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Building the Future
Real Estate Predictions 2018

Welcome to the 2018 edition of Deloitte's predictions for the real estate industry. Curious to see which changes lie ahead? Discover the Real Estate trends for 2018 that will impact your business. Read about blockchain, co-working, robotics, and more.

Introduction

Have a glimpse into the future of real estate

The Real Estate and Construction market has been changing over the past few years. With all these changes going on, Deloitte Real Estate is releasing the Real Estate Predictions 2018. We hope the predictions enhance your understanding of the opportunities within the real estate industry. Have an interesting read!

1 Wellness, work and real estate

A rise in the recognition and understanding of the relationship between the wellbeing of the workforce and productivity is leading businesses and developers to explore ways in which the physical building can promote wellness. Factors that can improve wellness range from natural light, air quality, noise, and office design. The introduction of new standards should encourage more businesses to participate.

2 The rise of co-working space and the need for smart buildings

Co-working spaces continue to gain popularity and the Internet of Things is critical to competitive advantage in this field. Therefore cyber risk and privacy protection must be on top of mind of the real estate investor.

3 Real estate decision makers of the future

Corporate organization design is evolving with the faster pace of technology, a greater level of workforce agility, and the changing nature of job roles, all of which are impacting the way in which we interact with the physical workplace. The need to influence property decisions comes from various parts of a business and ultimately the decision makers are changing to include: CTO, CIO, CEO and HR.

4 Fintechs: Complementing the real estate ecosystem

Fintechs have made rapid inroads into the real estate industry. The general notion is often that startups are a threat to incumbent real estate companies as they are offering innovative solutions and enhanced user experiences at a relatively lower cost and faster pace. However, traditional real estate companies can leverage fintechs to drive operational efficiency, create powerful tenant experiences or even diversify existing business and generate new revenue sources. Real estate companies can consider various approaches to tap into the fintech space.

5 Robotic and cognitive automation part 1

What is robotic and cognitive automation, and how is it transforming the real estate industry? In the first of two articles we will share our thoughts of this technology.

6 Robotic and cognitive automation part 2

Part 2 of our look at robotic and cognitive automation.

7 Transforming real estate operations

Public sector real property organizations have an opportunity to fully embrace digital disruption, transform their property operations and portfolios, and benefit from lessons learned in the private sector. Today's traditional public sector property organizations typically serve multiple clients that span across many programs of which deliver a wide-range of benefits for the local population.

8 The future of commercial real estate

Social, economic, ecological, political, and technological disruptions will change the way we work, live and shop. These developments will have a significant impact on today's established market players in the commercial real estate sector and their share of the value chain. Who will be successful and who will become obsolete in our future real estate world?

9 Blockchain

Blockchain technology has been adopted in the real estate industry over the past few years, however, the pace in which the adoption is taking place is rapidly increasing and traditional roles are being fragmented. What are the lessons learnt so far?

Wellness, work and real estate

The rise in the recognition and understanding of the relationship between the wellbeing of the workforce and productivity is leading businesses and developers to explore ways in which the physical building can promote wellness. Factors that can improve wellness range from natural light, air quality, noise, and office design. The introduction of new standards should encourage more businesses to participate.

Written by Martin Laws, Chris Robinson and Shaun Dawson (UK)

Wellness is defined in the Oxford English Dictionary as 'the state of being in good health, especially as an actively pursued goal'. This is generally something that we all strive for in our personal lives. However, the importance of maintaining wellness in the workplace has often been neglected. A healthy workforce is a happy workforce, which in turn could translate into greater productivity and job satisfaction. A goal that all employers should be in pursuant of.

The focus of achieving greater wellness in the workplace is gaining momentum. This is more than a daily delivery of fresh fruit or having quirky and comfy breakout areas. The workplace, or to be more precise the building, can itself be the driver of greater wellness.

Certificate of wellness
In the pursuit of sustainable development of new buildings and the promotion of the green agenda, a number of global standards have become established benchmarks for design, construction and subsequent use. While these certified standards do in part address the health and wellbeing of potential occupiers of new space, there is an increasing awareness of employee wellness.

In response, the International WELL Building Institute developed the first standard for the physical environment, addressing a number of factors: air, water, nourishment, light, fitness, comfort and mind. Following years of research and input from the medical, scientific and real estate communities, WELL certification is aimed at influencing the health of workers both physical and mental whilst also reducing an organizations financial liability through sick employees. The growing importance and potential business prioritization of this subject has now given rise to other wellness certification programs.

Employee health benefits
Using the office as an example of a typical workplace, workers have for a long time been happy enough if the lighting and heating worked and they had a desk to sit at. However, tenant expectations have been growing. Increased access to knowledge and data on building performance and impact on health are leading to more engaged occupants.

There is greater recognition of medical conditions such as 'sick building syndrome' where symptoms are derived from a poor quality office environment, insufficient ventilation and noisy layouts. All have an adverse impact on the health of staff members. Common ailments include back pain, lethargy, headaches, and eye strain and stress disorders to name a few. Through greater focus on design, fit-out and technology, a business can go a long way in which to improve health quality in the workplace.

Technology is enabling the worker to take control of their own internal environment. Heating and lighting for example. It is also enabling businesses and landlords to track and understand the function of their buildings. Engagement and education will lead to greater wellness in the workplace. The provision of: air filtration systems; better water quality in the building; improved lighting design; and encouraging fitness through active furnishings and office layouts are all physical changes on the path towards WELL certification. Those firms who take new space at the design or construction stages will have the benefit of a relatively blank canvas on which to work with a developer. Yet, those with older spaces should not be deterred as modifications can be made in all buildings.

Attract and retain
The appeal of the workplace can be a deciding factor for an employee whether existing or new. The majority of our week is spent in the workplace, and as such it is in a business's interest to provide a healthy and inviting environment. At a time when the modern worker is more transient, acutely aware of what they want and where they want to work, businesses looking to attract good talent should see the physical space as a differentiator and therefore invest accordingly.

The physical space also heavily influences the level of job satisfaction that an employee has. Providing a healthy working environment that someone wants to be a part of, a place that they can conduct their work effectively with little cause for complaints will go some way in helping to retain staff and reduce turnover.

Investing well for the future

A number of buildings around the world have gained WELL certification leading the way in educating the market on how to achieve greater wellness through the office building. Over the coming year several other schemes are aiming to be WELL certified, including Deloitte's own London office, One New Street Square.

Investing in a wellness program for the office and the workspace does not necessarily feature high on a business's priority list, at a time when reducing costs is paramount. Yet, it is the high cost that is associated with absenteeism, turnover, recruitment and lost business that can be in part reduced through ensuring the workforce are healthy and happy in their environment, whilst also ensuring corporate social responsibility targets are met.

Committing to a wellness program or indeed aiming for wellness certification is firmly in the hands of the occupier of space. Much of the costs will be borne by the business, however, there is a part to be played by others. Landlords should work with tenants to ensure changes can be made to existing buildings. Also, developers and architects should ensure that wellness elements are included from the design stage. This will also mitigate any risks to brand reputation for not developing healthy buildings.

Standards in wellbeing will soon become as mainstream as those standards for construction such as BREEAM, LEED or with data connectivity like WIRED Sore. The wellness of the worker will gain greater awareness as more firms are educated in the benefits. It will therefore become an expectation from the occupier that a building will support their wellbeing. A growing business case for devoting more efforts to wellness in which to add value to a building is never more apparent.

The rise of co-working space and the need for smart buildings

Co-working is rising and changes the way we are using office space. Co-working spaces need to be flexible and optimized at the same time. For best fit, the users IoT-the brain of the building- is crucial in detecting the needs and issues that arise.

Written by Rinse Bruggeman, Desie Driever and Wilfrid Donkers (NL)

The growth of co-working

Co-working spaces have become a hot topic and the recent growth of their roll-out has been phenomenal. Unlike the more traditional serviced-office model co-working tenants, or members, share a range of facilities like furniture, printing, phones, operational and technical support. Members also share costs such as those for the property, internet, and energy. Leasing space on a membership basis can often result in lower costs than renting a regular office. This collaborative and effective means of taking space is attractive to those firms wanting flexibility, such as small and fast-growing companies, freelancers, technology and media firms or any business that can thrive in this version of the modern workplace. Especially those companies geared towards the millennial generation of worker and those that like to work in a vibrant community with like—minded people. Collaboration, networking and of course at times the 'cool' factor are descriptors for co-working.

Not to be left on the sidelines, larger firms are also eyeing up the benefits of taking co-working space. While cost and flexibility are important drivers, access to the community would be key. Connecting with start-ups and growing businesses could enable new relationships to be built from an early stage. Partnerships with the next generation of businesses could help the smaller firms to achieve greater scale-up. While educating the larger companies better to spot trends and opportunities as they are surrounded by a younger companies and workforce.
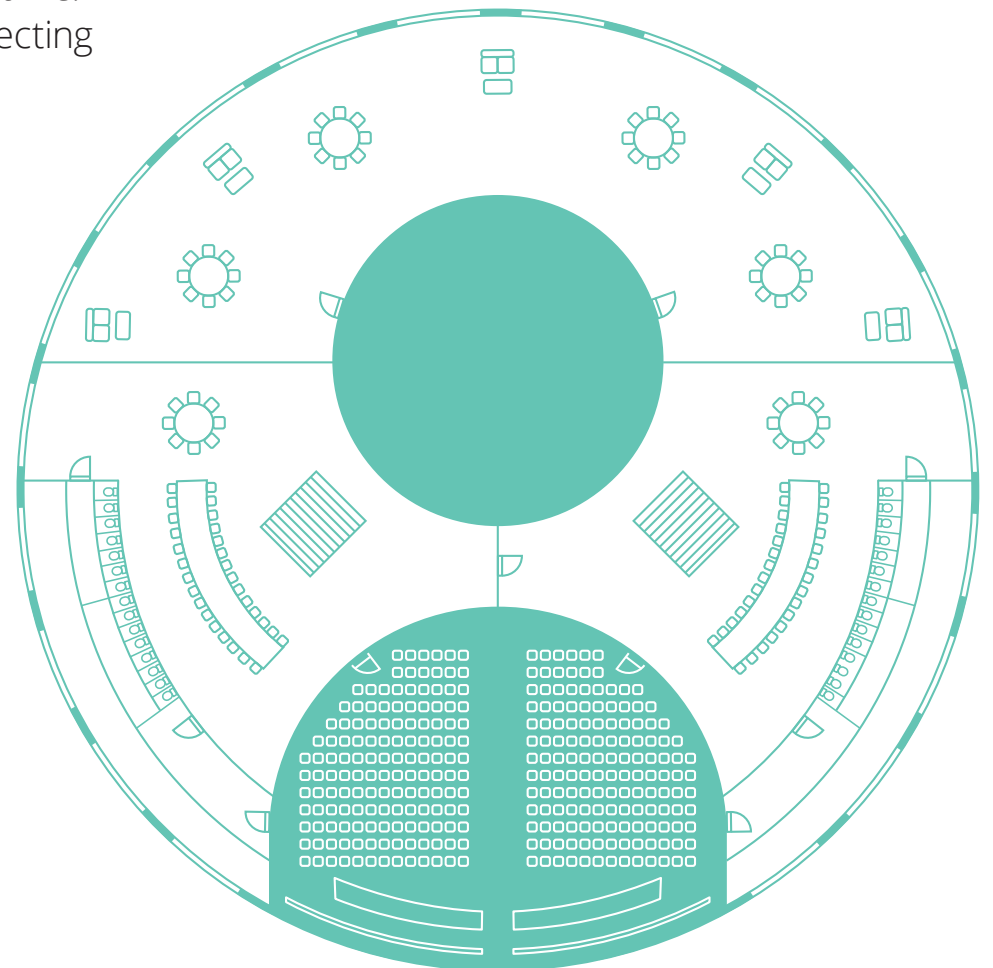
Tech enabled space

