

Real Estate Predictions 2020

Prepare to adapt to the changing market

Executive Summary

Welcome to the 2020 edition of the Real Estate Predictions. Twelve different countries have worked together to analyze the latest developments and trends that will impact your business. Curious to see which changes lie ahead? Read about the impact of climate change, Conversational AI, Proptech and many more...

Climate change and the real estate sector: From pleading guilty to delivering solutions

Fully aware of the responsibility they have on climate change and the impact this will have on their activities, the Real Estate and Construction players are firmly moving forward from a "plead guilty" position to a "solution maker" role.

Blending the digital with the physical to augment tenant experience

Considering real estate (CRE) as just a physical space is a thing of the past. The industry is at an inflection point. Real estate tenants and end-user expectations are evolving continuously in terms of how they engage with their physical surroundings.

Conversational AI: A potential game changer

The entire real estate industry is facing significant disruption as new technology and various digital offerings change the way people live and work. Enhanced customer expectations for more and more real-time and high quality services are a major challenge.

Campus: The working environment for companies willing to optimize real estate

At a time when the modern economy is knowledge-intensive and relies heavily on innovations, companies have become increasingly specialized and value chains became more complex. Campus development generates benefits for companies that want to innovate, grow and create a future-proof working environment.

Proptech on the move

As Forbes defines it, proptech is "businesses using technology to disrupt and improve the way we buy, rent, sell, design, construct, and manage residential and commercial property." Although a relatively young field, proptech startups have already raised over \$43 billion in funding worldwide since 2012.

Diversity & Inclusion in the Real Estate Industry

Traditionally, real estate has been a male-dominated industry, especially in key management positions. Although various efforts have been made to develop a more inclusive environment, there is still a gap that needs filling.

Real estate in 2020: The year climate change bears down on investment pricing

Nearly 35 years have passed since the publication of Our Common Future—otherwise known as the Brundtland Report—and its definition for sustainability: "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

Where and how will we live in 2040?

Brazil is facing a series of trends that are affecting the real estate sector across the globe. From rapid urbanization to changing demographics, the challenges in Brazil's real estate market can be seen in major markets everywhere.

Smart development of smart places

With cutting-edge technologies combining to make them a reality, smart places are the next generation of real estate development. Smart places have evolved from the sophisticated technologies that power smart homes and are now finding their way into offices.

From workplaces to living environments

It goes without saying that you would design a building to include lightbulbs and doors, but how about voice-controlled lighting or desk sensors that track user behavior in the workplace? Smart building technologies are here, and they will profoundly impact the future of work.

Data minimization: the importance of data

The importance of data and the growing impact of data mining and data analytics is clear to almost every one. Over the last two decades developments in these areas have resulted in the increasing availability of data for numerous purposes in society as a whole.

The workplace "hierarchy of needs"

In today's fast changing digital world of work and as companies rethink how they approach traditional real estate investments, workplace experience is increasingly in the spotlight.

In today's world; real estate, society and technology are inextricably linked. There's growing interest among enterprises in looking beyond *what's new* to *what's next*.

Deloitte can help. Our real estate professionals have deep industry experience and knowledge to help you achieve your business goals.

Table of contents

Executive summary	03
Climate change and the real estate sector	06
Tenant Experience	09
Conversational AI	13
Campus development	17
Proptech on the move	21
Diversity & Inclusion	25
Real estate in 2020	28
Where and how will we live in 2040?	31
Smart development of smart places	34
From workplaces to living environments	37
Data minimization	40
The workplace “hierarchy of needs”	43
Contacts	48
Authors	49

Climate change and the real estate sector

From pleading guilty to delivering solutions

For years those in real estate and construction have been aware of the impact their sector has on climate change. But while most acknowledged their responsibility, little was being done by them to address the problem.

Until now. In the past year, real estate and construction have started to take concerted action to not only mitigate the impact of their sector on climate change but proactively develop solutions. Whether due to expected tighter regulations or public pressure or generational change, the sector's newfound ambition to reduce their impact is a decidedly positive and important step in the climate mitigation effort.

Making the case for change

From carbon production to consumption of resources and land development, the lack of environmental movement from the real estate and construction sectors was contributing to an increasingly negative image of the sector. For years the sector received repeated censure from NGOs and warnings from scientists. Regulations imposed new reporting standards. Millennials, buyers, and even investors voiced their objections.

But only in the past year or so has the pressure started making a difference. And it has only been reinforced by

understanding the full extent of the risk climate change poses to real estate assets. In 2019, FourTwentySeven a publisher and provider of market intelligence on the economic risk of climate change, estimated that in Europe, 19% of retail spaces and 16% of offices were exposed to floods and/or sea level rise.

Clearly, the time has come for the real estate and construction sectors to start initiate real action on climate change. Already investors are taking climate change into account in their strategies by:

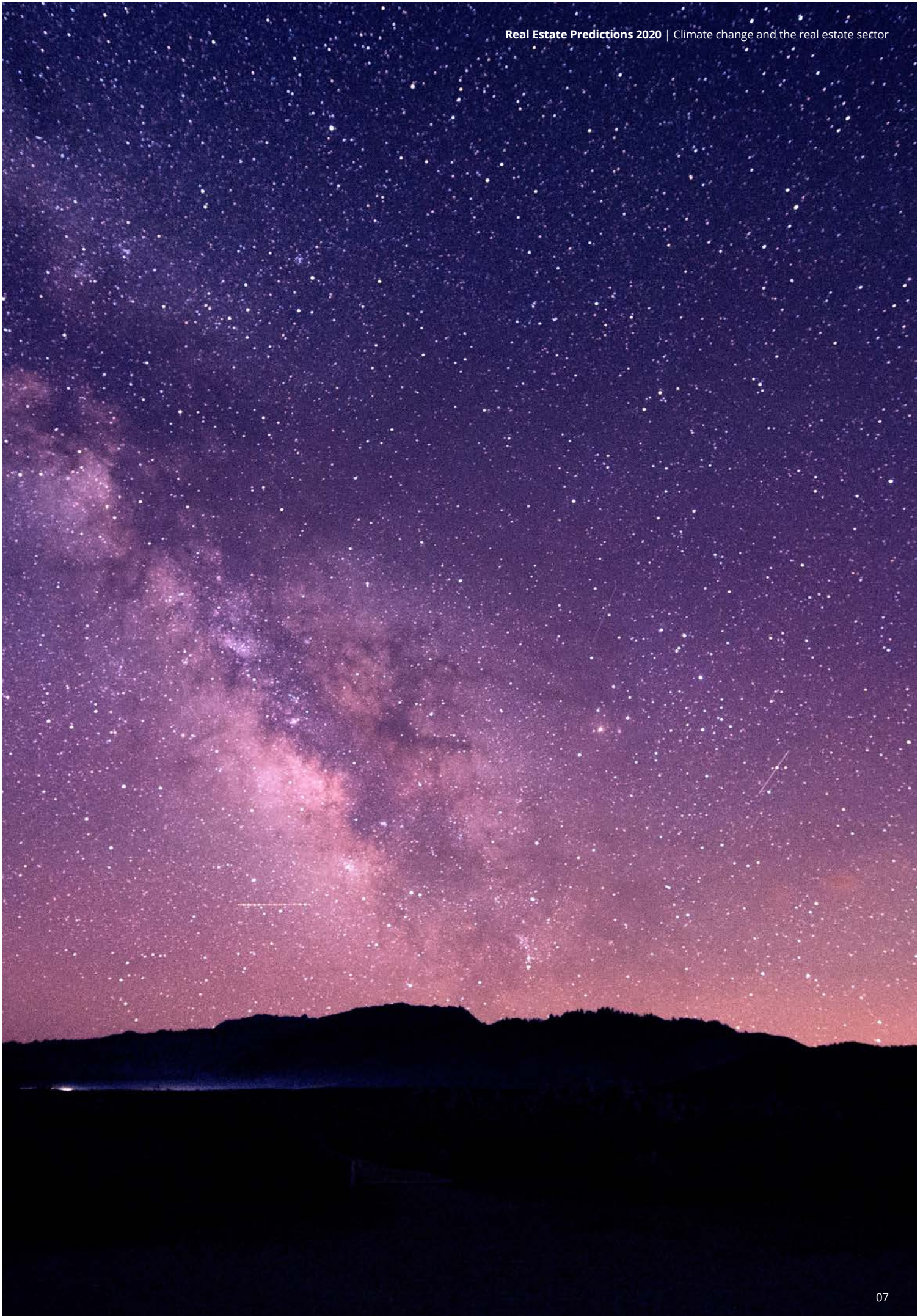
- Mapping physical risks for current portfolios and potential acquisitions
- Incorporating physical adaptation and mitigation measures for assets at risk
- Including climate risk in their due diligence processes
- Investing directly in mitigation measures for specific assets
- Getting involved in local resilience strategies with policy makers

The construction sector is also adopting new methods and materials to both limit their resources and energy consumption and resist climate-related extreme weather.

These actions bring the sector more in step with much of the business world. More than 500 of the largest companies are now part of the [Science Based Targets](#) initiative that champions competitive advantage in the transition to a low-carbon economy.

Moving beyond regulation

Regardless of voluntary actions, the real estate and construction sectors, like every other sector, has to adhere to the rising tide of climate-related regulations. All European countries are now following a path to tighter regulation and more demanding standards. In Germany, the European Energy Performance of Buildings Directive (GebäudeEnergieGesetz) will see numerous building efficiency regulations combined.



And in France, by 2021, regulation will be tighter and impose several actions for the real estate sector. This includes low carbon strategies that either adopt new construction methods or integrate circular economy as well as the respect of biodiversity, which calls for reducing or ending soil artificialization, renaturing soil, or developing natural spaces in urban areas.

But even though regulation is mandatory, moving faster than regulation can be a key competitive differentiator. A demonstration of climate concern ahead of and even beyond regulation can prove invaluable in today's marketplace, where climate and other social issues are playing a much larger role.

Taking bold action

The real estate and construction sectors are not only changing their attitude toward climate change but are embarking on bold actions to take mitigation even further. Recognizing their role in climate change, companies are thinking about even larger solutions that can help society at large limit temperature rise to below 2°C or 3.6 degrees Fahrenheit in the next 10 years, as stipulated in the Paris Agreement. These solutions are expected to revolutionize the sector's approach in four specific fields:

- **Energy production:** Every new building needs to be at least energy self-sufficient and ideally supply urban networks with additional production.
- **Raw material re-usage:** Each building must serve as a material repository: every refurbishment operation is an opportunity to supply other construction (infrastructure, housing, or other) with second-hand material. BIM and technology will facilitate inventorying and monitoring stocks.
- **Biodiversity enablement:** Biodiversity improvement should become a central pillar of every construction and rehabilitation operation, especially in dense urban areas where it is much needed for both health and temperature reasons.

- **Climate transition leadership:** The building sector has to take the lead in mitigating climate change by preparing its employees, products, and clients as well as the population for deep changes.

Leading the revolution

In order to achieve what represents no less than a revolution, the real estate and construction sectors will have to move quickly. They must review their operations and processes and supply chains. They need to adapt to new construction options, such as modular construction, and increase their R&D investments. And they need to recruit, hire, and train new positions like environmental or energy engineers and carbon specialists.

This will require new ways of working with an increasing number of external partners as well as successfully leveraging technology to ensure fluidity, traceability, and accountability. It's a challenging task—but one that is no longer optional. Because the time is now for the real estate and construction sectors to finally take a leading role in saving the planet.

