

US Real Estate

PropTech: The Next Frontier in Commercial Real Estate



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PropTech: The Next Frontier in Commercial Real Estate

We believe the nascent PropTech industry presents significant opportunities for emerging companies integrating technology within various facets of real estate, as PropTech will soon be embedded throughout all facets of the industry. REITs that partner with and invest in these platforms stand to benefit. The property industry has notoriously been slow to embrace technology - only 10% of global real estate CEOs are concerned about the impact of technology on their industry, vs. 38% in all industries, according to PwC – which provides PropTech with unique opportunities. With rising investments in global PropTech of \$54 billion in 2019-20, and REITs increasingly embracing the sector, REITs will stand to benefit – financially and operationally. Investments so far have been relatively modest, but some investments have already been monetized, leading to likely further investments; leaders like Prologis and Simon have established their own in-house VC funds. More will follow.

BMO Edge

The BMO Bottom Line:

PropTech will soon be embedded in all aspects of real estate. While the property industry has been slow to adapt, this is changing and will create opportunities.

- Interviews with leading PropTech investors and executives from Camber Creek, CRETech, JLL, Navitas Capital, Placer.ai, Prologis Ventures, and REITs with PropTech investments.

Proprietary Takeaways

- **The PropTech industry is undergoing significant growth** following \$54 billion invested in the space in 2019-20, with SPACs raising another \$7.4 billion targeting PropTech firms.
- **The time is right.** Many REITs have the scale, balance sheet and operational efficiencies to invest in emerging PropTech companies – to enhance their customer experience, make their offering more valuable to clients, and stay ahead of cutting-edge technologies.
- **Monetization under way.** REITs have already begun monetizing their investments, exhibiting attractive returns (albeit modest in earnings impact), which likely encourages additional investments in the sector.

Companies Impacted

- We see **Prologis** and **Simon** as leaders of the pack, which have established their own in-house venture funds. Their size and scale allow for significant capital to be invested.
- **We have identified 11 REITs** that we believe are at the forefront, or have invested significant capital in PropTech funds or directly into companies.
- **The major apartment REITs** have invested in PropTech funds, have actively integrated PropTech offerings on their platforms, and have even monetized investments. **LSI** and **CPT** have established in-house technology platforms that enhance their customer experience.

The sample set of REITs noted is not meant to capture all investments or innovations management teams have made in PropTech. This discussion is meant to focus on different investments across REITs.

Exhibit 1: U.S. REIT Activity in the PropTech Sector

Company	Proprietary PropTech Fund	Invested In A PropTech Fund	PropTech VC Relationship	Deployed PropTech Solutions Through External Partners	Deployed Proprietary PropTech Solutions	On-going Research Initiative
Prologis	✓	✓	✓	✓	✓	✓
Simon	✓		✓	✓	✓	✓
Equity Residential		✓	✓	✓	✓	✓
Essex Property		✓	✓	✓	✓	✓
MAA		✓	✓	✓	✓	✓
UDR		✓	✓	✓	✓	✓
Host Hotels		✓	✓	✓	✓	✓
Camden		✓	✓	✓	✓	✓
Apartment Income REIT		✓	✓	✓		✓
AvalonBay				✓	✓	✓
Life Storage				✓	✓	✓

Source: Company reports, Crunchbase, BMO Capital Markets

Exploring the Next Frontier in Commercial Real Estate

We believe the nascent PropTech industry presents significant opportunities for emerging companies at the crossroads of real estate and technology – as well as REITs that are partnering with and investing in these platforms. PropTech is already making an impact on various aspects of real estate including tenant experience, data analytics, construction management, finance and productivity – soon, it will be embedded in all facets of real estate. One of the unique opportunities for PropTech is that real estate has notoriously been a slow industry to embrace technology. According to PwC, only 10% of global real estate CEOs are concerned by how quickly technology is changing in their industry, compared to 38% across all industries. This makes it possible for companies to start with “low-hanging fruit” and then move upstream to a different set of solutions and customers.

PropTech refers to technology and tech ventures that are targeting the real estate industry. While the parameters of PropTech remain fluid, PropTech generally encompasses all the cross-industry technology applications that are focused on innovation in the real estate industry. Unlike other sectors which have already been tapped for investment in technology, the CRE sector has remained insulated, thereby making it fertile ground for innovation and new technology products.

In our view, the U.S. REIT sector has a unique opportunity to build new competitive moats by leveraging technology to improve their underwriting, unlock value, mitigate risk, and get a better understanding of end-user needs. As REIT platforms provide the necessary scale to spread the cost of acquiring and/or developing technologies, new technological tools can help tap into new revenue channels, reduce operating costs, and reduce turnovers across the portfolio.

What Is Fueling the PropTech Boom?

The PropTech industry has seen significant acceleration in recent years due to the growth of technology companies targeting real estate and the increase in capital supporting these platforms. On a daily basis, the industry is witnessing the emergence of new companies and funding sources.

A major driver of growth in the PropTech sector is the rapid emergence of the SPAC (special purpose acquisition company)/blank-check company sector. With billions of dollars flowing into blank-check firms, a growing number of SPACs are targeting PropTech firms. Based on our conversations with tech experts, the emergence of SPACs is seen as a net positive for the PropTech sector.

As PropTech companies go through the SPAC process, they will have access to funding thereby enabling them to develop new products, pursue acquisition opportunities and make investments to acquire new customers. We believe that some PropTech players will have a major presence in the real estate market post the SPAC route as they grow their operations.

In recent months, several SPACs have gone public that have been sponsored by prominent REITs and real estate players, such as:

- In April 2021, Simon Property Group’s (**NYSE: SPG**) SPAC (Simon Property Group Acquisition Holdings, Inc.) started trading after having raised US\$345 million via its initial public offering. The new vehicle is targeting innovative businesses that operate in the “Live, Work, Play, Stay, Shop” eco-system.
- In April 2021, Lamar Advertising Company (**NASDAQ: LAMR**), a REIT, filed to raise US\$300 million in an IPO through a newly formed SPAC – Lamar Partnering Corporation (LPC). The SPAC will search for a partner at the intersection of the out-of-home advertising, technology and communication sectors.
- In March 2021, Alexandria Real Estate (**NYSE: ARE**) filed to raise up to US\$250 million in an IPO through a newly formed SPAC – Alexandria Agtech/Climate Innovation Acquisition. The SPAC will search for a partner targeting agtech and climate innovation.

- In February 2021, Tishman Speyer raised US\$300 million in an IPO through its second SPAC – Tishman Speyer Innovation Corp II. The SPAC will search for a partner targeting a PropTech firm.
- In December 2020, CBRE raised US\$350 million in an IPO through its SPAC – CBRE Acquisitions Holding. The SPAC will search for a partner targeting a PropTech firm.

Exhibit 2: Prominent Real Estate Players Launching SPACs

Sponsor	SPAC	Sector	IPO Size (US\$M)	IPO Date
Ross Riley (Lamar Advertising Company)	Lamar Partnering Corporation	Out-of-home advertising, technology and communication services	\$300	IPO Filed
Joel Marcus (Alexandria Real Estate)	Alexandria Agtech/Climate Innovation Acquisition	agtech, climate innovation	\$250	IPO Filed
Barry Stemlicht (Starwood Capital)	Jaws Juggernaut Acquisition	Wireless communications	\$200	IPO Filed
Simon Property Group	Simon Property Group Acquisition	Retail	\$345	2/23/2021
Rob Speyer (Tishman Speyer)	Tishman Speyer Innovation Corp. II	Proptech	\$300	2/17/2021
Scott Rechler (RXR Realty)	RXR Acquisition Corp.	Proptech	\$250	2/12/2021
Barry Stemlicht (Starwood Capital)	Jaws Mustang	General business	\$900	2/2/2021
CBRE	CBRE Acquisition Holdings	Real estate/proptech	\$350	12/11/2020
Barry Stemlicht (Starwood Capital)	Jaws Spitfire Acquisition	Tech	\$300	12/2/2020
Sam Zell (Equity Group)	Equity Distribution Acquisition Corp.	Industrial	\$360	9/16/2020
Total (A)			\$3,555	

Source: Company reports, Capital IQ, The Real Deal, BMO Capital Markets

Furthermore, there are many SPACs (including the ones above) that are yet to announce a partner and are focused on the PropTech sector. In total, the group has raised approximately US\$7.4 billion.