Advances in technology has been one of the main enablers of co-working space. An advanced IT-infrastructure with fast and reliable internet has been the basis for successful co-working spaces. As the competition between co-working providers increases, operators must be savvy as to how technology can differentiate their spaces. Embracing the use of Internet of Things (IoT) is the next step. As buildings are get smarter and we start to learn how to better use space, this will be necessary for todays' users and needs.

IoT in co-working spaces

IoT in buildings allows flexibility and possibilities for work space optimization, it makes it easier for the building to fit the users' needs and signals problems and issues that arise. What can we expect from IoT in co-working spaces? Sensors in the building collect all kind of information like occupancy, temperature, energy consumption etc. Software connects the information provided by the sensors, creating the 'building's brain'. Hereby the building can self-diagnose problems and communicate information. The building becomes a living structure, capable of recognizing the problems and needs of the building community. The capture of data through the sensors provides the operator of co-working spaces with deeper insights into the operational effectiveness,

which is necessary in the competitive co-working space market.

Through analysis of data of the occupancy of working spaces and conference rooms, work space optimization is possible. Sensors registers occupancy on different times and days and tracks the movements of the users. The resulting data can for example show that certain work places are often underutilized, creating room for improvement.

Also IoT will contribute to manage building operating expenses. Utilities are a large part of building operating expenses. IoT in buildings can map the utilization of the building and adapt the lighting, heat, air quality, cleaning and security among others for controlled zones within the building. This creates energy conservation and other cost reductions through amending the use of the building. Substantial savings building operating costs will result.

Opportunities of IoT

IoT provides lots of opportunities, but as described in our 2017 Real Estate Predictions, the rise of smart buildings brings with it new risks such as cyber risk. Another important thing to watch is privacy of the buildings' users. Because of all the data sensors collect,

privacy has to be top priority. IoT should be used to make the building user friendly and personal data should not be able to be accessed by anyone other than the employee. This is especially relevant in co-working spaces where multiple companies are working and data privacy should be key. Consequently cyber risk and privacy must be at the forefront with collaboration from real estate companies, operators and IT companies ensure security in the modern workplace.

Although the concept of co-working space is not new, we expect it to continue to gain greater popularity. The success of co-working space will be in the flexibility and space optimization that the model offers. Couple this with how technology, in particular IoT can bring about further workplace change and greater understanding. Enabling tenants to flex up and down depending on their needs and not to be restricted by traditional lease terms will ensure co-working space will establish itself in the market.
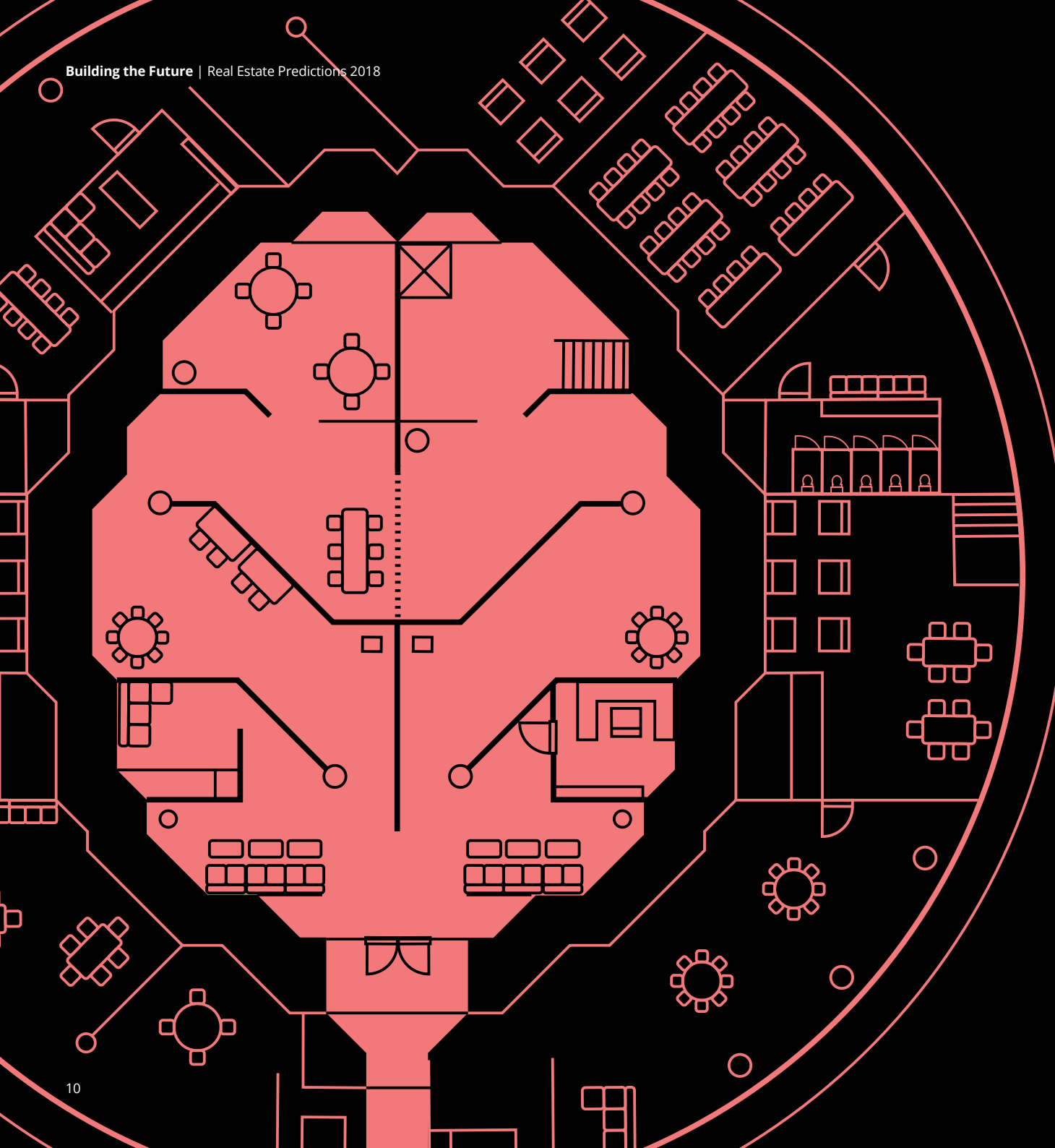
Real estate decision makers of the future

Corporate organization design has been evolving with the faster pace of technology, a greater level of workforce agility, and the changing nature of job roles, all of which are impacting the way in which we interact with the physical workplace. The need to influence property decisions comes from various parts of a business and ultimately the decision makers are changing to include: CTO, CIO, CEO and HR.

Written by Rob Scopes and
Shaun Dawson (UK)

Changes in the decision making tree

Advances in technology have been moving at such a pace that businesses have been slow to adopt and adapt. The type of work and where we do it is significantly different than a decade ago. The change in the composition of the workforce with more women in employment and a longer working life for many has led to five generations now in the workplace.

The typical organizational model adopted by businesses is coming under pressure to transform and this includes the decision making tree, not least of all with property decisions. The world of work is entering a new era.

A new business landscape

Business agility will play a pivotal role in building the organization of the future, with networks of teams taking decisions rather than a few at the top of a hierarchy. These networks respond to business needs and teams are formed and disbanded quickly. The new model will lead to a fresh approach to leadership and should aim to promote more inclusivity, employee engagement and working practices.
Real estate is one way in which organizational change can be further facilitated. Real estate decisions were once the preserve of the Chief Financial Officer and Property Directors, with wider executive consultation reserved for bigger decisions, such as new office space and/or new locations. Whilst the ultimate decisions.

I may continue to rest with similar people/ functions, the input from the wider business and all levels of the workforce, as organisational design becomes more fluid in which to accommodate the workforce and workplace of the future, is key.

Elevating the employee voice

Despite a rise in remote working and the contingent workforce, the workplace and especially the office still retains an important function within the culture of business. It is one element that provides employees with a shared experience. However, legacy, process and hierarchy has driven the way in which the workplace has evolved, if at all, over the years. It is now the time in which a holistic approach towards gathering workers views on the workplace should be included.

Unhappiness in the working environment could potentially lead to wider job dissatisfaction. Organizations should use the workplace as a means in which employees can redesign their work, enabling greater productivity and learning, ensuring work is rewarding and more importantly increased integration of people and technology like never before. In order to achieve this the role of Human Resources (HR) and IT departments are becoming increasingly important in facilitating and orchestrating organizational design of the workforce and inevitably the workplace.

The 'Stage Set' office

As businesses move into the digital age, traditional views of real estate as being a cumbersome expenditure and space requirements being based on old principles, should be challenged. The workplace should be viewed more as a 'stage set' in which the scenery can change depending on the needs of the business. Space that ensures greater creativity, collaboration, education and socializing through employee interaction will bring the workplace into the 21st century.