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Blending the digital with the physical to augment tenant experience

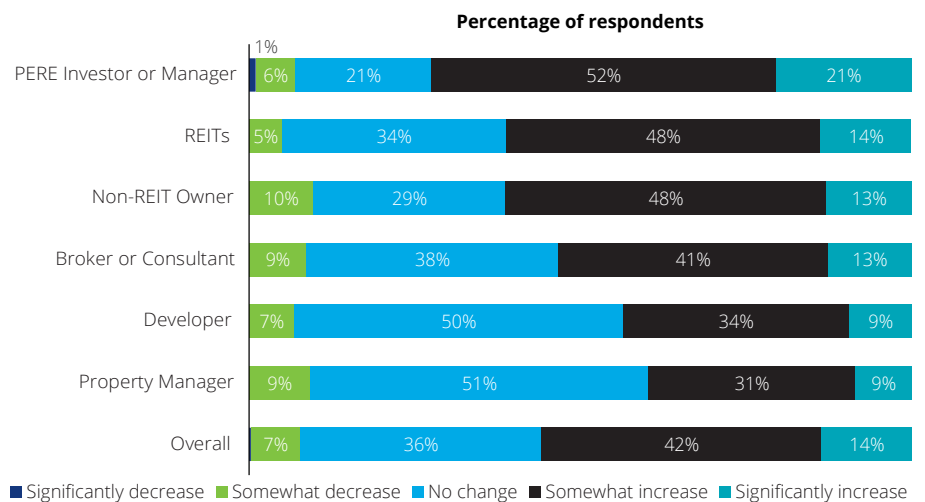
The commercial real estate (CRE) industry, which largely operates at the intersection of the physical real estate space and its users, appears on the cusp of a digital transformation. Tenants and end-users are largely looking forward to doing more with the physical space. They are increasingly looking at innovative and personalized technology-enabled experiences.

As an example, guests at Alibaba's futuristic FlyZoo hotel in Hangzhou, China, can use a digital assistant called Ask Genie to have a more personalized and secure experience, from reservations to in-room services¹.

Yet, a majority of respondents of our recent global survey of 750 CRE executives don't consider digital tenant experience a core competency. Only 38 percent of the CEO respondents consider digital tenant experience a core competency of their company, which is the lowest amongst the various C-suite respondents. However, it could be imperative for CRE companies to prioritize tenants' and end-users' needs given the increasing influence of technology on customer preferences.

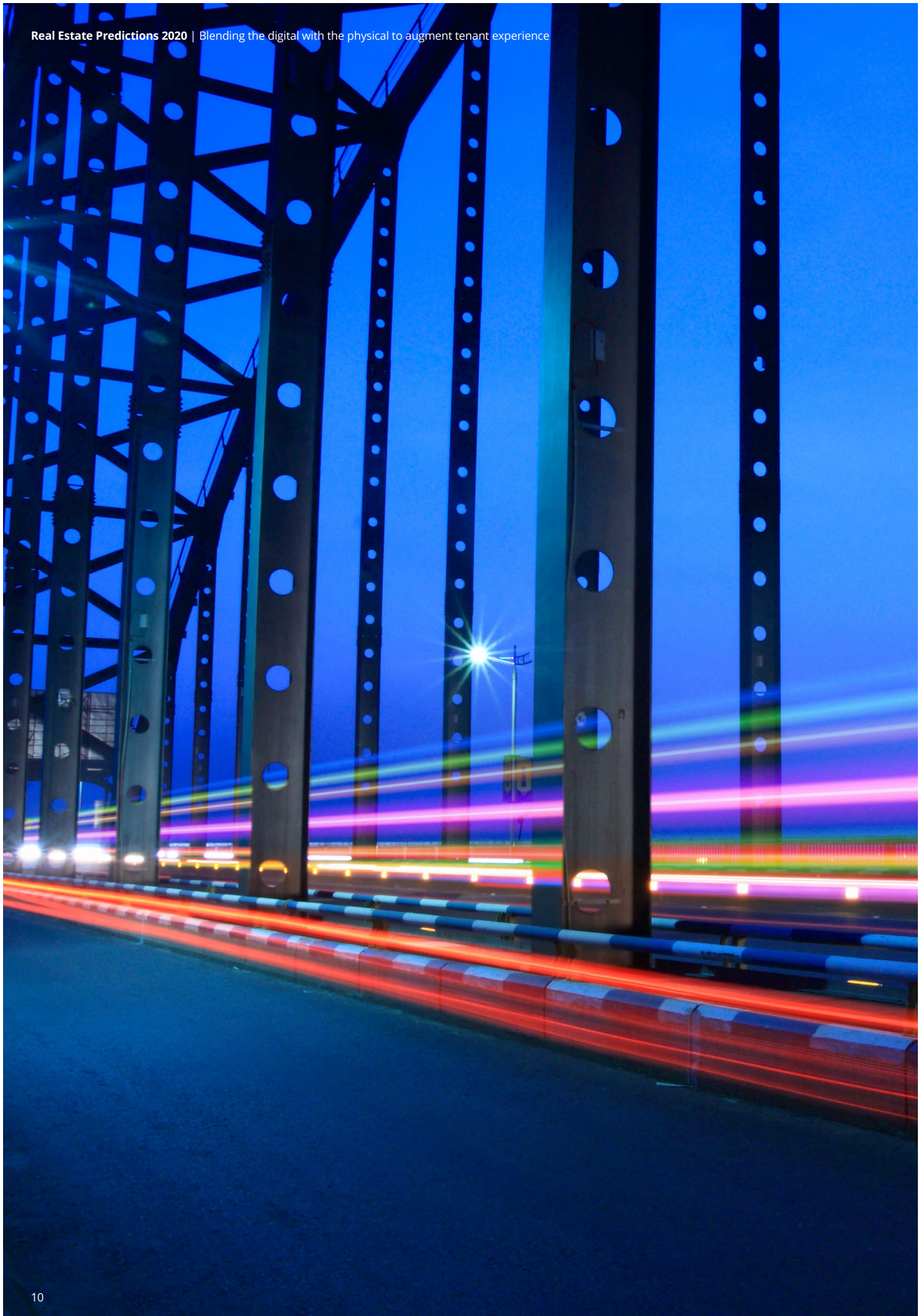
How are companies digitizing tenant experience? Let's begin with tenant experience-related technology investments over the next 18 months. Thirty six percent of respondents expect their organizations to hold the line on tech spending, while 42 percent anticipate a moderate increase, and 14 percent are likely to more than double. (see Figure 1).

Figure 1: Ninety two percent of respondents plan to maintain or increase their tenant-experience-related technology investments



Source: Deloitte Center for Financial Services analysis.

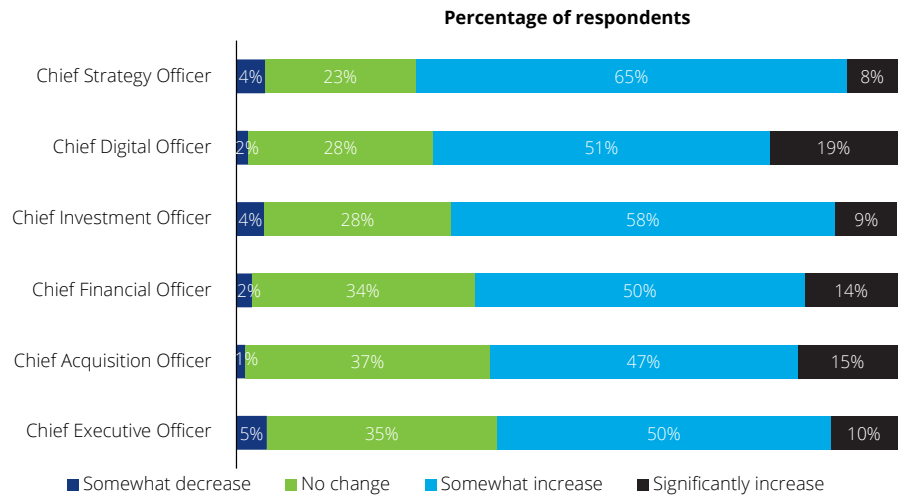
1. Anthony Pearce, "Alibaba's Flyzoo Hotel In Hangzhou Is Staffed By Robots", Globetrender, August 5, 2019.



Second, companies should put tenant and end-user preferences at the center of every business decision. The on-demand economy is reshaping tenant expectations about how real estate is consumed, and technology-enabled facilities and personalized experiences are already transforming the CRE industry. Today, creating superior experiences is not just about engaging the tenant, but also about extending services to the CRE end user, or the day-to-day consumer of that space: a retail shopper; a resident living in a multifamily property; an employee working in an office space; or a manufacturer using a warehouse. As attention spans wane, it will likely become more difficult to attract and retain tenants and end-users. Our surveyed executives believe that IoT technology and mobile apps are important technologies to help improve front-end experiences for tenants and end users. More than half of respondents believe that environmental and security technology investments will improve tenant experience. Mobile apps are a powerful tool to create personalized tenant/end-user experiences. Respondents cited features such as app-based entry, notifications and/or virtual events to enable community-building among occupants, tenant handbooks and newsletters, and contact information for property management and maintenance services as some of the most essential smart features' properties could offer.

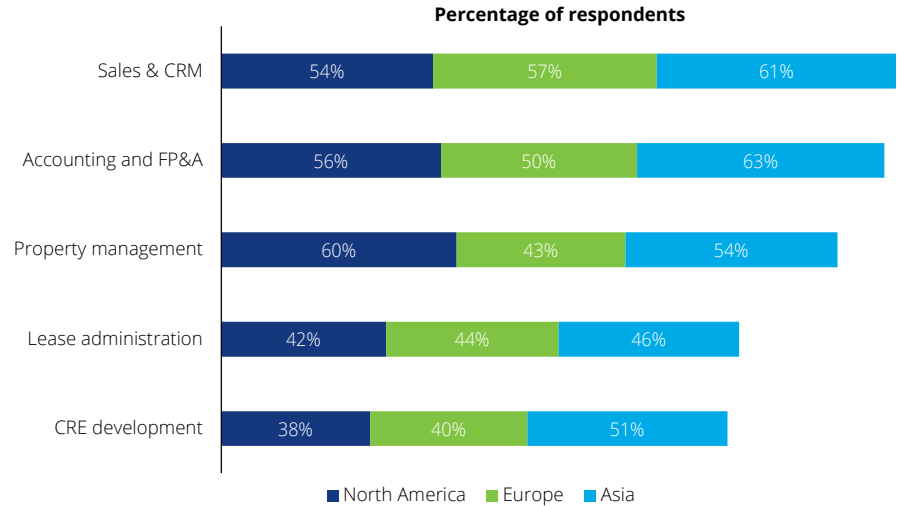
Currently, 58 percent of surveyed CRE executives consider tenant preference during the predevelopment stage. Organizations can use digital reality (DR) technologies to attract, retain, and engage tenants during the development phase of a CRE project. With DR, owners and developers can use prototyping tools and offer potential tenants a futuristic experience at the predevelopment stage.

Figure 2: Data governance investments in the next 18 months



Source: Deloitte Center for Financial Services analysis.

Figure 3: Departments benefiting from using AI technologies



Source: Deloitte Center for Financial Services analysis.

Third, data control, access, and analysis are expected to become more critical as data generation and usage continues to rise. Most CRE companies have not yet fully explored how to capture and use information to enhance decision-making, improve operating performance, and create a differentiated tenant experience. To maximize the value of the data they already have, whether collected internally or purchased from a vendor, CRE companies should develop platforms, processes, and a governance structure that enable data discovery, availability, management, and usability. Most organizations appear to understand the importance of data governance, as 68 percent of the surveyed chief investment officers (CIO) plan to somewhat or significantly increase data governance investments in people, processes, or technology over the next 18 months (see figure 2).

Last, with CRE industry's growing access to a wider variety of personal data such as user location, communication, behavior, and sentiments, cybersecurity and tenant data privacy are becoming top priorities. For some organizations, these concerns tend to limit use of emerging technologies such as IoT and AI. For instance, 44 percent of respondents chose data and privacy issues as one of the biggest challenges in adopting AI technologies. Separately, surveyed executives consider tenant relationship damage, turnover or lower rentals as the second most important impact of a data breach. High attention to cybersecurity and tenant data privacy are important to comply with different regulations, increase tenant loyalty, and maintain brand and reputation. As we look to 2020 and envision the next decade, the traditional mantra of *Location, Location, Location* is becoming increasingly irrelevant. The most successful CRE companies will likely be the ones that follow the mantra: *location, experience, analytics*. This requires companies to fundamentally rethink location, space requirements, users, and user preferences, and gradually shift to a service mindset.

