

This latest report in the **WORK\_IT** series provides a candid overview of property technology and how it may eventually disrupt or enable the real estate industry. While technology offers boundless opportunities, there are still gaps in which technology cannot encroach.



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# PROPERTY TECHNOLOGY: DISRUPTOR OR ENABLER?

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The buzzword for the real estate industry now is property technology, or proptech in short – with the various players trying hard to keep abreast on what advances it may bring. In Singapore, Prime Minister Lee Hsien Loong has reiterated that there is the need for Singapore to be a “smart nation”, using the latest technology to benefit the country, is about making life better for the people and more. There are plans to bring the current piecemeal uses of technology into a cohesive, nationwide whole that will make

Singapore’s economy more productive, our lives better, and our society more responsive to people’s needs and aspirations.

Every day, technological innovations continue to transform the way we communicate, commute, consume and even compete. Technology has enhanced globalisation, provided market transparency as well as expedited business processes; all areas which could benefit the property sector.

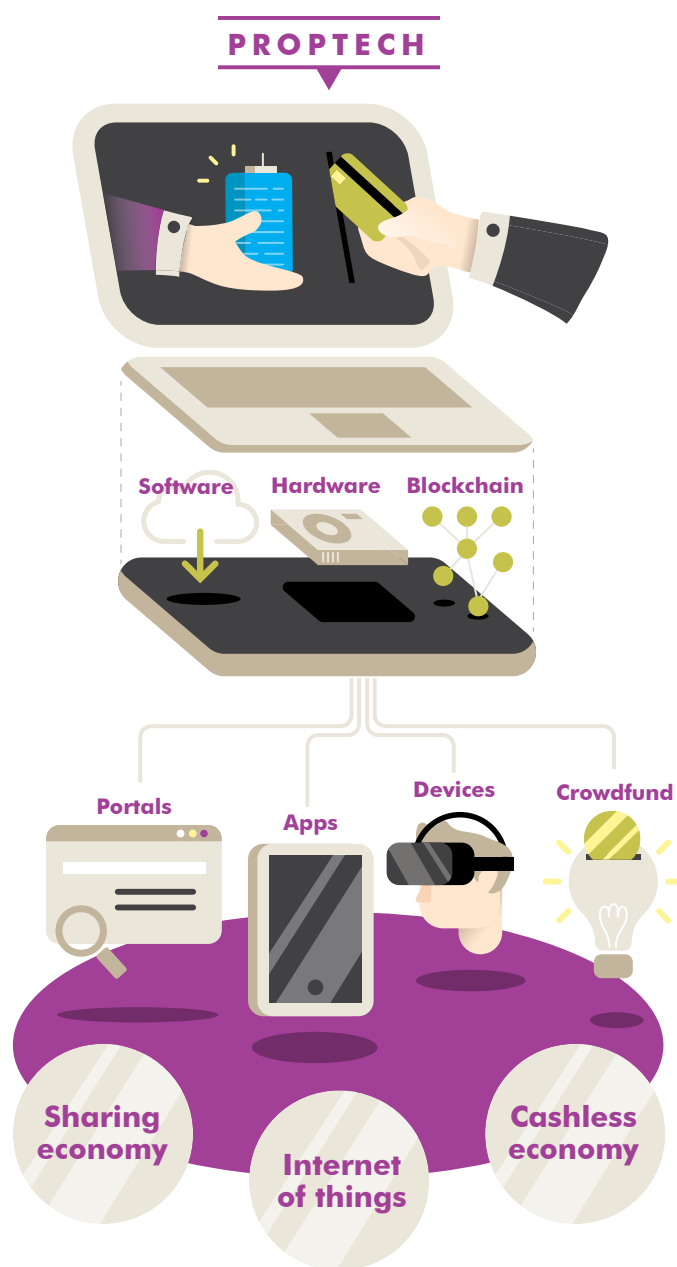
Unfortunately, Technology, has often been referred to as a disruptor instead of an enabler especially when one fails to catch up with the pace of innovation.

The use of technology in the property industry, or “Proptech”, is also gaining much traction today. By definition from the Royal Institute of Chartered Surveyors (RICS), Proptech refers to all aspects of innovation and how it impacts the built environment. This includes software, hardware, materials or manufacturing.

### PROPTech 1.0: THE EARLY DAYS

The first Proptech wave began in the mid-1980s where computing power was applied to data and adopted for research, analytics and performance management. Examples include Argus, a real estate software solution for valuations, asset management and portfolio analysis. Computing power also gave Investment Property Databank (IPD) the ability to organise and analyse data describing the performance of commercial property in the UK.

Subsequently, the emergence of the internet in the 1990s through to the early 2000s saw the widespread adoption and adaptation of the world wide web by business owners and consumers. Apart from search engines, online portals and databases also slowly found their way to businesses small and large. Such services were made available via government portals (e.g. REALIS in Singapore) as well as via the private sector, where customisation can be provided to the end-user. The internet has broken boundaries and casted a wider marketing reach for property professionals in the brokerage business. Launched in 2007, PropertyGuru was such a platform which enables property agents as well as property developers and owners to showcase their listings on a single online portal.