Exhibit 3: Real Estate/PropTech SPACs Still Searching for a Target

Sponsor	SPAC	Sector	IPO Size (US\$M)	IPO Date
Howard Lorber, Steve Witkoff	Ocean Drive Acquisition Corp.	Proptech	\$250	IPO Filed
Steve Salis, Jamie Karson, Daniel Lee and Grace Park	Sizzle Acquisition Corp.	Restaurant, hospitality, retail, proptech	\$125	IPO Filed
Brett White, Nathaniel Robinson	C&W Acquisition Corp.	Proptech, real estate	\$250	IPO Filed
Michael Liebowitz, Russell Galbut	New Beginnings Acquisition Corp. II	Hospitality, fintech, insurtech, proptech	\$100	IPO Filed
Michael Liebowitz, Russell Galbut	New Beginnings Acquisition Corp. III	Hospitality, fintech, insurtech, proptech	\$100	IPO Filed
Spencer Rascoff	Supernova Partners Acquisition Company III	Tech	\$250	IPO Filed
Tal Kerret, Charlie Federman (Silverstein, Silvertech)	SilverSPAC Inc.	Proptech, Fintech	\$250	IPO Filed
Scott Seligman, Brian Friedman, Ben Friedman	BOA Acquisition Corp.	Proptech	\$175	IPO Filed
Jordan Vogel, Aaron Feldman (Benchmark Real Estate)	Property Solutions Acquisitions II	Proptech	\$250	IPO Filed
Alec Gores, Ted Fike, Justin Wilson	Gores Technology Partners	Internet, enterprise software, fintech, digital health, proptech	\$240	IPO Filed
Alec Gores, Ted Fike, Justin Wilson	Gores Technology Partners II	Internet, enterprise software, fintech, digital health, proptech	\$400	IPO Filed
Spencer Rascoff	Supernova Partners Acquisition Company II	Tech	\$300	3/2/2021
Jack Chandler, Christopher Keber	Shelter Acquisition Corporation I	Proptech	\$200	2/28/2021
Chera family	Crown PropTech Acquisitions	Proptech	\$240	2/8/2021
Tom Hennessy, Joe Beck	Proptech Acquisition Corp. II	Proptech	\$200	12/4/2020
Spencer Rascoff	Supernova Partners Acquisition Company	Tech	\$350	10/20/2020
Ophir Sternberg (Lionheart Capital)	Lionheart Acquisition Corp II	Proptech	\$230	8/18/2020
Total (B)			\$3,910	
Total (A+B)			\$7,465	

Source: Company reports, Capital IQ, The Real Deal, BMO Capital Markets

As many SPACs continue to search for the right fit, some SPACs have found a partner in the PropTech sector. We note that these transactions have largely been limited to high-growth PropTech firms.

Exhibit 4: U.S. SPAC Mergers With PropTech Companies

Sponsor	SPAC	Sector	IPO Size (US\$M)	IPO Date	Deal	Applications
Fifth Wall Ventures	Fifth Wall Acquisition I	Proptech	\$347	2/9/2021	SmartRent	Smart home technology systems
Alec Gores	Gores Holdings VI	Tech, telecommunications, media, business services, healthcare, consumer products	\$345	12/11/2020	Matterport	Software for virtual property tours
Mark D. Ein, L. Dyson Dryden	Capitol Investment Corp. V	General business	\$345	12/7/2020	Doma (formerly States Title)	Title insurance provider
Reid Hoffman, Mark Pincus	Reinvent Technology Partners Z	Tech	\$230	11/23/2020	Hippo	Home insurance provider
Rob Speyer (Tishman Speyer)	TS Innovation Acquisitions Corp.	Proptech	\$300	11/10/2020	Latch	Smart lock technology
Howard Lutnick (Cantor Fitzgerald)	CF Finance Acquisition	Finance, healthcare, real estate, tech, software	\$500	8/27/2020	View	Smart building technology
Chamath Palihapitiya	Social Capital Hedosophia II	Tech, telecommunications, media, business services, healthcare, consumer products	\$360	8/27/2020	Opendoor	Real estate transaction platform
Alec Gores	Gores Holdings IV	Tech, telecommunications, media, business services, healthcare, consumer products	\$400	1/23/2020	United Wholesale Mortgage	Online mortgage broker platform
Tom Hennessy, Joe Beck	Proptech Acquisition Corp.	Proptech	\$173	11/26/2019	Porch.com	Connects home owners with service providers

Source: Company reports, Capital IQ, The Real Deal, BMO Capital Markets

In all, the SPACs/target companies have a combined market capitalization of approximately US\$35 billion. Considering the record amount of capital SPACs need to deploy in the future, we believe the potential for transactions is increasing day by day and expect the SPAC-PropTech sector to grow further.

Exhibit 5: PropTech SPACs Implied Return Denotes Untapped Potential

SPAC	Acquisition	Ticker	Price (US\$)	Market Cap (US\$M)	Consensus Target Price (US\$)	Implied Return
Gores Holdings VI	Matterport	GHVI	\$15.39	\$708	Merger yet to close	n/a
Capitol Investment Corp. V	Doma (formerly States Title)	CAP	\$9.92	\$428	Merger yet to close	n/a
Reinvent Technology Partners Z	Hippo	RTPZ	\$9.97	\$287	Merger yet to close	n/a
TS Innovation Acquisitions Corp.	Latch	LTCH	\$11.34	\$1,862	\$16.00	41.1%
CF Acquisition	View	VIEW	\$8.89	\$1,930	\$12.33	38.7%
Social Capital Hedosophia II	Opendoor	OPEN	\$17.23	\$11,278	\$31.83	84.8%
Gores Holdings IV	United Wholesale Mortgage	UWMC	\$10.12	\$16,244	\$9.33	(7.8%)
Proptech Acquisition Corp.	Porch.com	PRCH	\$18.07	\$1,854	\$25.20	39.5%
Total				\$34,590		

Source: FactSet

Note: As of June 14, 2021

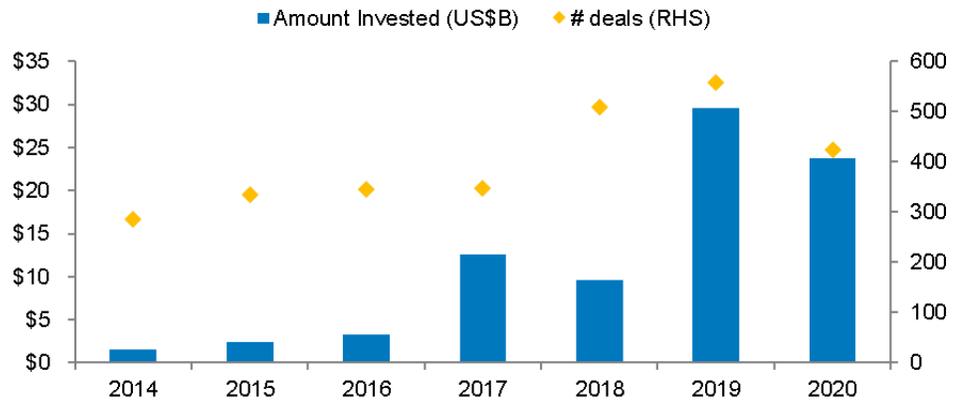
Given the amount of capital chasing the PropTech sector solely from blank-check companies, we expect demand to outpace supply as there aren't too many mature platforms in the PropTech sector. With more SPACs coming to market, this dynamic will allow more PropTech companies to go public earlier than expected or get acquired. As that happens, we expect a structural change in the traditional CRE sector.

The CRE sector is capital intensive and we believe that there exists a win-win situation for SPAC sponsors and CRE companies. While most SPACs were launched over the last two years, CRE firms launching dedicated real estate venture funds has been a rarity. Most CRE players realize that investing in the PropTech sector is not a balance sheet game alone. Hence the use of a new conduit of external capital is seen as a favorable method to invest in the next frontier in the CRE sector – PropTech.

How Has VC Funding Fared?

According to CRETI (Center for Real Estate Technology and Innovation), approximately US\$24 billion was invested in the global PropTech market in 2020, representing a decrease of 25% from 2019. In spite of the COVID-19 pandemic, the capital volume of venture capital investing remained at a high level. Interestingly, 18% of all funding activity took place in March, right at the onset of the pandemic. Additionally, some of the largest funding rounds occurred in 4Q/20, indicating that VC investors continue to reward new solutions and innovative uses of existing real estate.

Exhibit 6: Global VC Funding in the PropTech Sector Has Accelerated



Source: CRETech, CRETI, BMO Capital Markets

Based on our conversations with VC investors, management teams and other significant players, adoption of new technology skyrocketed during the pandemic. Whether it was virtual tours, remote property management technology, online transactions, etc., the pace of technology adoption accelerated dramatically. Post the onset of COVID-19, we believe that the stage is being set for greater technology deployment across platforms and we expect investment activity to ramp-up in the PropTech sector.

The PropTech Blueprint

The use of technology has long been a differentiating factor within the CRE industry, with leading developers and asset managers selectively deploying various PropTech features across the portfolio. Yet while the latest suite of PropTech initiatives hold the promise of enhanced efficiencies and optimized returns, significant challenges – big data, scale, technological evolution – remain. However, with occupier expectations moving in sync with new innovations, real estate investors, landlords and developers have little choice but to move with the times.

We delve deeper into each vertical in greater detail in Exhibit 7, to build our areas of focus from a REIT’s perspective.