To gain more in-depth insights from our global executive survey and strategies that can help companies amplify digital tenant experience, read our report "[2020 commercial real estate outlook: Using digital and analytics to revolutionize tenant experience.](#)"

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Conversational AI

A potential game changer for real estate customer service

The entire real estate industry is facing significant disruption as new technology and various digital offerings change the way people live and work. Enhanced customer expectations for more and more real-time and high quality services are a major challenge.

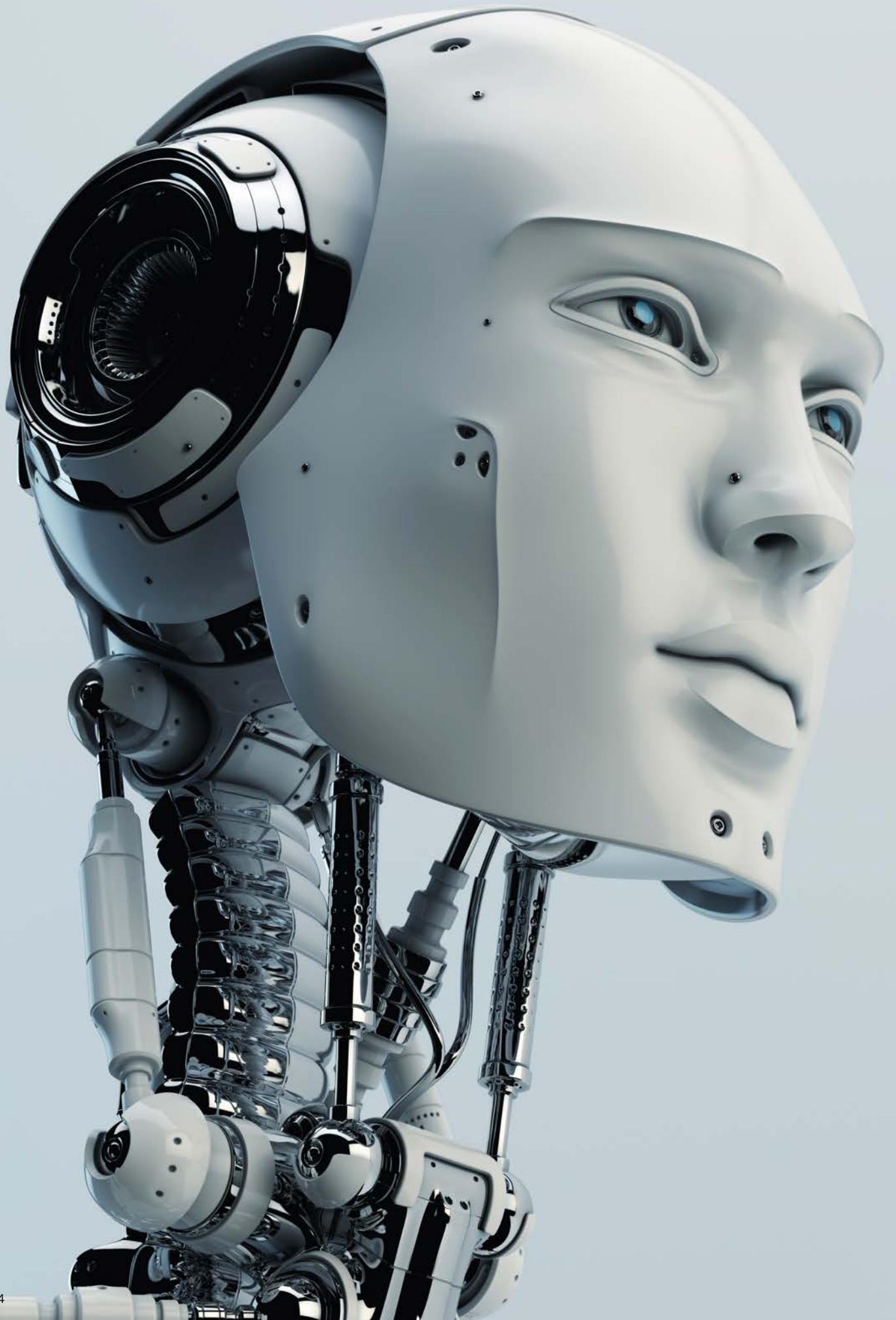
What is needed is more than a chatbot but rather a so-called “intelligent virtual assistant.” Enabled by conversational AI, these assistants would be built for purpose, have a rich set of capabilities, and be integrated into the end-to-end process landscape of the enterprise. They can also simultaneously act as an important interface within the entire real estate ecosystem.

Real estate and the digital customer experience

Today, expectations regarding customer service experience are mainly driven by the standards of the big technology firms. Personal contact is no longer the major relevant success factor in many processes. Rather, it’s easy and simple contact channels, 24/7 availability, fast response times, and a low error rate. Service desk automation and conversational AI can enable companies to design and deliver an experience that provides this value to the customer.

But to do this AI offerings need to move beyond static Q&A chatbots to a “personalized” agent with the ability to trigger or perform relevant tasks and events. For some selected use cases (e.g., targeting group-specific rental offerings or cross-selling services) additional capabilities will evolve, allowing the assistant to act as an intelligent advisor capable of making suggestions based on its integrated AI driven recommender engine. In the future add-on services like these could make the difference in real estate just like they do in modern online retailing.

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Facts and figures on market insights for AI based smart assistants

2 billion voice requests per week worldwide

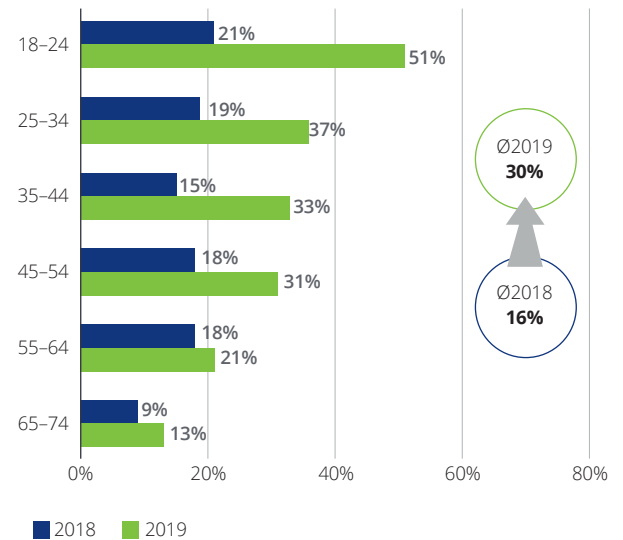
Global market growth for smart speakers will be **30%** p.a. until 2022

Where voice assistants are used: **79%** at home, **51%** in car, **6%** in transit, **1%** at work

Deloitte, "Beyond Touch – Voice Commerce 2030"

31% will consider smart home as decision driver for next flat or house
19% are willing to pay more rent for space equipped with smart home applications

Bitcom Digitalverband, Bitcom Research



Deloitte, "Voice assistant usage per smartphone" - Global Mobile Consumer Surveys 2018-2019

75% of Netflix viewership is driven by recommendations

91% of customers have called a customer service more than once to solve the same issue

90% complained that they had been put on hold for too long

80% had to repeat the same information to a different person during the same call

50% of all customer service calls remain unresolved due to poor customer service

Up to **10x** higher cost savings (comparison of resolution efforts for a classic customer phone call vs. virtual assistant interactions)

Deloitte, "Beyond Touch – Voice Commerce 2030"

Deloitte, Real Estate housing analysis

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A virtual assistant in practice

To be able to address all real estate related requirements, it is essential that a virtual assistant and the underlying digital service platform are integrated with as much of the real estate ecosystem as possible. The more relevant the stakeholders within the process cycle are, the better. This of

course becomes much easier if your virtual assistant covers real estate processes from end-to-end (which needs a deep and comprehensive understanding of all underlying real estate specific workflows and tasks) and provides open interfaces for connectivity to such systems as ERP, individual databases, CRM/ticketing, apps, smart devices, or external service providers. It's also important that the virtual assistant is flexible enough to stretch its scope or to integrate services from an ever-growing universe of micro services, the relevance of which will increase even more in the digital future.

With applied conversational AI and intelligent automation a wide range of suitable and easy-accessible communication channels becomes available (e.g., web, app, voice, smart speaker, smart watches, etc.). They all provide a much lower barrier to customer connection. Thus, the amount of reported incidents to be processed and managed will increase, particularly in a company that in the past avoided contact with customers due to poor service. Also, as digitalization allows you to better utilize and leverage your customer service resources, subject matter experts can take care of more extensive and value-added tasks while virtual assistants work on simpler client incidents.

There are opportunities for quick wins in this sphere, especially where there is little diversity, no sensitive client data to manage (e.g., residential marketing or letting research), and no demand for sophisticated interface models. But more attention and consideration is required. For example, in a CREM (corporate real estate management) case, a virtual assistant has to tackle the individual responsibilities and requirements of all involved players (owner, tenant, and service provider), needs to cope with the diverse interface landscape, and requires a clear data governance definition (e.g., ownership/usage of gathered data).

Don't get left behind

Remember, virtual assistants will impact your customer service no matter if you or your competition apply them. And even though conversational AI has already entered the market, implementation has typically not been treated as a multi-domain exercise across the entire real estate industry. Use cases differ across domains (e.g. housing associations, corporate real estate and facility service departments, RE service providers, nursing home operators, concierges, hospitality, etc.) and, as such, need to be adapted accordingly.

Within the real estate industry only a few companies, especially in housing, have started to realize the benefits of conversational AI. As of now most of the existing conversational AI services lack maturity and/or scalability, a reason being the functional depth of the real estate ecosystem, the diversity of requirements, and a weak process alignment. This often leads to bad user experiences, forcing businesses to rebuild their solution on a better suited technology platform and with a heightened focus on business requirements.

The future of customer service is AI

Having a suitable conversational AI platform and intelligent service offerings in place is the only way to foster sustainable and successful digitized customer service. Of course, solution implementation is only the first step. Providing conversational AI and virtual assistants to your customers is not a one-off task but an ongoing activity. It requires robust monitoring and analysis of all interactions in a professional digital operations setting that is optimized for the world of AI. This way continuous improvement becomes possible, which will ensure continuous service excellence and the overall success of your initiative.

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Campus

The working environment for companies willing to optimize real estate, collaborate, co-create, innovate, attract talent and grow

At a time when the modern economy is knowledge-intensive and relies heavily on innovations, companies have become increasingly specialized and value chains became more complex. Innovation is no longer a closed process that companies and knowledge institutions go through independently.

They increasingly innovate and co-create together. This is done through a dynamic network of partnerships. This new way of innovating changes the needs for the (physical) environment in which companies operate. A network of interactions is created - a web of interconnected, interdependent, companies and organizations that together innovate and create value - "the business ecosystem".

The spatial translation of a business ecosystem are commonly dubbed campuses, valleys, and districts. The campus, as the workplace of the future, facilitates cooperation and joint innovation between and within parties. We see a trend of companies that increasingly and successfully work in campus-like environments. Campus development generates benefits for companies that want to innovate, grow and create a future-proof working environment. However, there is no blueprint for successful campus development.

Campus development

A campus is a clearly spatially defined area in which researchers and companies collaborate intensively. Campuses are often part of a larger ecosystem. Users have access to knowledge, facilities, and talent. Real estate is no longer only used by a single user, but (parts of) buildings are opened up to third parties and alternative functions. By opening up real estate, one can promote interactions between parties and individuals, stimulate engagements and cooperation, and learn from one another. The campus environment is, therefore, a means for companies to achieve their broader objectives. The idea that companies have to do everything inhouse is outdated. Cooperation leads to progress. On the one hand, we see companies that become part of an existing campus. On the other hand we see companies that use their real estate to realize new campus environments.



Reasons for campus development

We have identified several reasons for companies to start with campus development:

Aspiration for cooperation and innovation:

New products and services are emerging, while at the same time existing products and services are disappearing. The search for cooperation can lead the way to new products, services and markets. The market shows that most successful innovations are developed with partners. This can be explained by the fact that in the early stages of an innovation process, there is a need for direct interaction and exchange of knowledge. That is, multiple cycles of developing, testing by third parties or potential clients, redeveloping and testing again, have generally proved to be more effective than linear in-house developments. Innovation activities are therefore often strongly spatially clustered. A campus offers the possibility to facilitate the required geographical proximity and cooperation between different parties. The real estate environment can therefore serve as a catalyst for innovation and lead to the development of new products and services.