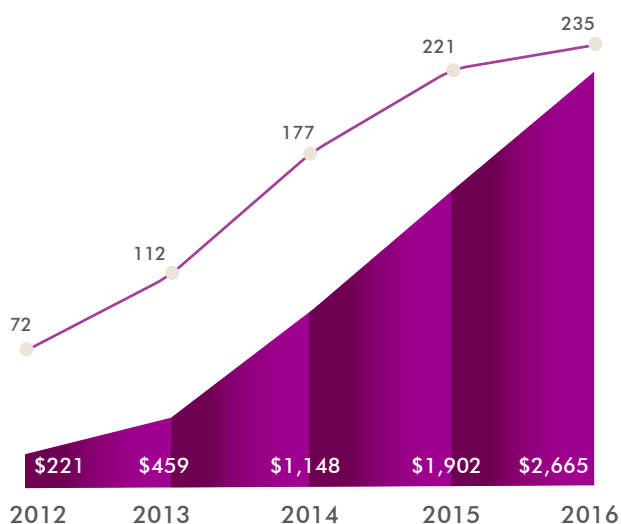


## PROPTECH 2.0: THE WAY FORWARD

Building on the success of Proptech 1.0, the next wave of technology advancement in computing power, data availability, and algorithms has brought on what is now possibly Proptech 2.0. There are many manifestations of such technology in the form of Artificial Intelligence, Virtual/Augmented Reality, Blockchain, and the Internet of Things. A key driver of this wave is also the inflow of venture capital into this burgeoning sector.

According to CB Insights, a Venture Capital database, the volume of Proptech financing globally has been on a steady increase, rising approximately 36% year on year to US\$2.7 billion in 2016, and projected to increase another 10 per cent in 2017 to US\$3 billion. In addition, it was also reported that of the approximately US\$6 billion in venture capital that has been invested in Proptech since 2011, about 70% happened in the past two years.

**Chart 1: GLOBAL PROPTECH FINANCING (2012-2016)**



Source: cbinsights.com

In fact, CBRE has also invested into a new Venture fund solely focused on Proptech called Fifth Wall Ventures. Raising US \$212 million, the fund contributors to this venture are heavy weights in the real estate industry including: Host Hotel and Resorts, a REIT spin off from Marriott hotels; Equity Residential, the largest owner of apartments in the USA as well as Prologis, a major warehouse operator. It has also been reported that Singapore based Proptech start-ups have captured around 6% of this funding. The government’s support and a set of initiatives by SGInnovate will help start-ups to grow and further expand to neighbouring countries in South East Asia.

Proptech is generally delivered by three broad mediums; Software, Hardware and Blockchain. While the first two mediums are not new to most, it should be mentioned that they are the two most common medium used, not exclusively most of the time. Blockchain is the new technology that utilises user-maintained and distributed ledgers for the record and transfer of digital assets across all participants in the network without the need for a centralised third party or exchange. However, for this article, the focus will be on how Proptech software and hardware will affect the property industry.

## SOFTWARE

The most common type of Proptech software are usually property portals. As mentioned, these portals are either made available via the internet or through a mobile application. Ever evolving, these property portals have further enhanced their offerings by introducing a myriad of virtual services including convenient links to other related services, data analytics, and virtual tours. There are now portals for commercial leasing (CommercialGuru), public housing transacting and rental (Ohmyhome) to market research (DREA). PropertyGuru also recently launched its first mobile showroom where users are able to walk through potential apartment listings via Virtual Reality devices.

Beyond property portals, the market also witnessed a rapid growth of service portals especially those that are property related. Today, there are service portals that allow online users to compare pricing, get in contact with, appoint directly, as well as provide service reviews for a vast range of services. This includes services like renovation and interior designers (Qanvast, Homeroguru), property management services (Pegaxis) to short-term work and meeting spaces (Flyspaces).

While Proptech software aims to enhance the experience and convenience of the consumer, they bypass the traditional third party service providers such as property agents and consultants; challenging their market share as well as their existing business models and modus operandi.

Nonetheless, Proptech software has been swiftly adopted to benefit the real estate industry. Mobile applications are now created for the occupiers to access the development's facilities and for better communication between the landlords and occupiers.

Today, mobile applications have given building occupiers and shoppers the option to assess and book development facilities, get promotional updates, as well as save them time by being able to monitor the queue situation at restaurants via existing security cameras.

Similarly, applications have also been developed to enable the public and estate managers to report poorly maintained areas or defects to the estate managers for early preventive maintenance. This is done either by posting a photo or a description of the complaint on the app where the locality of the complaint can be tracked and verified by a location tracker.

CBRE has also introduced an online business intelligence tool – PULSE ASPIRE, which takes financial reporting and accountability to a new level. PULSE ASPIRE provides complete transparency across the client's asset and portfolio, when combining all of the data sources into a visual, comprehensive dashboard. PULSE ASPIRE can be deployed across the client's entire portfolio, not limited to CBRE-managed assets only. Having this information at your fingertips has proven to be a game-changer for our clients that have moved over to our digital platform.