Exhibit 7: The Blueprint Explained

Facility/Building Management	<ul style="list-style-type: none"> • Smart building technology using Internet of Things (IoT) for communication between devices. • Smart construction technology for Building Information Modeling (BIM), planning and leasing. • Key technologies: location intelligence, virtual reality, AI/machine learning, 5G Wireless etc.
Tenant Experience	<ul style="list-style-type: none"> • Innovative technological platforms focused on premium tenant experiences and amenities. • Includes software suites which allow landlords to efficiently manage tenant needs, capture operational costs and increase connectivity with tenants on in-house amenities and services. • Key technologies: predictive analytics, IoT automation, social media apps, online transactions etc.
Listings	<ul style="list-style-type: none"> • Technology solutions for short-term and long-term listings, dividing existing living space into smaller units, allocation of tenant expenses, streamlining of payments, shared living, wellness and co-working. The focus is on flexible leases that balance pricing, capacity and demand. • Key technologies: online transactions, cryptocurrencies, virtual reality etc.
Data Aggregators	<ul style="list-style-type: none"> • Refers to data collection, processing, scalability and deployment for quantitative approaches to investment and portfolio management, thereby improving a tenant/landlord's experience of renting, buying, selling and building physical spaces. • Key technologies: online transactions, predictive analytics, location intelligence etc.
Appraisal	<ul style="list-style-type: none"> • Property valuation technology based on a variety of data sources combined with the use of artificial intelligence and machine learning. Includes automated valuation models (AVM), efficiency models etc. which help develop reports faster. • Key technologies: location intelligence, online transactions, AI/machine learning etc.
Predictive Analytics	<ul style="list-style-type: none"> • Technological systems that utilize large data sets, innovative business models and risk assessment metrics to provide insights for future trends and patterns. Used commonly for valuation, risk assessment and transaction purposes. • Key technologies: AI/machine learning, IoT automation, cryptocurrencies etc.
Productivity/ Sales Tools	<ul style="list-style-type: none"> • Innovations which maintain productivity, manage resources and eliminate cost inefficiencies. • Technological solutions include cloud-based connectivity, tracking platforms, information sharing modules, data and machine learning. • Key technologies: location intelligence, AI/machine learning, IoT automation etc.
Online Transactions	<ul style="list-style-type: none"> • Online platforms which enable landlords and tenants to buy, rent and finance real estate assets. Includes platforms that offer property management, mortgage applications and end-to-end leasing capabilities. • Key technologies: cryptocurrencies, location intelligence, predictive analytics etc.
Visualization Tools	<ul style="list-style-type: none"> • Technological solutions which incorporate data integration and data visualization to unlock value across the entire leasing, property management and transaction process. • Key technologies: virtual reality, social media apps etc.
Construction Technology	<ul style="list-style-type: none"> • Technological solutions designed to streamline and manage the construction process which includes scheduling, environmental impact and cost savings. Includes digital collaboration tools, BIM models, interior scanning tools, drones etc. • Key technologies: robotic process automation, IoT automation, predictive analytics etc.

Source: BMO Capital Markets Research

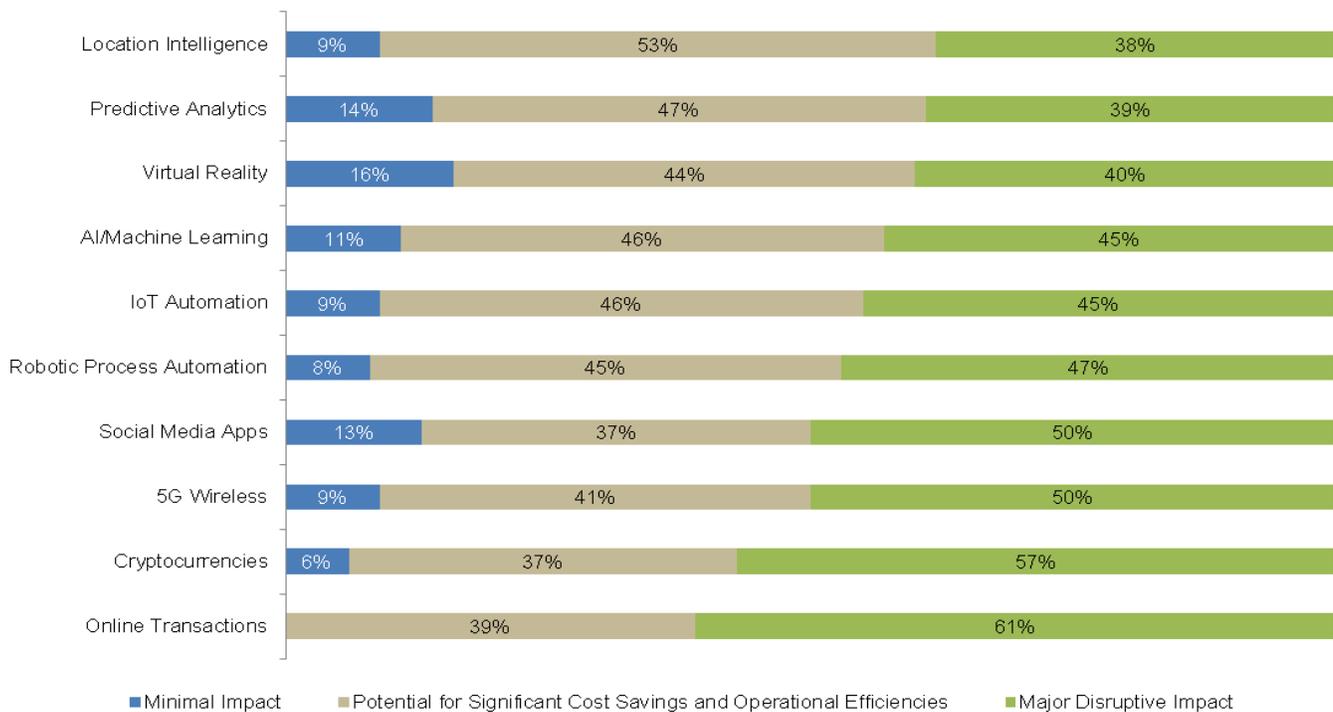
In our view, REITs that are not looking to incorporate technology and innovations in their assets will soon become the exception to the norm. We foresee REITs to be more data driven in their approach and leverage internal and external data to drive investment and operating decisions, both at the property and the portfolio level. From a landlord's perspective, the data helps provide insights into tenant needs and how they utilize their space, thereby allowing landlords to enhance tenant relationships.

One major difference among PropTech companies and REITs is in the usage of data and analytics. REITs have always used data to improve their operations. On the other hand, a number of PropTech companies are using data to compete directly with REITs, especially in businesses such as co-living, co-working and short-term rentals. To counter this, REITs need to understand which PropTech platforms to partner with, which ones to invest in and help grow, and which to ignore.

In January 2020, the Altus Group surveyed approximately 400 CRE leaders (owner-operators and investors) globally to examine how they perceive the use of technology and data in their real estate platform. The results indicate that a number of CRE executives recognize and understand the impact that numerous technology platforms and solutions will have on their platforms. This is an improvement in sentiment as not too long ago, PropTech was often skeptically viewed as futuristic technology with limited practical value.

Several of the most disruptive technologies identified include online transactions, cryptocurrencies and social media apps, among others. These technologies are platform and transaction-based with the intent of connecting processes and people. Additionally, technologies viewed to have a high potential for cost savings and operational efficiencies are oriented around automation and analytics.

Exhibit 8: CRE Leaders Betting on Different Technology Platforms and Offerings



Source: Altus Group

We note that certain disruptive technologies such as cryptocurrencies, and by extension blockchain, have yet to prove their viability in the CRE sector. Blockchain, which acts as a core component of the digital currency Bitcoin, is database that chronologically and securely records all transactions across a shared peer-to-peer network. The chains of transactions are publicly verifiable, making safety, transparency and collaboration key. According to industry experts, while the technology has made an impression in the CRE sector, wide-scale implementation is still several years away.

At the same time, within the same spectrum of disruptive technologies, online marketplaces have gained prominence among CRE executives. According to the Altus Group, the majority of CRE firms have used some type of online marketplace for a recent transaction and intend to increase use in the future. **Thus, there will be certain technologies which will be adopted faster than others when measured across parameters such as adoptability, scalability, integration costs, and security.**

As more companies grapple with the prevalence of technology in the CRE sector, we note the shift in mindset of REITs and other CRE players in their investment thesis for a new technology platform. In our view, for the most part, legacy real estate firms have remained dormant to technology investments and have stayed away from high-risk startups. **However, it is this very fact that is also attracting and driving unprecedented investment activity in the PropTech sector.**

Decoding the Blueprint

We believe that the more investors and landlords engage with CRE's technology transformation, the more PropTech enhancements will serve as a differentiating factor to help attract and retain tenants and generate value.

As REIT investors navigate this industry, we understand that it is easy to get lost in the depth and breadth of the entire sector. Based on conversations with a number of VC companies and industry experts and factors such as revenue potential, partnership interest, investor sentiment, cost reduction, and fit, we have identified five focus areas for REIT investors to consider, given the progress of innovation in each of these verticals.

1. **Construction**
2. **Building Management**
3. **Data Aggregators**
4. **Productivity Tools**
5. **Tenant Experience**

We believe that the availability of capital and investor interest in the above verticals indicate that technological trends have increasingly moved away from being conventional concepts to those that are proving to have a significant impact in the CRE sector. While there are multiple companies in each vertical, we have had many discussions on which companies will survive and thrive, and which may falter. As such, we have mapped out some of the companies which came up in our discussion below.