A shift in housing: Nowadays companies require fewer square meters of housing, because of shared workplaces, co-location, flexible workplaces, smart building technology and more efficiency. By reducing their own footprint, companies create space for third parties within their properties, which saves costs and generates additional revenues. This also applies to shared facilities. Research has shown the campus-concept meets these workplace requirements of the future. The workplace of the future is focused on cooperation, sustainability, flexibility, shared facilities and entrepreneurship.

Soft exit: When relocating to a new location, companies want to make sure their existing buildings do not sit empty. To prevent vacancies and knowledge loss, they leave the old location in phases, while new companies gradually take over their place. Knowledge and facilities are then shared by a wide range of new parties.

Talent attraction: The campus model is also used to attract the increasingly scarce talent since it is a favorable working environment especially for young professionals. The campus can also facilitate education and programs to suit the demand and supply of talent better.

Benefits on different scales

While the strict definition of a campus is often linked to educational institutions and research, we see that the benefits offered by the campus model can be applied at different scales for all types of parties. We identify six layers of proximity:

- Geographical proximity: Being able to work together physically to consult and coordinate ad hoc.
- Social proximity: Being in, or being able to find contact with like-minded people (socializing).
- Institutional proximity: Belonging to a certain "subculture" or group with corresponding norms and values. It can have a virtual or physical component.
- Cognitive proximity: Access to people/databases, events, etc. with the same, related or relevant knowledge levels to make knowledge sharing easier.
- Organizational proximity: Reduction in barriers by belonging to the same organization/institution.
- Financing proximity: The possibility to get in touch with potential financiers and investors.

Campuses are a spatial translation of the emergence of local innovation ecosystems. However, only spatial proximity is not sufficient to exploit the benefits of the campus environment and to facilitate innovation. The benefits of working in a campus environment are only achieved under certain conditions. Firstly, the cooperation that underlies innovation must also be facilitated by programming (for example, workshops, lectures, congresses, events, etc.) and by informal meeting places. Secondly, the physical space must be arranged in such a way that cooperation is encouraged.

This includes a strong organization that actively shapes the cooperation. Thirdly, a clear content driven profile that is supported by the various users is also essential to make optimum use of the benefits that a campus environment can generate.

Conclusion

To be able to keep up with the pace at which innovation is taking place, it is crucial to recognize that leveraging third parties' resources, generates more benefits within a shorter timespan than doing everything in-house.

A campus as a physical environment can facilitate the development of new partnerships and innovations and can attract scarce talent. Parts of the campus concept can be beneficial for several parties that want to create a future-proof working environment. The benefits of a campus are such that more and more parties are opting for a campus solution.

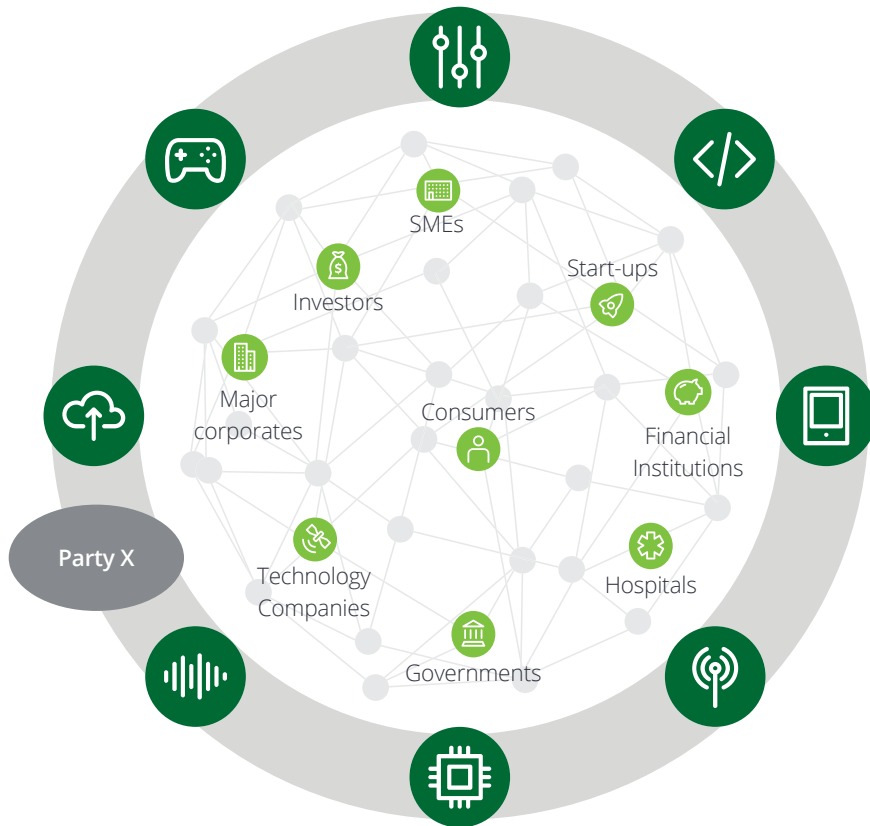
There is no blueprint for "how a campus, valley or district is successfully set up". This depends on the type of organizations and the goals they want to achieve. Specific knowledge of real estate in combination with how to set up partnerships is essential for creating a successful campus.

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Value creation is increasingly taking place in ecosystems



Proptech on the move

As Forbes defines it, proptech is “businesses using technology to disrupt and improve the way we buy, rent, sell, design, construct, and manage residential and commercial property.” Although a relatively young field, proptech startups have already raised over \$43 billion in funding worldwide since 2012. In 2018 alone there was an 82% increase from the year before.

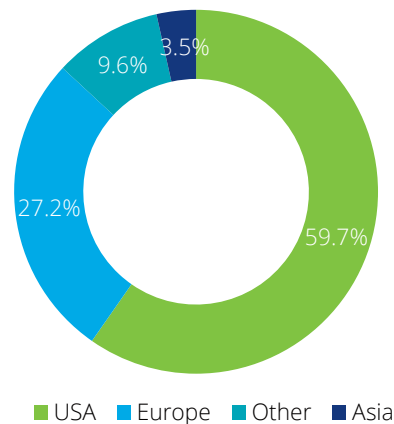
To emphasize the current size of this developing ecosystem, proptech today has the same funding size as fintech did back in 2013. And given fintech’s growth of 44.8% (CAGR) since then, the prospects for proptech are strong.

The rent generation

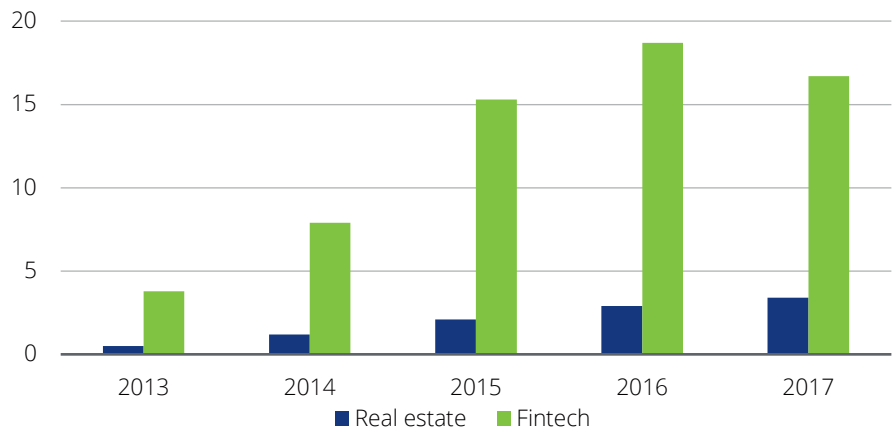
According to CNBC, the fastest growing trend in the housing industry is the demand for rental units and for fast development of vertical rental properties a trend also known as the “rent generation.” This shift in preference from owning to renting real estate is a major driver of the proptech trend. Tenants today have a constant desire to move into better, more updated spaces – spaces that include the latest technology, or what is now termed the “digital occupant experience.”

Whether it is in their work, retail, or living environment, consumers want an “experience” they can control – control of lights, temperature, access, and more – either from their mobile phones or some other digital channel. Proptech not only delivers this digital occupant experience, but with the use of technologies like augmented/virtual reality, it can radically enhance the customer experience while tenants and companies choose, manage, and use any property. In this way, co-living companies can now allow flexible leases and offer a high-quality furnished living experience.

The Geography of 2018 Proptech Companies



Funding perspective: Real estate vs. Fintech





And fintech-proptech companies can now offer a seamless tenant onboarding process. Proptech not only reduces costs in operational support but enhances the overall customer experience.

Smart buildings are the foundation of these solutions. By offering a platform to collect and analyze data, integrated systems that provide a better understanding of the end user can be enabled. The advanced technologies that support these platforms are now reaching a maturity stage where they can be implemented.

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latest technology, or what is now termed the "digital occupant experience." Whether it is in their work, retail, or living environment, consumers want an "experience" they can control – control of lights, temperature, access, and more – either from their mobile phones or some other digital channel. Proptech not only delivers this digital occupant experience, but with the use of technologies like augmented/virtual reality, it can radically enhance the customer experience while tenants and companies choose, manage, and use any property. In this way, co-living companies can now allow flexible leases and offer a high-quality furnished living experience. And fintech-proptech companies can now offer a seamless tenant onboarding process. Proptech not only reduces costs in operational support but enhances the overall customer experience

Smart buildings are the foundation of these solutions. By offering a platform to collect and analyze data, integrated systems that provide a better understanding of the end user can be enabled. The advanced technologies that support these platforms are now reaching a maturity stage where they can be implemented.

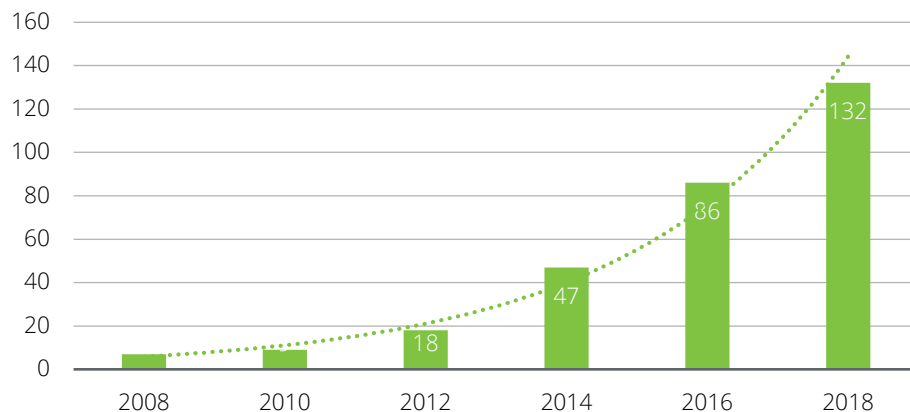
One innovation hub's proptech story With its more than 400 multinational R&D centers and innovation hubs, Israel can

provide insights as to the future of the burgeoning proptech sector. Known to be a leader in disruptive technologies and a first mover in new trends and fields, Israel was ranked the world's sixth most innovative country by the Bloomberg Innovation Index in 2020 and has the second-largest number of startup companies in the world – more than 7,000 – after the United States. With a population of only 8 million people, the country has more startups per capita than any other country in the world, concentrated around the city of Tel Aviv in an area called Silicon Wadi (valley).

Currently, there are more than 100 proptech startups operating in Israel, and this number reflects a 80% CAGAR in the number of proptech startups over the last five years. In 2018 alone, \$200 million were invested in proptech startups in Israel, closing a decade that saw over \$1 billion in capital raised, with several companies raising more than \$100 million. Given the vast definition of proptech, which refers to the entire value chain of property, several of the proptech companies are fintech related, demonstrating the connectivity between the two industries.

The key to Israel's success in proptech can be seen more clearly when analyzing the leading sectors within the proptech ecosystem – which includes investing and financing; planning and building; buying, selling, and renting; and managing and operating. It's this last sector that really stands out in Israel. That is, the strongest Israeli proptech startups focus on managing and operating, using technologies that digitalize tenant management, payments, and communication between buyers, sellers, and property owners.

