Real Estate Technology
Threat or Opportunity?

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Foreword

The real estate sector is undergoing a fundamental transformation, fuelled by technological change that will be more consequential than at any other time in recent history.

In this next phase of real estate sector transformation, the business of 'bricks and mortar' will no longer be about bricks nor mortar.

Driven by the demand for greater efficiencies throughout the sector and enhanced user experiences, new technologies are reimagining every aspect of the way in which real estate is procured, developed, managed and utilised.

The extraordinary pace of innovation in other industries, and the resulting ubiquity of digital technology in everything from ordering a pizza to managing your finances, has heightened consumer expectations of every other aspect of their lives, including their relationship with the built environment.

In this next phase of real estate sector transformation, the business of 'bricks and mortar' will no longer be about bricks nor mortar.

Real estate sector participants – from agencies to developers, financiers to property managers – will need to understand the latest in technological innovation and implement strategies to integrate those advancements into their projects and businesses in order to stay ahead of the pack.

In this paper we explore what RealTech means, explain the global growth of RealTech, and provide a perspective on the future of RealTech together with the implications for real estate sector participants.

Contents

Defining RealTech

RealTech, short for Real Estate Technology, refers to technologies that impact the built environment and the real estate sector, either through business model innovation or product innovation, affecting the way we live, work and play.

From a *business model* perspective, RealTech companies target the traditional inefficiencies and antiquated processes of the real estate sector. From a *product innovation* perspective, RealTech companies target innovative software, hardware and other core technologies, as well as advancements in building materials, fixtures, fittings and systems.
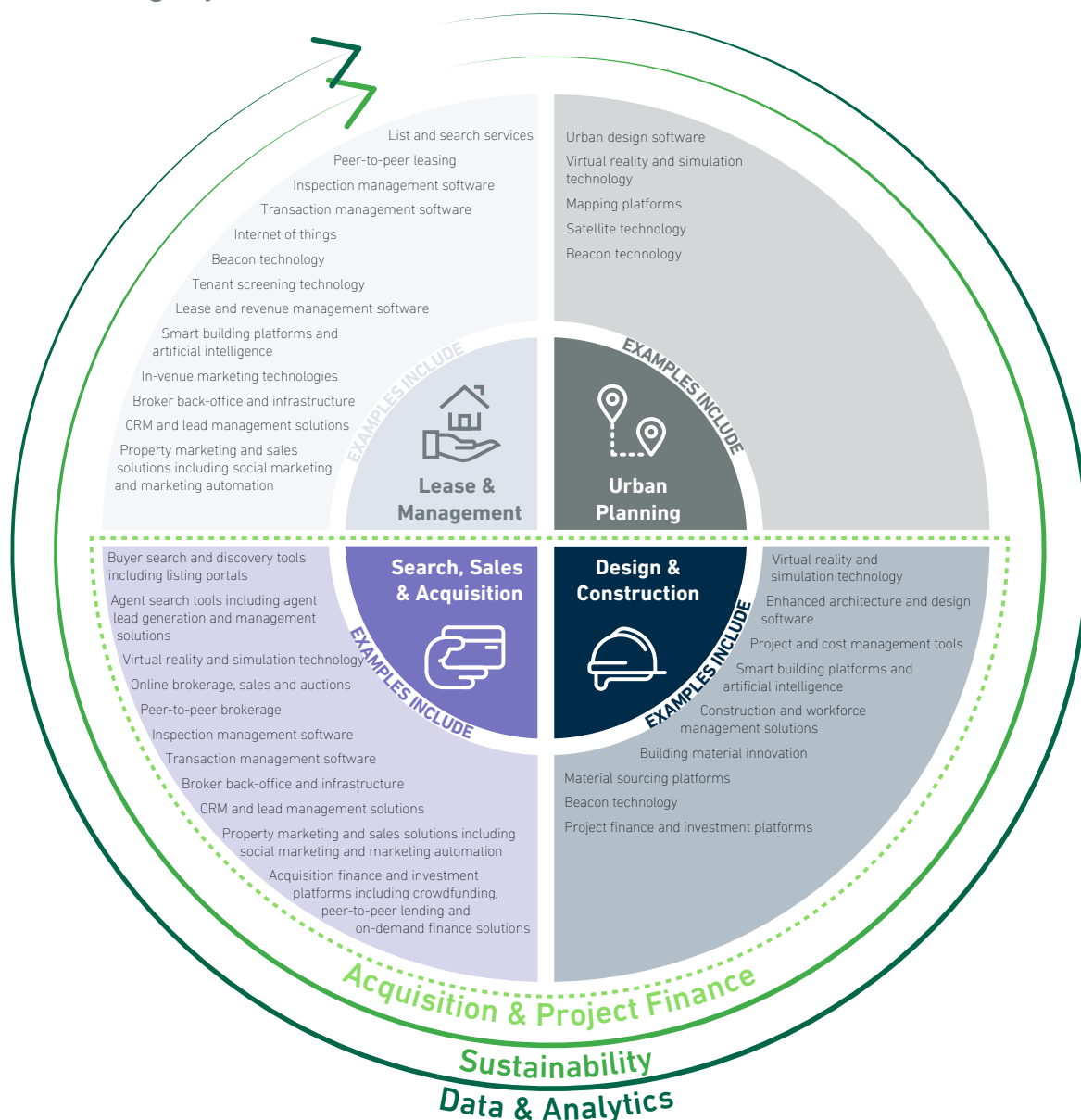
RealTech Categories