Building Management: Hot Becoming Hotter

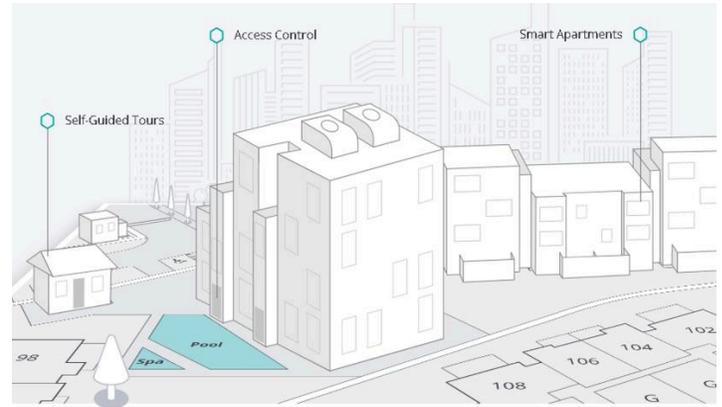
Building management technology platforms help landlords maximize building efficiency and living space quality by harvesting property-related data. The underlying premise is that landlords, investors and tenants expect buildings to operate cost efficiently and are highly functional at the same time. As operating costs lower, occupants experience more functionality and results in improved returns to investors.

Exhibit 9: Smart Lock Technology



Source: Latch

Exhibit 10: Encompassing Smart Home Solutions



Source: SmartRent

Over the past decade, building automation has been characterized by a demand to reduce energy and operating costs. In most cases, cost reduction has been the main driver along with a keen focus on ROI. In our view, the opportunities to exploit building data to develop a granular data-driven business model remain to be unlocked.

PropTech companies in the building management vertical continue to attract funding. Investors have picked certain companies to back due to which the sector will see fewer companies come to market. Based on our conversations with the investor base and industry experts, we believe that the time is ripe for REITs to look for companies which can be scaled to their platform and can unlock value. We have selected a sample of technology platforms which are top of mind for investors in the PropTech space.

Exhibit 11: Industry Focus: Building Management Companies

Company	Comments	Key Investors
Latch	Latch is a technology platform for multifamily landlords and developers, that offers significant efficiencies by eliminating the friction caused by keys. Using a single web-based platform, property managers can easily efficiently onboard new residents, share secure access with staff and maintenance, and cut costs associated with lockouts and rekeying. Deployed across the United States and Canada. Prominent landlords include Brookfield, Prometheus, Related, RXR, and Toll Brothers.	Merged with Tishman Speyer's SPAC valuing Latch at an equity value of US\$1.56 billion post-money.
SmartRent	SmartRent is an enterprise home automation and internet of things platform for the multifamily industry. The platform provides property managers full control of locks, lights, and thermostats in vacant units and common areas while providing a quality smart home experience for residents. At the REITweek conference in 2019, UDR mentioned that it generated 25%-30% returns tied to a pilot program that involved SmartRent offerings deployed at 13,300 units in its portfolio.	Merged with Fifth Wall's SPAC valuing SmartRent at an equity value of US\$2.2 billion post-money.
VTS	VTS is a leasing and asset management platform that offers landlords the ability to better attract, convert, and retain assets and tenants by centralizing critical data and workflows on a single platform. Has a user base of >35,000 customers which include Boston Properties, Beacon Capital Partners, Equity Office, Blackstone, LaSalle Investment Management, Hines, JLL, Brookfield Asset Management and CBRE.	Raised US\$187 million to date. Key investors include Brookfield Ventures, GLP, Tishman Speyer and Fifth Wall.
Building Engines	Building Engines offers landlords web and mobile software platform and connects people and processes involved in operating a CRE building or portfolio in order to increase tenant satisfaction, improve operational efficiency and mitigate operational risk. Deployed across U.S. and Canada and key clients include Washington REIT, Beacon Capital Partners, Highwoods Properties, Manulife etc.	Raised ~US\$40 million to date. Investors include Camber Creek Ventures, Wavecrest Growth Partners, River Cities Capital Funds and MassMutual Ventures.

Source: Crunchbase, CRETech, Company filings, BMO Capital Markets Research

Construction Tech: Underserved, but Not for Long

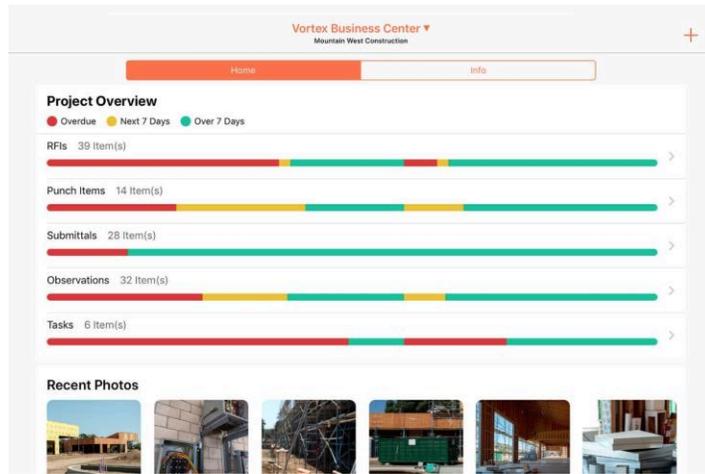
Construction technology encompasses solutions that can be implemented during the construction timeline – architecture, design, development and productivity – thereby making the construction process

more efficient. In the VC world, construction is viewed as a high barrier-to-entry and cash-heavy market, due to which investment in the sector has been traditionally low and spread evenly.

In our view, multiple factors – automation, improvements in building techniques and processes, focus on new materials – are expected to shorten the construction timeline. Technology usage in this vertical will materially reduce construction costs and other financial expenses. Additionally, new materials and more efficient techniques are expected to increase uniformity and standardization in the entire construction process. Thus, a shorter construction cycle and cost control will result in higher returns for new assets.

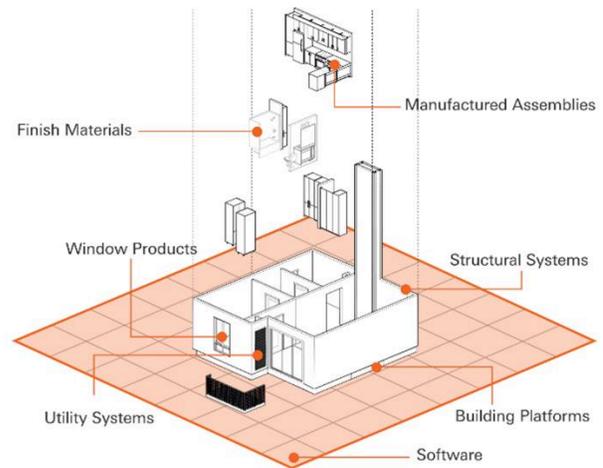
PropTech companies in the construction vertical continue to attract funding and over the last few years, investors have shown a preference for productivity platforms and construction and project management. Based on our conversations with the investor base and industry experts, we believe that there will be a lot of upcoming activity in this vertical.

Exhibit 12: Construction Management Technology



Source: Procore

Exhibit 13: Developing Smart Building Operations



Source: Katerra

From a REIT’s perspective, development activity combined with efficient cost control will help boost the bottom line further, especially as REITs undertake more complex construction projects. We have selected a sample of technology companies which are top of mind for investors in the construction vertical.

Exhibit 14: Industry Focus: Construction Tech Companies

Company	Comments	Key Investors
Procore	Procore provides a cloud-based construction management software to manage project data and helps firms increase project efficiency and accountability by streamlining and mobilizing project communications and documentation. Procore offers multiple solutions for Project Management, Construction Financials, Quality & Safety, and Field Productivity. Deployed across >100 countries. Prominent clients include Brookfield Properties, Oxford, Concord Group, Broccolini etc.	Recently listed on the NYSE under "PCOR" with a market cap of US\$10.3 billion. Current investors that participated in previous funding rounds include Iconiq Strategic Partners, Tiger Global Management and D1 Capital.
Katerra	Katerra provides a technology platform and solutions to provide end-to-end building services including architecture, interior design, engineering, materials, construction management and general contracting. The proprietary technology drives integration by connecting BIM tools and computational design directly to global supply chain infrastructure. The software is used globally and the Company has a backlog of US\$1.3 billion, mostly of multifamily projects.	Recently filed for Chapter 11 bankruptcy in the United States. Had raised ~US\$1.2 billion to date. Investors include SoftBank, CPPIB, Soros Fund Management, Navitas Capital, Greenoaks Capital, Khosla Ventures and Louis M. Bacon.
Equipment Share	EquipmentShare is an online equipment rental marketplace that also offers telematics and equipment utilization services. The platform optimizes and streamlines construction requirements and increases productivity per equipment deployed. The company was in the news recently on reports of a speculated funding round from SoftBank.	Raised US\$125 million to date. Key investors include Insight Venture Partners, Y Combinator, Great Oaks Venture Capital and Romulus Capital.
Rhumbix	Rhumbix is a mobile platform designed to modernize construction field operations, helping builders go paperless in the field and improving how they measure and manage labor productivity to be more profitable. Deployed across the U.S. with construction clients such as Precision Pipeline, Tactic Construction, Nevell Group etc.	Raised ~US\$35 million to date. Investors include Blackhorn Ventures, Tenfore Holdings, Greylock Partners, S28 Capital, South Park Ventures, and Glynn Capital, among others.

