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# PERE

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# Insight

## Report snapshot **Six ways technology is transforming the private real estate investment world**



### **A proptech (r)evolution**

Real estate managers and investors, big and small, the world over, are seeing their businesses disrupted by technology innovation designed specifically for use in the built environment. For the most part, institutional capital views this development as good for business – a tool to keep portfolios relevant well into the future, attractive to tenants and delivering returns.

“Technology has the potential to add the greatest value to the investment process,” says Berkshire Residential Investments’ chief information and technology officer Josh Glastein.

### **Bigger, better data**

The data derived from proptech give owners valuable visibility on how assets are performing, from how tenants are using space to the energy efficiency of a building. Allianz Real Estate’s chief executive for west Europe, Alexander Gebauer, says: “Real-time data allows us to understand how the building is being used throughout the duration of the tenancy. With that data we’re able to provide better services to tenants.”

John D’Angelo, managing director of the US real estate team at Deloitte Consulting, adds that data are used to “make decisions about where to spend capital” and to understand “risks at an asset or portfolio level.” And Yardi’s senior vice-president of global solutions, Rob Peel, notes that data allow owners to find ways to improve operational performance. “Increasing revenue, decreasing expenses and reducing risk is the recipe for improved building value and greater returns,” he says.



### **5G**

Although still in its infancy, our feature on page 10 offers a compelling insight into how 5G networks are set to be a game-changer in the property world through the delivery of faster connectivity and data speeds, allowing owners to ensure their properties are managed with even greater efficiency in the years to come.

Over to Grosvenor’s group technology director, Kevin Kincaid: “5G connections require much less energy – up to 90 percent less – allowing enhanced battery life for connected devices.

“As more of the building becomes connected, this will lead to lower energy consumption and operational costs.” And ultimately that is music to investors’ ears as they continue to seek ways to improve bottom lines.



### Financing innovation

A relatively new trend on the block is that some traditional real estate investment managers – those more used to buying and selling physical assets – are financing the companies developing proptech innovations. An example, reported by *PERE* back in May, is the three sector heavyweights – Brookfield Asset Management, Tishman Speyer and GLP – that backed proptech company VTS, the subject of our big interview on page 19, to the tune of \$90 million.

This is an indication of the value institutional capital is placing on proptech and that investing directly in such innovation is increasingly being seen as a natural extension to capitalizing the physical assets.



### Smooth operators

Let's not overlook the vital role that technology is also playing within real estate fund management companies themselves. There are now a raft of tools and systems at managers' fingertips to ensure that internal operational and administrative processes – including accounting, HR, compliance, reporting and due diligence, to name a few – are as efficient as possible, and ultimately helping managers to run their

# \$75bn

Amount that venture capital has invested in proptech since 2015, according to an EY and CREtech study

businesses as well-oiled machines.

And with investors keeping an ever-closer eye on the internal workings – and cashflow – of their managers, there is a growing realization that tech is a necessary tool in meeting client expectations, fostering good investor relations and raising capital.

### Outsourcing

For small to mid-size managers that perhaps lack the big budgets of the sector giants, the cost of developing and maintaining technology in-house, and hiring the skill set to oversee it, can be burdensome. And this is a reason why more and more are looking to third-party administrators and specialist tech platforms to do much of the heavy lifting.

Global head of real estate at Alter Domus, Anita Lyse, says it is one of the “top reasons” for the growth in outsourcing, which can help reduce costs associated with building tech in-house, as well as offer managers access to scale and efficiencies through a service provider's platform. And importantly, it frees up managers' time to focus on their core activities – scoping the market for good deals, investing and generating good returns for their investors. ■



## They said it

### Industry insiders share their tech wisdom

“We need the data that is produced by building operations and by tenants to understand better what we own and how we manage it”

**Alexander Gebauer**, Allianz Real Estate's CEO for west Europe

“Tech allows us to have a closer engagement with tenants”

**Jack Sibley**, technology and innovation strategist at Nuveen Real Estate

“It is crucial that the next wave of technologies pinpoint measurable ROI for investors and deliver scalable and consistent financial returns that translate into enhanced bottom line asset valuations”

**Andrea Jang**, JLL Spark's head of growth for the Americas



## Editor's letter

# Property's tech awakening will pay dividends



**Helen Lewer**

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Anyone of the pre-millennial age group might look back with some nostalgia on a simpler era without emails, cell phones and other gadgets of that ilk. And for many, getting comfortable with the new digital world has, at times, been a painful process. But embrace it, albeit often reluctantly, we have had to – so integral is technology now both in the workplace and to carrying out even the most basic tasks of everyday life.

Private real estate's relationship with technology has followed a similar narrative. For getting on board with the fourth industrial revolution has not come easily to the sector either – that it has been a little slow on the uptake compared with some industries is widely acknowledged. At our *PERE* America conference in New York last month, one real estate technology provider detailed how, currently, just 1 percent of a typical manager's budget is invested in technology innovation. The percentage was zero as little as three or four years ago, he said.

But many property owners and asset managers have since had the lightbulb moment that tech is an ally in the mission to improve operational efficiencies and deliver returns in an increasingly competitive global market.

Technology's capacity to capture the most granular data, and at ever-quicker speeds, empowers owners to make better management and investment decisions. Take sustainability measurements, for example. Under pressure to meet ESG criteria, tech and the data it generates offers owners visibility on a range of factors like a building's carbon footprint, air quality and energy usage, allowing cost savings to be made, tenant expectations to be met and additional value to be generated.

So, if you are a manager still swimming against the tech tide, perhaps the time has come to rethink your position. Consider the wise musings of a commentator in this report who argues those who fail to keep abreast of the skills required to harness data to drive asset value are going to be "hurting" within the next decade – take that as a profit warning if you will.

Enjoy the report

**Helen Lewer**



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# KEYNOTE INTERVIEW

## Smart buildings need smart managers



*Digital innovations mean investment professionals have vast quantities of data, but the right tools and analysis are essential to create higher returns, argue Allianz Real Estate's **Alexander Gebauer** and Nuveen Real Estate's **Jack Sibley***

Managers and investors know they have little choice but to stay on top of the latest developments in proptech, but in an increasingly crowded marketplace it can be difficult to see the wood for the trees. PERE's Stuart Watson listens as Alexander Gebauer, chief executive officer for western Europe at Allianz Real Estate, and Jack Sibley, technology and innovation strategist at Nuveen Real Estate, discuss how to identify tech and data solutions that genuinely add value to real estate portfolios.

### Identifying scalable solutions

**Alexander Gebauer:** We are an investment and asset management company not a broker or a facilities manager. We need to concentrate on what matters to us, and to the users of our buildings. The ocean of proptech solutions available is already becoming hard to navigate, so we have sought

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to identify where proptech is causing disruption in the areas that are meaningful for us, and based on that logic we track what's going on in the proptech markets. Once we have identified the solutions that can help us in those areas, we enter into an analysis and prototyping phase to see how we can implement them.

**Jack Sibley:** To get the best results from trialing new technologies, it is an advantage to have scale, as it helps to diversify the innovation risk and to spread the learnings across a larger portfolio and platform. Alignment between stakeholders across the whole value chain is critical and needs to be as dynamic and agile as possible throughout the

process. As well as identifying which technologies will help to solve which problems, and which providers are the right partners, it is important to look at the likely return on investment and how scalable different solutions are across portfolios.

One of the problems as a large real estate platform is that every real estate market is different from each other and technologies are not necessarily easily transferable from one geography to another. One has to weigh up the advantages of a flexible bottom-up approach versus a scalable top-down approach and find the right balance on a case-by-case basis.

**AG:** We operate in many global markets, but we have a country-specific approach to proptech, backed up by our strong local presence and market knowledge. It is more efficient to try things out on a local basis



without expending lots of effort on a big academic study or centralizing the technology too early, then afterward look at whether it's possible to employ that solution at scale across a whole segment.

Sometimes differences between geographies make an across-the-board approach impossible. For example, facial recognition technology is accepted in Asia and there are a multitude of uses for it. However, it cannot be used in Europe in the same way because of data privacy and protection regulations.

Most of the solutions we've identified as easily scalable are the ones that relate to data and ESG performance of our assets. Gathering, processing and analyzing data is scalable once we have a harmonized and structured approach across the portfolio.