An inflexible workplace will more than likely curtail a business, especially one that is looking to adapt. To be an agile firm is to embrace flexibility whether that is in the decision making, the workforce or indeed the physical space.

For some companies a new organizational design will be a culture shock. However by utilising a common denominator such as the workplace could bring about a positive employee experience that will contribute to an increase in ownership amongst the workforce and in turn greater productivity.

In 2018 we expect to see the transformation of the workforce to accelerate at a greater pace than previously, forcing organizations to change existing models of leadership and decision making. As a result the workplace will become a key facilitator of that change.

Fintechs: Complementing the real estate ecosystem

Fintechs have made rapid inroads into the real estate (RE) industry. That is why you need to: change the mindset from defense to engagement, examine your company strategy of working with fintechs and begin taking steps to operationalize how you engage with them.

Written by Jim Berry and Surabhi Kejriwal (US)
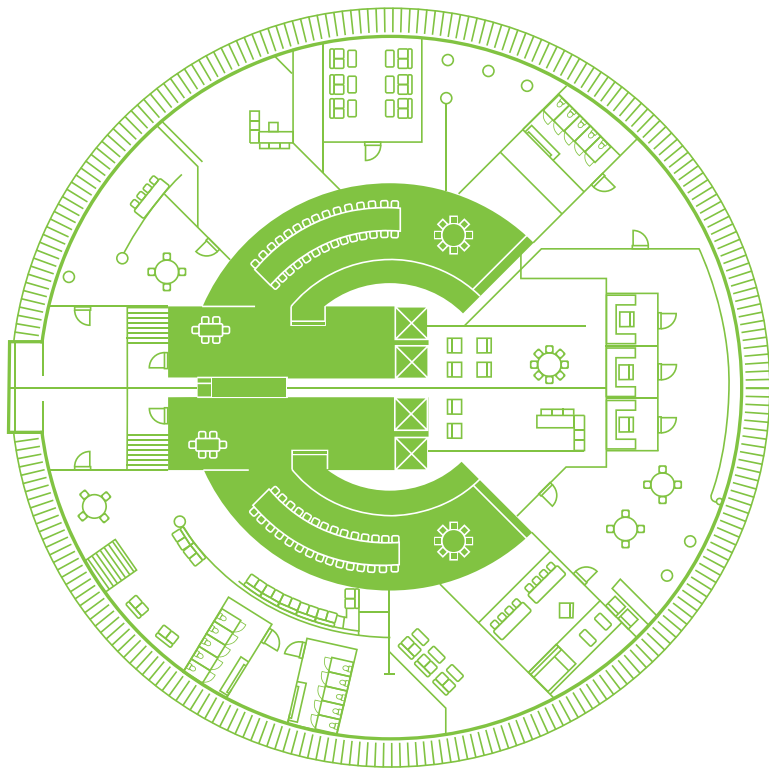
Fintechs by the numbers

An in-depth analysis of Venture Scanner data reveals that the number of RE fintechs globally rose exponentially from 176 in 2008 to 1,318 through the first three quarters of 2017. Startups focusing on property development and management far outpace the number of fintechs launched to target financing and investing or leasing and purchase-sale transactions (see figure 1). Geographically, the US is a clear leader in terms of the number of fintechs, followed by India and Germany.

During the 2008-2017 period, cumulative investments in RE fintechs soared from $2.4 billion to $33.7 billion. While venture capital (VC) remains the dominant funding source, there is substantial capital flow from non-VC investors as well, including REITs, established RE services companies and investors, private equity firms, and high net worth individuals. Geographically, while the US and India are the top two countries by investments, China outpaces Germany for a third spot.

How to engage with fintechs?

The general notion is often that startups are a threat to incumbent RE companies as they are offering innovative solutions and enhanced user experiences at a relatively lower cost and faster pace. However, traditional RE companies can leverage fintechs to drive operational efficiency, create powerful tenant experiences or even diversify existing business and generate new revenue sources. Additionally as RE companies have typically lagged certain technology adoptions there exists an opportunity to leapfrog current capabilities.
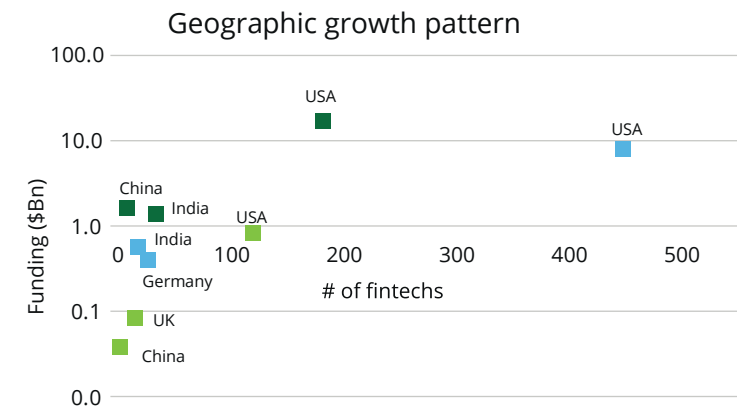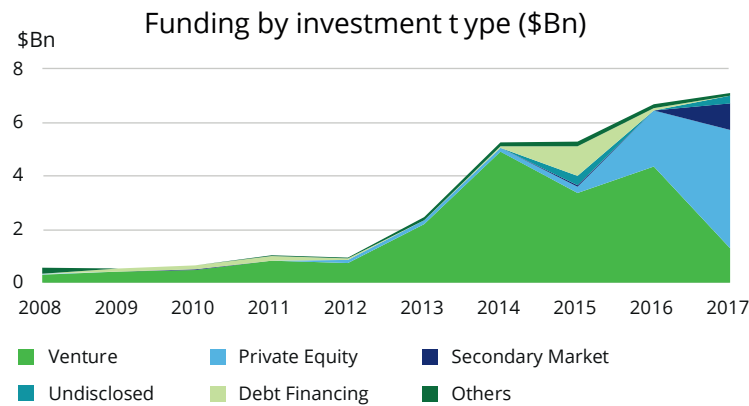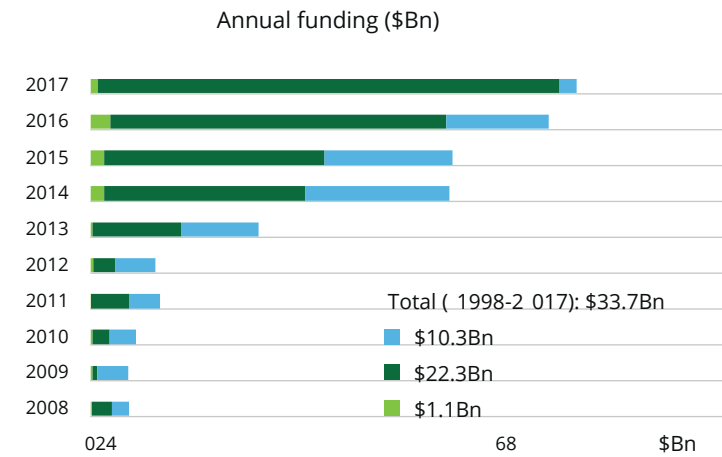
RE Fintechs: By the number

Fintechs founded by year
Total (1998- 2017): 1,318

Legend:
- 739
- 390
- 189

X-axis (years): 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017
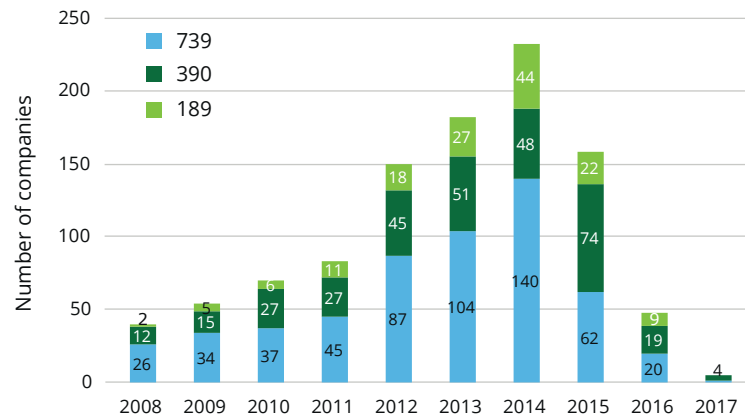
Bar values (Property Development management / Leasing and Purchase - sale Transactions / Financing and Investing):
- 2008: 26, 12, 2
- 2009: 34, 15, 5
- 2010: 37, 27, 6
- 2011: 45, 27, 11
- 2012: 87, 45, 18
- 2013: 104, 51, 27
- 2014: 140, 48, 44
- 2015: 62, 74, 22
- 2016: 20, 19, 9
- 2017: 4

Annual funding ($Bn)

Years: 2008–2017

Total (1998-2 017): $33.7Bn
- $10.3Bn
- $22.3Bn
- $1.1Bn

- ■ Property Development managemant
- ■ Leasing and Purchase - sale Transactions
- ■ Financing and Investing

Funding by investment t ype ($Bn)

- ■ Venture
- ■ Private Equity
- ■ Secondary Market
- ■ Undisclosed
- ■ Debt Financing
- ■ Others

Geographic growth pattern

Y-axis: Funding ($Bn); X-axis: # of fintechs

Labels: USA, China, India, Germany, UK

Source: Venture Scanner data, Deloitte Center for Financial Services analysis.

All data is as on September 18, 2017.

figure 1: Real Estate Fintechs: By the numbers

Companies can consider various approaches to tap into the fintech space. We've listed a few for your consideration:

Launch or participate in corporate accelerators: Independent or corporate accelerators would allow RE companies to capture relevant ideas and solutions at an early stage. This may be an effective and a relatively economical way of capitalizing on the new ideas developed by the startups. For instance, European retail and office RE owner, Unibail-Rodamco, has a startup accelerator program called UR Link. Through UR Link, the company provides financing, coaching and mentoring, and collaborative workspace to startups and co-develops prototypes for its large portfolio, with an aim to digitize its shopping centers and improve user convenience.

Use fintechs' services: RE owners, developers, and investors can use the fintech platforms for a variety of services—including activities related to leasing, acquisition and disposition, managing the underwriting process, and accessing detailed financial models for property financing. As an example, Assess+RE provides cloud-based services such as property-level valuation models and related financial analysis.

Invest: Companies that have a fair understanding of the startup business, substantial funds, and the appropriate risk appetite can invest in fintechs with a strong value proposition. In some instances, companies may want to create value for the startup by sharing their expertise, relationships or even contributing to the startup's business by being customers for its products or services. For instance, in 2016, a group of large mall owners invested in Deliv, a startup offering same-day delivery to shoppers.

