "America First" policy leaning has not ruffled too many feathers amongst Chinese businesses, with 75% of Chinese companies surveyed by the Chinese Chamber of Commerce, and doing business in the U.S., having either a neutral or optimistic view of China-U.S. relations moving forward.

Whether SOEs, POEs, or unicorns, a multitude of Chinese companies have participated in outbound business investment activity thus far over the last few years.

Figure 3: The seven markets in the four major global geographies which saw the greatest Chinese outbound business M&A investment in 2016



Source: Mergermarket, Cushman & Wakefield Research

Some highlights from our recent outbound business investment survey of corporate real estate professionals working for Chinese companies are:

35% 35% of Chinese companies surveyed said market penetration is the leading driver for going global.

Chinese companies are targeting North America, other parts of Asia and Europe as the top markets for business expansion in the future.

Representative offices are the most prevalent overseas property type on the portfolio books of Chinese companies.

56% 56% of Chinese companies surveyed stated that leasing is the favorite method of holding overseas property.

76% 76% of Chinese companies surveyed suggested that the rate of overseas business expansion will either continue at the same rate or accelerate in the future.

As Chinese companies continue to set up business operations around the world, more will begin to understand that each geography has its own property market rules, regulations, dynamics, and characteristics. As Chinese corporates increasingly have a global property portfolio in multiple country markets, many more Chinese companies will leverage property service providers that have a global reach and the ability to advise on their ever growing global real estate needs.

Risk or reward: make the right move

GROWTH HAS MOVED UP THE PRIORITY SCALE TO MATCH COST AS THE MOST IMPORTANT LOCATION CRITERIA FOR MANY COMPANIES. ACHIEVING GROWTH IN AN INCREASINGLY COMPETITIVE GLOBAL MANUFACTURING ARENA REQUIRES STRATEGIC POSITIONING RELATIVE TO LONG-TERM STRUCTURAL TRENDS.

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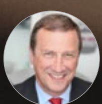

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The rapidly evolving economic, political, and technological landscape has rendered plant location decisions more complicated. New cutting-edge technology – encapsulated by what is known as "Industry 4.0"– provides enormous potential, but doesn't come cheap. Pursuing cost efficiencies at the production level must often be weighed against supply chain efficiencies. Adding to this, new pockets of political risk are emerging that threaten the fluidity of global and regional supply chain networks. Navigating these complexities to select the best locations that maximise efficiencies is increasingly requiring manufacturers to embrace change.

The Manufacturing Risk Index examines a range of risk and cost factors, including political and economic risk, and labour cost. We have updated and adjusted our previous model to provide a more comprehensive assessment of the attractiveness of 42 countries for global manufacturing.

THE CRITERIA HAS BEEN WEIGHTED TO REFLECT THREE MAIN SCENARIOS:

> A balanced (or baseline scenario) giving equal importance to operating conditions and cost.
> A more cost sensitive environment.
> A manufacturer concerned more about local operating conditions that include risk factors.

GLOBAL RANKING

BASELINE SCENARIO					ALTERNATIVE SCENARIOS	
REGION	RANK 2018	CONDITIONS (40%)	RISK (20%)	COST (40%)	COST SENSITIVE RANK (CONDITIONS 20% / RISK 20% / COST 60%)	CONDITION SENSITIVE RANK (CONDITIONS 60% / RISK 20% / COST 20%)
China	1	8	26	15	1	4
Lithuania	2	16	19	20	3	5
Malaysia	3	20	24	13	2	11
China, Taiwan Province of	4	14	21	24	16	7
Canada	5	10	7	27	25	3
United States	6	3	6	28	27	1
Hungary	7	21	18	22	13	12
Czech Republic	8	24	10	26	18	13
Slovakia	9	23	13	25	19	14
Turkey	10	22	34	8	12	20
Peru	11	28	30	6	6	23
Philippines	12	31	31	3	5	27
Colombia	13	27	29	11	11	25
Russian Federation	14	38	25	5	4	32
Thailand	15	25	36	12	14	24
Romania	16	35	23	17	10	29
Poland	17	26	22	23	20	21
Singapore	18	1	15	30	30	2
Bulgaria	19	30	27	18	17	28
Indonesia	20	39	28	4	7	33
Mexico	21	32	32	9	15	31
Sri Lanka	22	34	39	2	9	34
Vietnam	23	40	38	1	8	40
Korea, Republic of	24	9	20	29	29	10
India	25	37	33	16	21	37
Morocco	26	36	41	7	22	39
Tunisia	27	33	40	10	23	38
Brazil	28	29	37	21	26	35
Argentina	29	41	35	14	24	41
Spain	30	13	14	31	31	16
United Kingdom	31	7	12	34	34	8
Australia	32	15	11	33	32	17
Japan	33	12	16	32	33	18
Netherlands	34	6	5	36	35	9
Sweden	35	2	3	39	39	6
Austria	36	11	4	38	37	19
Italy	37	18	17	35	36	30
Germany	38	5	1	40	40	15
France	39	19	8	37	38	26
Venezuela (Bolivarian Republic of)	40	42	42	19	28	42
Switzerland	41	4	2	42	42	22
Belgium	42	17	9	41	41	36

To achieve growth, manufacturers must strategically position themselves to take advantage of a number of structural trends that are growing in importance and promise to transform traditional production processes permanently over the next 10 years. The most important trends impacting the sector are listed below.

1. TECHNOLOGY & INNOVATION is already contributing to production efficiencies and safety in both production and finished goods. To contend with more competitive pricing, manufacturers are able to use new technology to enhance supply chain visibility, improve speed to market, reduce labour reliance, and re-shore to create jobs in home countries. However, the high-cost of technology and innovation continues to limit the pace of implementation globally.