### Gathering and analyzing data

**AG:** We don't do site operations or facilities and property management. We externalized those functions years ago, but we are realizing we need the data that is produced by building operations and by tenants to understand better what we own and how we manage it. We've been doing a lot of work on merging real-time operational and tenant data into the BIM (Building Information Model) that is created when a building is designed and constructed to generate a digital twin, a graphic digital representation of real-time data about the building.

**JS:** When you buy an asset, there is a period of physical technical due diligence and inspections. Over time, we increasingly expect to see buyers doing an inspection of the data twin of the asset as well. When you hand over the keys to the asset, the digital twin shouldn't disappear, you should hand over the 'digital keys' (digital twin log-in) as well. In the long term that might speed up due diligence or make it more accurate, and you may even get some sort of transparency premium for assets with a richer data footprint.

**AG:** However, for the building to be smart, the asset manager must also be smart. It's not just about data collection, but also data analysis. Data makes more sense when you can analyze it over a longer time period and if you can compare different buildings. The next challenge for the industry is to aggregate operational and tenant data from different buildings into the same system to produce really meaningful insights at a portfolio level.



## Intelligence at work

### Nuveen's 70 St Mary Axe is a testing ground for a raft of technological innovations

Nuveen Real Estate completed construction of 70 St Mary Axe in February. The 24-story, 317,000-square-foot office building, which sits alongside the Gherkin in the City of London, was developed on a speculative basis by the Cityhold Office Partnership.

"We are collecting lots of data in this building and using it to optimize the user experience in terms of wellbeing and productivity," says Sibley.

Proptech platform Equiem is building a bespoke app for the building to enable the provision of a range of services to occupiers including the booking of short-term office space, meeting room spaces, events spaces, accessing the catering, wellbeing and concierge facilities within the building, as well as a range of amenities in the near vicinity.

Sibley says the objective is to improve the user experience of occupiers within the building with a view to retaining occupiers for longer.

Meanwhile, through the use of Iconics, an intelligent building analytics platform, the owner aims to improve plant reliability and equipment efficiency while driving down maintenance costs.

The platform uses data from existing building management systems to offer practical solutions that can be implemented to enable more efficient operating models for the building.

**JS:** That is already happening on the environmental and energy efficiency side. We collect data on a portfolio basis and can benchmark across funds, regions and geographies. Many of the initiatives we're driving on sustainability are very closely linked to technology. However, tech gets especially interesting once it starts linking to the user experience and the satisfaction with the space itself. This can start to shift the needle on investment returns, as it can connect directly with leasing. Ultimately, the question is how can a smart building help us attract better tenants, have shorter void periods, and ultimately achieve higher rents?

### Creating a better environment for tenants

**JS:** An innovation that's been gaining traction recently is the tenant experience app, which pulls data out of the building (or the digital twin) for use by the occupier. For instance, it might be to book a meeting room, order food or understand what events are going on in the building this week. These apps can also be used by different tenants to communicate and build a sense of community. The wider context is the growing consumer-centric approach within real estate and the use to attract and retain talent rather

than treating it as a cost to be minimized. That evolution is driving more focus on end users from all landlords, but it is also driving new business models like flexible offices that blur the line between what was historically the tenant's space and what was the landlord's role. Those new models are both enabled by, and enablers of, technology. Tech allows us to have a closer engagement with tenants through solutions like apps, but tenants are also drawn into closer relationships with landlords as they look to them as enablers of their smart workplace strategy.

**AG:** Whereas in the past owners might have handed over the keys and asked just before the lease break how the tenant was doing, real-time data allows us to understand how the building is being used throughout the duration of the tenancy. With that data we're able to provide better services to tenants, help them achieve more efficient building operations and interact with them in a faster and smarter way. There is also an increasing focus on the wellbeing of the people who occupy the building, and the experience it provides is becoming more important in securing and retaining tenants. Where we can use technology to make people feel more connected, both within their

*"Tech gets especially interesting once it starts linking to the user experience and the satisfaction with the space itself"*

**JACK SIBLEY**  
Nuveen Real Estate

companies and within the building, they're more likely to stay for the long term.

### The data ecosystem

**AG:** We believe that if we make data available for everyone, the ecosystem of stakeholders will find a way to use that data that will add value for the tenant. For example, in a smart office building you could gather real-time data about energy consumption. Who can use this data and for what? The owner of the building can use it for reporting and overall energy consumption optimization and the tenant can raise awareness among employees and make better use of their space occupancy. In turn, the facilities manager might use this data for predictive maintenance of key technical installations by analyzing their energy consumption patterns. Predictive maintenance automatically reduces operating costs and increases users' satisfaction. Those kinds of uses may be hard for us to predict, unless you make all kinds of data available for everyone.

**JS:** The data layer is always the foundation. Once you have visibility of that, you can build up from smart workplaces, to smart buildings and ultimately a smart city. Data governance is important throughout, but privacy concerns are particularly highlighted at the smart city level. In private buildings tenants opt into data solutions by agreeing to take space there, but in public spaces the issues around consent are more complicated. That means landlords will need to cultivate a better understanding of the way in which they impact the broader built environment and the city's social context, thinking beyond the door of their building. ■

## At the sharp end

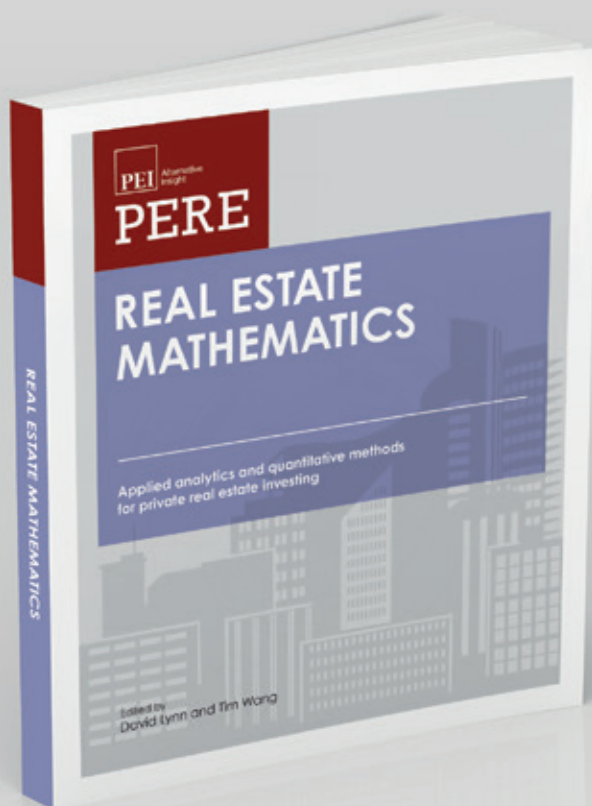
### EDGE Olympic - a high-tech and highly sustainable redevelopment

Acquired in mid-2018 by Nuveen Real Estate's Cityhold Office Partnership via a forward commitment from tech-focused developer and operator EDGE Technologies, the 119,663-square-foot building in Amsterdam is designed along three core principles. Those are: optimizing the efficiency of the building and the health and wellbeing of its users (as demonstrated by its WELL Platinum certification – the first building to achieve this in the Netherlands); emphasizing the collection of data and centralizing all aspects of the building and user experience onto a single digital platform; and enabling tenants to become a community by offering the opportunity for start-ups and corporates to mix through the common areas and co-working space.

Nuveen Real Estate's Cityhold Office Partnership is also acquiring a second project from EDGE Technologies – the 245,420-square-foot EDGE Grand Central in Berlin, which is seeking to achieve DGNB Platinum certification, while Allianz has also backed the platform committing capital to forthcoming EDGE developments at East Side Berlin and Hafencity Hamburg.



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# Connecting with a 5G future

*Upgraded networks will have a profound impact on the real estate industry, driving the development of real-time building management and smart cities.*

*Mark Cooper reports*

The rollout of 5G mobile telecommunications networks around the world is more than just another opportunity for telephone companies to sell new contracts and new handsets to consumers. The low-tech world of brick and mortar is set to be transformed by the new technology.