Acquire: Companies with deeper pockets and understanding of startups could make strategic acquisitions to reduce future competition and also increase their capabilities and reach in terms of clients and markets. As an example, in December 2015, JLL acquired Corrigo Incorporated, a provider of cloud-based facility management solutions, in an attempt to improve transparency, enhance productivity, and leverage advanced analytics. Venture Scanner data suggests that within the RE fintech space, acquisitions in the property development and management space has grown significantly over the last four years. Total acquisitions swelled from 2 in 2012, to 35 in 2016 and 19 in the first three quarters of 2017.

How to evaluate your journey with Fintechs?
In summary, we would recommend reflecting on a few questions, which will perhaps help you evaluate your journey with fintechs:
• Change the mindset, from defense to engagement. Do you still regard fintechs as Examine your company strategy of working with fintechs today. Has there been a priority on investment or acquisition? What is your current collaboration strategy and engagement model?
• Begin taking steps to operationalize how you engage with fintechs.
  What is your ability to match the fintechs' pace of development, from contracting to development of proofs of concepts and pilots, to demonstrating results? For a more in-depth understanding about fintechs, please read our reports: Fintech by the numbers Incumbents, startups, investors adapt to maturing ecosystem and 2018 Real Estate Outlook Optimize opportunities in an ever-changing environment.

References
1. For the purposes of this report, we have defined "fintech" as the ecosystem of (perhaps initially) small technology-based startup firms that either provide RE services to the marketplace or primarily serve the RE industry.
2. UR Link website http://www.ur-link.fr/.
3. Ibid.
4. Assess+RE website https://www.assessre.com/index.html, accessed on August 4, 2017.
5. Venture Scanner.
6. "JLL to Acquire Technology Pioneer Corrigo," JLL News Release, December 2, 2015.

"Traditional real estate companies should embrace fintechs in order to drive operational efficiency".

Reduce the productivity gap with robotic and cognitive automation (R&CA)

The continuous technology advancement is creating and enabling more structured and unstructured data and analyses, respectively. The real estate (RE) sector has the opportunity to leverage one such technology, R&CA, to potentially drive operational efficiency, augment productivity, and gain insights from its large swathes of data.

Written by Jim Berry and Surabhi Kejriwal (US)

Understanding the potential of R&CA technology

Consider the current situation. Most RE companies use manual to semi-automated processes in some of their key functions such as finance, property management, and portfolio management. For instance, many companies continue to use spreadsheets for collating and analyzing data in areas such as cost aggregation and analysis, lease management, invoice development, accounts payables, property valuation, and forecasting. This tends to result in sub-optimal utilization of data and employees since different departments often work in silos.

Several documents-such as lease agreements, deeds, brokerage contracts, vendor payables and credit applications, property management agreements, and property tax assessments- are still maintained in a physical or digital format (scanned or spreadsheet).

This dependence on physical or digital formats often leads to process inefficiencies. For example, substantial time is often spent reading, manipulating, or abstracting paper or digital documents for relevant information.

RE players are also challenged to perform in-depth analysis and unlock the insights, as the data is not structured in the desired format. Consequently, the high level of human involvement required increases the probability of fraud and error.

Benefits of R&CA technology

With the use of R&CA technologies, data can be assembled with substantially less effort and reduced risk of error. This would allow professionals to better analyze data outputs at an enhanced speed, and make more informed decisions, all at a relatively low cost. Use of robotic process automation (RPA) can automate manual, repetitive, and often rules-based processes and tasks. Layering of cognitive automation or machine learning capabilities such as natural language processing, natural language generation, machine learning, and cognitive analytics would enable predictive decision making.

Why implement R&CA?

Increasing speed and accuracy: RPA can accomplish mundane and cumbersome tasks, such as extraction and digitization of data from lease contracts or invoices, faster and more accurately than people can.

Streamlining record management: Optical character recognition with cognitive technologies can enable lease records, invoices, and other essential documents that are usually recorded manually or scanned to be converted into formats suitable for reporting and analysis.

Enhancing compliance and risk monitoring: RE companies can automate many of their routine risk and compliance monitoring activities using RPA. As examples, tracking invoices for compliance with contractual terms or periodic review of lease contracts to avoid any potential risks of tenant defaults of any contractual obligation can be easily automated.

Improving stakeholder experience: Reduction in errors and frauds and faster turnaround would result in better experience for internal and external stakeholders.

Optimizing costs: RPA can decrease costs drastically and may even end up being cheaper than offshoring. It can enable 24/7 processing without breaks and holidays.
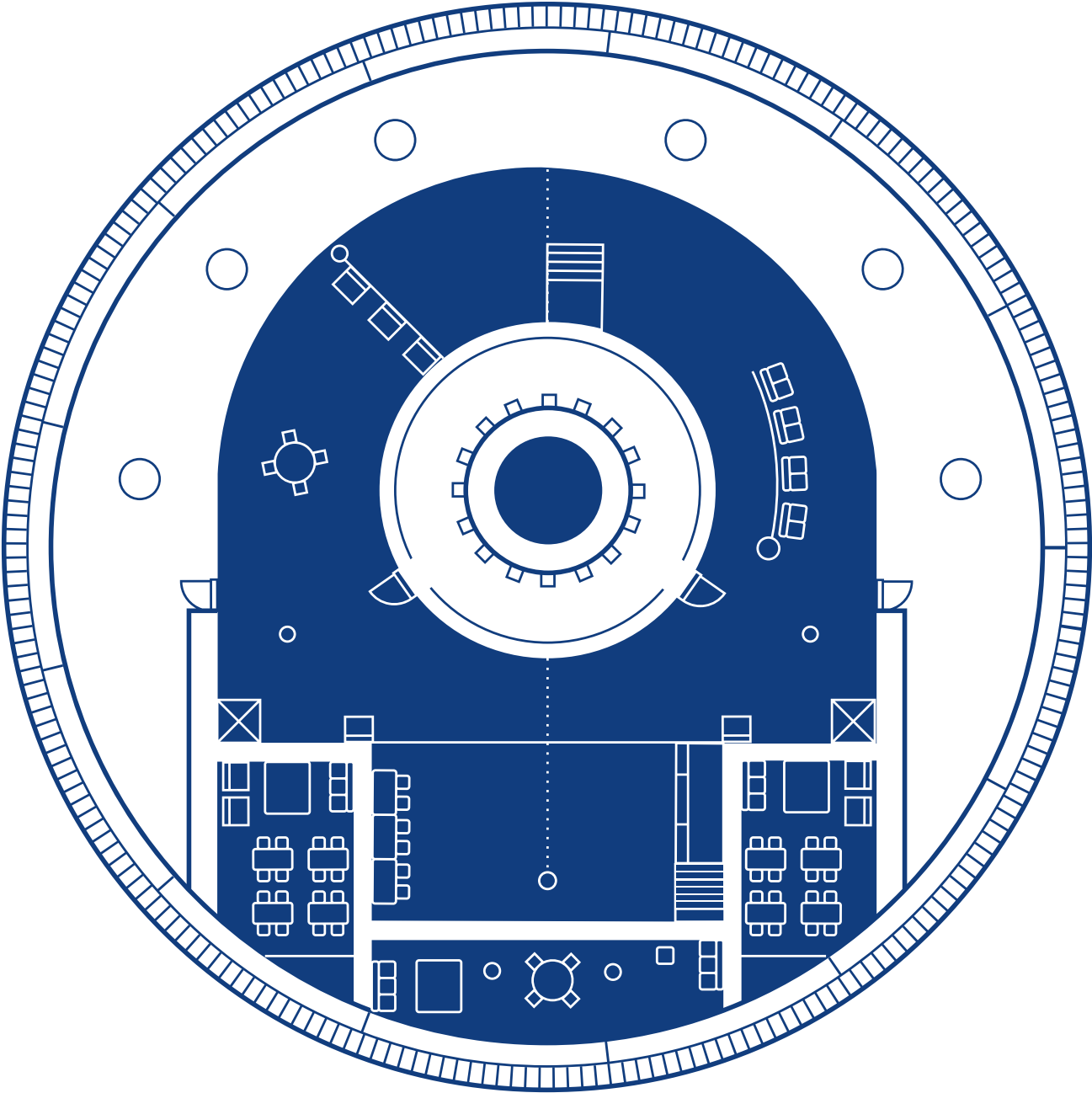
How can you implement R&CA?

RE companies should consider evaluating processes and tasks that can be automated and the technology implementation approach.

Evaluate current processes and tasks: RE companies should assess their current processes and tasks eligible for RPA and/or cognitive automation. Tasks having large volumes of data and repetitive in nature with scalability through additional human effort are likely candidates for RPA implementation (see figure 2). Roles requiring perceptual human skills, such as handwriting recognition or facial identification, and other cognitive abilities, like planning and reasoning, could also be considered. RE companies could even consider using R&CA technology for initial development of future cash flow projections, tax computations, payables processing, and payroll applications.

Assess the implementation approach: RE companies would need to evaluate the technology implementation approach that they wish to pursue. They could either consider partnering with R&CA technology vendors or establish a dedicated R&CA center of excellence. The approach would largely depend on the current technological maturity of the RE firm, their budgets and estimated return on investment, and the sense of urgency to automate existing tasks.
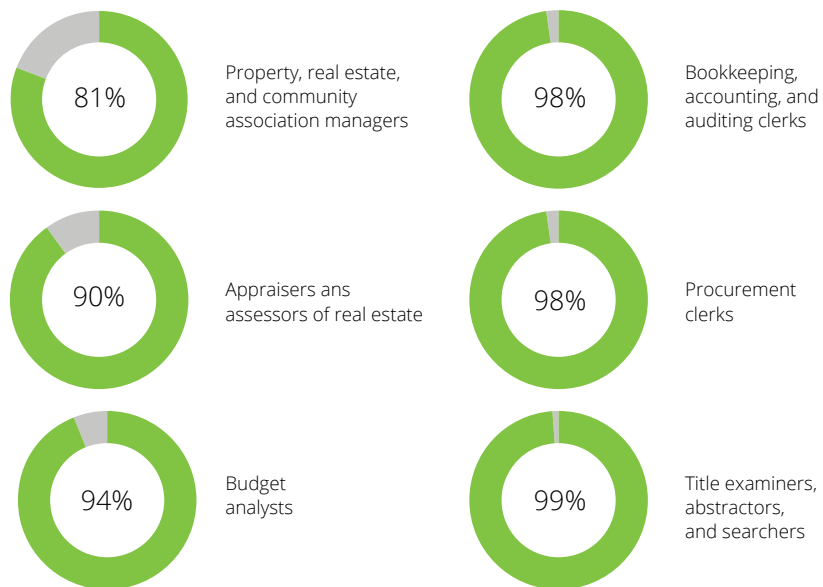
Bottomline, like any new technology, R&CA comes with the promise to improve routine tasks radically by making them faster, cheaper, and more accurate. However, it would be important for companies to evaluate and implement data access, protection, and privacy measures based on the amount of tenants' and employees' personally identifiable information (PII) processed using these technologies. Finally, companies have to break existing silos among people and processes to realize the full benefit of the technology. For a more in-depth understanding about R&CA, please read our report: 2018 Real Estate Outlook Optimize opportunities in an ever-changing environment.