Generally, RealTech companies fall into one of the following categories:

- Urban Planning
- Design & Construction
- Search, Sales & Acquisition, and
- Leasing & Management.

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"RealTech companies are reinventing our relationship with the built environment

The following graphic expands upon each of the categories above and lists examples of the technology solutions being developed in each category.

Lease & Management

EXAMPLES INCLUDE

- List and search services
- Peer-to-peer leasing
- Inspection management software
- Transaction management software
- Internet of things
- Beacon technology
- Tenant screening technology
- Lease and revenue management software
- Smart building platforms and artificial intelligence
- In-venue marketing technologies
- Broker back-office and infrastructure
- CRM and lead management solutions
- Property marketing and sales solutions including social marketing and marketing automation

Urban Planning

EXAMPLES INCLUDE

- Urban design software
- Virtual reality and simulation technology
- Mapping platforms
- Satellite technology
- Beacon technology

Search, Sales & Acquisition

EXAMPLES INCLUDE

- Buyer search and discovery tools including listing portals
- Agent search tools including agent lead generation and management solutions
- Virtual reality and simulation technology
- Online brokerage, sales and auctions
- Peer-to-peer brokerage
- Inspection management software
- Transaction management software
- Broker back-office and infrastructure
- CRM and lead management solutions
- Property marketing and sales solutions including social marketing and marketing automation
- Acquisition finance and investment platforms including crowdfunding, peer-to-peer lending and on-demand finance solutions

Design & Construction

EXAMPLES INCLUDE

- Virtual reality and simulation technology
- Enhanced architecture and design software
- Project and cost management tools
- Smart building platforms and artificial intelligence
- Construction and workforce management solutions
- Building material innovation
- Material sourcing platforms
- Beacon technology
- Project finance and investment platforms

Acquisition & Project Finance

Sustainability

Data & Analytics

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Urban Planning

Companies in this vertical are focused on various aspects of urban, rural and community planning, including improving processes related to land release, planning approvals, protection and use of the environment, and the enhanced design of the urban environment.

EXAMPLES INCLUDE:

1. Urban design software
2. Virtual reality and simulation technology
3. Mapping platforms
4. Satellite technology
5. Beacon technology

Design & Construction

Companies in this category are focused on the tools and processes used for the design, development and construction of residential, commercial and industrial real estate projects.

EXAMPLES INCLUDE:

1. Virtual reality and simulation technology
2. Enhanced architecture and design software
3. Project and cost management tools
4. Smart building platforms and artificial intelligence
5. Construction and workforce management solutions
6. Building material innovation
7. Material sourcing platforms
8. Beacon technology
9. Project finance and investment platforms

Search, Sale & Acquisition

Companies in this category are focused on the tools, processes and business models for searching, marketing and acquiring new and existing residential, commercial and industrial real estate.