The fifth generation of wireless technology, 5G is a standard designed to deliver data speeds greater than one gigabit per second and latency (how long it takes a device to respond to other devices over a network) of less than one millisecond. What this means in practice is that 5G is faster – up to 100 times faster than existing 4G networks – enabling the transfer of more information, such as high-definition video. In addition, 5G-enabled devices will have the ability to connect to 100 times more devices at any time.

This huge increase in ‘connectability’ is particularly significant for real estate as it enables the Internet of Things. IoT devices can be used to monitor and control the mechanical, electrical and electronic systems in buildings. A combination of sensors and controllers could be used to instantly adjust heating and cooling in an office building, for example.

Kevin Kincaid, group technology director at London-based property firm Grosvenor, says: “This means that a building can connect thousands of IoT devices at the same time, all giving real-time information on how they are functioning, which in turn allows property managers and commercial real estate owners to really understand how

their buildings are operating. In addition, 5G connections require much less energy – up to 90 percent less – allowing enhanced battery life for connected devices.

“As more of the building becomes connected, this will lead to lower energy consumption and operational costs. Lights and temperature can be automatically adjusted depending on occupancy, usage and external factors, and operational equipment can automatically log faults or proactively log maintenance calls.”

## Good for returns

Faster and more efficient building management will boost returns for private real estate owners and also help them improve their sustainability performance, which is becoming increasingly important for institutional investors.

In South Korea, the first country to launch a 5G network, SKT, a telecommunication company, opened a 5G-based smart office in Seoul’s CBD. In this smart office, there are sensors on ceilings, parking areas, vending machines, corridors and even in bathrooms, which will collect data for AI analysis in order to run the building more effectively for the company and its employees.

The benefits of 5G-enabled smart buildings are not limited to the newest and shiniest developments, says Kincaid. “It will also add value to older assets, though you will still need to retrofit IoT sensors to equipment to take advantage of the connected devices, the bandwidth and speed of 5G will reduce – and potentially remove – the requirement for fixed-line installations into

*“There are still many variables which the industry needs to figure out before this sort of smart building revolution becomes a reality”*

AMY PAN  
JLL





5G speed: set to transform the built environment and add value to investors' bottom lines

buildings. Tenants will also be able to use 5G where previously they relied on fixed-line connectivity into the building for fast connectivity.

"5G antennas are also much smaller than 4G, so it could be easier to get a 5G antenna onto a building where permission may not have been granted for its 4G counterpart. In addition, due to 5G having reduced energy consumption requirements – 90 percent less than 4G – connected devices could be battery-powered, thus enabling easier retrofits of buildings without costly hardwiring of sensors."

The efficiencies gained in smart buildings can be scaled up into the development of smart cities, where IoT sensors and controllers can use real-time data to manage traffic, waste collection, pollution and numerous other parts of the life of the city.

Management consultant McKinsey & Co describes smart cities as those that "put data and digital technology to work with the goal of improving the quality of life. More comprehensive, real-time data gives agencies the ability to watch events as they

unfold, understand how demand patterns are changing, and respond with faster and lower-cost solutions."

### Smart cities

However, smart city technology is not just about the city management; smartphones can put instant information about transport, health services and safety directly into the hands of citizens. The data generated by 5G-powered smart devices will also feed into city planning and development, so will be important for real estate investors too, giving them more tools for quantitative analysis.

# 39%

**UK office landlords that understand what 5G is and how it works on a practical level, according to research by Cluttons**

"The key attributes of 5G – low latency, low energy consumption, high speed and the ability to have a high number of connections simultaneously – will remove significant technological barriers in smart city initiatives. Healthcare, safety, energy consumption, people's commute times will all be positively impacted by the smart city initiatives," says Kincaid.

Amy Pan, director, global data and information management at broker JLL, says: "Imagine a case where the injured person in an ambulance would be able to whiz through normally heavy traffic thanks to smart traffic lighting and automated traffic control."

She notes that a number of global cities are pushing ahead with smart city initiatives which will be boosted by 5G technology, including New York, London, Shenzhen, Beijing and Tokyo.

However, she says: "It is important to watch smart city initiatives in some of the more progressively minded cities, such as New York or Singapore in the absence of extensive 5G coverage. While 5G, at its full potential, could be a game-changer for a lot



of things, a city does not necessarily require peak 5G to become more operationally efficient in its effort to improve the quality of government services and citizen welfare.”

One of the most exciting aspects of 5G is its role in autonomous vehicles. “Autonomous driving will increase as vehicles are able to communicate with each other and with other connected devices in the cities,” says Kincaid. In particular, the low latency of 5G networks means connected devices can communicate much more rapidly, which will make autonomous vehicles much safer.

The potential impact of autonomous vehicles on real estate is substantial. It is generally accepted a city with autonomous vehicles would need less car ownership and see fewer vehicles on the road, as they would be used more efficiently. This would reduce the need for car parking spaces and for roads. For example, Singapore estimates that 12 percent of its land is taken up by roads. For a small city-state, this is significant and could be even more so for more land-constrained cities.

### Progress is ongoing

While the potential effects of 5G on real estate are considerable, they are also still some way from being realized. The first 5G network in the world went live in South Korea in April this year and it has since been followed by networks in China, the UK and several European nations. The US has a number of limited networks already but, like all countries, it will take time for 5G networks to be rolled out across the nation and it is estimated that only one-third of the US will be covered by 5G networks by 2023. Many nations have 5G rollouts planned for 2020, but it will take time for networks to grow, with the most rapid development expected for richer, smaller nations.

JLL's Pan says: “It is generally expected there will be two major phases of 5G's evolution. The first phase, which is already in progress, will manifest itself in faster connectivity for consumers. The second phase will focus on delivering infrastructure to enable speed, capacity and near-instantaneous machine-to-machine connections. When we talk about the potential of smart buildings and smart cities, this will materialize during the second phase of the 5G build-out.”

There is more cold water to be poured on the idealized 5G future, says Pan. “There are still many variables which the industry needs to figure out before this sort of smart



## A towering opportunity?

**For 5G networks to operate with the high speed and low latency that will empower smart cities and smart buildings, they will need new antennae**

Kevin Kincaid, group technology director at private real estate investor Grosvenor, explains: “As 5G uses higher radio frequencies than 4G, the distance 5G signals travel is much less, which means that many more antennae are required. This provides an opportunity for building owners to create a revenue stream through leasing the space required for the antennae to 5G operators.”

The US already has three real estate investment trusts which invest in telecommunications masts and the largest, American Tower, owns and operates 170,000 cell towers in the US and overseas.

However, not everyone is convinced that 5G antennae will be a revenue-earner for real estate investors. Amy Pan, director, global data and information management at broker JLL, says: “While some new towers will be built, the majority of the net increase will consist of small cells, which will typically be the size of a pizza box, and anchored on existing public infrastructure such as utility poles. Therefore, I am not sure if there are revenue opportunities for property owners.”

building revolution becomes a reality. Cybersecurity will be a challenge in these networks, for example.”

Nonetheless, it would be wrong for real estate investors to dismiss 5G as something to worry about in the future. Research from UK property advisor Cluttons found that only 39 percent of UK office landlords understand what 5G is and how it works on a practical level. However, nearly half of office tenants would pay more to lease an office

building with better data connectivity and 72 percent said offices with poor connectivity will become obsolete in the future.

John Gravett, head of real estate management at Cluttons, says: “There is a strong commercial argument for greater investment in connectivity in buildings and we are seeing positive moves from landlords who are taking the initiative, rather than leaving it to tenants, who now expect good connectivity to be a given.” ■

# Tech is taking up residence



Guest comment by **Josh Glastein**

*Multifamily housing is on the verge of a paradigm shift in its use of technology, writes Berkshire Residential Investments' chief information and technology officer*

The sector has lagged others in technology use; companies are hesitant to adopt new technology, instead relying on tried and true methods. But the revenue-driving value of the data hidden away in legacy applications and offline spreadsheets is becoming undeniable. Technology is fast approaching the point where this wealth of information can be exposed and leveraged to improve operational efficiency and investment decision-making. Emergent technology is going to quickly become a differentiator in the industry.