2. POLARISATION OF LABOUR REQUIREMENTS within the manufacturing sector is expected to amplify between "easily automated" and "labour intensive" industries. To the extent that some regions can have significant labour cost disparities (e.g., Asia and Europe) due to a mix of developed and emerging economies, location decisions need to be country – rather than regional-based.

3. PROTECTIONISM/NATIONALISM in the form of tighter or closed borders is a lingering threat to both global and regional supply chains. Current free trade zones at risk include the EU (Brexit and tighter borders between EU states), NAFTA, and TPP. It is unlikely that this protectionist response in Europe and the U.S. will wane in coming years since the primary contributors (i.e., political and social instability in the Middle East, North Africa, Asia, and Latin America) to growing support for enhanced border controls remain unresolved.

4. CONSOLIDATION AND M&A within the manufacturing sector remains robust with 32% of the $2.5 trillion of completed transactions in 2016 involving high-tech companies. With almost $1.3 trillion in announced deals occurring during the first half of 2017 – well above the historical average of $1.2 trillion – global M&A activity is maintaining its momentum. The sector's increasing focus on high-tech acquisitions is a strong indication that manufacturers are embracing technology as the way of the future.

CEE REGION BECOMES A FORMIDABLE CONTENDER FOR TOP RANKING

> Lithuania ranks as the second most attractive country for locating manufacturing facilities on our revised index.

> Despite wage increases in Central Europe, CEE labour costs remain the lowest in Europe. Labour costs in Lithuania are 14% below those in Poland and 30% lower than in the Czech Republic.

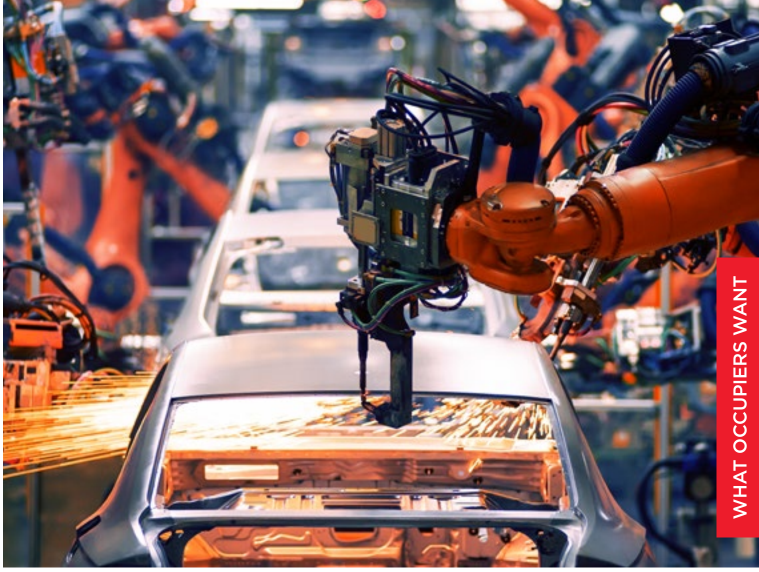
> Just under Estonia, Lithuania ranks second in the CEE region on ease of doing business.

> On a global basis, labour costs in core CEE economies (Czech Republic, Slovakia, Poland, and Hungary) are more than double those of China and India, but still 60% below the U.S.

> Historical ties to Germany and Austria, the region (particularly Czech Republic, Slovakia, and Poland) has maintained its role as a lower cost location for car manufacturing, which continues to integrate a growing degree of automation. Meanwhile, wage hikes and growing labour shortages in Central Europe are pushing more cost-sensitive industries east to Lithuania, Romania, Bulgaria, and Turkey.

> Hungary has distinguished itself in the region as a leader in pharmaceutical production. As Hungary emerges from a lingering fiscal crisis, it has made efforts to improve its competitiveness in the region, starting with lowering its corporate tax to just 9% (from 19%) that became effective in January 2017 - the lowest in the region.

> Emerging manufacturing locations in Turkey, Romania, and Bulgaria are increasing in attractiveness based primarily on cost. However, poor infrastructure and relatively high corruption perceptions have deterred manufacturers from locating their plants in these countries. In the case of Turkey, recent geopolitical unrest has decreased its attractiveness for international companies.



ASIA PACIFIC STILL AT THE TOP OF THE LIST

- Lower labour cost countries in the Asia Pacific region (i.e., China, Malaysia, Taiwan, and the Philippines) take top spots on our revised baseline scenario.

- China remains a global manufacturing powerhouse. While cost-sensitive production is increasingly turning to lower cost countries in the Asia Pacific region, China's efficient supply chains and infrastructure networks continue to provide a reliable export platform. The country offers growing opportunities for high-tech manufacturing as the government pursues its "Made in China 2025" program designed to upgrade the national industry.

- Topping last year's global ranking, Malaysia ranks third on our revised baseline scenario. With labour costs comparable to China's, Malaysia is shifting from its formal status as a low-cost location to a high-value manufacturing hub. To this end, the 2017 Global Human Capital Outlook highlights Malaysia as having the largest pool of skilled workers in the region.

- Ranked fourth on our baseline scenario, Taiwan has gained a reputation for electronics components manufacturing. Foreign Direct Investment (FDI) in this sector reached a six-year high in 2016, highlighting the continued appeal of the country for this type of production. The government's investment policy also supports the machinery, biotechnology, pharmaceuticals, "green" innovation, and national defence sectors.

HOPES FOR RESHORING IN NORTH AMERICA

- Canada (fifth) and the U.S. (sixth) are among the top 10 on our baseline scenario.

- A sound business environment, high-quality infrastructure, and availability of skilled labour contribute to the attractiveness of the U.S. and Canada as manufacturing locations.