Israeli startups founded



These startups draw on such relevant solutions as data analytics, maintenance, energy management, and tenant experience. They are fueled by the advanced technologies referred to above and, as such, thrive in the Israeli ecosystem.

Proptech's prospects

Like other traditional industries, real estate is a market that hasn't changed very much in decades – maybe even centuries. Proptech presents that rare chance to disrupt such an industry and its attracting a lot of attention from entrepreneurs, investors, and industry incumbents all at once.

Innovation centers like Israel are jumping on this opportunity and companies like those based in the Silicon Wadi tech cluster will play an important role as the proptech trend evolves. Because challenging orthodox thinking, while implementing new business models and technologies, is the key to success in today's real estate world – a world in which proptech is now staking a claim.

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Diversity & Inclusion

In the Real Estate Industry

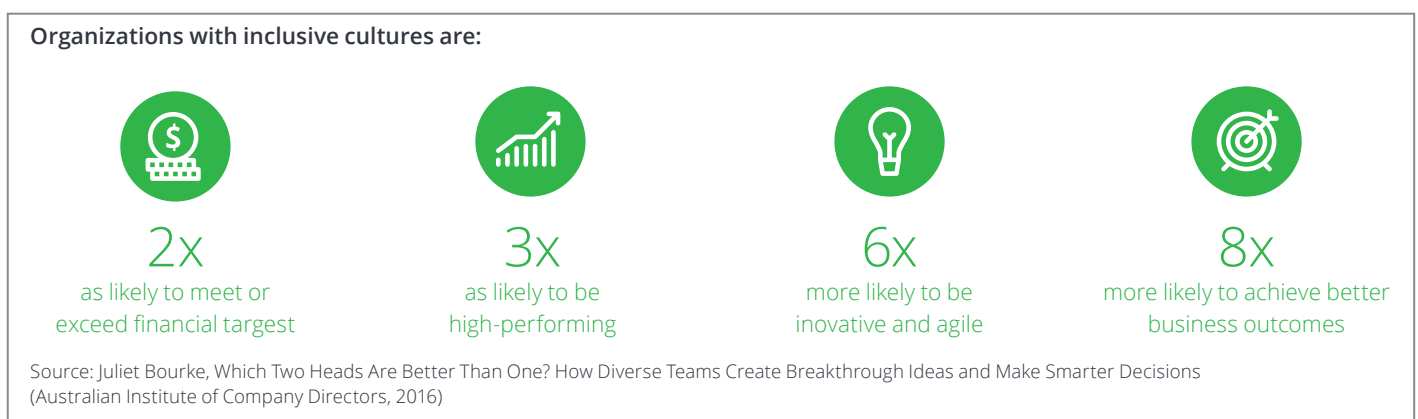
Traditionally, real estate has been a male-dominated industry, especially in key management positions. Although various efforts have been made to develop a more inclusive environment, there is still a gap that needs filling. It's a situation that is gaining increasing visibility – as demonstrated by the 2019 publication of the book *Managing Diversity & Inclusion in the Real Estate Sector*, which focuses on unlocking the potential of diversity and inclusion (D&I) in the sector.

Unpacking the question of Diversity & Inclusion in the Real Estate Industry D&I covers a broad spectrum of topics, including gender balance, generation gap, ethnicity, disability, sexual preference, religion, and more. But with many official definitions around, it can be agreed that a diverse and inclusive environment is an environment in which everyone is part of a whole and where individuals can participate and uncover their potential.

Why diversity and inclusion matters As recognized by the 2017 Deloitte Global Human Capital Survey, D&I matters critically to business performance, as it increases creativity and innovation within teams¹. In other words, D&I can bring organizational benefits that are directly linked to company performance. Organizations with inclusive cultures are twice as likely to meet or exceed financial targets and three times as likely to be high-performing. And companies are six times more likely to be innovative and agile and

eight times more likely to achieve better business outcomes, as Deloitte partner Juliet Bourke found in her research. Indirect effects from having a diverse and inclusive workforce include a better company image and improved transparency as well as benefitting talent attraction and retention. Also, there are external pressures driving D&I practices within companies, including potential blaming and shaming of an organization and risk mitigation.

Figure 1: How diversity and inclusion makes sound business operations



¹ <https://www2.deloitte.com/us/en/insights/deloitte-review/issue-22/diversity-and-inclusion-at-work-eight-powerful-truths.html>



Figure 2 – Identified barriers for Diversity and Inclusion in business



Taking the first steps

As the real estate sector progresses toward a more inclusive environment, how can a company get started? Of top priority is recognizing that D&I requires a mindset change across stakeholders, management, and employees. Developing a vision statement that includes D&I as part of organizational goals can help achieve this. That vision should include three themes that are critical for change regardless of the field of business:

- **Leadership:** The value of leadership is crucial for driving change—and the complexities of D&I demand a strong leader to guide an organization. A company needs visionary leadership that can set the tone and be available for needed support. It is vital to create a working environment where all employees are heard and able to suggest and create change.
- **Commitment:** For D&I initiatives to succeed, there needs to be a sense of commitment from people throughout the entirety of the workforce. Commitment leads to action and is the first stepping stone for establishing a diverse and inclusive environment. Taking a stand on certain matters can have a catalyzing effect, and a dedicated team that can put this commitment into action will enhance the visibility of D&I endeavours. By building a team that oversees and monitors this commitment, the efforts of a company will dive deeper than just window-dressing, and, therefore, improve the organization's reputation and brand.
- **Reflective:** A company needs to reflect D&I in its own operations and a company-wide analysis can show what

challenges need to be worked on. This analysis should focus on more than just gender in order to uncover any additional discrimination in the organization. Forms of discrimination that may be neglected through unconscious bias can then be identified and proper action taken.

As we progress...

By actively integrating the above themes into initiatives, 2020 may very well be the year D&I gains traction in the real estate industry. With its positive impact on business outcomes and talent attraction and retention, diversity and inclusion has a proven track record and it's time real estate unlocked its potential.

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In order to put the vision to work, there are specific resources and tools needed:

- **Knowledge and skills** – First of all, there needs to be the opportunity for everyone involved to acquire the needed skills and knowledge. This starts with creating awareness on every level of the organization.
- **Engagement** – After awareness comes active engagement, which requires a continuous loop of learning and engaging with an agenda that is carried throughout the whole year and company.
- **Role models throughout** – A frequently discussed and proposed solution is representation. Representation is crucial in regard to the multiple effects it has. It holds with the idea that role models are vital for minorities to be given the confidence that it is possible to attain certain goals. Representation does not only apply to higher management as it is important for minorities to participate both vertically and horizontally.
- **Facilities** – Finally, there has to be policies and facilities catered to the needs of minorities. An example of these types of policies include paternity leave and child-care provision. Another often neglected minority group are disabled workers. Creating a work environment that not only removes the physical barriers but is also flexible in providing the policies disabled workers need to thrive and succeed in any organization will help build a diverse and inclusive culture.

Real estate in 2020

The year climate change catches up to investment pricing

Nearly 35 years have passed since the publication of *Our Common Future*—otherwise known as the Brundtland Report—and its definition for sustainability: “Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” Roll the clock forward and sustainability—long time anathema to the world of real estate—is now on the verge of impacting sector values in a way that will redefine the market in the form of climate change risk.

The momentum for sustainable change within the real estate sector has been building for some time, setting the stage for both technical capability and market choice. But today, with headlines dominated by such movements as Extinction Rebellion and Greta Thunberg’s activism, mindsets are shifting across the general population rather than in niche quarters alone. No longer are climate change-informed investments modeled so that they appeal to so-called “responsible” investors only. Instead, not engaging in sustainable behavior is regarded as a business risk in its own right.

With the built environment contributing between 30% to 40% of all global carbon emissions—and the push to keep average temperatures from rising beyond 1.5 degrees—climate-change risk is of particular relevance to real estate. Most significantly, investors are now considering new and emerging risks as part of real estate pricing.

This adjustment is underscored by increasingly transparent performance benchmarks in the sector, with disclosure now the focus of such climate change groups as the Taskforce on Climate Related Financial Disclosures. The taskforce is now supported by almost 1,000 organizations with assets under management well in excess of \$100 trillion. But though the taskforce reported in 2019 that transparency in reporting is growing, more is required in light of the United Nation’s prediction that climate change risk to business over the next 15 years is in the region of \$1.2 trillion.

The response to climate change risk is manifest within the real estate sector, with multiple investors and owners committing to delivering net zero carbon portfolios by 2050 through organizations like the Better Buildings Partnership, a UK-based collaboration of commercial property owners focused on improving the sustainability of existing commercial building stock.



Others in the sector are challenging themselves with even stiffer timescale ambitions. Delivering on such a commitment is far from straightforward and will undoubtedly require immediate changes in approach.

At a more modest level, yet nonetheless as illustrative of the changes afoot, regulatory valuation standards are sharpening their focus. The new RICS Red Book, effective from the end of January 2020, sees a tightening of requirements placed on valuers with a new mandatory obligation to include comment on assets' sustainability credentials.

With the drive toward ever increasing data and management information transparency, coupled with investor appetite for climate change-resilient assets, climate change risk will inevitably and demonstrably move the value dial.

Those assets equipped to address the challenges of climate change should find themselves less exposed to the risks and consequently the specter of premature obsolescence. They should also find themselves better placed to participate in market-led growth and therefore enhanced performance compared to their peers. The corollary is that assets that are more poorly able to address climate change will become increasingly exposed to elevated risks of value erosion.

This value arbitrage may sound similar to the notion of a green premium, that is, sustainable buildings yielding a higher financial return. But climate change is indiscriminate. It is an issue for all built stock, not just those buildings regarded as "sustainable" or "responsible." While a green premium can only ever apply to the few, the reality is that exposure to climate change risk applies to all.

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Where and how will we live in 2040?

Lessons from Brazil's real estate market

Brazil is facing a series of trends that are affecting the real estate sector across the globe. From rapid urbanization to changing demographics, the challenges in Brazil's real estate market can be seen in major markets everywhere. As such, an analysis of real estate in this increasingly robust market can offer valuable insights for the sector—insights that can help answer the all-important question, “Where and how will we live in in 20 years?”

Global trends, local market

In terms of its economic, social, and behavioral aspects, the real estate market in Brazil reflects movements that have been gaining strength around the world. According to Real estate consumer behavior in 2040, a report from Deloitte and the Brazilian Association of Real Estate Developers (Abrainc), these movements include:

- **Urbanization:** Like many countries around the world, Brazil is experiencing intense urbanization. It's a process that has been going on for decades, especially in its megacities (São Paulo and Rio de Janeiro), but it is also now impacting the development of the other regional capitals.
- **Diversity:** As a country of continental dimensions, there is a rich diversity of cultures and living habits that coexist in Brazil. Reconciling this multicultural character is an increasing challenge for all countries in today's global environment