Investment in proptech has grown tremendously in the last few years. RE:Tech has reported venture funding at \$9.6 billion in 2018. That number varies depending on the source, but the evidence supports an increasing value in the industry. Software is being developed to aggregate data from disparate sources, sift through it for insight and autonomously identify areas of focus and opportunity.

At the asset level, property management tools from firms like Yardi and RealPage are already incorporating artificial intelligence (AI) and machine learning (ML) into their products. These advances will soon be considered table stakes to efficiently manage properties. Software is starting to make prescriptive recommendations on management decisions to optimize expenditures and improve thin profit margins. Additionally, AI and ML enable real-time data analytics. Decisions that were previously based on

*“Technology has the potential to add the greatest value to the investment process”*

monthly reports can now be made in real time.

Accessible real-time data at the asset level can easily be rolled into portfolio-level reports. Business intelligence (BI) tools make it easy to slice and dice the data. The massive amount of data available is unwieldy without this functionality. Portfolio management now has far more insight into the comparative performance of assets in their funds. Metrics can be evaluated across the portfolio to identify under-performing assets and make corrections. Key decisions on high-performing assets can be emulated to improve overall portfolio returns.

## Investment strategy

Technology has the potential to add the greatest value to the investment process. Investment decisions are currently based on

theories supported by statistical analysis and anecdotal evidence. There is a growing opportunity to drive decisions based on a larger universe of data sets. AI and ML facilitate far faster calculations than was possible in the past. More esoteric data, like Yelp data, not traditionally associated with driving real estate value can be incorporated. Multiple regions can be analyzed simultaneously. Automated valuation estimates are becoming more accurate. BI tools can depict results that tell a story far more convincingly than PowerPoint slides and Excel charts.

There is no silver bullet yet that will direct investors to profitable assets and investors still need to drive analysis with investment theses. However, research teams will convert reams of data into consumable information and be able to make knowledgeable insights. Leveraging advanced technology will differentiate firms and give them a clear competitive advantage.

## Moving forward with caution

The industry is still maturing, and the effectiveness of the AI and ML algorithms is yet to be proven. There are an overwhelming number of start-ups in the proptech space looking to be recognized as a breakthrough product, but waiting until leaders emerge is a wise approach. Finally, technology is only as good as the data behind it. Technology will no doubt be a game changer in the coming years so embracing it in a thoughtful way that considers ROI is the key to success. ■

## KEYNOTE INTERVIEW

# Learning to swim in the data lake



*To avoid being swamped by information, managers are turning to increasingly effective digital solutions, say Deloitte Consulting's head of US real estate John D'Angelo and Alan James, senior vice-president at RealPage*

Managers know that data analysis will play an ever more vital role in managing real estate investments, but often feel overwhelmed by the sheer volume of information potentially at their disposal. Stuart Watson listens as John D'Angelo, managing director and leader of the US real estate team at Deloitte Consulting and Alan James, senior vice-president for asset and investment management at RealPage, consider how technology platforms can be used to help turn big data into higher returns.

### Meeting the data challenge

**John D'Angelo:** There is a great deal of data at the asset level that managers ought to have at their fingertips, but don't at the moment. There is a baseline issue about getting

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data that is complete, accurate and trusted and in an agreed-upon place where it can be found and used. The good news is that there is a growing appreciation in the real estate industry of the value of information. It can be used to help make decisions about where to spend capital, in understanding risks at an asset or portfolio level, in identifying high-performing assets that might not be obvious, and in separating out the effect of what is happening in the market from the value added by the manager.

**Alan James:** The problem is not that there

is a lack of data, in fact the quantity of data can be quite onerous. The issue is having the right data at the right time in the hands of the right person. For the GPs and asset managers I have spoken to the issue is trust. If they do not trust the data, they revert back to their old ways of doing business, which unfortunately is Excel spreadsheets, so a lot of data ends up siloed and inaccessible to the people who need it.

**JD:** The big driver for investing in data is the realization among managers that they need to get better at this. There is a generational sea change within management firms, with people coming into positions of authority who have a greater sophistication around data and analytics. Some investors are be-

ginning to take a look in their due diligence at whether managers have got their data act together, but that is not yet the crucial factor. However, investors will increasingly scrutinize that area, just as they have done with sustainability, and that will put pressure on those managers that do not understand the value of data because capital will vote with its feet and go to those that do.

### From data collection to data analysis

**AJ:** There are a number of stages in the cycle of managing data: you start by collecting it; then apply technology to it so that you can provide visualizations of the data for stakeholders; and only after that do you get to the fun stuff, the predictive and prescriptive analytics. Many of the organizations we are talking to are still just collecting and reporting, as opposed to using artificial intelligence and advanced analytics.

**JD:** You have to go through those steps as a manager, but you don't have to figure everything out about data to get value from something. We are getting clients to think through what are potentially the most valuable questions that they could ask in terms of understanding opportunities, potential threats, or the factors that drive returns, and then work backward to figure out the data that helps them to answer those questions. That pragmatic approach can help to build confidence within an organization that data analytics initiatives actually pay off.

**AJ:** When you sit down with the managers of big real estate firms what do they say is the greatest challenge to the adoption of technology within their enterprises? What is the difference between a firm that adopts it, embraces it and gets a return from it, as opposed to one that does not? Is there a magic bullet?

**JD:** The magic bullet is leadership mindset. The leadership team need to agree that investment in technology is essential to being a better real estate investment manager. The key change is that they make it clear



## Quick calculations

### How more frequent valuations are driving the need for tech solutions

**JD:** The big driver of more frequent valuations is the increase in the number of open-ended funds, in particular daily priced open-ended funds that allow capital flows in and out on a more frequent basis. For them, valuation matters a lot in calculating what is now, in a lot of cases, a daily net asset value. A valuation is dependent on data, so it is one of those cases where technology will really be able to help. In the coming years we will see a lot more application of machine learning and artificial intelligence to big data sets to aid with valuations.

**AJ:** Traditional private equity is accustomed to daily pricing in some of their markets and real estate is following suit. With high levels of liquidity markets are moving at greater speed, and investors want to know that if they execute a transaction – whether it is to buy, sell, or refinance – what they will get out of it based on today's market conditions. There is a change of expectation in the marketplace and technology is needed to make that happen.

*“Managers can use new datasets to identify opportunities in markets that may not have shown up on the radar before”*

**JOHN D'ANGELO**  
Deloitte Consulting

that it is no longer okay for the company's processes to be driven by anecdotes or stories. Instead they need to be analytical and data driven, more disciplined around data and use of analytics, so it is not acceptable anymore to squirrel away data in spreadsheets as an individual asset. For every firm at that stage there are 10 still waking up to the opportunity, but which haven't quite got there yet. Asset managers need to learn a whole new set of work habits that may seem more difficult at the time, but provide benefits in the long run. Putting in place the right technology solutions can help with that behavioral change. There are many more tools available now that can help with that problem.

### Utilizing technology platforms to manage data

**AJ:** Five years ago, in real estate we had a bunch of technology solutions that did a little bit of something – one did valuations, another some form of business intelligence, something else did accounting, and another tool was for investment management. There are platforms available today that provide technology for use across the investment lifecycle, with the ultimate goal of providing a 360-degree view of the entire process. At the moment, many asset managers are spending at least as much time collecting and harnessing data as they are actually analyzing or reviewing the results.

The role of an asset manager is to work the asset and generate value, so if by embracing and implementing technology they are able to spend 75 percent of their time doing that rather than 50 percent it can have a significant impact. Human capital is real estate companies' biggest expense and technology enables better utilization of that resource to serve the investor community. If you ask any asset manager whether they would rather collect data or use it to drive value and they will all answer the same way, but many of them are still stuck in the data swamp.

**JD:** Not long ago if you were a real estate investment manager and you wanted to have great data aggregation you had to figure it out yourself. You had to get people to design the data scheme and work out how to present the results to businesspeople in a meaningful way, and that is not a trivial thing. The amount of money spent by the industry as a whole on data and business intelligence initiatives that failed and ended up being written off is tens of millions of dollars.

The good news now is that managers can buy licensed technology instead. That has made it more possible, particularly for small and mid-sized managers, which have the same problems, needs and opportunities as large managers, to find solutions, whereas before it was financially impractical.