- Production in North America also benefits from low-energy cost, which is increasingly important in the context of increasing automation. Cost of electricity in the U.S. is around $0.07/KWH 2017, compared to circa $0.20/KWH in Germany.

- The recent announcements from Toyota/Mazda and Samsung to make additional investments in plants located in the U.S. are fuelling hopes of re-shoring. The 2010-2016 re-shoring initiative survey points to incentives, availability of skilled workforce, and proximity to consumers as being the most persuasive for companies.

- President Trump's protectionist rhetoric and aversion to NAFTA treaty has cast a level of uncertainty on the future shape of the North American supply chains. While currently unlikely, a withdrawal of the U.S. would penalise Mexico and Canada as manufacturing bases.

WHAT OCCUPIERS WANT

Measuring occupancy cost against value creation

The purpose of an office is to bring together people so that they can work collaboratively towards their organisation's goals. The quality of the work environment can have a significant impact on employee productivity and innovative thinking – getting it right is critical. But, how do we know if we got it right? Metrics for productivity are notoriously elusive and determining the incremental value of one workplace design over another is even more difficult.

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The workplace design process always struggles to balance two goals in conflict with one another: delivering cost savings (making the most of the space) and generating value (making the most of the people). Companies need places that energise employees, encourage social interaction and collaboration, enhance personal control, and provide services and events to improve people's quality of life at work. But at the same time, corporate real estate teams are always challenged as they are expected to keep spending to a minimum.

Workplace factors affect workplace productivity and many elements that enable high-performance workplaces are connected to employee health and well-being. Given that up to 90% of operational expenditure is on employees, even a small improvement in wellness and well-being can have a huge impact on productivity – repaying the incremental occupancy cost many times over.

Fostering workplace well-being involves not only physical wellness, but also employee engagement, which executives consider a top factor influencing an organisation's success. Employee engagement is influenced by many factors, but the ability of an office to engender a sense of belonging and control should not be overlooked. In fact, the physical workplace is identified as one of the top three factors used to attract desirable employees.

C-suite executives are increasingly recognising that they can use their office space to attract talent and encourage productivity – and with the help of their CRE departments, they know the ingredients of a high-performance workplace. Although we can measure the cost of occupancy strategies, measuring the value created remains an elusive challenge.

> **Cognitive performance scores of people in green+ environments are double those of people in high-density open plans with artificial light and limited choice of work settings.**
>
> - Harvard T.H. Chan School of Public Health's Centre for Health and the Global Environment

ENGAGING WORKPLACES

As companies recognise the importance of engaging and motivating employees, they're putting their office space to work to help achieve that goal with strategies such as:

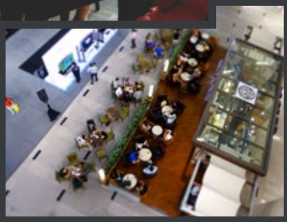
Space used as a key medium for expressing corporate culture and values.

Design and leasing for continuous adaptability and diverse use patterns.

Loose fit, activity-based settings for collaboration, creativity, and contemplation.

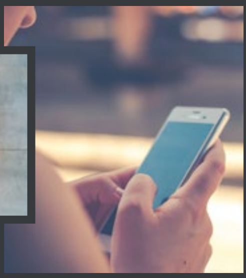
Shared spaces, used as a means to facilitate collaboration and community.

Events curated and managed to create memorable experiences and to attract talent.



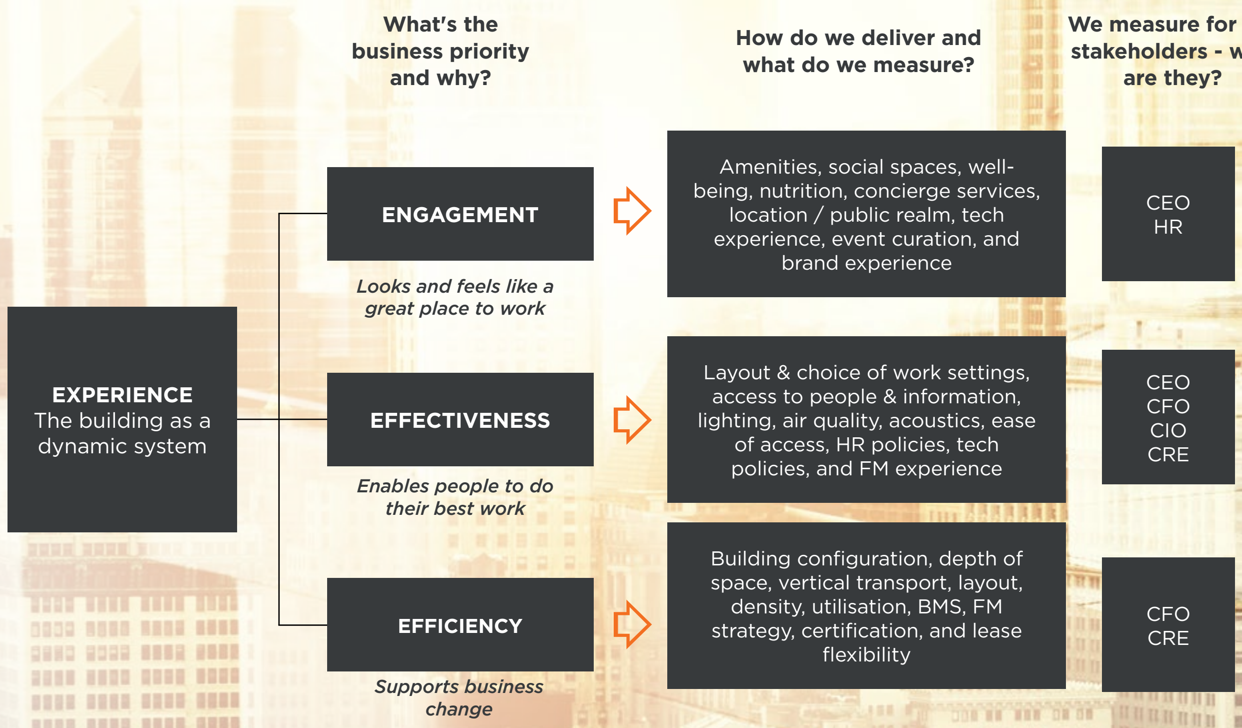
Amenities and service provision to support work/life (food, well-being, learning, etc.).