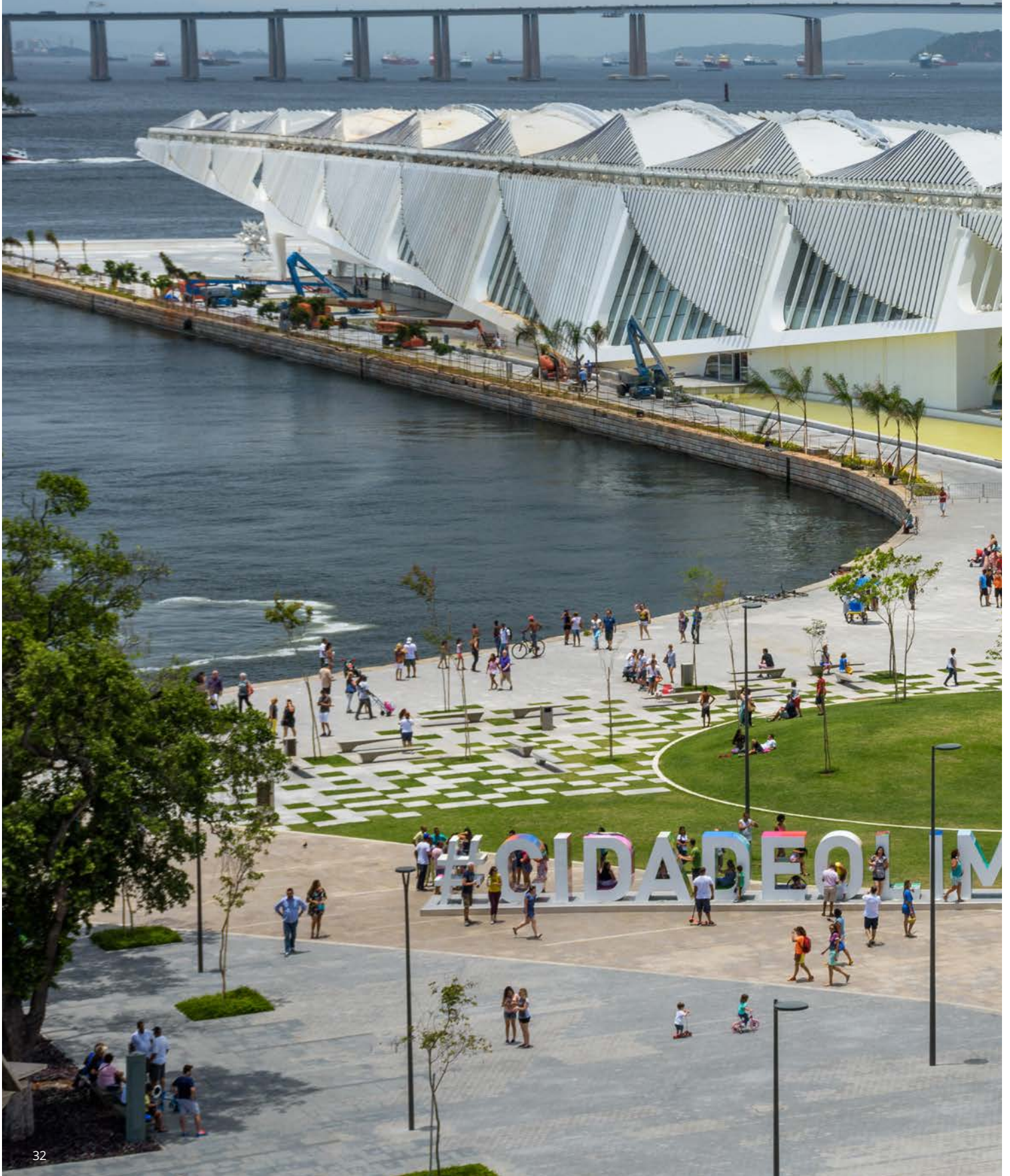
of greater mobility, connection, and immigration, as can be seen in Europe and the United States.

- **Changing demographics:** Due to the increase in life expectancy, Brazil is undergoing a demographic transition that many developed countries have already experienced and which many developing countries will face in the near future.
- **Sustainability:** The evolution of Brazil's reliance on and use of its large wealth of natural resources is making sustainability a fundamental and strategic part of the long-term development of its real estate and construction sectors. It's a reality already observed in more mature markets, where the relationship with the environment is playing an increasingly larger role.

The state of real estate in Brazil According to the Deloitte-Abrainc study, real estate in Brazil continues to evolve along a few key trends. Security, privacy,

space, and convenience are already priority elements when choosing a property and these factors are likely to remain relevant until 2040, even as they adapt to the financial constraints and behavioral characteristics of new generations.







The changing needs of residents as they enter different periods of their life, such as living near work or having more room for children, are also priority factors in choosing a property. This requires greater flexibility and diversity in the real estate offered by builders and developers. And while the need for larger spaces can be met in the regions around urban centers, which offer larger housing at lower prices, larger condominiums are helping to meet some of the same social demands for quality of life within urban centers. These spaces can offer recreational and green areas as well as jogging spaces, multi-sport courts, swimming pools, and even personal services.



But a careful assessment—based on strong data—of these large investments is required so that these benefits are delivered without significantly affecting the price per square meter.

The urban center challenge

What will prove the most challenging in terms of real estate in the coming years is the availability of space in large urban centers—which will be increasingly scarce by 2040. Given the continuous expansion of urban centers, it appears location has become a priority as it impacts the quality of life and the practicality of everyday life.

-  Flexibility
-  Safety
-  Longevity
-  Plural families
-  Reduced bureaucracy
-  Income/cost

As such, the following trends are expected to become more commonplace:



• **Sharing:** As urban spaces become more costly, sharing spaces and services can be a way to accommodate a dynamic lifestyle in which life and career paths are no longer predictable. However, the new way of sharing will be enhanced by technology-backed solutions that will offer tenants better security and privacy.



• **Renting:** Renting is an increasingly attractive option for a generation that wants to travel, work more independently, and seek out a variety of experiences.

• For this generation, buying a property, while still a goal, is being delayed to when the resident reaches financial stability or establishes a family, which is happening later than it has for past generations. Bearing in mind the expected rise in renting, it is important to address rental processes that are excessively bureaucratic to ensure the efficiency and practicality a new generation of renters will require.



• **Property format:** With more and more people living in common spaces—whether through sharing or cohabiting with family—businesses in the industry will have to develop solutions that fit multiple profiles. Integrated spaces that favor coexistence and customization and building techniques that allow modularity can optimize costs for both builders and residents. Due to the scarcity of space, especially in large cities, properties tend to be smaller and more expensive and the ability to maximize utility is essential.



• **Technology and connectivity:** With the rise of connected devices and voice assistants, a developer will need to ensure the integration between mobile devices, applications, and home equipment within spaces as well as adapt to the needs of each resident. The widespread use of surveillance and monitoring systems in this model supports the view that security will be a major concern for residents.



• **Services and infrastructure:** Services and infrastructure within spaces should concentrate on such resident demands as safety and convenience. Developers should also have the flexibility to adapt and respond to resident needs based on current life situations—such as a need for a playground for children or a co-working space for an independent contractor.

Using new digital technologies, developers can use data to tailor their spaces and ensure that investments in their construction is appropriate and does not translate into prohibitive costs for residents.



• **Purchase process:** New technology can help expedite the process of renting and acquiring real estate for both consumers and real estate agents. Artificial intelligence, augmented reality, and robotic process automation are among some of the new technologies that can contribute to a less expensive, more agile, and secure purchasing model.

Lessons to be learned

The Brazilian market is a microcosm of many of the trends emerging in the real estate sector worldwide. Brazil is also uniquely positioned to provide insights applicable to consolidated markets, such as those in the United States and European capitals, as well as such developing markets found in Latin America and Asia, where income inequality and access to housing are major factors. As Brazil addresses these issues and other real estate challenges, those in the sector should pay attention to how trends are playing out within this one local market and explore how lessons learned can contribute to solutions around the world.

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Smart development of smart places

Creating an intelligent, connected ecosystem that engages all the stakeholders

Edge technologies are combining to make smart places a reality. By using customer insights and providing integrated services, smart places can improve user experience and boost productivity, and at the same time attract the best tenants and talent. Therefore, they move up the top line and lower the operational costs. But what is smart when developing smart places?

Invest in digital transformation

The next generation of real estate developing is here. The sophisticated technologies that power smart homes are now finding their way into business offices, industrial areas, shopping centers and public and residential buildings, creating smart places. In these heterogeneous areas different stakeholders interact with each other, with overlapping interests and needs to be addressed. From office employees to the tenants decision makers, and of course the urban and real estate developers. Smart places will engage all the stakeholders in an intelligent, connected ecosystem.

The evolution from infrastructure with isolated technical specialties management to intelligent environments with coordinated and correlated systems is a journey, boosted by the emergency of digital twins, integrated operational systems, IoT-connected edge devices, Blockchain and AI. The benefits of smart places cannot be ignored, so urban

developers that aim to lead the pack need to invest in brick and mortar digital transformation. How? By developing connected, interactive and intelligent environments on a scale that tests the concept, but with solid foundations that allow them to adapt and expand following a clear master plan roadmap.

Apply lessons learned

The rise of smart places started with building technical specialties management optimization with scattered vertical management domains like energy, water, access and parking management. But to fully achieve the strong benefits smart places can bring, urban developers now need to apply the lessons learned from smart cities and industry 4.0. It involves the integration between vertical domains, dealing with growing security challenges and designing new strategies. A smart place must be an ecosystem in which services and customer information are highly integrated.



Only then they can simplify user experience, boost productivity and optimize buildings and communities to its full extend.

What are the key lessons learned? Urban developers will need to identify a digital transformation journey, starting with the roadmap definition and evaluating the sequential scope of intervention. The integration that follows needs to be secure, easy and open, for example by using APIs. Coordination and correlation, boosted by sophisticated digital twins that 'seat' on top of a comprehensive dynamic inventory, will provide great advantages.

But in the digital transformation, disruptive technology is only one of the drivers. The second ingredient of smart places is data, the lifeblood of smart solutions. Data management and compliance, improving operational efficiency and customer experience with an intelligent persona targeting, is therefore of utmost importance. Use intelligence on top of the huge amounts of data. Start with proactive maintenance and process automation that avoids efforts duplication and ensures effectiveness and efficiency, and evolve to the incorporation of more business-driven factors. These factors can vary depending on the purpose of the building, such as occupant experience, operational improvement (what-if?) and business model innovation.

Steps to follow

When choosing to invest in digital transformation and developing smart places, what are the steps to follow? First, start with your **strategic roadmap**. The digital transformation implies people, processes and technology transformation aligned and a strong support from top management. The roadmap therefore needs an execution strategy, communications and change management strategy, stakeholders experience strategy and capability models.

Each initiative should be classified considering the potential impact on stakeholders and OPEX, together with ease of implementation and CAPEX.

The second step is to **choose the foundations**. You will need an operating system, and you will need a transition programs that encompasses the integration of existing applications. Ensure that the transformation program is SLA- and business-driven. You will need to measure the transformation results and fine tune throughout the journey.

Next, ensure a great **partner ecosystem management**. The vertical domains are always from specialized providers. You will need to ensure a partner that can deliver the strategy, the integrations and silo data aggregation of the vertical domains, data governance and cyber security concerns, help build capability within organizations and ensure all the supporting services, service management and improvement. That's tough!

And last but not least, always **monitor the operation** together with continuous stakeholders experience improvement. Top management normally follows the project implementation closely and then forgets to measure the operation. Urban developments are built for dozens of years, and the real gains are on the operation, on continuous improvement of processes, on adding new domains to manage and correlate them to the others on the digital twin, and of technology update.

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From workplaces to living environments

How workplace technologies are likely to impact the real estate sector

Digital technologies are set to disrupt the world of work

It goes without saying that you would design a building to include lightbulbs and doors, but how about voice-controlled lighting or desk sensors that track user behaviour in the workplace? Smart building technologies are here, and they will profoundly impact the future of work. However, the realisation of this future is impeded by people, property and technology factors. Further, building operators remain hesitant about costs and are often unable to justify the ROI of implementing smart workplace technologies.

These digital technologies won't result in a paperless, digital working environment in the future. Instead, we will see buildings come to life as responsive, living environments that accommodate growing tenant expectations, and increased scrutiny of the real estate industry. They will be set up for change; harnessing data to deliver insights into what's working across four key objectives:

1. Decreasing Costs
2. Decreasing their environmental footprint
3. Increasing Revenue
4. Enhancing the tenant experience

Without looking at the challenge through these four lenses, employers won't overcome the barriers to change and take ownership of the narrative required to change cultures and mindsets. Many industry players are yet to respond to the digital divide. Their response will have to be rapid and at scale, developing industry standards that drive transformational change. The challenge is where to begin.

Smart workplace technologies are in, and they're here to stay

Smart technologies already impacting our everyday life are beginning to influence the world of work. Many of the technologies which will influence the future of work in the real industry context are already commercially available. Spatial sensor technology, for instance, allows tenants to identify pain points in their users' behaviour at work and make informed improvements. Voice and cloud computing are other available technologies that can be leveraged more effectively for real estate applications, while nascent technologies like immersive workspaces and digital twins will soon play a part in the industry shift. The real estate industry, however, is lagging behind regarding digital maturity. This is largely due to stifling regulations from governments and professional bodies, the long-term nature of buildings and a fear of change. From the employees' perspective, many remain deeply suspicious about the perceived 'Big Brother' threat of data-aggregating sensors. The industry will need to overcome these barriers in order to confront the many forces of change knocking at the door.