### How data will change the industry

**JD:** Managers can use new datasets to identify opportunities in markets that may not

*“Ask any asset manager whether they would rather collect data or use it to drive value and they will all answer the same way, but many of them are still stuck in the data swamp”*

**ALAN JAMES**  
RealPage

have shown up on the radar before. Being able to understand weak signals that point to potential investments and getting there before the next guy by using data and greater analytical capabilities is where the opportunity really lies.

**AJ:** For example, one investor chose to acquire a particular apartment community because they were able to prove by using data that it would achieve higher rents because it was within walking distance of a Whole Foods and a Starbucks. Another institutional owner actually employs a concierge to organize events at their California apartment block because they can see through the data that throwing pool parties leads millennial tenants to stay longer and pay more rent. There are already firms that are using data strategically very well and you can tell by their results.

In future, investors will place their capital with managers that are able to respond quickly to requests from their investors with quality information.

Firms that cannot do that will find it more difficult to raise capital. Everyone knows there is going to be another downturn in the market some day and when that happens investors want to be in a position to make decisions much more quickly than they did in 2008.

With greater utilization of technology will come a move to more outsourcing of non-core competencies and non-strategic activities such as collecting data. That will accelerate the adoption of advanced analytics because managers will have more time to spend on reviewing the data. It could also provide an advantage for the small and mid-market players because they will end up getting to use the same technology as bigger players at the same price points, but on a smaller scale.

**JD:** We are going to see a bifurcation between managers that understand the importance of data as an asset and a skill set, and those that don't. And those managers that don't believe it is important or fail to keep up with the skills needed to use data to drive the value of assets are going to be hurting. It would surprise me if that doesn't happen within the next decade. ■



# Proptech investing at an all-time high



Guest comment by **Andrea Jang**

*The sector's reliance on market fundamentals and market-based information to drive returns is changing, says JLL Spark's head of growth for the Americas*

merging real estate startups, known as proptech, are successfully using big data to help companies create efficiencies, deliver personalized services and stronger products, and ultimately make better, more informed business decisions.

As interest in proptech has grown, venture capital has poured billions of dollars into the proptech marketplace in recent years – \$75.2 billion since 2015, according to an EY and CREtech study, and almost a third of that has been in 2019 alone.

Proptech is generally defined as technology startups affecting physical spaces and tangible assets. In recent years, real estate firms have started to embrace technologies that automate processes. Leveraging artificial intelligence and machine learning tools, proptech startups can streamline and even automate predictable tasks such as data entry, preventative maintenance and security scanning. As a result, firms can reallocate workers to focus on high-value tasks, such as tenant satisfaction.

## Prosperous proptech

Emerging trends in real estate are creating opportunities for proptech to deliver value in new ways. For example, the growing demand for flex office space has many landlords interested in proptech startups that are vertically integrating procurement, facilities and property management – services that were traditionally outsourced. Companies focused on running profitable building operations while measuring how tenants are using both the asset and surrounding

amenities are helping landlords improve the overall tenant experience.

Firms focused on corporate social responsibility and green initiatives are also benefiting from new technologies that can be integrated into building operations systems to automate management of heating, cooling, HVAC and even detect system malfunctions. In Europe, where regulations are tighter, proptech startups are leading the industry with sustainability technology solutions that reduce environmental impact through energy efficiency improvements and drive cost savings.

To date, the lion's share of venture capital funding has been funneled into real es-

tate finance and flex space sectors, and a few key areas are poised for increased investment going forward. Investors are particularly interested in startups with a focus on property and facilities management automation, smart building sensor technologies and tenant experience platforms that improve building operational efficiencies and positively impact net asset value.

However, proptech investing is still a nascent trend, and investors should take caution when applying traditional venture valuation methods to an industry that is traditionally capital and operationally intensive.

Emerging corporate venture firms spun out of real estate companies, such as JLL Spark, are taking a more comprehensive and prudent approach to proptech investments, and post investment, help startups achieve scale and profitability by identifying viable distribution channels.

## 2020 and beyond

The tides are changing in real estate as confidence in proptech continues to grow. While critics may argue it will take decades for widespread adoption, companies such as Skyline AI are creating value by disrupting the traditional underwriting and acquisition process through artificial intelligence and machine learning. As we look to the future, it is crucial that the next wave of technologies pinpoint measurable ROI for investors and deliver scalable and consistent financial returns that translate into enhanced bottom-line asset valuations. ■

*“It is crucial that the next wave of technologies pinpoint measurable ROI for investors”*



Romito: making data 'an  
asset, not a chore'

# Agent of disruption

*With its push for greater data transparency, VTS has been changing the market and winning the backing of private real estate's top managers and investors.*

*By Evelyn Lee*

Nick Romito is talking about disruption in real estate. More specifically, he is talking about We-Work. “They’ve had the most significant impact on our industry probably ever,” says Romito, VTS’s chief executive and co-founder, speaking with *PERE* at the firm’s headquarters in midtown Manhattan in mid-September. “It has changed the whole market and they’ve changed the expectations of tenants; they’ve made every single owner on the planet rethink their entire strategy.”

VTS is no stranger to disruption itself, however. In the area of data and analytics, the leasing and asset management software provider has been one of the most prolific fundraisers among private proptech firms. Since its inception in 2012, it has raised \$197 million across five fundraising rounds, dwarfing its nearest competitors, which have attracted between \$4.5 million and \$68 million in total funding, according to a July 2019 report from New York-based investment bank Keefe, Bruyette & Woods.

VTS’s funding, moreover, has come from a who’s who of private real estate, including Blackstone, Brookfield Asset Management, GLP, Tishman Speyer, Oxford Properties and Starwood Capital’s Barry Sternlicht. All of the investors, except for Blackstone, participated in VTS’s Series D funding round in May. The \$90 million

round, led by Brookfield Growth Partners, the technology investment arm of Brookfield, marked the largest venture financing in the history of commercial real estate software. With the Series D round, VTS also became one of only 20 proptech firms to become a unicorn – with a valuation of \$1 billion or more.

Much of the firm’s success comes down to its vast coverage of the commercial real estate market, with data on 11 billion square feet of commercial space, including 60 percent of the Class A office space in the US.

Timing has also worked in VTS’s favor: real-time performance data ranked as the area of real estate with the most potential for disruption, according to KPMG’s 2018 *Global PropTech Survey*. “Historically, real-time data have been mostly unheard of in real estate, particularly for commercial assets,” analysts Ryan Tomasello and Jade Rahmani wrote in the KBW report. “Commercial real estate asset managers have benchmarked their performance of data that are backward looking and outdated, perhaps as much as six months to a year old.”

Meanwhile, “as commercial real estate has become more institutional, investors and owners are demanding greater data transparency, standardization and sophistication to empower decision-making and enhance returns,” they wrote.

On its website, VTS touts that its software reduces leasing deal cycles by an av-

erage of 41 percent. Managers like logistics specialist GLP have taken note. “There is a strategic link between our core logistics real estate business and technology that can make our assets more efficient for customers and make GLP more competitive as an investor and developer of these assets,” says the Singapore-headquartered firm’s chief executive Alan Yang. “The VTS team has differentiated itself to others in the market through its ability to increase operational efficiency and access real-time and high-quality data.”

## Changing attitudes on transparency

The genesis for VTS came from Romito and co-founder Ryan Masiello, both former brokers and users of real estate data themselves. As Romito recalls: “Everything was done on spreadsheets, so from my leasing pipeline, to my updates to the owners that I was working for around where we were with tenant engagement, the entire process was offline.”

The company’s vision was to bring the entire leasing and asset management process – from lead through lease execution – onto one software platform. “Once we did that at scale, we’d also have this unbelievably valuable dataset that our customers could use to understand what’s really happening.”

But getting scale on market data was far from easy. After all, “many incumbents have



operated under the belief that controlling data and information is a necessary competitive advantage,” Tomasello and Rahmani wrote in the KBW report. “This has led to limited transparency and information-sharing across the industry.”

When potential real estate clients initially showed skepticism that VTS’s software would help them do deals faster, VTS allowed the companies to pilot the product.

“Once they got that little taste of how much better their quality of life was, it started to snowball,” says Romito. “Data became an asset for them, not a chore. Because data for them, they equated it with reporting. And so, once we removed reporting from their life, and then they had data they could use to make decisions and report to their clients with on strategy, everything changed quickly. The users became our sales force. It became viral, and in a market like this, that doesn’t happen a lot.”