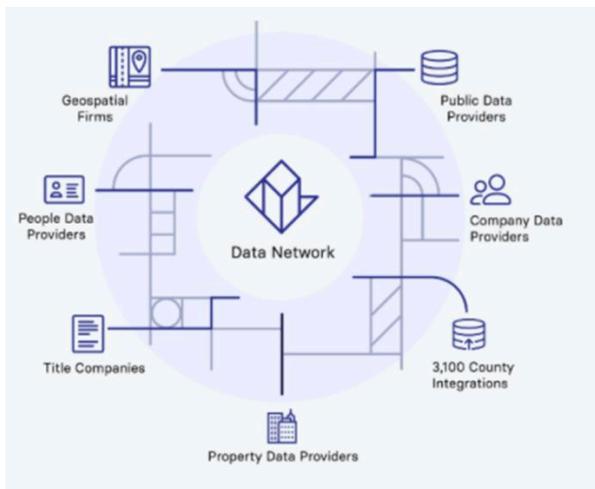
Source: Crunchbase, CRETech, Company filings, BMO Capital Markets Research

Data Aggregators: Big Data Remains the Norm

The use of Big Data (large, diverse sets of information that grow at ever-increasing rate) has upended the CRE sector. Common uses include making more accurate appraisals on a massive scale, personalized real estate marketing, better risk mitigation, and quicker processing times for applications.

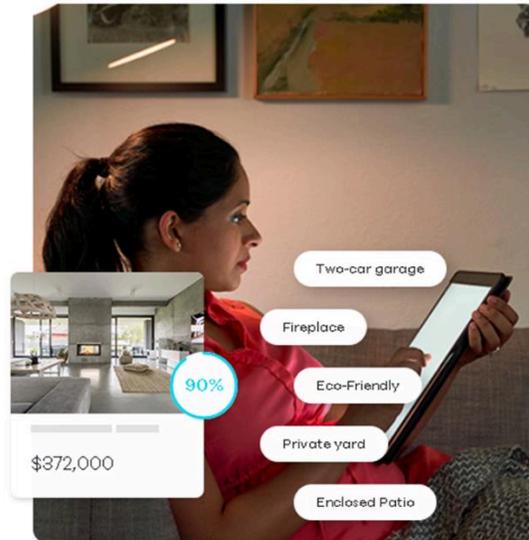
VC firms are looking at this vertical as applications continue to grow. In the beginning, the CRE sector witnessed the emergence of pure data aggregators – data collection, processing and storage. The industry has now begun to shift towards a mix of data aggregation, analytics and visualization.

Exhibit 15: Focus on Data Networks



Source: Reonomy

Exhibit 16: Using AI for Personalized Solutions



Source: OJO Labs

Based on our conversations with the investor base and industry experts, we foresee that the vertical will continue to grow, especially as the industry has begun to see a shift towards integrating technologies such as AI, machine learning, and IoT. From a REIT’s perspective, landlords have access to unprecedented

information and intelligence – demographics, supply, demand, economics, property features, amenities etc. – and better algorithms for decision-making and capital deployment. For example, when setting rents, REIT landlords can analyze traditional population data along with non-traditional data sources, to determine if a certain asset is a candidate for rent increases or if further investment is required to attract tenants. We have selected a sample of PropTech players in this space that are top of mind for investors.

Exhibit 17: Industry Focus: Data Aggregators

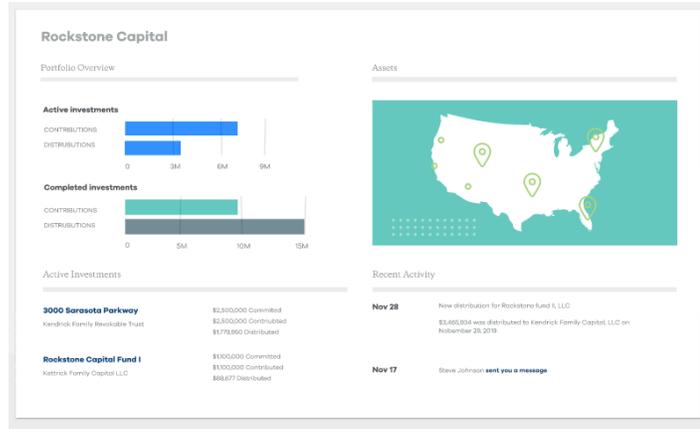
Company	Comments	Key Investors
Reonomy	Reonomy is an AI-powered data platform that provides in-depth property details and analysis across the U.S. The platform uses public and private CRE data and provides customized analysis for lenders, brokers and developers. Deployed across major U.S. metros. Prominent clients include Brookfield, Cushman and Wakefield, CBRE etc.	Raised ~US\$130 million to date. Investors include Georgian Partners, Wells Fargo Strategic Capital, Citi Ventures and Sapphire Ventures.
OJO Labs	Ojo Labs provides an AI-powered personal assistant for realtors and single-family home buyers. The platform includes a proprietary algorithm and chatbot which scans data sources and partners buyers with real estate agents and brokerages. The software is used across 12 markets in the U.S. and Toronto. The Company aims to expand across the U.S. and Canada.	Raised US\$134 million to date. Investors include LiveOak Venture Partners, Realogy Holdings, RBC Ventures and Northwestern Mutual Future Ventures.
Cape Analytics	Cape Analytics provides instant property intelligence for buildings that enables insurers and other property stakeholders to access valuable property attributes at time of underwriting. The platform can run time-series analyses, tie property characteristics to loss, and detect property changes over time. The platform is used across the United States. Key clients include CSAA Insurance Group, Cincinnati Financial, and State Auto Labs Fund.	Raised ~US\$30 million to date. Key investors include State Farm Ventures, Nephila, XL Innovate etc.
Spacemaker AI	Spacemaker AI is an AI-powered platform which analyzes site proposals, sorts them by viability and provides detailed metrics to maximize the value of any building site. The software is used extensively by developers and architects. Deployed across the Nordic region. Key clients include Skanska, Obos, AF Gruppen and NREP.	Raised US\$25 million to date. Investors include Atomico, Northzone, NREP, OBOS and Round Hill Ventures.

Source: Crunchbase, CRETech, Company filings, BMO Capital Markets

Productivity/Sales Tools: Continuous Demand for More

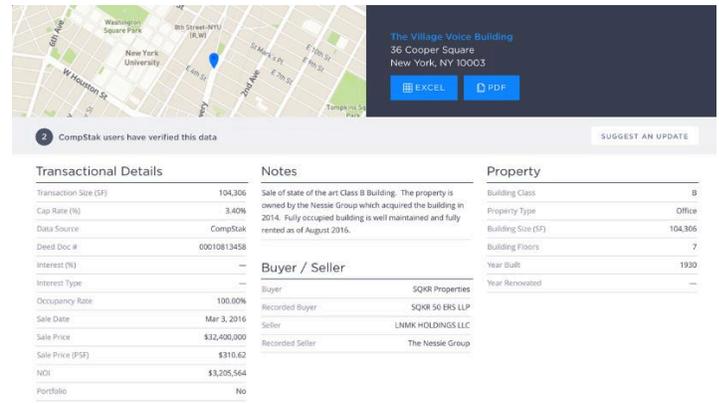
With no end to innovation in sight, tenants more and more expect a fast and seamless experience in their buildings. From a landlord’s perspective, investing in new technology platforms promises a number of benefits such as enhanced productivity and reduced operating costs. Productivity tools range from online platforms which collect and disseminate data to cloud-based tools which enhance efficiency and agility for clients. Given the multiple applications for brokers, agents, tenants, landlords and investors, the vertical continues to witness funding from investors.

Exhibit 18: Investment Management Platform



Source: Juniper Square

Exhibit 19: Leasing Solutions



Source: CompStak

From a REIT’s perspective, productivity/sales tools help landlords with rental and property management – rent collections, tenant management and expense tracking – along with assistance in transactions and rentals, all of which increase productivity and reduce costs. We have highlighted a few companies which are top of mind for investors and users in the following exhibit.