Permeable public realm to reinforce a sense of community and connection to the city.



Technology interfaces that are intuitive and seamless to improve the user experience.

METRICS FOCUSED ON BUSINESS PERFORMANCE



Measuring Enterprise Value

Traditional performance metrics are focused on the efficiency of the space, such as occupancy cost per employee or cost measured against revenue. These are metrics of interest to real estate directors, but fail to capture the attention of business leaders. A focus on space-oriented metrics can compromise the larger goal of value creation, talent attraction, and productivity by negatively compromising the employee experience.

It's essential that metrics focus on effectiveness and engagement; exploring the impact of physical space attributes, technology enablement, and HR policies as well as understanding the corporate culture and values that impact the employee experience at work.

As we move to these higher-value priorities, the stakeholders also change. The impact of an effective and engaging workplace is of foremost importance, not only to the head of CRE but also to the COO, CFO, CIO, and CEO.

In order to demonstrate value, it is essential to also understand that the stakeholder priorities and timelines are diverse and often conflicting, which is why we need to identify the relevant data points, clear metrics, and benchmarks to address them and articulate the potential return that an investment in the workplace can make to the business.

Aided by technology trends such as the internet of Things and the convergence of corporate functions, CRE is becoming a service industry focused on people's experience rather than on assets. Design and management of buildings will be less about the "hardware" of work – desks, partitions, technology, or specifications – and more about the "software" of work – the cultural, social, and value systems of the organisation.

We will see a focus on the value of the experience of work itself and user choice over when, where, and how work happens. Work will be staged in environments which are dynamic rather than static and adaptable to change as often as work itself changes by the hour, day, and week. Increasingly, the

workspace will be an event-driven, curated experience in which space, tools, and technologies are provided to support the ever-changing daily needs of groups and individuals to create the successful conditions of their own work.

For larger organisations, this shift may affect only part of their real estate portfolio and some of their workforce; nevertheless, it represents a new dynamic in the real estate market and a big shift in expectations about the value of space and real estate. As with the best public spaces, these new workplaces can stitch together private institutions to provide a sense of place and inspiration, which is greater than the sum of its parts.

EIGHT FEATURES THAT MAKE HEALTHIER AND GREENER OFFICES

01

Indoor Air Quality and Ventilation
A well-ventilated office can double cognitive ability.

02

Thermal Comfort
Staff performance can fall 6% if offices are too hot and 4% if they are too cold.

03

Daylighting and Lighting
A study found workers in offices with windows got 46 minutes more sleep a night than workers without them.

04

Noise and Acoustics
Noise distractions led to 66% drop in performance and concentration.

05

Interior Layout and Active Design
Flexible working helps staff feel more in control of workload and encourages loyalty.

06

Biophilia and Views
Processing time at one call centre improved by 7-12% when staff had a view of nature.

07

Look and Feel
Colors, textures, and materials that evoke nature; adding houseplants to an otherwise sparse office environment can increase well-being by 47%, increase creativity by 45% and increase productivity by 38%.

08

Location and Access to Amenities
Public transport accessibility, provision for bikes, showers, healthy food, and other lifestyle amenities; a Dutch cycle to work scheme saved £27m in absenteeism.

Source: World Green Building Council - Better Places for People

CREATIVE PLACEMAKING

There are two major choices that define our lives.

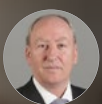
The first major choice is what to do. For most of human history this was decided before you were born – you hunted or gathered. Today we have a smorgasbord of choice. Some people know exactly what they want to do whilst others take a little longer to find their calling.

The second major choice is who to marry. Children, income, and happiness – that decision determines many aspects of life. For many people on the planet, marriages are pre-arranged or are made of economic necessity – love has nothing to do with it.

For centuries these two choices were life's most important choices – until now.

Today there is a third choice which, in time, may well eclipse the importance of the other two and that choice is where to live.

In the past, we had little or no choice in this regard. Humans were born, lived, and died in the same place. People were stuck in a spot due to transportation, safety, opportunity, and education. Today, the constraints are falling rapidly. Not only can we physically move places with relative ease, but we can be digitally transported. This, in turn, poses many challenges for the built environment. Our cities are built for a static population. How does it adapt to a more fluid population? In other words, where will people choose to live if they have the choice?