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Prohability of key occupations being affected by automation

81% — Property, real estate, and community association managers

90% — Appraisers ans assessors of real estate

94% — Budget analysts

98% — Bookkeeping, accounting, and auditing clerks

98% — Procurement clerks

99% — Title examiners, abstractors, and searchers

Note: The numbers mentioned above are based on the research paper "The Future of Employment: How Susceptible Are Jobs to Computerization"

Source: Frey, C. B., & Osborne, M. A. (2017). The future of Employment: How Susceptible Are Jobs to Computerization ? Technological Forecasting and Social Change, 114, 254-280. http://doi.org/10.1016/j.techfore.2016.08.019

Expected cost savings through RPA implementation

9%

20%

27%

45%
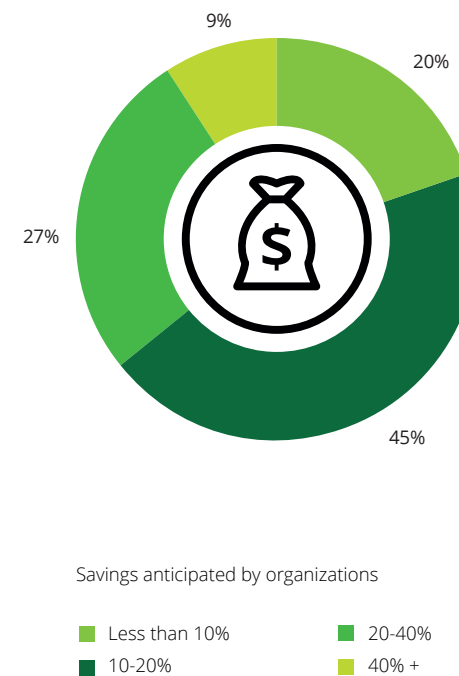
RPA technology is expected to help organizations achieve significantly higher savings and productivity gains

Savings anticipated by organizations

- ▪ Less than 10%
- ▪ 10-20%
- ▪ 20-40%
- ▪ 40 +

Source: Deloitte Global Shared Services Survey, 2017.

Figure 2: Expected automation of key real estate occupations and cost savings through robotic process automation implementation

Robotics for real estate services

Digitalization is changing the real estate sector. What if buildings will eventually become smarter than our processes? RE companies are more and more starting to apply this Robotic Process Automation (RPA) in their daily business and boost the efficiency of their workforce. Nonetheless, looking at the sector specific processes and the administrative effort which is related to the management of properties, we find ourselves only at the beginning of this trend.

Written by Hendrik Aholt
and Volker Wörmann (DE)
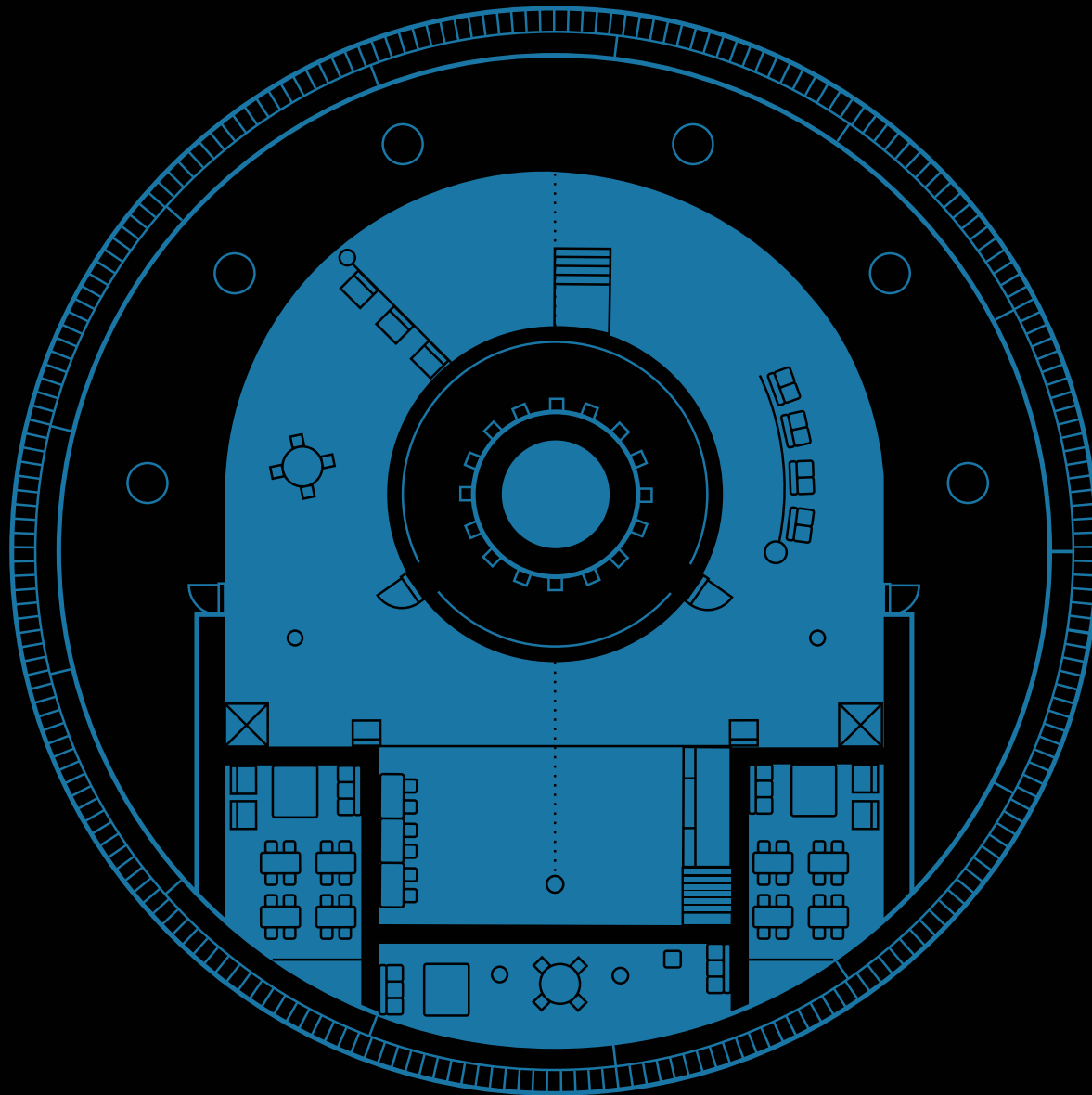
Comparing the Real Estate industry with other sectors, RE companies are not known as innovation leaders or early-adaptors in terms of technology. For some companies, Robotic Process Automation (RPA) might still sound like a technology of the far future and others might confuse it with an R2D2-like physical machine. But due to the ongoing extension and obvious business potential, RE companies are more and more starting to apply this technology in their daily business and boost the efficiency of their workforce. Nonetheless, looking at the sector specific processes and the administrative effort which is related to the management of properties, we find ourselves only at the beginning of this trend.

To start with a short explanation – the idea behind RPA is simple: RPA, which is basically a software, automates manual, repetitive and rule-based processes and tasks. It is linked with end-user software like ERP-systems, MS-Excel, internet pages or email programs and then carries out manual labor-intensive tasks automatically exactly as programmed in its RPA-source code.

What's in it for real estate companies?

The obvious and already most tackled area of application is the back-office, e.g. the accounting department. Tasks in this department are often showing a relatively high share of repetitive and structured processes. To keep track of all invoices, payments, renewals and credit applications is a lot of work that is currently often performed with a significant amount of manual effort. Despite the lost time for the employees to

perform more complex "value-add"-tasks, human error or even the potential for fraud is a relevant business risk.

RPA helps with the execution of such transactions. Furthermore it can support automatic extraction of data from various systems, structure and format those information and distribute those reports automatically resp. makes them available for download. This can be done for entire portfolios, administrative units or single facilities and can be considered as an easy example for the application of RPA. Especially for the real estate sector, there are far more areas of application that are currently not utilized, though. The general potential is illustrated in figure 3.

Key drivers of RPA in the future

As stated above, RPA already helps to reduce manual effort with data intensive activities following trained processes. The future importance of this function correlates with the increasing digitization of the real estate sector and the growing number of smart buildings. Already today, many companies are struggling to make use of the masses of unstructured data produced by buildings and integrated technology. In addition, the high number of different data formats causes difficulties that increases the effort or even prevents its usage of the data. RPA will be an important factor for converting this data into relevant information, but it cannot interpret the data by itself.

RPA with cognitive or artificial intelligence

Therefore, another driver is the enhancement of RPA with cognitive or even artificial intelligence (CI/AI). This connection enlarges the area of application from simple "following the rules" to judgment-based processes and predictive decisions called cognitive automation. Today, an RPA-enhanced process will just stop and inform the respective employee that something unexpected happened. Enhanced by CI/AI, use cases will be possible, which include decision preparation, structured suggestion and prioritization of alternatives or even direct decision making in the future. Involving multi-dimensional data sets that may span across time horizons and geographies and include terabytes of unstructured data, those decisions maybe more accurate than any human being could ever make them.