Exhibit 20: Industry Focus: Productivity/Sales Tools

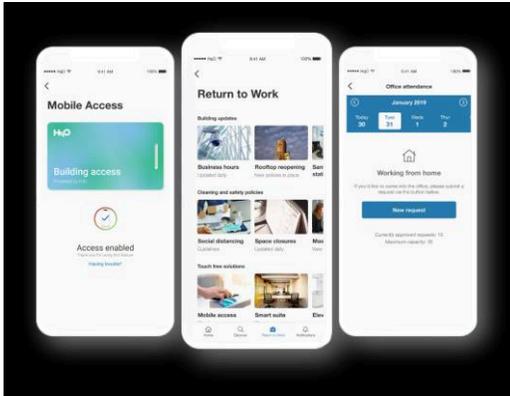
Company	Comments	Key Investors
Placer.ai	Placer.ai offers a traffic analytics platform that allows users to generate insights into any property. The platform aggregates data from tens of millions of mobile devices, and provides businesses with insights into foot traffic. The platform is used extensively in retail, commercial real estate and hospitality. Prominent clients include Boston Properties, Tishman Speyer, Regency Centers, Cushman and Wakefield etc.	Raised ~US\$114 million to date. Investors include Fifth Wall, Reciprocal Ventures, Aleph, JBV Capital etc.
Juniper Square	Juniper Square operates an online based platform for private equity firms to find, raise, and manage capital in the CRE sector. The software streamlines fundraising, investment administration and investor reporting, thereby boosting fundraising productivity. Deployed across major U.S. metros. Prominent clients include Beacon Capital Partners, Bernstein Management Properties, Greystar, Tishman Speyer, Menlo Equities, Singerman Real Estate, the Swig Company etc.	Raised ~US\$110 million to date. Investors include Redpoint Ventures, Ribbit Capital, Felicis Ventures and Zigg Capital.
CompStak	CompStak uses a crowd-sourced model to gather real estate information for investors, brokers, asset managers and appraisers. The Company has built a comprehensive database of all of the commercial lease deals completed in a given market and they sell this data to real estate private equity funds, asset managers, banks, REITs, hedge funds, etc. Key clients include SL Green Realty, Empire State Realty Trust, Starwood Capital Group, Washington REIT, Vornado Realty Trust and Boston Properties, among others.	Raised ~US\$30 million to date. Investors include Camber Creek, JLL Spark and Moody’s Analytics, among others.
Dealpath	Dealpath provides a cloud-based deal management platform. Users leverage the platform or smart pipeline tracking, powerful deal analytics, and collaborative workflows to achieve optimal risk-adjusted returns. The platform is used across the United States. Key clients include Blackstone, Oxford Properties, Manulife, among others.	Raised ~US\$25 million to date. Key investors include Blackstone, Nasdaq Ventures, JLL Spark, GreenSoil Investments among others.

Source: Crunchbase, CRETech, Company filings, BMO Capital Markets

Tenant Experience: Small Steps for Big Gains

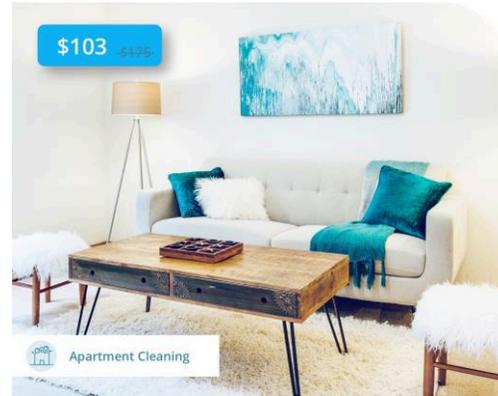
Tenant experience companies have received a lot of attention, and the opportunity set is significant. However, we have heard from those in the industry that the substance doesn’t always match the hype. To attract and retain new and existing tenants, landlords are adopting a tenant-centric mindset and are creating sought-after experiences in their buildings. Tenant experience includes services and technologies which impact the concept of an amenity-based asset, where the tenant is the consumer of the space provided.

Exhibit 21: A New Smart Office Experience



Source: HqO

Exhibit 22: Built-In Tenant Offerings Are Attractive to New Tenants



Source: Amenify

From the types of amenities demanded, to an influx of new construction, to rising competition, all these factors have an impact on the bottom line. Landlords that can mine tenant experience data effectively are expected to prosper. Crafting the right tenant experience requires landlords to infuse different technological platforms into their assets.

Based on our conversations with VC firms, we have highlighted some of the more attractive technology companies in the sector. We have selected these firms to showcase the latest technology platforms that can be potentially used by REIT platforms to optimize revenue mix and control costs.

We note REITs in the multifamily, single-family and self-storage have taken advantage of tenant experience platforms to reduce costs while improving customer service. Consumers are increasingly looking for automated options for do-it-yourself maintenance fixes, or have touchless options where no human interaction is needed in leasing and securing a space.

Exhibit 23: Industry Focus: Tenant Experience Companies

Company	Comments	Key Investors
HqO	HqO is a technology platform for office landlords that unifies a building’s tenant facing technology, amenities, and conveniences into a single platform. The data collected enables landlords to increase tenant retention and inform asset strategy. Deployed across 70 million s.f. in the U.S. and the U.K. Prominent office landlords include Blackstone’s EQ, Jamestown, DivcoWest and National Development, among others.	Raised US\$106 million to date. Investors include Cushman & Wakefield, Navitas Capital, Pritzker Group Venture Capital, and JLL Spark.
Amenify	Amenify is an amenity-based technology platform for landlords that provides them with network of vetted providers for resident services, including dog walking, massage therapy, fitness training, cleaning, and staffed events. The Company has built partnerships with major brands such as Shipt, Havenly and Lyft with a view to streamline amenities for residential tenants. The platform is used in 15 markets across the U.S. and Canada.	Raised US\$8 million to date. Investors include RET Ventures, a US\$108 million venture capital fund backed by Aimco, Boardwalk, Essex Property Trust, MAA, and UDR, among others.
Hello Alfred	Hello Alfred partners with building owners to provide residents with dedicated home managers that assist with various errands and on-request services, such as apartment cleaning, grocery delivery, laundry services, prescription refills, and more. Deployed across 16 cities in the U.S. and key clients include Greystar and Related Companies, among others. The firm also partners with consumer brands such as Diageo and Procter & Gamble, to help them test products with the demographic it serves.	Raised US\$90 million to date. Key investors include Greystar, Spark Capital, Invesco etc.
Office App	Office App offers office landlords a tenant and employee experience platform, that includes more than 65 modular functionalities in facilities, community, amenities and services to engage tenants and employees, based on end-user data and insights. Deployed in 10 countries in Europe with clients such as Cromwell, Dell, HPE, LaSalle, BNP Paribas, Nuveen, Coima and UBS.	Raised ~US\$5 million to date. Investors include Join Capital, SIGNA Innovations and Pi Labs.

Source: Crunchbase, CRETech, Company filings, BMO Capital Markets

How Are U.S. REITs Positioned?

The benefits of PropTech within the U.S. REIT sector, namely the ability to increase operational effectiveness and impact overall returns, have started to become clearer among management teams. We have analyzed our REIT coverage, to identify key leaders on the technological curve and those with the ability to continue to drive innovation and efficiencies.

The discussion below is not meant to capture all the various investments or innovations REITs are driving or making in PropTech. Rather, the below is meant to serve as an example of different investments and levels of focus across REITs, as well as a framework for how we assess REITs' PropTech focus and commitments.

Our levels of technological advancement are as follows:

- **Leading the Pack** – PLD & SPG – REITs which have setup their own PropTech fund and are investing in different technological solutions through it. In addition, these REITs also partner with other PropTech funds and maintain VC relationships to invest in different PropTech companies. Furthermore, these REITs are also developing and deploying proprietary PropTech solutions across their portfolio, while combining their offering with external PropTech firms.
- **Running Ahead** – CPT, EQR, ESS, HST, MAA & UDR – REITs which have consistently invested in, and deployed various technological solutions across its portfolio. These REITs have made a concentrated effort to invest in new companies through PropTech-based venture capital funds. Additionally, these REITs are also developing and deploying proprietary PropTech solutions across their portfolio, while combining their offering with external PropTech firms.
- **Honorable Mentions** – AIRC, AVB, LSI. REITs that are currently developing proprietary technological solutions, and are partnering with external PropTech firms, to deploy across their portfolio.

Exhibit 24: U.S. REIT Activity in the PropTech Sector

Company	Proprietary PropTech Fund	Invested In A PropTech Fund	PropTech VC Relationship	Deployed PropTech Solutions Through External Partners	Deployed Proprietary PropTech Solutions	On-going Research Initiative
Prologis	✓	✓	✓	✓	✓	✓
Simon	✓		✓	✓	✓	✓
Equity Residential		✓	✓	✓	✓	✓
Essex Property		✓	✓	✓	✓	✓
MAA		✓	✓	✓	✓	✓
UDR		✓	✓	✓	✓	✓
Host Hotels		✓	✓	✓	✓	✓
Camden		✓	✓	✓	✓	✓
Apartment Income REIT		✓	✓	✓		✓
AvalonBay				✓	✓	✓
Life Storage				✓	✓	✓

Source: Company reports, Crunchbase, BMO Capital Markets

We expect this list to increase as more and more management teams jump on-board the PropTech wagon. It is worth noting that many REITs within our coverage have recently begun to include executive leadership roles such as a chief technology officer/chief innovation officer within their ranks. **In our view, as REIT platforms provide the necessary scale to spread the cost of acquiring and/or developing technologies, new technological tools can help tap into new revenue channels, reduce operating costs, and reduce turnover across the portfolio.**

Leading the Pack

Within our REIT coverage, we believe that the REITs that define the curve, are the ones which have checked all the boxes – a dedicated PropTech fund, partnerships with PropTech-dedicated venture capital firms, partnerships with existing PropTech companies, developing and deploying proprietary PropTech technologies, and focusing on in-house tech research. These REITs have begun to enjoy the benefits of their PropTech investments across the portfolio and continue to add PropTech solutions to their offerings.