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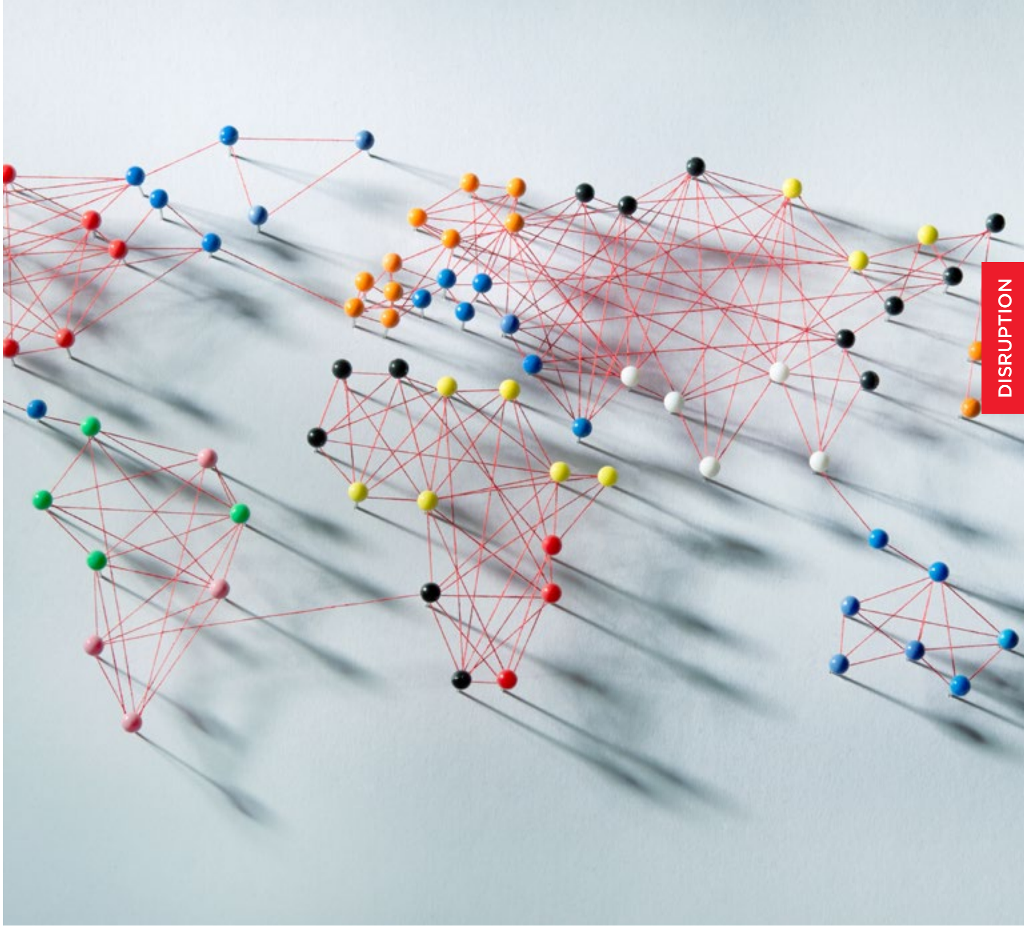


A totally connected world

The picture above is what the world really looks like now – completely connected. The national boundaries established after the second world war are becoming less relevant. That world is now slowly being dismantled.

The world is more connected and mobile, making it extremely easy to work anywhere at anytime with anyone, which poses an enormous challenge to the built environment.

What matters most today is not the largest population, but the largest number of skilled workers. This is currently dividing the world, countries, and cities.

In creating, curating, and building our cities, we should, if we want to be successful, be mindful of life's major choices, the life cycle of people, and the issues that are important to them. At their heart, communities are human environments.

In the book, "The Rise of the Creative Class" by Richard Florida, the working population is divided into "classes" according to the type of work they do. Those classes are as follows:

Agriculture and mining

As the name suggests, these people generally reside outside the cities and work on-site at the farm or the mine. Over the last century, first-world countries have gone from eight out of ten workers to two out of ten workers being employed in these areas of the economy. Next to none of these workers reside in the metropolitan areas.

The working class

Industrialisation took hold in the late 1800s, which resulted in thousands of workers moving from the farm and the mine into factories. The inner city suburbs still contain the houses and factories that remind us of this industrial past. Whilst labour intensive manufacturing moved offshore in the 1990s, the manufacturing that remains involves the production of food, housing, artisanal products, and the assembly of goods from overseas.

Jobs growth in this sector of the workforce has been sluggish and has only grown due to the increase in the overall population as demand for food and housing has increased. In time, as more technology disrupts these industries, less workers will be required.

The service class

These workers provide food, beverages, transportation, cleaning, entertainment, retailing, gardening, childcare, and any number of other outsourced services to the economy. In time, digital disruption will arrive to claim many of these jobs. For example, imagine two bars next to each other – one with people serving drinks and the other with machines dispensing drinks. The one with people has drinks at $20 and the one with machines is priced at $10 – which one will people go to? The conclusion is unavoidable.

Machines (capex) are getting cheaper and are expected to get so cheap that humans (opex) will not be able to compete. We refer to this today as "digital disruption" and the human element as "technological redundancy."

In Australia, approximately 10% of the retiring workforce are rendered redundant in their 50s with a further 25% forcibly retiring due to ill health. Both trends may be expected to accelerate over coming decades.

The creative class

This group of workers is sometimes referred to as "knowledge workers" and are employed across industries involved in technology, arts, professional services, education, and medicine. To economists, the creative class are a mobile factor of production. In other words, the creative class use their brains to make a living (as opposed to their hands) and are mobile insofar as they can effectively take their brains anywhere.

"The Rise of the Creative Class" by Richard Florida reported on the outcome of interviews with the creative class on what was important about place and they came up with eight critical factors:

THICK LABOUR MARKETS

This is not about a large group of people in one industry, but rather an eclectic mix of creative people working in proximity to one another. It allows for interaction, collaboration, and inspiration.

SOCIAL INTERACTION

People are social animals. We want to get together with other people. Organisations (public, private, and community) facilitate the social network as does the built environment through facilities such as parks, stadiums, auditoriums, and retail and hospitality venues. Arrangements that promote social interaction rather than oppose it are to be encouraged.

SCENES

What's your scene – classic music, opera, rock n roll, jazz, movies, food, wine, comedy, sport, arts, or culture? Cities and communities curate so many scenes, but what permission is there? What sponsorship – private or public? Scenes lead to understanding which in turn leads to tolerance from which many great things about living together come – it's a positive feedback loop.