The potential of RPA in real estate

Although the potential for this technology is already high, we expect a strong development within the field of process automation during the next years in the real estate sector. In addition, investments in CI/AI are high and the smarter the technology gets, the more use cases will emerge. Therefore it is no question, if the technology will become more relevant in the future, it is rather, which companies will use it first to get a decisive advantage over their competitors by benefiting from efficiency gains, cost and risk reductions in the short term or – combined with CI/AI – even a real competitive differentiator in the long term.
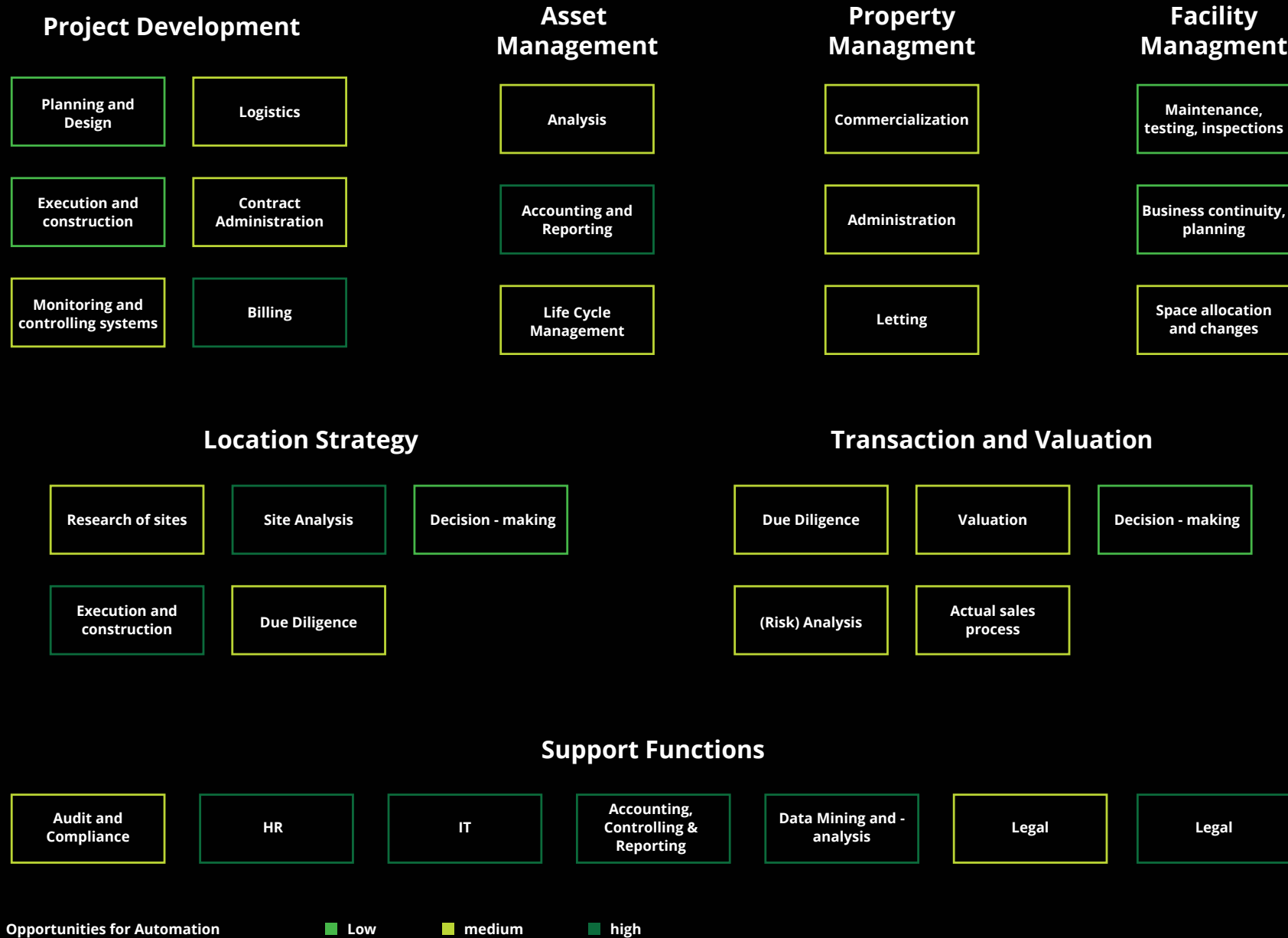
Project Development

Planning and Design	Logistics
Execution and construction	Contract Administration
Monitoring and controlling systems	Billing

Asset Management

Analysis

Accounting and Reporting

Life Cycle Management

Property Managment

Commercialization

Administration

Letting

Facility Managment

Maintenance, testing, inspections

Business continuity, planning

Space allocation and changes

Location Strategy

| Research of sites | Site Analysis | Decision - making |
| Execution and construction | Due Diligence | |

Transaction and Valuation

| Due Diligence | Valuation | Decision - making |
| (Risk) Analysis | Actual sales process | |

Support Functions

| Audit and Compliance | HR | IT | Accounting, Controlling & Reporting | Data Mining and - analysis | Legal | Legal |

Opportunities for Automation   ■ Low   ■ medium   ■ high

figure 3: General potential of implementing RPA

"Which companies will use RPA first to get a decisive advantage over their competitors?"

Transforming real estate operations

This article outlines the opportunity for public sector real estate organizations to fully embrace digital disruption, transform their property operations & portfolios, and benefit from the learnings of the private sector.

Written by Sheila Botting (CA) and Francisco J. Acoba (US)
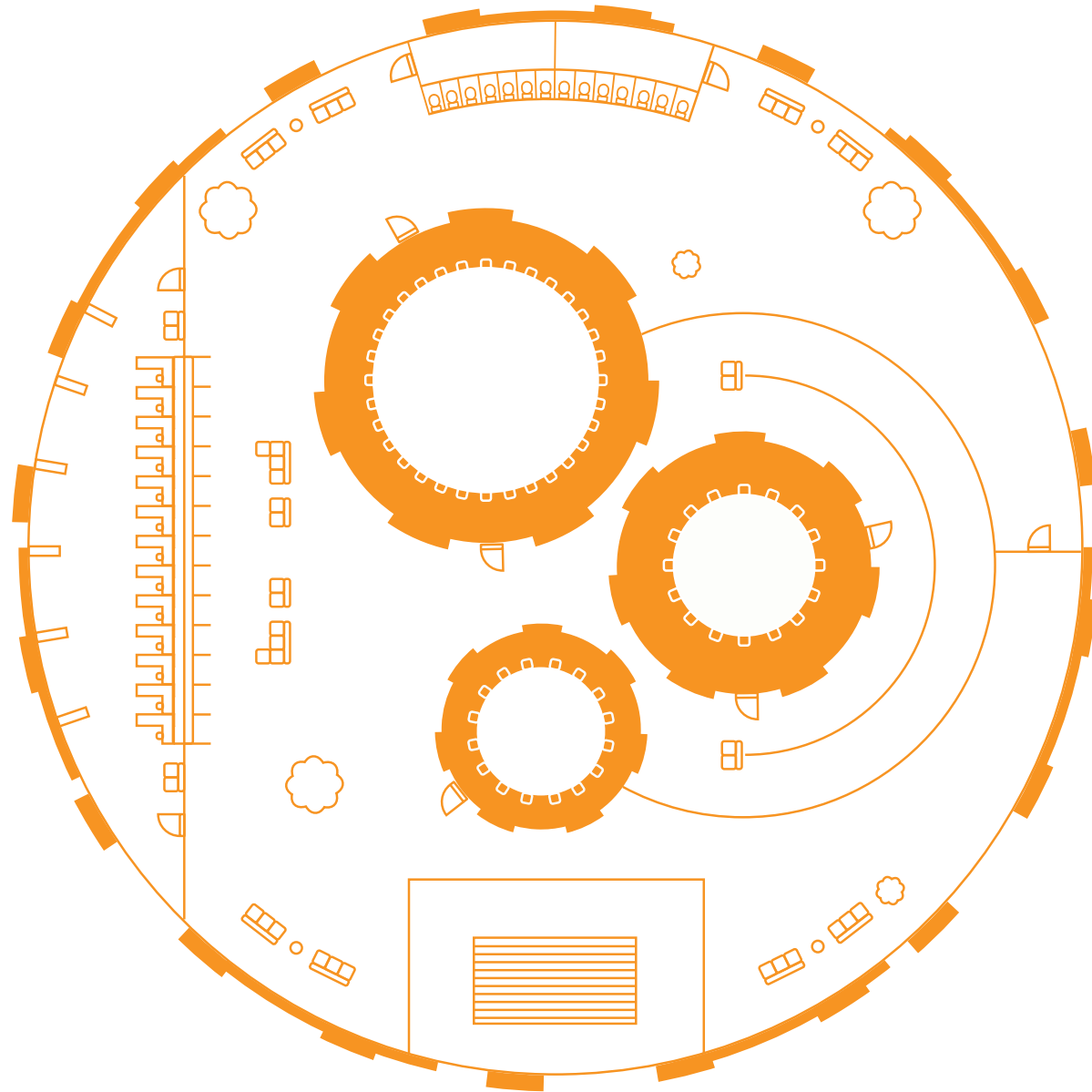
Many private sector organizations have transformed their corporate real estate operating models over the last decade, and this transformation provides tremendous opportunity and "lessons learned" for public sector real estate operations around the globe. Specifically, many organizations are moving away from highly fragmented, inefficient operating models, and are turning toward center-led, high performance operating models to deliver a wide range of services for their diverse organizational real estate requirements.

Digital disruption is affecting virtually all sectors of the economy and real estate

The global economy has been experiencing synchronized, broad based and strengthening economic expansion. Digital disruption is affecting virtually every sector, including all property types that influence demand and supply for office, retail, industrial, institutional, land and specialized property asset classes. As a result, property operations and platforms need to fully embrace digital disruption, and specifically impacts on property in order to help their business to remain relevant and modern within the dynamic economy. Unfortunately, Deloitte's "Future of Work" research has identified that public policy tends to lag behind technological advancements. As such, organizations should consider exploring high performance real estate operating models to potentially help organizations embrace technological change.

Transformation of the existing real estate operating models

Public Sector Real Estate Service Delivery Operations have a unique opportunity to transform and deliver effective and efficient services to benefit their client organizations. The public sector is collectively the world's largest service provider. Any

favorable amelioration in public services will favorably impact millions of people, which calls for a radical transformation of the existing real estate operating models. The need to centralize operations, reduce the cost of back-office processes, and minimize inefficiencies is the standard expectation across businesses today, which has benefitted private sector tremendously. The public sector can learn and implement many of the lessons learned from this experience.