EXAMPLES INCLUDE:

1. Buyer search and discovery tools including listing portals
2. Agent search tools including agent lead generation and management solutions
3. Virtual reality and simulation technology
4. Online brokerage, sales and auctions
5. Peer-to-peer brokerage
6. Inspection management software
7. Transaction management software
8. Broker back-office and infrastructure
9. CRM and lead management solutions
10. Property marketing and sales solutions including social marketing and marketing automation
11. Acquisition finance and investment platforms including crowdfunding, peer-to-peer lending and on-demand finance solutions

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Leasing & Management

Companies in this category are focused on the tools, processes and business models used for the leasing and management of residential, commercial or industrial real estate, from single properties through to solutions designed for complex property portfolios.

EXAMPLES INCLUDE:

1. List and search services
2. Peer-to-peer leasing
3. Inspection management software
4. Transaction management software
5. Internet of things
6. Beacon technology
7. Tenant screening technology
8. Lease and revenue management software
9. Smart building platforms and artificial intelligence
10. In-venue marketing technologies
11. Broker back-office and infrastructure
12. CRM and lead management solutions
13. Property marketing and sales solutions including social marketing and marketing automation

Across all of the categories above, Data & Analytics tools and Sustainability focused innovation are also having a significant impact. The following section expands upon both of these additional categories and lists examples of the technology solutions being developed in each category.

Data & Analytics

Companies in this category are focused on developing tools designed to identify, collate and analyse relevant data to enhance operational efficiency, inform decision making and improve the experience of participants across the residential, commercial and industrial real estate sectors.

EXAMPLES INCLUDE:

1. Big data aggregation and management tools
2. Information crowd sourcing tools
3. Content, data and information portals
4. Tenant and visitor in-venue experience and engagement solutions
5. Tenant and visitor in-venue loyalty, transaction and value add solutions

Sustainability

Companies in this category are focused on developing tools and materials designed to:

1. Enhance building sustainability
2. Enhance environmental sustainability
3. Improve energy efficiency outcomes

The global growth of RealTech

Funding

Since 2012, global capital allocations to direct real estate have doubled, rising from US$ 166 billion in 2012 to US$ 320 billion in 2016. Over the same period venture capital funding into RealTech companies increased 1200% from US$ 221 million in 2012 to $2.6 billion in 2016[1].

The table below shows the growth in global venture capital funding of RealTech companies compared to global direct real estate capital allocations.

RE Tech VC versus Global real estate capital allocations
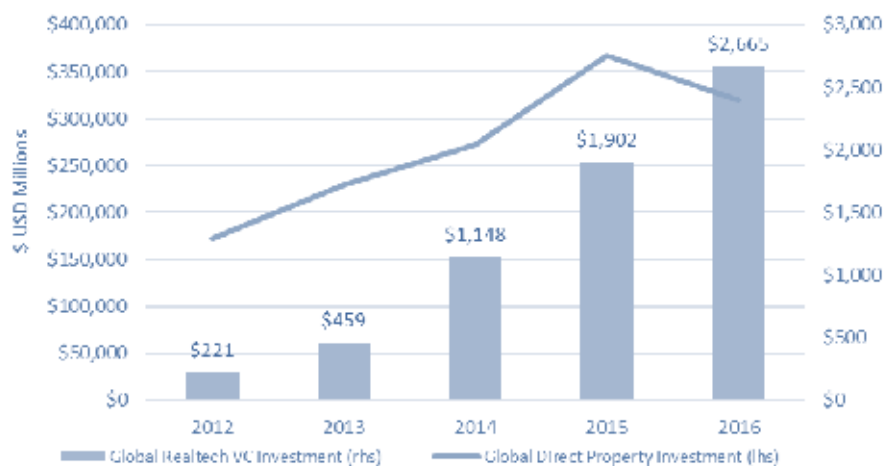
Source: CB Insights

[1] CB Insights / Real Capital Analytics

"Traditional real estate corporates are increasing their allocation to RealTech venture capital investment

With the long-term outlook for direct real estate capital investment remaining positive, allocations to RealTech will continue to increase exponentially. If venture capital allocations into RealTech continue to grow at the same rate over the next three years, the annual amount invested in RealTech companies by 2020 could reach US$ 20 billion. This is comparable to the amount that is currently invested in FinTech each year.

Investors

In 2016, CB Insights recorded 243 active RealTech investors. This number has steadily increased year-on-year since 2013. In the first quarter of 2017 there have been 50 unique investors who have participated in at least one RealTech deal.