AUTHENTICITY

Disney is not authentic in Hong Kong, Tokyo, or Paris, but is authentic in California. Likewise, I can see the Eiffel Tower, the Pyramids, and sail on a gondola in Las Vegas, but it is not authentic. Authenticity is about creating, curating, and maintaining something that is so fundamentally unique as to be authentically representative of the population. Just because something works overseas, does not mean it can be transported and enjoyed with the same resounding success.

LIFESTYLE

In some parts of the world, lifestyle is taken for granted. In other parts it is non-existent and in other parts it is accessible only to the wealthy and powerful. Think of the lifestyle you enjoy – swimming, surfing, skiing, hiking, dining, and entertaining, etc.

A MATE

For most people in the first world, marriage (or finding a mate) is high on the list of attractors for people everywhere. In many places in the world it is difficult. In China, there is an estimated 54 million more men than women. In some places it is illegal to be gay.

IDENTITY

Identity is more than your passport, birth certificate, or drivers licence. What we do in life gives us an identity (several in fact) and so does our built environment. When we go overseas, we identify as our country. When travelling in our country, we identify as being from our resident city or state. And when we are in our city, we identify as being from our suburb. These are just some of our identities, and it is from these identities that we pigeonhole and, in turn, are pigeonholed. We should aim to give everyone an identity through the built environment.

DIVERSITY

Wrapped up in diversity is tolerance. It is about people feeling accepted for whoever they are with as little judgement as possible – punks, goths, hipsters, hippies, yuppies, families, men, women, children, clothes, attitudes, and beliefs. Diversity and the permission to be who you want to be is extremely attractive to people.

We live in an increasingly connected world. It is estimated there are six billion mobile phone accounts, three billion people who have access to the internet, and 20% of the world's population live somewhere other than where they were born. A more borderless world is being created and the creative class are best placed to take advantage of this new world. If you work with your brain, you are what economist's term a mobile factor of production. Unlike farmers, miners, and factory workers, the creative class are not wedded to place. The creative class can live and work anywhere, anytime.

If we want to attract and retain the best and brightest, then we ought to build (and build into existing communities) the eight factors identified by Richard Florida as being important to the creative class.

Concrete jungles that are being built all around the world in greenfield and brownfield sites have no great future because they continue to ignore the fundamentals of cities – they are for people.

Master-planned cities, communities, and precincts often fail to consider what makes a built environment awesome. Communities and precincts reveal a lot that is found wanting in the thinking behind development and planning today. The crushing blow usually comes in the form of single use precincts designed around car-based cities.

Open public spaces should be smaller and more frequent than a sprawling park. The public and private built environment must form a symbiotic relationship to complement each other rather than clash – a single use is to be avoided at all costs. If we think of the built environment in human terms, then cradle-to-grave is a good yardstick by which to gauge success. If we begin and end with hospitals, that's a good start followed by childcare, kindergarten, primary school, high school, and tertiary education. We then look for retail amenities, entertainment, public and private services, jobs, and finish with accommodation. Not just one style of accommodation, but everything catered for singles, couples, families, and aged care.

Affordability can be encouraged through diversity and scale. Appropriate housing for appropriate life stage in appropriate quantities – but that's easier said than done. However, planning and permission should work hand in hand to achieve success as should private and public interests. We fall short of achieving optimum outcomes because one set of interests overrides another.

If we can work anywhere anytime, then all our built environments will eventually meld into one. The mixed use, multi-function polis, or a return to the medieval village is a more likely future than the isolated, dispersed, car-based cities of the past. The office of the future is flexible and location-agnostic – retail is viewed as a service, it's unique and 24/7. Your community has all this and public amenities too in the form of parks, gardens, schools, health, and more. Residential should reflect the life stages of people from families, to singles, students, retirees, and aged. It should also reflect accessibility for all workers in the community regardless of income.

A city of the future might contain old, new, tall, small, public, private, open spaces, trees, people with children, business people, tourists, young, old, bicycles, public transport, no straight lines, nooks, crannies, mystery, adventure, permission, diversity, tolerance, and scale.

For the first time in human history, the world's population is getting a choice about where they want to live and, increasingly, having the means to affect that choice. So, where will people choose to live if they have the choice?

Can occupiers have it all?

TALENT FINALLY REACHES TOP CRE DRIVER AFTER YEARS OF COST DOMINATION

While talent has been the key challenge for most global CEOs, it has taken a few years to reach the top of the CRE executive agenda. Our survey results show that after years of cost focus, CRE strategies are increasingly driven by the talent agenda and support stronger alignment between CEO and CRE objectives.