Decentralized operating models result in tremendous inefficiencies

The existing public sector decentralized real estate operating model presents a wide range of inefficiencies that affect their respective client organizations including:
- Higher costs due to the need for more resources to deliver services
- Inefficiencies and duplication across multiple teams
- A larger footprint to serve the multiple programs

- Space "ownership" costs, entitlements, and inefficiencies
- Highly complex governance, budget, and approvals processes
- Limited budgets for technology/operations/capital and asset management
- Limited real property expertise to lead and deliver solutions across multiple property asset classes
- Fragmented outsourcing arrangements that fail to deliver true cost and efficiency benefits
- Traditional use of space, often with outdated workplace environments that fail to inspire innovation and new ways of thinking
- Wasted opportunities, typically available through a location, holistic strategic perspectives and team

The real estate and construction market has been changing over the past few years. In this regard, Deloitte Real Estate conducted research with our many global clients and the CoreNet Global professional industry association to analyse market trends.

Directions toward a centralized high performance real estate service delivery model

Three key findings indicated by recent CoreNet Global / Deloitte Consulting research are listed below:

1. CRE organizations continue to deploy direct/center-led operating models

Many corporate real estate organizations have recently redesigned or are planning to redesign their operating models and organizational structures. As shown in figure 4, research participants indicate that they are shifting towards center-led operating models in order to drive strategic alignment, cost reduction, economies of scale, standardization, and continuous improvement.

2. Decentralized operating models drive lower levels of satisfaction from CRE organizations

As shown in figure 4, 77% of survey respondents have deployed a direct/center-led operating model. Furthermore, as shown in figure 5, research indicates that the direct/center-led operating model is associated with the highest level of satisfaction (70% very satisfied or satisfied), compared to other more distributed operating models.
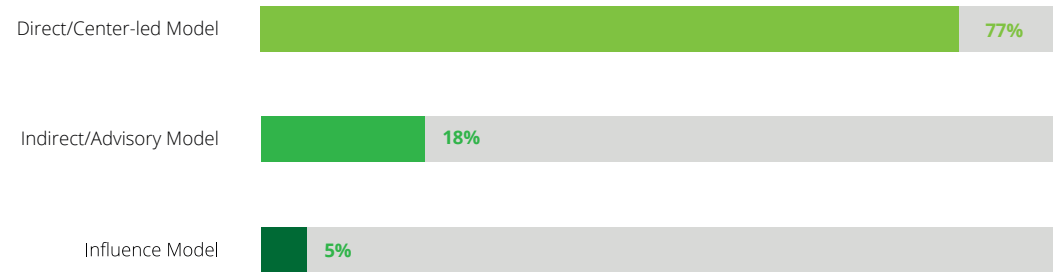
Direct/Center-led Model — **77%**

Indirect/Advisory Model — **18%**

Influence Model — **5%**

figure 4: CRE organizations continue to deploy direct/center-led operating models

Model	Very satisfied	Satisfied	Somewhat Satisfied	Somewhat dissatisfied	Dissatisfied
Direct/Center-led Model	21%	49%	17%	6%	6%
Indirect/Advisory Model		36%	36%	18%	9%
Influence Model			67%		33%

- Very satisfied
- Satisfied
- Somewhat Satisfied
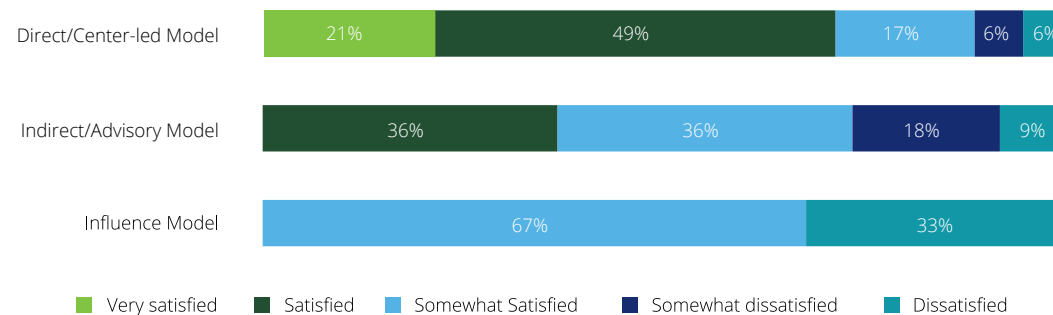- Somewhat dissatisfied
- Dissatisfied

figure 5: decentralized operating models drive lower levels of satisfaction from CRE organizations

3. CRE organizations are increasingly serving in the role of strategic partner

Corporate real estate is moving up the value chain and, in many case, earning a "seat at the table" with senior leadership. That said, CRE organizations that aspire to be a strategic partner are often challenged to do so based on the current positioning of the CRE function. The industry-wide War for Talent and important role that CRE can play in creating innovative and high performance workplace environments provides an opportunity for the CRE function to inspire the enterprise and improve its positioning.

As shown in figure 6, CoreNet Global / Deloitte Consulting research indicates that most organizations have evolved their CRE functions to incorporate the concept of strategic partnering:

Nearly half of the survey respondents indicate that their CRE organization serves as a 'Strategic Partner' in supporting customer demands by designing and delivering end-to-end strategies and solutions

The balance of the CRE organizations serve as an 'Advisor' (corporate real estate is proactive in interacting with customers and primarily focused on transactions and projects) or as a 'Visionary' (corporate real estate focuses on unlocking enterprise value and a key business partner leading to leverage real estate as a value protector and creator)
Across research participants, only a small

portion (5%) of CRE organizations serve as a traditional 'Task Manager' that largely responds to requests and is task oriented
For the public sector, moving beyond a Task Manager role toward a strategic partner or visionary role represents a tremendous opportunity and enables evolution towards a high performance delivery platform.

Summary

Real estate and real property organizations that are structured in a decentralized manner often leverage generalists across property types and requirements. These organizations may or may not possess deep functional skills and may need to source these capabilities from 3rd party service providers. In contrast, organizations that have deployed direct/center-led operating models tend to internally host the functional skills required to drive a wide range of real estate activities, from strategy to planning to asset management to change management.

Corporate real estate operating models continue to evolve with advancements in technology and newly emerging workplace expectations. Never before has it been as critical for the CRE organization to "step-up" its game and deliver best-in-class services across a wide range of property types and occupier groups. Organizations should consider the benefits of the direct/center-led operating model to drive change and deliver within an ever changing environment.
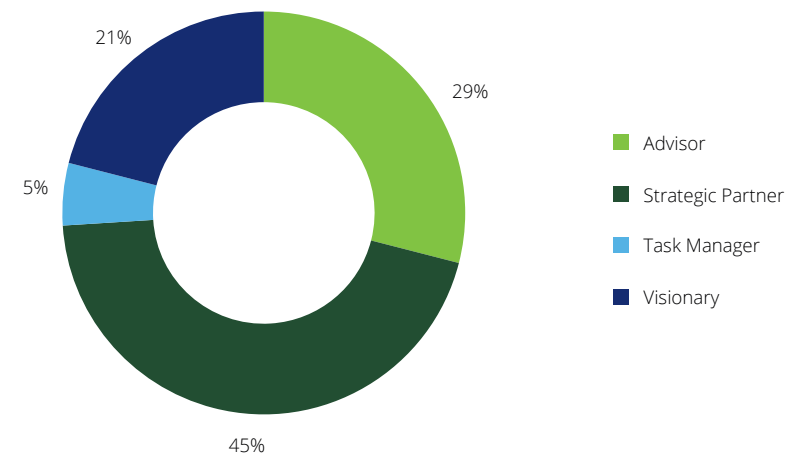

figure 6: CRE organizations are increasingly serving in the role of strategic partner

The future of commercial real estate

For this RE prediction, experts of Deloitte Real Estate Consulting teamed up with the colleagues from the Deloitte Center for the long view. Using the innovative approach of Scenario Thining paired with Data Analytics, the following prediction shows what we believe will be the most likely scenario for the future of the commercial real estate industry:

The current development of technologies in an era of digitization and automation, will lead to a massive disruption of the industry. Today's job profiles will change as well in their demands as in the way the work is executed. Low-skilled, blue-collar workers without digital expertise will become obsolete to a significant extent. White collar-jobs will be more data-driven and often be performed remotely, changing the demand for office spaces, their fit-out and their infrastructure. Increasing gaps in the incomes of the educated working class and unskilled workers are likely to emerge. Due to that, new social concepts like unconditional basic income will be evaluated and implemented. This development will reshape the commercial real estate landscape fundamentally, changing the market players and their share of the real estate value chain.

Written by Jörg von Ditfurth (DE) and Hendrik Aholt (DE)

How we work

The total amount of office square meters is likely to reduce, due to the tendency to work remotely, but people will still go to the office from time to time. The office spaces will be mainly downtown in fully modernized or newly built high-tech buildings, which are highly efficient and dedicated for to interaction and teamwork. It is where colleagues or business partners will meet to develop ideas and make direct social contacts. Public Transport and autonomous cars will reduce time effort to reach offices.

How we shop

The overall demand for retail real estate assets will further decline due to online shopping or even 3D-printing at home. Just-in-time logistics are standard; deliveries by drones are safe and fast. Logistics centers are located at the periphery of the city, releasing space for other uses in the city center. Luxury high street miles will probably still be existing, thanks to their leisure "see-and-be-seen"-function, but smaller retail shops in decentralized regions will see increased pressure. Shopping malls will need to develop more event-driven concepts that meet the demand of new customers, to experience rather than to shop.

Who will earn money with real estate assets in the future?

In the following chart, we forecasted the distribution of the future rental income between the market participants, compared with an estimated status quo. As a basis, we have set today's market rental level as 100.

As a basis, we have set today's market rental level as 100 (see figure 7).
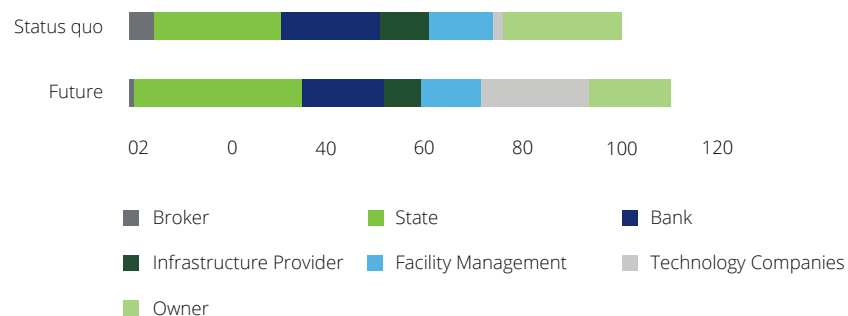
Real Estate Value Chain

figure 7: Real Estate Value Chain

Cashback for real estate investors

Currently, the direct cashback for real estate investors arises from the rental income. In the future, a second source of value will become more and more relevant. The worth of the collected user data, which is likely to become a component of rental repayments to the investors. The "classic rent" as we know today will decrease, but taken the value added of the collected data into account, the total value that can be generated from the assets will increase. The overall price movement will be moderate, since digitization increases productivity and efficiency and lowers the demand for commercial real estate in general, leading to an oversupply of space.