These investors include not only venture capital firms and super angels, but strategic real estate corporate investors, many of which are market leaders.

As technology continues to become the new battleground for real estate projects and assets, we expect increased participation and investment volumes into RealTech companies by traditional real estate corporates.

Annual Global Active RE Tech Investors *2013 - Q1'17*

2013	2014	2015	2016	2017
110	168	200	243	50
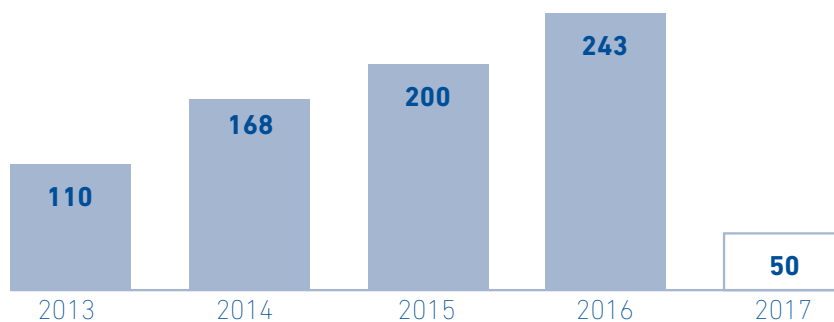
Source: CB Insights

The diagram below shows the venture capital investment activity of some of the world's largest real estate corporates.

Industry Strategics' Investments
2013-2017 YTD

Source: CB Insights

> **As the allocation of venture capital funding by an increasing band of global investors is deployed to uncovering and developing the RealTech innovation of the future, traditional operators will come under increasing pressure to adapt or perish.**

Drivers

The global growth of RealTech should come as no surprise.

The real estate sector is the largest and most valuable asset class in the world, and it has managed to operate into the present day with relatively minimal innovation. As an asset class, direct real estate appeals to a broad range of investors and is seen as a relatively low-risk asset. As sector participants, such as developers, agents and financiers, continued to profitably provide real estate product to an eager market, many argued there had been very little reason to innovate … until now.

As the allocation of venture capital funding by an increasing band of global investors is deployed to uncovering and developing the RealTech innovation of the future, traditional operators will come under increasing pressure to adapt or perish.

In this section we explore some of the drivers of the global growth of RealTech.

LEGACY, INEFFICIENCY AND COMPLACENCY

Over the last decade, a number of industries that have a material impact on the way we live our lives have been transformed by technology in ways previously considered unimaginable.

For example:

- **Media & Advertising –** One of the first major sector-wide reinventions was in the media and advertising industry. From the emergence of self-publication through social media and targeted advertising driven by rich data analytics, to the proliferation of online platforms as distribution channels for niche content, the way in which media content is created, advertising strategies are implemented and media is consumed has changed forever.

- **Entertainment –** One of the most ubiquitous business model transformations has been in the entertainment industry. Major brands such as *Virgin Megastore, HMV, Borders* and *Blockbuster* materially underestimated the power of technology to reinvent the way consumers interact with film and music content. Companies like *Youtube, Stan* and *Netflix* have reinvented the way consumers access film and television content, rendering traditional programmed television stations almost redundant.

- **Travel -** In the travel industry, the consumer has benefited immensely from the automation of travel industry processes (such as ticketing, booking and itinerary management) and the increased transparency in pricing and product information.

- **Financial Services -** The global rise of mobile payments and wealth management platforms, robo advice and peer-to-peer financial products have begun to chip away at the dominance of the major commercial and investment banks.

In each of the above examples, successful disruptor brands identified and disintermediated parts of the supply chain that were ultimately not delivering real value to the consumer.

The digital solutions they created generally shared one or more of the following attributes:

- **Access & Control –** they empowered the consumer with greater access to product, choice and transactional control.

- **Transparency –** consumers were given targeted information, guided by meaningful data analytics, with which to make more informed buying decisions.

- **Process –** efficient, customer-centric, frictionless & engaging transactional processes replaced tired, manual, old-school legacy processes.

- **Cost –** the disruptor brand was generally able to reduce the cost of the end product by using technology to automate existing processes, disintermediate low-value (or no-value) processes and reduce overheads.

- **Trust –** disruptor brands managed to mitigate the perceived risks of transacting online with clever features such as sophisticated payments security and the integration of peer group validation during the consumer buying process.