After seeing their own data in updated and aggregated form, VTS’s clients began clamoring for more information. “They quickly started asking, what would be great if we could see how we’re doing versus the market, which feels like a logical place since you guys have all of our peers on your platform,” Romito says, noting that VTS currently has data rights – where clients agree to have their data aggregated and anonymized as part of a larger market database – for 93 percent of its customers. The firm expects to have 100 percent participation in the near future.

## Friends in high places

### VTS’s private real estate industry ties has been another key to its success as a start-up



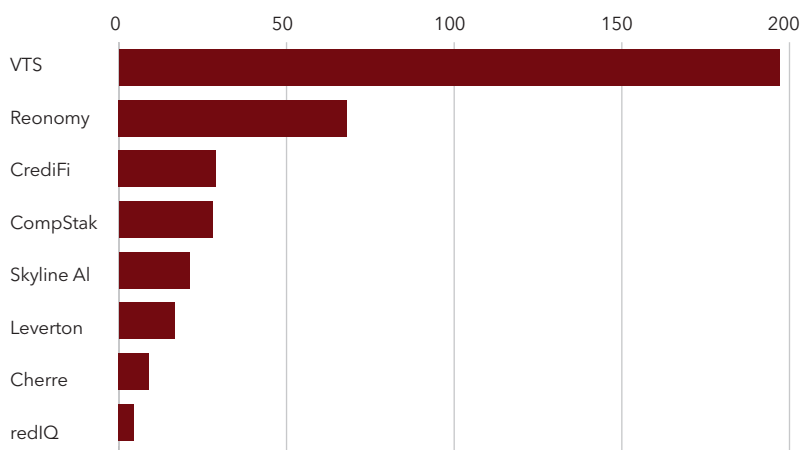
Josh Raffaelli, managing director of Brookfield Growth Partners, says he “can’t overemphasize enough” the importance of Nick Romito and Ryan Masiello’s backgrounds in the real estate industry – what he calls the firm’s founder market fit: “Do the founders speak the language of the owners? If you look at Nick and Ryan, the two co-founders of VTS, it’s almost the perfect vignette of where people come from the industry and they start developing tools for the industry and that then becomes the default standard.”

Romito stresses his firm’s industry relationships have been critical to its trajectory. “For us, we believe we can change the market because we have the market behind us,” he says. Since the firm’s inception, some of VTS’s most important relationships have been in the brokerage community, including Robert Alexander, chairman of the New York Tri-state region of CBRE, and Peter Riguardi, chairman and president of the New York Tri-state region of JLL. On the owner side, Jacob Werner, senior managing director from Blackstone, Kevin Danehy, global head of corporate development, and Kent Tarrach, vice president of asset management, at Brookfield, also have been particularly supportive, Romito says.

A more recent relationship that VTS has forged is with Barry Sternlicht (pictured), chairman and chief executive of Starwood Capital, which invested both in Hightower and VTS’s Series D. “Barry is probably one of the smartest people I’ve ever met in my life who just understands technology and data better than most people,” says Romito. “He’s probably one of the most forward-thinking commercial real estate people that I’ve ever met before.”

Sternlicht has been “a fantastic sounding board,” Romito adds: “We’re good at knowing what we don’t know. A lot of companies get overeager or overconfident in what they know because you have some successes. But it’s not always going to be that way. So, for us putting things in front of him that we think we have a pretty strong hypothesis about and him validating it is probably the most value that we get out of him.”

VTS was the funding leader among data and analytics firms category (\$m)



Source: Keefe, Bruyette & Woods

Whereas real estate owners previously saw a lack of data transparency as an advantage, they now view it as a disadvantage, he adds: “It’s a total give-to-get model. You don’t have to do it, but it means you cannot access that product. And if your competitors know what rents are doing and you don’t, you’re in a pretty tough spot.”

One proponent of greater data transparency is Oxford Properties, the real estate investment arm of Canadian pension plan OMERS. “There’s no doubt in anyone’s mind that there’s an enormous amount of waste, in terms of time and process and money, in how leasing works currently,” says Oxford president Michael Turner. “With better transparency, transactions will happen faster,” he says. “I’ve just never seen a marketplace where you’ve introduced transparency and technology and the cost structure has not declined.”

VTS had not initially planned to raise





money from Oxford and others in private real estate. “We were always very against taking money from real estate investors,” Romito says. “We felt it would be perceived as a conflict.”

After the firm completed its Series A funding round, led by venture firm Trinity Ventures, however, Blackstone came knocking with a proposal – it would simultaneously run the asset and leasing management software platforms of both VTS and its competitor Hightower for six months across the firm’s portfolio. Whichever company Blackstone ultimately chose, it would also additionally invest in the winner. “We knew that Blackstone is a market-making company,” Romito says. “They’re arguably the most successful investor on the planet and they have a massive portfolio; it was going to be meaningful to whatever company won that business.”

VTS went on to win Blackstone as a customer, with Blackstone additionally investing \$3.3 million in the company. “Our claim to fame is that it was Blackstone’s smallest investment in history,” Romito says. “But for us, it was a huge deal.”

Prior to its Series D, VTS had not raised a dollar in three years, and its sole real estate investor had been Blackstone. The main reason for its last funding round was simply growth, says Romito: “We’ve got a lot of fresh gunpowder, so the speed at which we’re doing things is going to radically change. We’re moving way faster.”

The funding will help to accelerate VTS’s product rollout. Last year, the firm launched its first data product, VTS

VTS



### Senior executives

Nick Romito, Ryan Masiello  
Karl Baum, Brandon Weber, Niall Smart, Donald DeSantis

### Year founded

2012

### Headquarters

New York City

### Other offices

Los Angeles, San Francisco, Boston,  
Chicago, Toronto, and London

### Staff

200

### Current coverage of market

11

Billion square feet

MarketView. This it calls “the industry’s first real-time benchmarking and market analytics tool.”

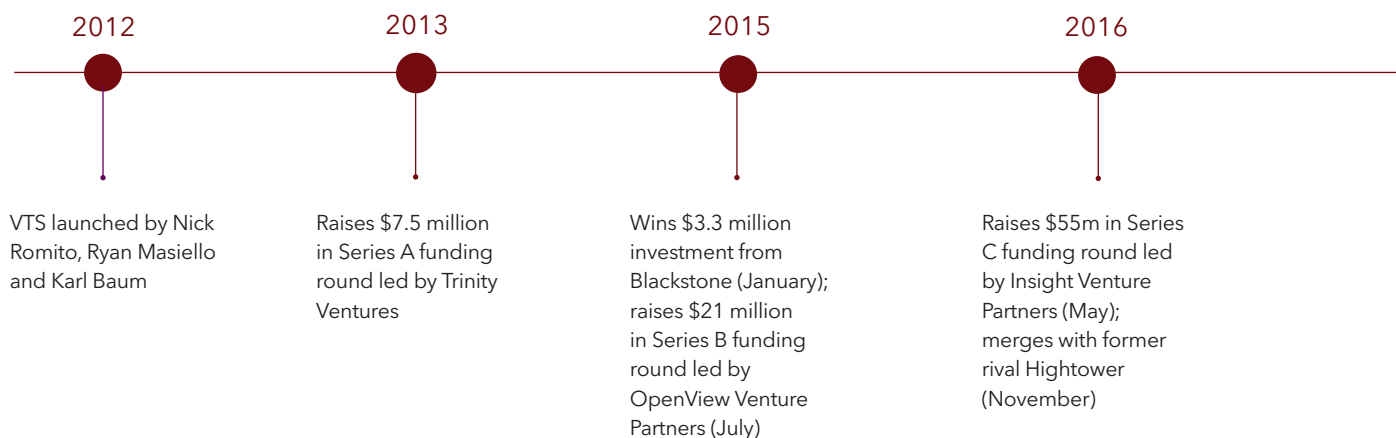
Meanwhile, VTS also plans to roll out a second product, a commercial real estate leasing marketplace known as Truva, later this year. “It’s hard as an end user of office space, or just as a human being in almost 2020 that I can’t search for office space on the internet,” Romito explains. “That feels a little bit ridiculous to me.”