Why is there a need for change?

The future of work is intrinsically linked with pressing needs for the real estate industry to change its practices. The United Nations estimates that globally, the real estate industry is responsible for 30% of all greenhouse gas emissions and 40% of energy consumption¹. The public is growing increasingly dissatisfied and demanding with relation to the lack of action on this front. The recent bushfire catastrophes across the nation have made this pressing challenge a grave and tangible threat, amplifying the calls for individuals and organisations alike to take steps to minimise their environmental footprint. Additionally, tenants are demanding more efficient buildings. They are seeking ways to maximise their use of space in addition to improving the employee experience. Building developers and owners will have to confront this head-on and look to smart technologies that can gather data and deliver insights into actual building performance and spatial utilisation. By doing this, they can make important changes for the future of the workplace – as one piece of the entire real estate industry.

Technologies will converge and result in new industry standards

As more industry players roll out smart technologies in the workplace, they will converge, and new industry standards will emerge. Major industry players must come together to agree on standardised platforms, technologies and best practises.



By doing this, organisations can unlock exponential growth in building efficiencies and occupant experiences. This is reminiscent of the videotape war of the 1970s and 80s, when Betamax and VHS went head-to-head to become the standardised industry format. What will the victorious VHS equivalent be in the real estate industry?

The traditional siloed approach to office design continues to hinder the potential of smart technologies to deliver value workplaces. This can be addressed by taking an iterative approach to improving building performance from the design through to usage phase, leaning on experts throughout the organisation. This data-driven and iterative approach to building design is evident in the world's smartest buildings today. For example, the Atea office building in Stavanger, Norway, a true living lab and showcase best practise in connected and integrated buildings systems. Once smart workplace technologies converge and the smart workplace technologies are nearly universally adopted, we will likely look back and question why we hadn't reached this point earlier.

Looking back, what was all the fuss about?

In retrospect, technologies which have fundamentally changed our lives, like smartphones and the internet, seemed inevitable and make you think about the societal differences before and after their emergence. Workplace smart technologies are in a similar place right now. Their potential of adding value for wellbeing and efficiency in the workplace outweigh any potential security risks. The path to widespread adoption of smart technologies in the workplace is complex and will take

time, but it's the right thing to do – for both the bottom and top line for organisations. Here are a few questions to ask internally for those contemplating making these changes for your business:

- What technology is most relevant to your people and when does it make sense to use it, today and in the future?
- What are some early use cases you can identify to start the transition to your building becoming a living environment?
- Which different teams can you bring together to make the living lab approach a success?
- How can you break down the fear of technological change amongst your workforce?

With the right frameworks, technological developments and standardisations in place, the world of work can be greatly enhanced, providing a brighter future for the tenant experience and the environmental impact of the industry. The industry will change because it has to.

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Data minimization

The importance of data

Importance of data

The importance of data and the growing impact of data mining and data analytics is clear to almost every one. Over the last two decades developments in these areas have resulted in the increasing availability of data for numerous purposes in society as a whole. Also the real estate sector is and will be impacted by this.

Obstacles for exploiting the potential of data

The importance and relevance of data in real estate management decision making has been acknowledged for a long time. However, the lack of access to and the availability of data has always been a major concern. To some extent this is still the case. Lack of transparency and the willingness to share, lack of data standards, data infrastructure and the capability to digest large amounts of data, are making it difficult to fully exploit the potential of real estate data.

Importance of standardization

The most important development which will help you to exploit the full potential of your data is data standardization. Throughout the global real estate industry many initiatives are being taken to develop data standards and even so important infrastructure standards in order to allow for data sharing. An interesting example of this, is the Dutch Real Estate taxonomy where the Dutch banks are cooperating together on data standards and infrastructure regarding real estate data. The underlying philosophy is that the banks believe that they should not compete each other on data quality. This has resulted in a powerful initiative for real estate data standardization which could be beneficial not only for the banks, but for many stakeholders in the ecosystem. Privacy constraints

Another important challenge for exploiting the benefits of data is legislation. In particular concerning personal data. The General Data Protection Regulation (GDPR) has changed the rules and the awareness regarding the use of personal data since 2016. This has an impact on the real estate business as well. Examples of areas which are being impacted are: storing personal data of tenants in lease agreements, using data about human behavior recorded by building sensors and targeting potential tenants based on profile data gathered from social media. Real estate owners and managers are confronted with a new challenge, how to exploit the full potential of the data available within the regulatory and ethical constraints.

How to overcome privacy constraints

Even more important, besides legislation, recent development with regard to the misuse of personal data have awoken the awareness with the general public of protecting your privacy. Where does that all leave us? On the one hand the value of data for the real estate industry is undisputed. Even stronger: not using the potential of data will seriously lag you behind the competition. On the other hand, there are ethical and legal constraints with respect to the unrestrained use of data.

Recent developments

This all has resulted in new ways of processing personal data. First of all we see the emergence of decentralized solutions, sometimes but not necessarily driven by blockchain technology. In these decentralized solutions, data owners are connected through a common infrastructure and data is standardized. Instead of gathering all the data in one central database, the data stays with the owner of the data, where he can provide insight in parts of his data.

Lack of transparency and the willingness to share, lack of data standards, data infrastructure and the capability to digest large amounts of data, are making it difficult to fully exploit the potential of real estate data.



Another example of a distributed solution is the recent purchase of startup Xnor.ai, a producer of low power AI software and hardware. This should allow Apple to move AI from the cloud to the device.

Privacy Enhancing Technology

Even more interesting is the emergence of privacy enhancing technology (PET). PETs use various technical means in order to protect privacy by providing anonymity, pseudonymity, unlinkability, and unobservability of data subjects. These solutions vary from automatically blacklining social security numbers on passports copies to very enhanced data minimization solutions.

One specific PET solution in the real estate industry using Zero Knowledge Proof technology, we would like to address particularly.

Zero Knowledge Proof data minimization

This particular solution allows candidate tenants to share only the outcome of a credit check (income higher than x) without revealing the exact income details to the real estate owner. Using Zero Knowledge Proof and a connection to a trusted data source (like the tax authority or a bank) provides the real estate owner with 100% certainty that the credit check is genuine. In the Netherlands a pilot with this specific solution in social housing industry is scheduled for Q2 2020. Candidate tenants benefit from this solution because they have more control over their personal data. Social housing associations benefit from this solution because they have receive substantially less personal data, which really helps in terms of complying with privacy regulations.

Besides the specific use case of social housing associations, it is not hard to imagine that this zero knowledge proof technology could be of real value in other areas of the real estate industry like mortgages etc.

Concluding remark

In the recent decade the real estate industry has started to really discover the benefits of data for real estate management purposes. Recent developments with respect to ethical and regulatory constraints regarding personal data are a new challenge. Fortunately there are ways to overcome these obstacles. PET solutions are being developed, of which the first real examples are being expected in 2020.

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The workplace “hierarchy of needs”

Unlocking your teams full potential

In today’s fast changing digital world of work and as companies rethink how they approach traditional real estate investments, workplace experience is increasingly in the spotlight. And with real estate often one of the largest expenses on a company’s financial statement, leading companies are starting to question whether their investment is delivering the right value in terms of employee experience and productivity.

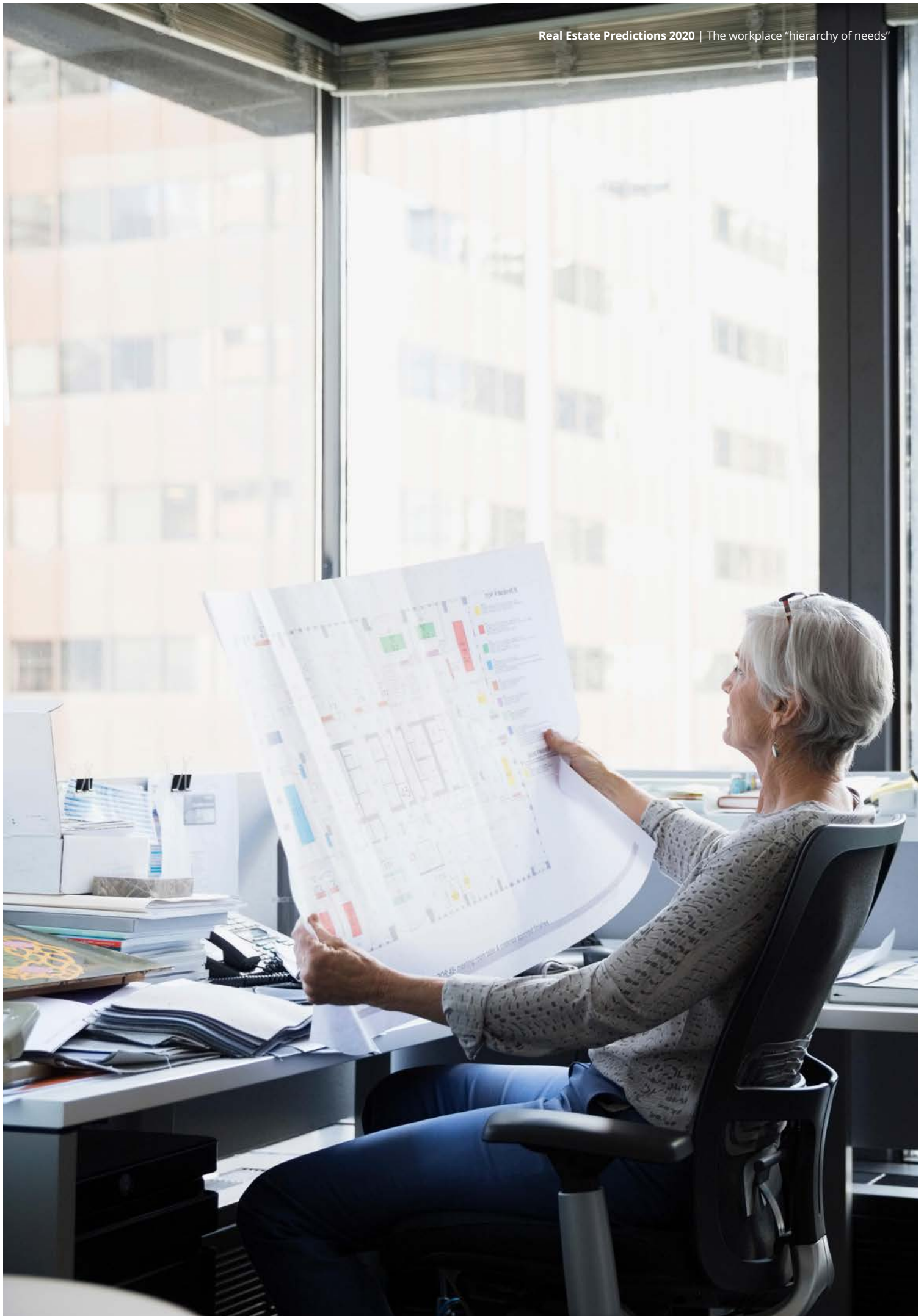
This presents organizations with a new, challenging workplace proposition: providing higher space utilization, lower occupancy costs, and a reduced environmental footprint while still trying to improve the workplace and employee experience. This is further exacerbated by the fact that there’s more disruption and change than ever before. Traditional workplace models are increasingly out of sync with the needs and work styles of today’s employees, who thrive on enhanced networking, mobility, and flexibility. Technology advances, digital disruption, and demographic changes have also outpaced traditionally configured workplaces, becoming a drain on productivity, employee experience, and the bottom line.