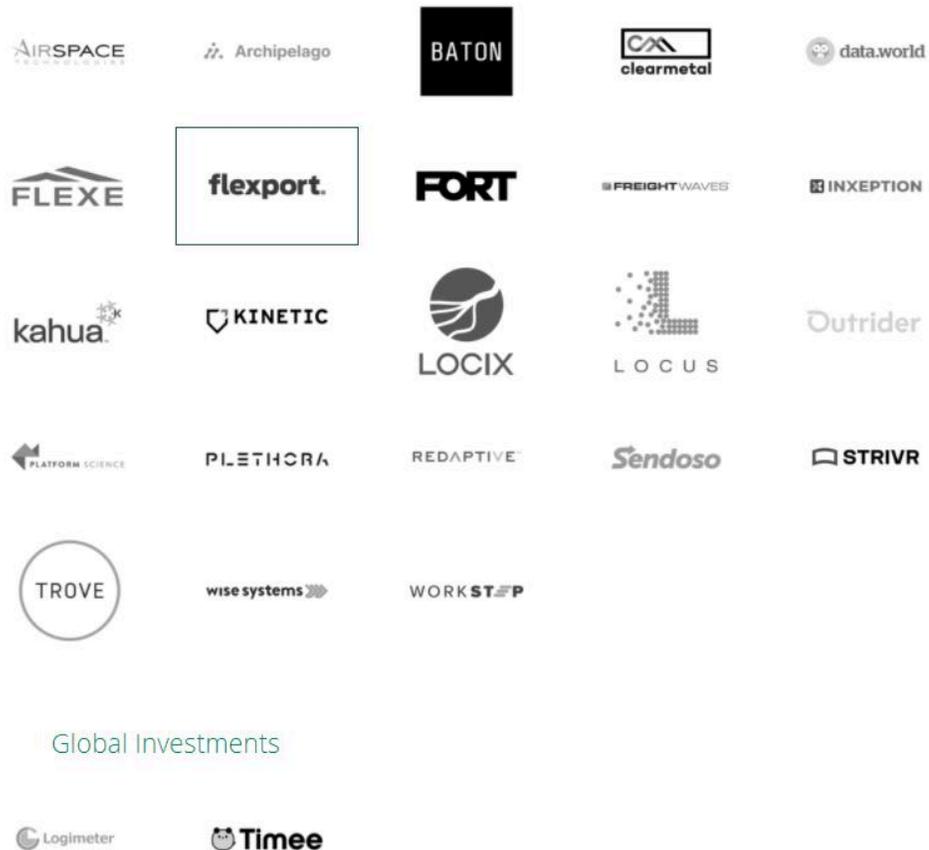
Prologis (PLD)

We believe Prologis has invested the most in the PropTech sector through Prologis Ventures, its corporate venture capital fund, with \$100 million invested in 30 companies, and the appetite to do quite a bit more. PLD’s size allows for this large an investment, which represents just of 0.1% of its equity market capitalization. The REIT is focused on technology applications across three sectors:

- Supply chain and transportation;
- Digital buildings and infrastructure; and
- Real estate and construction.

Prologis Ventures tends to invest in PropTech companies’ A rounds or later (not seed stage) and sees investments as providing both revenue-enhancing and cost-saving benefits to the company. Chairman and CEO Hamid Moghadam commented that at a 5x return, it’s not that meaningful for PLD; however, the company’s goal is to improve the effectiveness of its business and the value of it to its customers.

Exhibit 25: Prologis Ventures – Portfolio Companies



Source: Company reports.

Through Prologis Ventures, PLD has also made investments in two funds which focus on the PropTech sector – Fifth Wall and Silicon Valley Data Capital. Through the funds and its own entity, PLD invests in Series A through growth-stage companies focused on innovations in the logistics sector. Current investments account for 23 companies across the logistics and real estate technology sector.

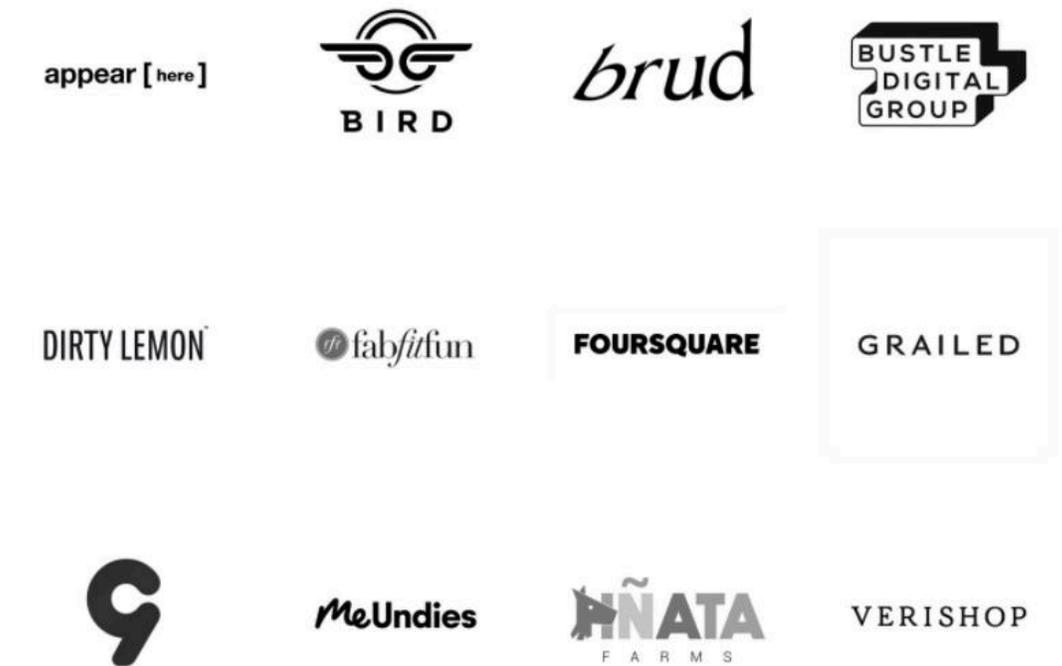
Furthermore, through Prologis Labs, PLD is experimenting on new proprietary technologies and product ideas in-house. Prologis Labs focuses on innovation in the next-generation warehouse, digital supply chain, labor and well-being, transportation, and urban fulfillment. By executing its experiments in-house, Prologis Labs serves as an incubator for new ideas, products and services.

Simon Property (SPG)

SPG has an investment in Simon Ventures, which is an early-stage VC and growth equity fund that invests in early-stage to growth companies innovating in retail and technology to drive forward innovative consumer experiences. SPG’s core business enables venture investments to leverage proprietary assets, resources, as well as a network of connections to meaningfully accelerate growth.

Venture investments include FOURSQUARE (location intelligence platform), GRAILED (peer to peer online marketplace), and Bustle Digital Group (online publisher of female focused content), among others.

Exhibit 26: Simon Ventures – Portfolio Companies



Source: Company reports.

Running Ahead

Within our REIT coverage, there exist a few REITs which are well ahead on the technology curve – partnerships with PropTech-dedicated venture capital firms and with existing PropTech companies, developing and deploying proprietary PropTech technologies, and focusing on in-house tech research – and are aggressively deploying solutions across their portfolios. These REITs also have a view on how this deployment will affect future revenue stream, cost systems, and margins.

Camden (CPT)

CPT has built and deployed in-house proprietary PropTech solutions for its portfolio. Notably, CPT established Chirp Systems, Inc., its proprietary smart access software and technology solutions to the multifamily housing industry that allows residents to control access across units, common areas and community gates, through their smartphones. The main objective of building Chirp was to find a solution which could control everything at a price point of under US\$300/door. Chirp was deployed in over half of CPT's properties before CPT sold Chirp to RealPage in September 2020, as management realized that they needed a large technology company to further develop the solution. The aggregate purchase price was \$16.8 million, including contingent consideration of up to \$10 million tied to operational performance targets through 2022.

Excluding Chirp, Camden has committed another \$10 million to PropTech and related investments, but does not have a set budget. The company has stated it will invest in products if it believes it will create value for its residents, shareholders, etc. In September 2020, CPT decided to deploy RealPage's CommunityConnect Smart Access control in 50,000 units by the end of 2021. The CommunityConnect App controls community gates, building and corridor doors, and smart access to each unit. The app also enables self-guided tours. Additionally, CPT is working on an in-house smart lock solution that is currently being piloted in Houston.

Equity Residential (EQR)

EQR has invested in this theme through two PropTech funds – Fifth Wall and Navitas Capital. As of FY2020, EQR's investments stand at US\$14.8 million in five unconsolidated real estate technology companies, through the two funds.

The REIT's PropTech strategy is focused on three areas – 1) implementing smart-home technology in 12,500 units by 2021, through which the REIT expects to generate a premium of \$30/month. The average cost of installing smart-home technology is estimated to be \$1,000/door; 2) a proprietary AI leasing agent – Ella – that allows for self-guided tours and helps convert e-leads into actual site visits. The REIT has deployed Ella across a majority of its portfolio (>200 communities) and notes that it has seen better performance from its AI than actual human-to-human interaction; and 3) a proprietary mobile service platform which allows service teams to manage their work in real time through an app. The app aims to share resources across assets and improve service personnel utilization thereby delivering operating expense savings.