Josh Raffaelli, managing director at Brookfield Growth Partners, recalls that VTS did not need capital when Brookfield approached the firm last year, noting that such a financial position is uncommon for a proptech start-up. “This company has always managed very conservatively toward a cashflow break-even profile,” he says. “They could be very profitable if they decided to dial back growth. The tension is always profitability and growth.”

VTS has maintained more than 45 percent revenue growth without adding significant headcount, according to Romito. “People do want to see that there’s light at the end of the tunnel where you can make that switch if you need to, to show profitability,” he says. “When you think about company valuations, you’ve now started to see that shift where the Street is really rewarding folks that can maintain that high growth, but also do it in a way that’s super-efficient, versus the old days where it was growth at all costs.”

One of the keys to running a super-efficient business is having an experienced team, Romito observes. “One really good

## VTS Timeline



person can do the work of five inexperienced people,” he says. “We’re not hiring first-time anything anymore. We want scar tissue across the whole organization.”

VTs nonetheless is embarking on a significant expansion that would involve increasing its global staff from 200 to 230 employees by year-end and doubling its coverage area in the next 18 months. Much of that anticipated growth will come from overseas: the firm, which already has a presence in London, plans to roll out localized versions of its software in the EMEA region next year, followed by a launch in the Asia-Pacific region in 2021. “International is a different product,” Romito says. “If you’re in the UK and use VTs, that user experience is very different from the US. It’s UK-specific.” For example, lease breaks and rent reviews, which are common in UK real estate, do not exist in the US, he notes.

### Competitive edge

VTs’s current scale has given it an edge over its rivals. “There’s going to be a first-mover advantage for those who have grabbed the greatest land grab, those that control the most real estate in any particular domain or vertical,” says Turner. “The Oxfords of the world, we’re not nimble. We’re slow and we’re risk-averse as it relates to making technology bets. And the cost of getting them wrong is expensive. Therefore, those that get the lead in the marketplace and grab real estate with the leading largest owners, they’re very well positioned in terms of their competitive set. So, a natural progression for VTs will be to grab more real estate.”

*“I think the disrupter word is a funny one. If we’ve disrupted anything, it’s probably Microsoft Excel”*

**NICK ROMITO**  
VTs



That said, competition has been heating up. “The competitive forces are real,” says Raffaelli. “There’s a lot of investment going into different pieces of this property and asset management equation. That means there’s a lot of dollars. And as those dollars keep evolving, we’re going to see competition into our core business in unexpected ways.” A wide variety of firms – which include Moody’s, Silver Lake, Yardi and Autodesk – have been either developing data-oriented products or buying companies that make such software, he notes.

VTs could also face other obstacles to its growth plans, Turner adds: “Part of their pace will depend upon the pace of the customer, such as the Oxfords of the world, to be able to be a faster adopter of technology, because that would increase their velocity. Hopefully for them that happens over time. If it doesn’t, that could be a potential headwind to growth.”

Turner, however, says VTs also trumps the competition in how it addresses customer needs: “The successful ones recognize that there’s a pain point that the customer has and they take away their pain. The ones that don’t get traction, or market penetration, are those that are described as ‘Let me give you vitamins.’ And when you’re in pain, you want the pain to go away, you’re not interested in multivitamins ... so providing solutions that make the delivery process of a lease faster, better, cheaper – that’s taking away pain.”

Yang, for his part, sums up VTs’s industry impact as follows: “VTs has been able to disrupt real estate because of their unparalleled access to real-time data in the market.”

Romito disagrees with the characterization of VTs as an industry disrupter, however. “I think the ‘disrupter’ word is a funny one. If we’ve disrupted anything, it’s probably Microsoft Excel. Listen, when you are adding transparency to an industry, fat tends to get trimmed in lots of places ... so maybe we’re trimming the fat across businesses by just giving them easier access to data.”

With VTs, part of the disruption it has created has to do with being one of the first to address the industry’s challenges with data. “Every single meeting we had when we first launched, the person would say, I had this idea five years ago,” says Romito. “And we would say, well, you should have built it.”

He adds: “I think ideas are worth zero. You learn that the hard way as an entrepreneur. It’s all execution.” ■

2018

Announces VTs  
MarketView

2019

Raises \$90m in Series  
D funding round led  
by Brookfield Growth  
Partners (May); buys  
Property Capsule  
(October); plans to  
launch Truva

## EXPERT COMMENTARY

*New tech-related strategies and tools are providing real estate managers and investors with a hedge against recession, writes **Rob Teel**, senior vice-president, global solutions, at Yardi*



# The importance of being connected

When property prices hit their nadir in 2010, an investor could buy and hold an asset and reasonably expect attractive returns. Indeed, the investment market has enjoyed an extraordinary expansion lasting most of a decade. Needless to say, investors should not be preparing to fight the last war.

Though investment volume has fluctuated over the past couple of years, prices overall show little sign of retreating. It is virtually impossible to buy an asset at the top of the market cycle, sell it in three to five years and expect to realize a large ROI. Investors cannot merely sit on properties acquired at peak prices and expect values to improve; and neither can they bank, literally or figuratively, on acquisition cap rates to deliver big paydays at disposition. Today's

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conditions call for a much different strategy.

So how will satisfactory returns be achieved? The answer, it seems to us, is clear. Active management is the only plausible strategy. The most reliable way to drive attractive returns is to improve operational performance. Increasing revenue, decreasing expenses and reducing risk is the recipe for improved building value and greater returns. And that raises another question: What is the right recipe for improving operational performance? We live in what a recent article in the *Harvard Business Review* called "the age of continuous connection."

We contend that connectivity will be the key to achieving peak property performance in the next downturn, no matter when it arrives or how drastic it may be. In order to enhance performance at the rapid-fire pace of today's business, connectivity in real time with all stakeholders, from ownership and management to occupants and vendors, is essential.

### Riding the cycles

In some respects, today's market outlook is bifurcated. Real estate market conditions suggest a strong forward-looking picture, as the investment market demonstrates surprising staying power. As CBRE reported recently, commercial real estate investment volume increased 3.4 percent year-on-year

during the second quarter to \$121.5 billion, the second-highest tally for the second quarter since 2015.

Sector performance varied considerably: the office sector registered a 30.5 percent year-on-year increase for the quarter; multifamily volume gained 20.6 percent; and industrial, retail and hotel assets all showed slight declines.

While broadly positive, these figures also suggest cause for concern. It appears that many investors, if not most, are still buying at the top of the market, even as growth slows and a recession could be on the horizon. That should raise alarm bells. Will returns still be acceptable to investors? If not, fund managers will face dissatisfied clients. Trade tensions and geopolitical volatility could also threaten consumer and business confidence, swinging the pendulum from cautious optimism toward full-fledged caution.

With that in mind, we are advising preparedness. As worries about an economic downturn mount, investors should begin turning their attention to building performance. Maximizing revenue, controlling expenses and mitigating risk are always priorities; in a stagnant or recessionary market, those activities take on new urgency. Without active management, fund managers and their clients cannot expect returns to meet expectations.

That said, much has changed in the decade since the beginning of the Great Recession. Investors and fund managers have the benefit of a new generation of tools that can enhance operational efficiency and boost property income. Whenever the next market downturn does arrive, those that have already put new strategies in place today, while adhering to fundamentals that are still basically sound, will give themselves a leg up.

### The recipe for value

As every asset manager knows, even modest reductions in operating expenses and increases in income quickly add up. We consider a typical 250,000-square-foot office building in a major market that generates \$10 million in annual revenue. Suppose that maintenance, repair and operations expenses total \$1.2 million; a reduction of just 5 percent would add \$60,000 to the bottom line. Assuming \$900,000 in annual energy expenses, a 10 percent decrease in utility costs would save \$90,000. Then turn to the

property's revenue side and target marketing strategy.

Improving the analysis in several areas – accurately comparing deals to market conditions, the property's leasing history and its budget pro formas – could conservatively be estimated to increase revenue by 1 percent. That translates to an additional \$100,000 in income. Even if no other improvements are made, addressing these three areas alone would boost the property's value by \$5

million. Such results go a long way toward achieving investor expectations.