In the real estate sector today, many of the inefficiencies that drove the transformation of other industries continue to exist. The opportunities for the removal of low-value intermediaries, empowerment of consumers with greater access to product and transactional control, increase in transparency of information and trust, and the automation of tired legacy systems to create more user-centric processes across the sector are immediate and potentially very valuable.

These dynamics represent easy wins for technology entrepreneurs and investors.

" In this century, cities will be revolutionised.

Consumer Expectations

This pace of innovation in other industries, and the resulting ubiquity of digital technology in everything from finding a job to buying music, has heightened consumer expectations of the way in which they engage with all other aspects of their lives, including they way in which they experience the built environment experience.

Social media platforms empowered consumers to access their trusted peer groups to make buying decisions. The likes of *Uber* empowered consumers with their own virtual fleet of drivers who will deliver almost anything to your door whenever you want it, in a manner that you control on your mobile from the comfort of your lounge room. The likes of *Spotify* and *Netflix* empowered consumers with access to a world-wide music, television and film library that consumers can access on-demand. FinTech startups empowered consumers to search, compare and acquire everything from insurance policies to personal loans with relatively little human contact.

In the wake of this, consumer expectations of real estate transactions and their experience with the built environment have been elevated. As innovation in other industries continues to power ahead, consumer expectations will continue to put pressure on the real estate sector to innovate.

Urbanisation

In this century, cities will be revolutionised.

According to the 2014 World Urbanization Prospects Report by the United Nations' Department of Economic and Social Affairs, 54 percent of the world's population currently lives in urban areas and over 400 cities now have a population greater than 1 million people. This number is forecast to reach 70% globally by 2050 but will be even higher in regions like the Asia Pacific and Eastern Europe where the average is closer to 85% [1].

The biggest changes in urbanisation will occur in the Asia Pacific region. Australia, China, India, Japan, and Thailand will see close to 20% of their populations move into urban areas in the next thirty years [2]. This will be the largest mass migration of people in history, approaching 1 billion people over the next thirty years.

As that migration occurs, the real estate related challenges of urbanization will need to be addressed. Challenges range from the most fundamental, such as the efficient provision of basic services and infrastructure, to the monumental, such as the development of smart cities.

These challenges will require innovative approaches that leverage cutting-edge technology, real-time data and the most advanced analytic tools. The cities of the future will need to be able to process large amounts of user and environmental data, use sensors and beacons to communicate the health of the city and its infrastructure, and access sufficient energy from sustainable sources.

In that context, RealTech companies will play a leading role in realising the cities of the future.

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[1] 2014 World Urbanization Prospects Report by the United Nations' Department of Economic and Social Affairs
[2] 2014 World Urbanization Prospects Report by the United Nations' Department of Economic and Social Affairs

Mobile Technology

In the last decade, smart phone penetration rates have escalated considerably.

According to Ericson, there are 2.6 billion smartphone subscriptions globally [3]. This number is expected to rise to 6.1 billion by 2020, led by huge growth in less mature markets. Factoring in internet-of-things and M2M services, mobile broadband and other basic feature phones, there will be 26 billion connected devices by 2020 [4].

According to the Pew Research Centre study into smart phone penetration, South Korea and Australia have the highest rates of smartphone ownership at 88% and 77% respectively.

In 2016, for the first time in history, mobile internet usage overtook desktop fixed line internet use according to technology data company, Statcounter. In November 2016, mobile internet access accounted for 52% of use cases, while desktop access accounted for 48%. In 2009, only 2% of users accessed the internet through mobile devices.

3 Ericson Mobility Report, November 2016
4 Ericson Mobility Report, November 2016

As consumers become more and more comfortable transacting through their mobile devices, traditional real estate sector participants will need to reinvent the way in which they engage with the mobile-enabled consumer in order to meet market expectations and remain relevant.

Those who truly excel in the next decade will have a mobile presence that is guided by best practices in design thinking and the user experience, and will incorporate artificial intelligence features which pre-empt consumer behavior.