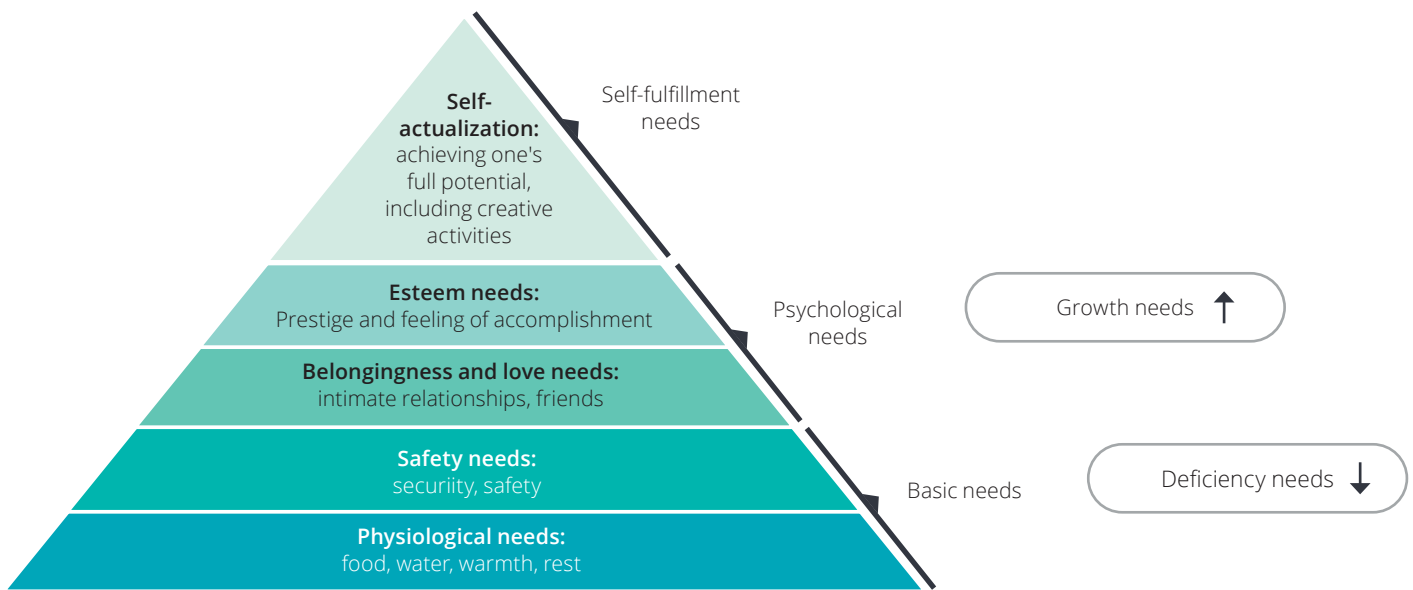
The million-dollar question (in some cases multi-million) is, then: what can organizations do to deliver on all of these objectives?

Maslow’s Hierarchy of Needs

To answer the above question involves organizations delivering a workplace experience that incorporates space design, technology, and culture to allow employees to unleash their full potential. An insightful way to explore the possibilities is to apply Maslow’s Hierarchy of Needs theory to workplace design.

Psychologist Abraham Maslow’s theory proposes that people are motivated by a desire to satisfy various human needs. The Hierarchy of Needs is represented as a pyramid (see diagram) based on two groupings: deficiency needs and growth needs. At the base of the pyramid, the deficiency needs are the physiological and safety needs. Maslow’s theory maintains that the lowest deficiency needs must be met before moving onto the higher pursuits of growth, which include belonging and social needs, esteem, and self-actualization. The ultimate goal is to achieve all growth needs within the pyramid necessary to attain the fifth level of self-actualization. That is, the realization of one’s full potential.





Maslow's theory posits that as individuals become self-actualized, they develop wisdom and the ability to automatically understand what to do in a wide variety of situations. What organization would not want to provide a workplace environment that empowers employees to achieve their full potential? By providing a workplace to meet employee's needs at each level, an employer can create an atmosphere

where peak personal and professional performance can be achieved.

Translating Maslow's Hierarchy of Needs into your workplace

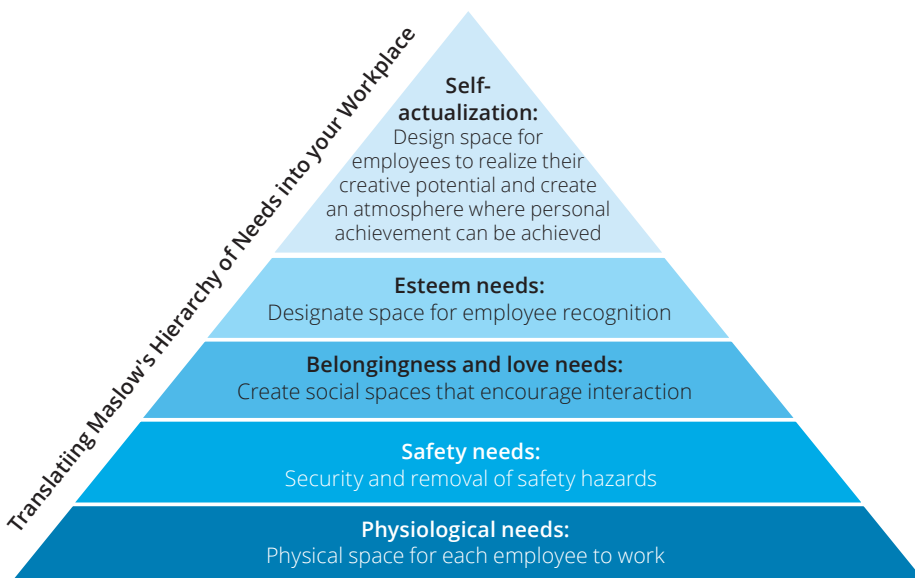
Physiological needs

Maslow's theory contends that if people do not have the most basic level of needs— food, drink, and rest—they will not be concerned with achieving growth in other

levels. Compare this to the workplace, where employees need a workspace, basic technology, and access to food. These are fundamental needs that must be met before an employee even thinks about learning new skills for future advancement. This foundational piece of the pyramid is critical to providing the highest level of workplace fundamentals. It creates a workplace where employees are focused on growth and working at their highest potential and not distracted by the lack of what they perceive to be basic needs.

Employers should consider these foundational features when creating a workplace:

- Individual workspaces
- Balanced environments for privacy, interaction and collaboration
- Desktop technology tools that enable the employee to work in an agile environment
- Updated software for the tasks at hand
- Fridge's & microwaves to store and heat food
- Accessible clean water
- Access to natural light



- Optimal indoor air quality to support health and well-being
- Access to stairs to encourage fitness

Organizations also can't ignore the digital experience of their employees, which includes the tools a company uses on an everyday basis to track time and expenses, email, intranet, manage travel, connect internally, and customer relationship management software. User-friendly digital tools create a positive user experience allowing employees to focus on efficiently completing their work.

90% of organizations do not have the right type of workplace to enable digital behaviors and culture¹.

Safety Needs

Employees need to feel safe in the workplace, and they need to feel job security. Employees do their best work when they are not worrying about short-term problems. It is also important for employers to communicate to employees that they are valued, safe, and secure—both now and in the future.

Employers should consider these strategies to provide a safe and secure workplace:

- Remove safety hazards like cords and other tripping hazards
- Provide a first aid or nap room
- Ensure ergonomic equipment—like sit-stand desks, monitor arms, and good quality task chairs—are available to all employees
- Provide acoustic privacy through “quiet zones” or a range of enclosed spaces for private conversations
- Incorporate accessible design elements to support those with disabilities
- Establish health benefit programs

- Enhance the feeling of job security by providing learning and tools to improve efficiency and effectiveness in the workplace
- Provide a “walking” program to escort shift workers (e.g., late shift call center employees) to their vehicles
- Consider employing a standard such as “WELL Building”™ that identifies the features that impact the quality of air, water, nourishment, light, fitness, comfort and mind with the aim of improving employee health and well-being through the built environment

Achieving foundational success before moving to growth needs

Once the physical and safety needs at the lower levels of the pyramid are met, employees can progress to the next levels of growth. If deficiencies are detected at the physical and safety levels, employees will seek to rectify the deficiencies before moving on to growth levels of performance. For example, will employees perform at the top of their game when the air conditioning isn't operating on one of the hottest days of the year?

Also, as more companies move to activity-based working and unassigned seating models—when a fundamental need of finding a desk dominates—employees will be less likely to move on to performing at their peak. Employees need to know there will be a space for them to work when they arrive at the office.

Belonging & Social Needs

Employees crave personal identification with their team and a need for belonging and acceptance by others. Organizations can create an environment that provides opportunities for participation and interaction with co-workers to help fulfill this craving.

Employers should consider these strategies to provide social interactions in the workplace:

- Create spaces for social interaction like cafes and lunchrooms with ample seating and acoustic separation from focused work areas
- Provide coffee, tea, and/or snacks to allow employees to socialize within the office
- Design spaces for interaction and collaboration
- Create multi-purpose spaces to hold on-site town halls
- Provide a consistent and professional approach to onboard employees that emphasizes the company mission and vision, creating a sense of belonging
- Celebrate birthdays and employee anniversaries
- On and off-site after work activities that allow the team to interact and build connectivity
- Create on-line communities
- Encourage informal social groups on and off the job
- Create social groups that foster inclusion and diversity

Esteem Needs

Workers have a need for the respect of their co-workers and bosses and for a sense of accomplishment and achievement. Organizations should strive to capitalize on every opportunity to reward and celebrate individual and team success.

69% of employees say they would work harder if they were better recognized².

Employees also have a need for independence and freedom, which can come from being trusted to work remotely. It is important to have work from home and flexible work policies in place and ensure employees have the technology tools to enable remote work.

1. 2016 MIT SMR and Deloitte Digital business research.
2. Deloitte's 2015 Global Human Capital Trends report

82% of Canadians would change jobs for the ability to work from home at least 1 day a week³.

Keep in mind that in modernized workplaces where private offices are reduced or eliminated, there is a paradigm shift in acknowledgment and status. Employees need to be recognized for the work that they do and not the space that they occupy.

Workplace, technology, and human resource teams can combine to create an environment where employees feel trusted and achievements are recognized by:

- Allowing employees to work when and where they want, creating an environment of trust, but ensuring there is power and connectivity to enable these workstyles
- Providing a cafe, town hall space, or stand-up area where teams can gather to celebrate one another's successes—a traditional, fixed furniture meeting room may not be suitable for casual time with co-workers
- Providing physical or digital opportunities to recognize employees through a “wall of success” or via digital monitors in high traffic areas
- Creating a workplace that your employees are proud of and a place new recruits aspire to work

Self-actualization/self-fulfilment needs

At this level, workers are utilizing and developing all their abilities and talents, living up to their potential and using their abilities to the utmost. It is important to understand your employee's professional growth aspirations within your organization and help empower them to achieve that growth.

Creating mentorship programs allows leaders with experience to coach and mentor the next generation of leaders.

Organizations should ask leaders these questions when working to create a workplace where employees feel self-actualized and perform at their peak:

- Have you designed space for employees to realize their creative potential and create an atmosphere where personal achievement can be achieved?
- Do you value your employees and provide spaces for prayer, meditation, recharge, and fitness?
- Are you creating spaces for “collisions,” where employees of all levels have the opportunity to connect and engage in impromptu conversations?
- Have you created a learning environment, sharing expertise across the organization and providing opportunities for personal development?
- Does your organization support employee's desire for sustainability, inclusion, diversity, social impact, and charitable programs?
- Are coaching and mentoring programs available to all levels in the organization?

Leadership teams should commit to fostering a culture where everyone feels safe, empowered, and inspired to do their best work and be fulfilled everyday. That is, an environment where the greater good of the organization always outweighs individual self-interest.

What motivates one employee does not necessarily motivate another, but motivation is key to retaining top tier talent. Each level in the “workplace hierarchy of needs” requires a range of solutions that will appeal to the varying motivations of employees.

Prioritizing optimal workplaces will unleash your employee's full potential

When creating a workplace it is important for organizations to know that one size does not fit all. Careful analysis is necessary to design a workplace that will reflect an organization's vision and deliver the best possible workplace and employee experience.

When re-examining real estate needs, companies that prioritize the workplace experience and consider employee needs can still obtain the necessary footprint reductions and associated cost savings while delivering an environment where employees unleash their full potential.

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3. Deloitte Real Estate Canada surveys, 2015

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