EQR aims to deliver these initiatives by the end of 2021, and aims to realize approximately \$15 million in annual NOI contribution, once fully deployed.

Essex Property Trust (ESS)

Essex, along with MAA and UDR, has invested in RET Ventures, an early stage VC fund focused on the PropTech sector and owns a 17% stake in the fund. Co-share investment income in RET Ventures, as of December 2020, stands at US\$5.3 million.

ESS also invested in SmartRent technology (a RET Venture company) and is in the process of installing the complete suite of Smart Home Technology (smart thermostats, keyless door locks, and water leak detectors) across 20,000 units. Additionally, the REIT has made investments in a mobile maintenance system and property mapping technology. ESS expects to improve operating margins by 100–200 bps by 2022.

Furthermore, ESS is piloting its co-developed mobile leasing application, which allows tenants to apply and be approved instantly from their mobile phones, while they finish a property tour.

Host Hotels & Resorts (HST)

HST has invested in two VC funds focused on PropTech and tourism/hospitality technology, and regularly engages with the portfolio companies with multiple ongoing PropTech pilots. Most of the investment focus is on driving cost savings via productivity-enhancing technologies, which is a contributing factor in HST's efforts to redefine its operating model post-COVID-19 to deliver \$100-150 million in incremental EBITDA (3-4% of hotel expenses in 2019) via savings. HST is also beginning to monetize its investments, with an IPO of one of its portfolio companies in its VC investment and another four in the works. HST began investing in 2016 and expects to receive a full return this year via distribution, with the target net IRR for each fund in the 50-60% range.

Separately, HST has developed a proprietary predictive analytics model that leverages IBM Watson to help forecast RevPAR growth by market and to inform capital market decisions. The model mines over one million discrete structured data points and leverages natural language processing insights from more than 3 million unstructured data sources.

Mid-America Apartment (MAA)

MAA has invested in RET Ventures, an early stage VC fund focused on the PropTech sector and owns a 17% stake in the fund. As of March 2021, the REIT's investment in two technology-focused limited partnerships stand at US\$24.7 million. MAA's investment with RETV has primarily been to be on the front line of emerging technologies that impact the apartment industry and to have the ability to help steer those technologies. There is no defined profit goal from the investments.

MAA is currently deploying a Smart Home technology package across its portfolio, that includes mobile controlled lights and smart thermostats. As of March 2021, the REIT has installed 13,975 Smart Home packages and aims to install 22,000 Smart Home packages by the end of 2021.

Furthermore, the REIT has also deployed a proprietary lead-nurturing software that focuses on prospect engagement and aims to interact with prospective tenants earlier in the sales process, with automated follow-ups. The REIT is also upgrading its virtual touring technology and has implemented mobile inspection technology, which allows residents to document the condition of their apartment units during the move-in and move-out process.

Through its PropTech initiatives, the REIT expects to realize an approximately 100-150bps in margin expansion over the next 2-4 years.

UDR, Inc. (UDR)

UDR has also invested in RET Ventures, an early stage VC fund focused on the PropTech sector and owns a 17% stake in the fund. Most of the company's investments to date have come through RET, but the company also looks to invest outside of this fund. Holistically, UDR is seeking technologies that will enhance customer satisfaction and the ease with which to rent from the company, while also providing operating efficiencies. RET has been beneficial as it has provided UDR with a variety of pre-screened technology options, and the company has utilized the technologies that best fit its approach (SmartRent

the most notable). The REIT has installed SmartHome technology in 42,500 homes and has spent US\$30-40 million on the rollout. Furthermore, the REIT plans to introduce self-service technology through an app.

UDR is also building a Big Data and analytics platform to understand pricing and revenue streams. By back-testing one-third of its portfolio, management realized that it had mispriced its offering over the last 10 years, to the tune of US\$3.5 million annually. The new data platform is expected to drive revenue growth across the portfolio.

Honorable Mentions

Within our REIT coverage, there also exist a few REITs that continue to ramp up the technological curve. These REITs have formed instrumental partnerships with PropTech firms and have deployed their offering across their respective portfolios. In addition, these REITs are also developing proprietary PropTech solutions and are investing in in-house R&D.

Apartment Income REIT (AIRC)

AIV uses SmartRent technology (through a RET Venture company) and has installed the complete suite of Smart Home Technology (smart thermostats, keyless door locks, and water leak detectors) across almost all its units thereby ensuring lower turnover, utility, and insurance costs for its tenants, and higher revenue.

As of December 2020, AIV has investments of US\$2.3 million in RET Ventures consisting of three privately held entities that develop technology related to the real estate industry. The REIT also has US\$1.1 million of unfunded commitments related to RET Ventures, the timing of which is uncertain.

AvalonBay (AVB)

AVB has been studying opportunities to use AI, digitization, and various other technologies to improve the productivity in its property management organization. The REIT expects to reduce operating expenses by eliminating most of the on-site staff as most customer interactions would be facilitated by technology. The REIT estimates that the net benefit to the customer is a rental rate approximately 10-20% below other communities in the area.

AVB has been actively partnering and investing in PropTech firms. In July 2020, AVB participated in a Series A round (along with EQR) and deployed MeetElise, an AI-powered automated leasing agent, across its portfolio. According to management, by deploying MeetElise, it is witnessing an approximately 700bps improvement in its conversion ratio. Additionally, the new leasing model includes more self-guided tours and self-service move-ins. Overall, the REIT aims to realize a 50bps improvement in SS-NOI through the new leasing model.

In March 2021, AVB deployed Latch's smart access technology in its Kansa Twinbrook property in Rockville, Maryland. By incorporating Latch's smart access devices at common areas and apartment doors, residents have a convenient smart home experience. Additionally, the technology enables AVB to develop self-touring experiences for prospective tenants.

While the REIT continues to partner with PropTech companies, it has also created AVB Labs, an in-house research and innovation program. Through AVB Labs, the REIT aims to expand on innovative programs and coordinate with PropTech-focused venture capital firms to deploy new technologies across its portfolio.

Life Storage (LSI)

Life Storage has a unique focus on its business customers through its Warehouse Anywhere offering, which has proprietary inventory management technology solution. The technology uses Radio Frequency Identification (RFID) cameras in its storage units to scan its business customers' inventory real time. LSI's system then ties into its customers' enterprise resource planning (ERP) systems to provide customers greater control of their business.

PropTech Companies to Monitor

We have identified the following PropTech companies that we believe are worth monitoring. This is not meant to be a comprehensive list, but ones we have found to be of interest when conducting our research.

- **HqO:** HqO is a technology platform for office landlords that unifies a building's tenant facing technology, amenities, and conveniences into a single platform. The data collected enables landlords to increase tenant retention and informs their asset strategy. Currently deployed across 70 million sf in the U.K and the United States. The company has raised US\$106 million to date from investors that include Cushman & Wakefield, Navitas Capital, Pritzker Group Venture Capital, and JLL Spark.
- **Latch:** Specializes in keyless entry security systems to open and manage every door in an apartment building from a smartphone. The technology platform is deployed across the United States and Canada. The company recently merged with Tishman Speyer's SPAC and started trading under the ticker "LTCH". The company currently trades at a market cap of US\$1.6 billion.
- **SmartRent:** SmartRent is an enterprise home automation and internet of things (IoT) platform for the multifamily industry. The platform provides property managers full control of locks, lights, and thermostats in vacant units and common areas while providing a quality smart home experience for residents. The company recently merged with Fifth Wall's SPAC and was valued at US\$2.2 billion post-money.
- **Placer.ai:** Offers a traffic analytics platform that allows users to generate insights into any property utilizing mobile phone data. The platform aggregates data from 20 million mobile devices, and provides businesses with insights into foot traffic. The platform is used extensively in retail and hospitality. Placer.ai has raised US\$114 million to date from investors that include Fifth Wall, Reciprocal Ventures, Aleph, JBV Capital, etc.
- **Procore:** Provides a cloud-based construction management software to manage project data and helps firms increase project efficiency and accountability by streamlining and mobilizing project communications and documentation. Procore offers multiple solutions for Project Management, Construction Financials, Quality & Safety, and Field Productivity. The company trades at a market cap of US\$10.6 billion.
- **WhyHotel:** WhyHotel is an alternative lodging service company that operates pop-up hotels in newly built, luxury apartment buildings; and has partnered on projects with AvalonBay and Equity Residential. The platform allows multifamily developers to de-risk the lease-up phase of new assets and creates a new revenue stream. This can have a positive impact on development IRRs and financing costs. The company has raised US\$34 million to date from investors that include Camber Creek, MetaProp, Highland Capital Partners, etc.

IMPORTANT DISCLOSURES

Analyst's Certification

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Buy	Outperform	49.6 %	29.0 %	53.6 %	52.4 %	57.8 %	57.7%
Hold	Market Perform	48.1 %	23.9 %	42.9 %	45.5 %	40.3 %	37.5%
Sell	Underperform	2.1 %	36.4 %	2.9 %	1.9 %	1.3 %	4.8%

* Reflects rating distribution of all companies covered by BMO Capital Markets Corp. equity research analysts.

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