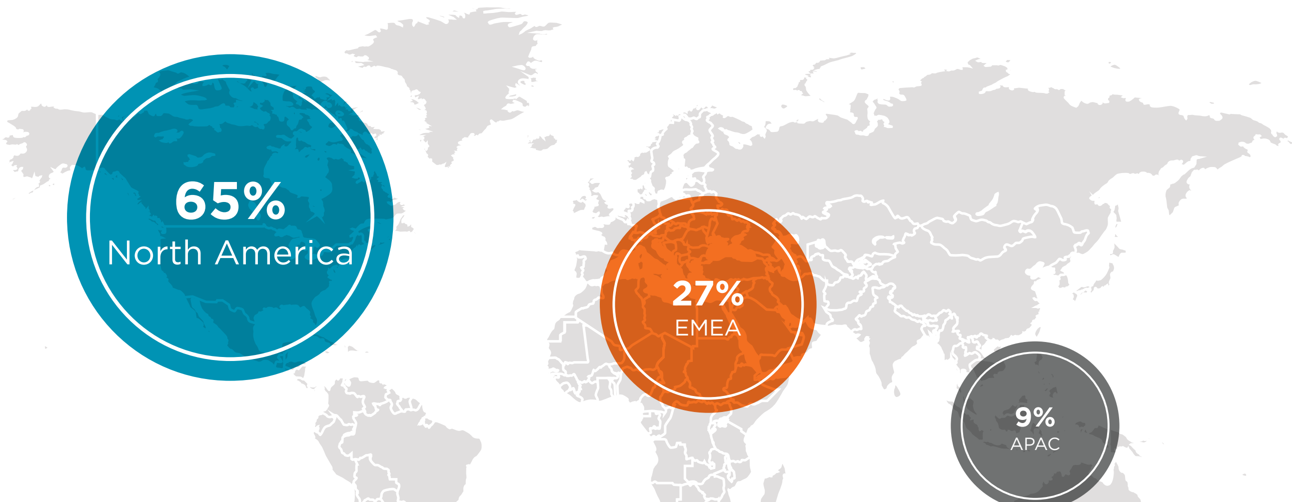
Besides talent and pressure to contain costs – operational excellence, innovation, and customer relationships have all been identified as key CRE drivers. All of these factors must be weighed with (and often against) each other as global organisations are making decisions about:

- Where to locate operations?
- What clusters and ecosystems benefit them most?
- How to integrate flexibility?

This year, the survey also highlights the importance of clustering and collaborative innovation in CRE location drivers.

All of these themes come through in the most recent version of the What Occupiers Want research project conducted by Cushman & Wakefield in conjunction with CoreNet Global. As in prior years, the data gathered includes feedback from CRE executives across a variety of industry sectors. The global trends show that leaders are looking for ways to utilise real estate strategy as a talent sourcing and retention tool in order to drive business goals.

Survey responses came from CRE leaders in several business sectors, all of which were well represented by a sizable pool of respondents. Surveys were conducted on-line and onsite at each regional CoreNet Global Summit. Responses were analysed globally, regionally and by industry sector.



67% of respondents with more than **50** locations

A significant response pool **ACROSS INDUSTRY SECTORS**

Strong representation of **U.S. HEADQUARTERED MULTINATIONALS**

THE SEARCH FOR TALENT

The number one challenge facing corporations across the globe – right alongside cost pressures – is talent availability. Attracting and retaining talent is also a driver of how companies think about where they locate their operations.

These challenges are real. Unemployment has been declining globally during the current economic expansion. There has been a shift towards a digital economy. Corporations are all increasingly targeting the same STEM talent pool, but education systems simply can't deliver fast enough in most western economies.

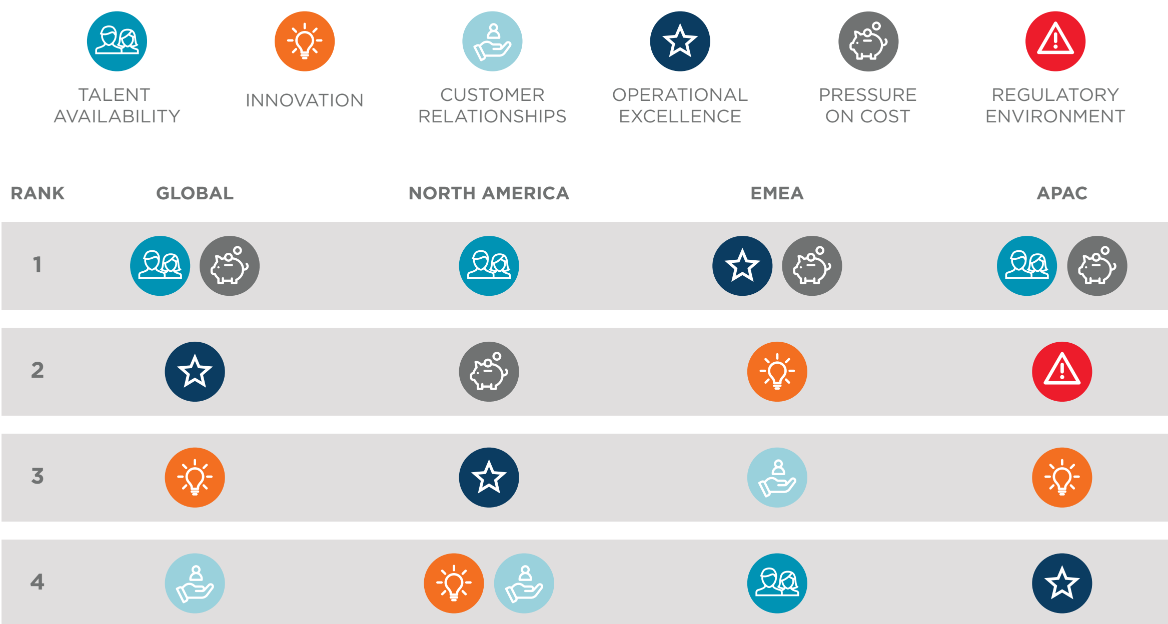
In the face of such undersupply in workers, CRE executives in North America and Asia Pacific (APAC) ranked talent as the most important corporate challenge. Only in EMEA was talent behind concerns such as costs, operational excellence, and innovation. In all three regions pressures on cost were either tied for the top spot (in EMEA and APAC) or in second place behind talent availability (in North America). The focus on managing costs is, in fact, likely to be exacerbated by the challenge of finding and retaining the skilled workforce needed. Wages have been growing at a slower pace than during previous economic recoveries, but are beginning to show signs of upward momentum. This will drive an increase in human capital costs even as corporations are struggling to fill all of their open positions.