Internet Usage Worldwide
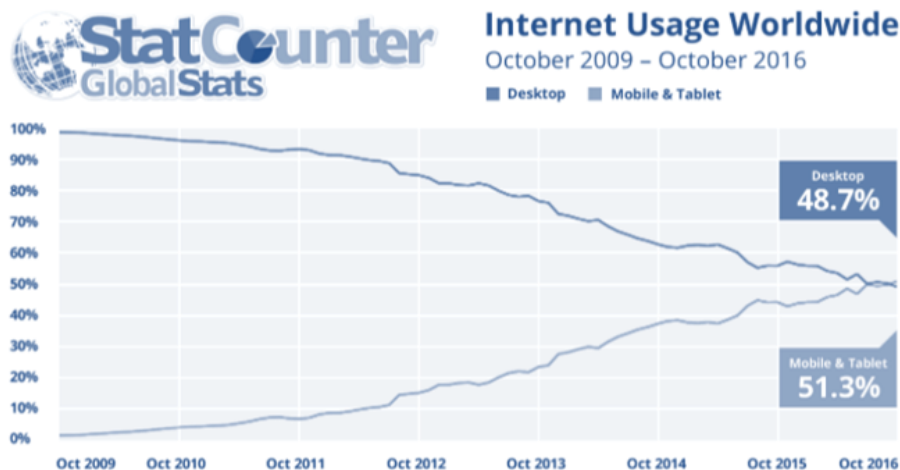
Millennials

In 2015 the number of millennials in the workforce overtook Gen X in Australia and the United States, representing a third of the workforce in each country.

According to the Brookings Institute Governance Studies Department's recent forecast of the demography of the future workforce found that 75% of the workforce will be millennials by 2025.

This is the same demographic group that has the highest percentage of smartphone ownership [5]and interacts with their smartphone more than anything or anyone else [6].

In fact, according to Nielsen "more than 74 percent feel that new technology makes their lives easier and 54 percent feel new technology helps them be closer to their friends and family .... Given their fluency and comfort with technology, millennials have more of a positive view of how technology is affecting their lives than any other generation.

As a generation that grew up on their mobile phones begin to assume middle and senior management positions within the real estate sector, the rates of creation and adoption of RealTech within the industry is likely to increase accordingly.