Regarding the individual market players in the real estate sector, real estate brokers will become less relevant due to higher market transparency and more automated, direct rental negotiations between owners and lessees. In general, real estate transactions will often be based on technologies like blockchain, reducing the need for all kinds of intermediaries.

The governments will make sure to benefit from those new developments through new tax models (new digitization- or "robot taxes"). This additional income will be needed to fund the increased costs for the mitigation of social problems due to increased unemployment. The banks of the future will be able to take advantage of the high degree of debt financing for property projects to fund expensive building technology. However, crowdfunding platforms and FinTechs become strong competitors, leading to a lower share of the value chain for the banks.

The impact of tech companies

Tech companies, today an almost irrelevant market participant, could be the greatest beneficiaries. Current tech giants or dedicated startups will find their way into the real estate sector, which becomes more attractive the more data it generates. Those companies will establish data-driven business models that add value for the tenants, while simultaneously collecting user data. Supported by the high tech environment, combined with their comprehensive experience in digital business models, these tech companies will conquer the construction and facility services sector, gaining a large share of the value chain in the real estate sector, if current players cannot explore and utilize this data-gold by themselves...

A call for realism in blockchain expectations

The real estate community is increasingly aware of the significant potential that blockchain holds for its industry. Numerous successful trials and several Initial Coin Offerings (ICO's) have been announced and the surge in new applications, working examples of the technology and new business models has only just begun.

Written by Jan-Willem Santing (NL)

Although the property market is thriving and there is a temptation for major players to focus on the more immediate quick wins, we are seeing a definitive breakthrough of PropTech innovations in the market. Blockchain is on the agenda of the CEO of almost every real estate company. But blockchain is not necessarily the solution for every item on the agenda.
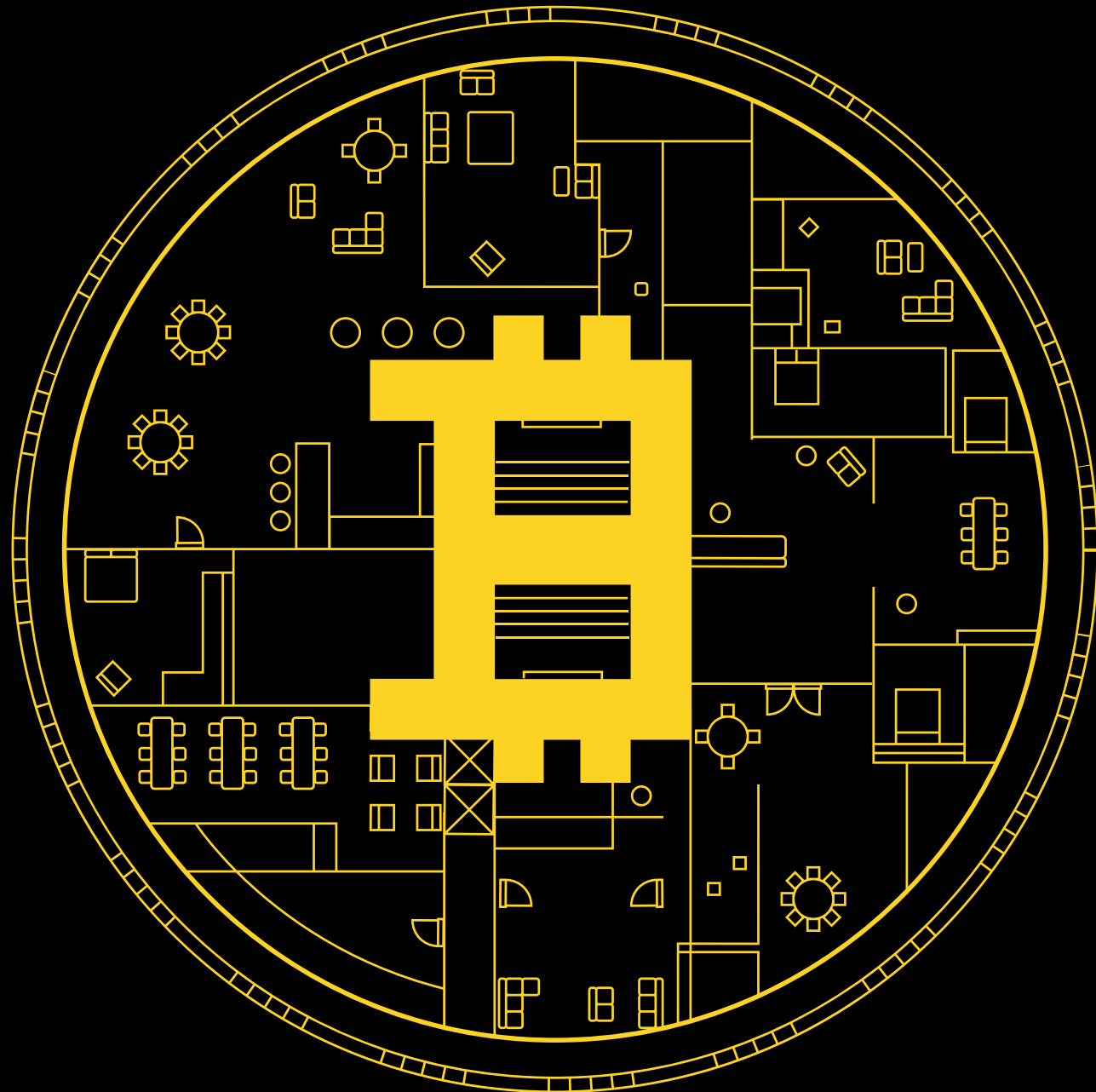
Thanks to innovative technologies such as blockchain, data driven real estate management is in "acceleration" mode and with this, the role of real estate professionals is facing radical changes. Two factors that must not be underestimated are: the current quality of data held by real estate companies and the incentives of the current "powerhouses" to limit data sharing. The transparency issue is a long-standing, pre-blockchain obstacle in the real estate sector, and remains a tough nut to crack. The attitude of leading agents in the market towards this point has to change and it is inevitable that at some stage they are going to have to share confidential data with other players in the life cycle as digitisation continues. Parties who are not willing to share their confidential data, in a secure and trustworthy way, may see economic disadvantages from such behaviour in the future.

Privacy, data ownership, exchange of data based on international agreed standards and improvements in the quality of data are going to be the major issues in 2018 and the years ahead. International efforts, such as the research, started by IREDEC, late 2017, 1 is a necessary and important step for the adoption of blockchain in the real estate industry. The purpose of the IREDEC is to identify a core data set for different real estate processes and perform a complete mapping exercise between existing standards to ensure alignment for the agreed upon data set. Another important research, conducted by the RICS2 gives insights as to how building-related data, including physical, performance and financial information, is currently being captured and managed by key sector representatives. The main conclusion is: 'While the report lists an encouraging number of good practice examples and public and private initiatives, the overriding message of the survey findings is that the fragmentation and silo-thinking that the sector is known for also translates into the way it handles its data. The report concludes that in terms of effective data capture and subsequent management of that data, the sector still has some way to go'.

Promising use cases
Blockchain is still in its early days for the real estate industry. The limited scalability of blockchain, lack of standardised and easy to exchange data are challenges that need to be tackled in order to make mainstream adoption possible. Despite this observation, we've seen several promising uses of blockchain around the globe:

- Digitised purchasing of real estate via Bitcoin
- Tenants paying sums due under their leases (rent, service charge, insurance, etc.) in Bitcoin
- Peer2Peer asset trading
- Transfer of ownership
- Crowd ownership and or finance of real estate
- Rental contracts via blockchain
- Real estate data exchange platform
- Self-executing smart buildings

Of course, some of these solutions aren't mature at this stage or don't comply with the existing rules and legislation, as with many new developments. It's going to take effort, time, vivid examples, perseverance and the creative minds of the innovators amongst the pack in the upcoming years to progress this.

Federated Real Estate Data network (FRED)
For the real estate industry we envisage a federated real estate data network, FRED. FRED represents a federated, distributed network for exchanging real estate information between administrative systems (FRED members). FRED members would all manage their own information and communicate directly with each other via an Application Programming Interface (API) that allows them to exchange structured information/data.

In order to increase trust, FRED members use a second medium (blockchain) to validate whether the information provided information is truthful. Most blockchains are ledgers that simply keep track of transactions, giving them the authority to tell if a transaction is valid or not. FRED proposes a layer on top of a blockchain, giving it the authority to tell whether a real estate transaction is valid or not. It tags each blockchain transaction with enough information for other FRED members to understand the semantics behind the transaction. The advantage of using blockchain technology in this way is that we can rely on its transparency, immutability, ease of transfer and inability to be counterfeited, to transfer digital tokens with unprecedented security and ease.

FRED would make information sharing across organizations not only easy, but secure and verifiable.

Blockchain is rarely, if ever, a solution in itself, but it can be used as a building block. API's are another building block. Generating structured information based on unified definitions and taxonomy, thus reducing the time taken to manually enter information is considered the best route. Instead of sending documents in human-readable format (word, pdf, excel), a connection via a system with each counterparty with API's needs to be in place. This makes the exchange of information possible without the manual interference of a human being.

Conclusion

We believe blockchain is set to make a positive contribution to the world of real estate, in terms of uniformity, efficiency, and transparency. Exciting times with great opportunities lie ahead. Some will say that this is hype or that reality won't to live up to expectations. This pessimism is caused by unrealistic short-term expectations from uninformed or misinformed people, and the selection of poor examples to demonstrate the benefits. In the meanwhile, keep exploring, stay curious and remember, Rome wasn't built in one day!

"We believe blockchain is set to make a positive contribution to the world of real estate, in terms of uniformity, efficiency, and transparency".

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