Beyond talent and costs, operational excellence was high on CRE executives' minds coming in at number two globally. Operational excellence was tied with cost pressure as the largest challenge by executives in EMEA. Operational excellence came in behind talent and cost in North America, but outranked innovation for the second year in a row. Operational excellence was lowest in the APAC region, behind both innovation and regulatory environment, the latter having become a larger concern in executives' minds over the past year.

These goals, of course, can be at odds: how does an organisation maximise quality talent, increase innovation, and drive operational excellence while keeping a focus on costs? Corporate real estate has a history of falling under the CFO chain of command and/or being seen as a cost primarily to be contained. This makes sense given that it is often such a large expense and was often considered a commodity, however, in the current economic and employment climate, occupiers can no longer think of real estate as merely a box – it should be seen as a differentiator.

Corporate real estate strategy needs to fall under business strategy. The question is no longer how to minimise costs, but how to expend the right amount of money to maximise business goals. This is why talent availability is such a large day-to-day concern for most CRE executives and why it is a top decision driver when making location decisions.

TOP GLOBAL CORPORATE CHALLENGES AND DRIVERS AS SEEN BY CRE EXECUTIVES



Talent sourcing & retention have become **EQUALLY CHALLENGING AS COST**

LOCATION DECISIONS

Since talent availability is the top corporate challenge, it is no surprise that it has become the top decision driver for commercial real estate location decisions. In a flip from 2016, talent availability is number one and cost dropped to number two. In North America, a full 30% of companies identified talent as the key location decision driver, while one-in-four companies in both EMEA and Asia Pacific agreed. Corporations continue to have a strong preference for Central Business District (CBD) locations with nearly half of all respondents (46%) citing CBD as their preferred location, which represents an increase of 6% over 2016. This is twice as popular as suburban parks, which are identified as the preferred location by 22% of corporations in North American corporations, 26% of those in EMEA, and 31% of APAC companies.

While the preference for core urban locations is growing, not all firms are yet considering relocation from the periphery to a core urban area. This hesitancy is primarily driven by the unit cost premium of Core Urban Area office space in most markets. Companies that have adopted more agile workplace policies have however been able to largely compensate the unit cost increase of urban areas by reducing the overall employee office foot print.

COMPANIES THAT HAVE NOT ADOPTED AGILE WORKPLACE POLICIES ARE OFTEN BLOCKED IN THE PERIPHERY FOR COST REASONS. THE SUBSEQUENT LACK OF ENGAGING WORKPLACE AND UNATTRACTIVE LOCATION IS HITTING THEIR RECRUITMENT ABILITY TWICE.

The pursuit of talent is the top reason that companies chose to locate in "sector clusters" with complementary institutions, such as competitors, educational and research institutions, and regulatory bodies. Being close to like-minded organisations in the same industry or sector is seen as a way to source and retain top talent, and this focus is true across various industries. Life Sciences, Financial Services, and TMT (i.e., Technology, Media, and Telecom) companies all placed talent as the number one factor in why they choose to locate in an sector cluster. And, a whopping 75% of Life Sciences corporations indicate they already have located themselves in one of these sector clusters.

MICRO LOCATION DRIVERS

Talent as key decision driver by region

Preferred location

CBD	URBAN CREATIVE	SUBURBAN PARK
45%	25%	22%
49%	14%	26%
46%	15%	31%

CBD locations are preferred across sectors (46% respondents) mainly real estate and public sector occupiers

Creative urban environments are most popular within construction with no take up in business services and public sector

Business services followed by TMT and Industry occupiers are most present in suburban business parks

LOOKING TO THE FUTURE

As real estate becomes more important in the recruitment and retention of employees, the number of senior executives concerned with real estate decisions is going to increase. No longer is it just the realm of CRE executives and/or the CFO. Increasingly, HR executives, CEOs, and CXOs (Chief Experience Officers) are highly focused on how real estate serves the business by attracting talent and creating environments that increase productivity, connection, innovation, and buy in to company culture.

One way that corporations are doing this is through increased office space flexibility. A large majority of corporate respondents indicate they are either introducing or testing agile workplace strategies including desk sharing. This is especially true in APAC (85%), but is a point of interest in EMEA (81%) and North America (71%). Corporations are also increasingly looking at co-working as an option for employees.

Over the next five to 10 years, we anticipate even greater focus on flexibility that impacts people's experience, the way office space is structured, and the types of technology required to do business. This will play out in the following ways:

PEOPLE

Office space will become the "workplace-of-choice," since companies will need to make people want to be there since they won't have to be there to do their work.

PLACE

Workspaces will become more like "theaters" in that the space will evolve for the project at hand and then be repositioned for the next "project/show."

TECHNOLOGY

Data will continue to become more prevalent as everything from sensor management of the workplace to the linkage to human impacts on experience will be measurable 24/7.

ABOUT THE DATA

Cushman & Wakefield and CoreNet Global have partnered to survey CRE executives around the globe about the most pressing issues they are currently facing. The What Occupiers Want 2018 research project gathers in-depth feedback from a wide array of corporations that represent all geographies, portfolio sizes, and industry sectors. Two-thirds of all respondents have at least 50 locations around the globe. The main topics covered in the research include:

1. Corporate challenges
2. Sector clusters
3. Location drivers
4. Workplace practices

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AWARD
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About Cushman & Wakefield

Cushman & Wakefield is a leading global real estate services firm with 45,000 employees in more than 70 countries helping occupiers and investors optimize the value of their real estate. Cushman & Wakefield is among the largest commercial real estate services firms with revenue of $6 billion across core services of agency leasing, asset services, capital markets, facility services (C&W Services), global occupier services, investment & asset management (DTZ Investors), project & development services, tenant representation, and valuation & advisory. To learn more, visit www.cushmanwakefield.com or follow @CushWake on Twitter.