5   Source: Experian
6   Source: Bank of America
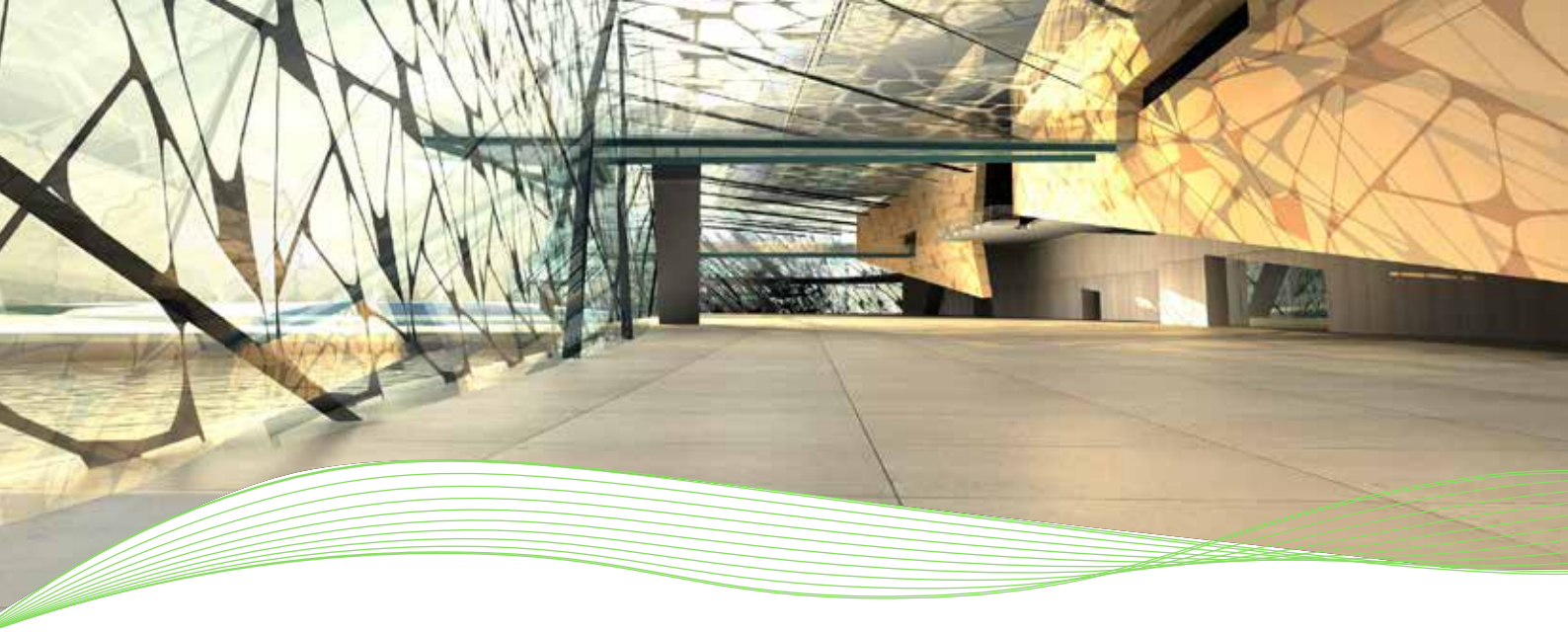
The future of RealTech

Global technology entrepreneurs and investors have already begun turning their attention to reinventing the real estate sector, through business model innovation and product innovation. Early examples, such as Airbnb, WeWork and Amazon demonstrate how RealTech disruptors can materially impact the markets in which they operate, leaving incumbents scrambling to catch up.

In this next phase of real estate sector transformation, real estate sector participants – from agencies to developers, financiers to property managers – will need to understand and integrate the latest in technological innovation in order to meet consumer demand and maintain investment returns.

Forget location. The new battleground in real estate, is technology, technology, technology.

Key trends

Over the next five years, we expect to see the following:

1. **Capital** - Investment capital into RealTech companies will continue to increase, eventually exceeding the annual level of capital currently invested in FinTech. We anticipate the number of global RealTech focused investors to increase exponentially, resulting in the annual volume of investment capital into RealTech reaching $20 billion by 2020.

2. **Volume** - The volume and depth of RealTech innovation will increase, with more specialized technological solutions for nuanced real estate challenges as well as growing competition for more generalised solutions. As the RealTech sector matures, variations in business models and service offerings, and a clearer differentiation in the value propositions of new technologies will begin to emerge. The development of offerings in commercial, industrial, retail and hospitality categories will become more defined.

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"Forget location. The new battle-ground in real estate, is technology, technology, technology.

3. **People** - Real estate sector specialists will begin to exit the major real estate corporates and consulting firms to build new businesses that focus on solving problems familiar to them in more agile, rewarding working environments. Early examples of RealTech companies show that the majority are founded by former real estate sector insiders. As dissatisfaction with the slow-moving titans increases, this exodus will begin to affect the ability of major corporates to attract and retain entrepreneurial talent at all levels.

4. **Incumbents** - Real estate sector incumbents and those with material exposure to real estate assets will increase their focus on understanding the impact of RealTech and incorporating emerging innovation into existing and future projects and portfolios. More and more major corporates will establish corporate venturing functions and these teams will become as important as the M&A function.

Corporate involvement

Large real estate corporates – from agencies to developers, financiers to portfolio managers – will need to understand the latest in RealTech innovation and implement strategies to integrate those advancements into their projects and businesses in order to stay ahead of the pack.

However, introducing a cost effective and impactful corporate innovation and venturing strategy into traditional real estate organisations comes with a number of material challenges.

Issues range from how to integrate cutting-edge technologies into projects with long approval and development cycles to managing the risks of a long-term investment in the wrong technologies, through to the broader challenge of driving cultural change through organisations with highly entrenched methods of operating.

In devising a corporate innovation and venturing strategy, organisations will need to:

- **Objectives** - define the measurable objectives of the organisation from such a strategy.

- **Pipeline** - implement processes to ensure early exposure to the best of breed emerging technologies in their sector.

- **Engagement** - understand the various transaction options and have in place pathways for engaging with different early stage technology companies on a case-by-case basis; and

- **Synergy Realisation** - agree the resources the organisation is prepared to leverage in order to maximize the outcomes of its innovation and venturing strategy and ensure the support of key internal stakeholders to ensure synergies can be realized.

Many of the world's largest real estate organisations have already begun this journey. For many others, time may well be running out.

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