In addition, the concept of chatbots has also been widely adopted. Chatbots are used to provide a better interface with clients especially when dealing with frequently asked questions or customer support. While some may argue that chatbots are not sufficiently equipped to deal with complex requests and can't understand emotions or deliver personalized offers, some chatbots are even offering virtual agents for customer interactions powered by artificial intelligence and deep-learning.

## SOFTWARE POWERING THE SHARING ECONOMY

Proptech software has also fuelled the rise of the sharing economy. The sharing economy thrives on an inefficient market where there is a surplus of supply to the current demand requirements. It allows asset owners to monetise their surplus or underused assets via collaborative consumption. Already, the sharing economy has impacted the transport industry, hospitality industry, and the commercial space providers. With its growth projected to be rising, the sharing economy will continue to challenge incumbent real estate providers.

## HARDWARE

The growth and availability of hardware has also disrupted the property industry. Building services performance analytics has advanced with the introduction of new measurement and detection devices. Building management systems can be programmed to autonomously sense, communicate, analyse, and react to the occupants and other machines in a non-intrusive manner. Continuous monitoring and predictive capability can allow the building manager to anticipate any repairs or maintenance issues.

Virtual Reality (VR) is also fast becoming an avenue for most real estate players to adopt in both marketing and concept visualising. Capitaland has launched an immersive VR simulation studio as part of its Funan show suite. This has enabled visitors to explore and visualize the interior of Funan mall in 3D, when it is completed in 2019. Lendlease has also utilized a 3D modelling platform to aid the visualization of Paya Lebar Quarters in its construction phase for planning and executive purposes. There are plans to use VR to manage its facilities when the precinct is completed in 2019.

The advancement of hardware has also facilitated the application of Internet of Things for real estate.

## HARDWARE AND THE INTERNET OF THINGS

The Internet of Things, or “IoT” is a not a new concept but is definitely making waves in recent times. Fundamentally, IoT is a concept where every day inanimate objects or devices have the ability to communicate and transfer data over a network without the need for human-to-human or human-to-computer interaction.

For everyday consumers and users of real estate, the impact of IoT remains relatively nascent. Generally, the idea of a smart home gets floated as a product differentiator or as a marketing spin. More often, new residential projects are equipped with “smart home” features that allow the remote access of climate control devices, the operation of certain appliances as well as the operation of home security and monitoring devices. These features are generally only the tip of the iceberg as to what the IoT can bring to the residential market.

Smartphones also allow the transmission of data for analysis. with retail malls as an example, a personalised shopping experience can be provided by respective shops based on their past patronage patterns, while product recommendations can be made based on their most recent items purchased or even by their online footprint. Personalisation is touted to drive the retail market, as consumers are getting overwhelmed by the myriad of choices in the market.

Opportunities abound for the real estate industry in IoT. The large amount of data collected from user activity and preferences allows building owners and managers to understand their tenants as well as their patrons. On the other hand, there is also the concern surrounding the security and privacy of the data that is being transmitted and shared. Most may frown upon their movements or activities being tracked, and at the same fret about data falling into the wrong hands or misused.

## WHAT'S NEXT?

The advancement of the Proptech wave is no doubt inexorable and targeted to improve productivity in every sector. Businesses which fail to keep up will inadvertently be disrupted by this wave.

Nonetheless, while Proptech should be adopted to improve processes and efficiency, there are strong views that certain elements of the real estate industry cannot be entirely replaced by technology. As technology is faceless, it cannot replace the bond formed from interpersonal relationships as well as the personalisation of information. This means that experience and knowledge will still bring value to the equation.

To that end, an episode of Shark Tank comes to mind. In that particular episode, a pitch for a web based real estate software named Revestor was made to the potential investors or "sharks". This patent-pending real estate search engine based in San Diego, is targeted at homebuyers and investors, and aims to provide searches for the best homes for sale by the highest potential returns.

One of the potential investors in the panel was Barbara Corcoran, a veteran in the Real Estate industry. Barbara stated in the show that she had purchased many foreclosed properties in her area since she knows that market. Barbara said that there were vital pieces of information factored into her decisions that were impossible for Revestor to address. In her opinion, real estate brokers value-add by providing non-quantitative information that Artificial Intelligence cannot provide. Proptech also fails to deliver insider information, as well as the "gut" feel through experience.

Therefore, the real estate industry can ride on this wave and nationwide push to maximise the benefits for both consumers and providers. After all, the opportunities that can be created from technology are deemed to be boundless.



## CBRE GLOBAL RESEARCH

This report was prepared by CBRE Asia Pacific Research Team, which forms part of CBRE Global Research – a network of preeminent researchers who collaborate to provide real estate market research and econometric forecasting to real estate investors and occupiers around the globe. For more information regarding this research report, please contact:

### RESEARCH

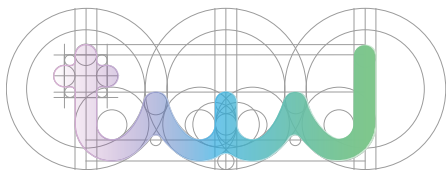
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