Every aspect of ownership provides opportunities to improve asset performance. Part of an effective acquisition strategy calls for ensuring that pricing is in line with the market for comparable assets. Closing deals in a timely manner is crucial as well. During operations, a variety of tactics can improve performance; controlling utility costs is a particularly fruitful exercise. Construction



## Tech in action

### Five ways it can enhance a portfolio's performance line

A large institutional fund manager and Yardi client recently implemented tools in these key areas:

#### Deal management

Opening real-time communication between brokers and asset managers, and improving net effective rents.

#### Construction management

Streamlining budgeting and identifying potential cost overruns.

#### Forecast management

Providing accuracy in revenue growth projections.

#### Facility management

Offering precision maintenance of building equipment to reduce costs and improve tenant satisfaction.

#### Utility management

For improved sustainability reporting for benchmarking and identification of underperforming assets.

Multiple benefits accrued to Yardi's client as a result of these enhancements, not the least of which were the reduction of forecast time from an annual to a monthly basis, the ability to close better deals faster and improved control of construction projects. Ultimately, the resulting increase in revenues and the lower expenses added up to higher asset values.

projects, too, deserve attention, since most properties require an upgrade upon acquisition. In all these areas and more, the common thread is connectivity. Tools that help project teams to hit milestones, stay on budget and raise red flags will reduce the risks of cost overruns and enhance asset values.

### Moving forward

Achieving these operational improvements is challenging, but investors and fund managers have a huge advantage compared to their counterparts only a decade ago. A new generation of technology helps achieve vital connections: between fund managers and the client's investment principals, between joint venture partners, and among internal departments.

Across the board, using technology platforms to their full capacity is the linchpin of productivity. Everyone involved in the deal or project pipeline must have ample real-time data in order to make informed decisions. That includes asset investors and owners, managers, internal and external brokers, system vendors and tenants. Today, it also means the building itself.

For investors, this carries numerous implications. First, managing the deal pipeline. By using tools to work on the portfolio, the asset manager can make sure the price is right. For instance, one can assess local demographic and business trends in a way that properly reflects the market's dynamic performance. The investor can avoid getting locked into long-term rents that exceed market value.

*"Everyone involved in the deal pipeline must have ample real-time data in order to make informed decisions"*

Moreover, fund managers and advisors can conduct virtual conversations in real time. That is more effective than tracking communication through a conventional email chain and, in turn, helps investors and their representatives efficiently circulate vital information.

Business-to-business connectivity harks back to an earlier generation of enterprise relationship management tools. Today, however, B2B connectivity is real-time and cloud-based. Tools like portals allow vendors to log into a common, shared system to make bids, submit invoices and check project status.

Business-to-customer communication has also made great leaps forward, allowing tenants and investors to join the thread. Modern tech encourages us to log into the same system and share a conversation. Consider the potential of an online chat, or what may be the most exciting trend – the emergence of the business-to-property power of the Internet of Things (IoT) to communicate a building's operational status, and eventually to diagnose and communicate problems.

Smart building tools can enable multifamily property teams to control access remotely and schedule self-guided tours for prospective residents without tying up the time of a staff member. On the commercial side, an operator can enhance the profitability of a co-working space by installing a smart door lock that controls access to a conference room.

### Gaining an edge

As property value appreciation slows, investors that take full advantage of the available tools will gain an edge. In any part of the cycle, and especially when a downturn slows growth, maximizing net operating income requires stepped-up attention to operating expenses. For commercial owners, investing in energy retrofits trims expenses and directly benefits the bottom line. Picking low-hanging fruit, such as installing high-efficiency light bulbs and regularly fine-tuning systems through active commissioning, is now standard practice.

Trailblazing tools like real-time energy management and monitoring the meter reduce operating costs. Leveraging IoT for smart thermostats that adjust the building climate by time of day and occupancy are proven to monitor the property's temperature, and can be controlled at the portfolio

*"Connectivity will be the key to achieving peak property performance in the next downturn"*

level from a single location. Our own campus in Santa Barbara, California, shows the power of connectivity in managing energy expenditures. A continuous connection from business to property reads utility kilowatt-hours every 15 seconds, comparing them to benchmark usage and utility invoices. It then gathers valuable data from the utility invoices for benchmark comparison, audit and sustainability reporting. The system controls thermostats, office zones and the HVAC plant for reduced energy usage and better comfort. These steps have reduced energy costs by more than 30 percent and lowered energy consumption by 25 percent. Results at the Yardi campus may be exceptional, but even more modest savings are substantial; in our experience, a 10 percent reduction is typical.

### Future tech

The gee-whiz days of technological capability are far from over. A steady stream of exciting concepts and applications will boost connectivity still further. Such products and systems are aids to continual communication, whether business-to-business, business-to-customer or business-to-property. But keep an eye on the last of the three. As use of the IoT expands, along with its connection to big data on building operations, even greater advantages will accrue to performance and, by extension, to tenant and resident satisfaction. We're already starting to see those results. There is much more ahead in the way of automating decisions and recommending preemptive solutions. Stay tuned. ■



# Unlocking value



Guest comment by **Arnie Sriskandarajah**

## *Round Hill Ventures managing director on why leveraging technology is key to successful asset management*

Valued at over \$228 trillion globally, according to Business Telegraph, real estate makes up the largest asset class in the world. Nevertheless, its structural characteristics and high barriers to entry have constituted an obstacle to innovation and technological adaptation by industry incumbents. But change is underway. Statistics by CREtech suggests that in the last decade, the amount of investment into the proptech sector has grown from \$20 million in 2010 to \$12.9 billion in the early months of 2019.

Proptech acts as an enabler to unlock greater value from existing and future assets. It has also given rise to a host of new business models from those focused on increasing asset utilization – co-working and co-living – to creating automated valuation models by utilizing data throughout an asset's life cycle.

Most real estate portfolios are heterogeneous in nature, where discovering common features and being able to find patterns is key to understanding assets and identifying value-add opportunities. This can be facilitated through data analytics, an approach compressing raw data into comprehensible insights. Data analytics software has the power not only to improve the quality, accuracy and transparency of information, but also to predict future outcomes such as rental forecasts, occupancy rates and energy usage.

In the UK, REalyse is a platform that collects over 550 residential datasets allowing real estate professionals to quickly compare, analyze and understand six billion data points covering 99 percent of the UK

market, all in one centralized platform. And Portuguese company Casafari uses machine learning and big data operations to increase the transparency and efficiency of the real estate industry. The start-up is building the cleanest and most complete database in its markets, allowing clients to access downloadable historical and descriptive data sets for all property classes. Its analytics dashboard can be used by managers to set data-driven rental prices and optimize when to sell assets and for how much.

*“Data analytics software has the power not only to improve the quality, accuracy and transparency of information, but also to predict future outcomes such as rental forecasts, occupancy rates and energy usage”*

### **Automating processes, optimizing space**

Paper-based processes, evident in many areas of the real estate industry, are a key factor slowing down efficiency. While smart technologies have a clear application in digitizing day-to-day operations, such as an agent's entire lettings process, asset managers can benefit from better tenant retention and enhanced returns through automating product offerings across the real estate value chain.

As an example, Plentific is a revolutionary property management solution that seamlessly connects landlords and contractors, delivering a better service to tenants and landlords but also driving more efficient operations and profit to owners.

Asset managers can also leverage technology to respond to changing user housing needs, which feature the need for on-demand services and a culture of convenience. Wunderflats is a housing-as-a-service solution connecting short-term renters to fully furnished apartments, giving owners an opportunity to earn extra revenue from unoccupied assets, and monetizing underutilized space.

Driving efficiencies and increasing the returns of a client's portfolio is a core task of asset management. Technological innovation is redefining how business is conducted in a sector typically latent to change. Proptech is reshaping the built world in a plethora of ways – facilitating processes, improving internal building management and driving asset revenue growth. Collaboration between the traditional real estate players and the new start-ups is vital if the industry is to keep up the pace in a new, technology-powered world. ■

# KEYNOTE INTERVIEW

## Driven by data



*In the age of big data, technology is becoming an essential tool for service providers and their real estate investment management clients, say experts at **Alter Domus***

Dealing with data is crucial to the work of service providers that look after real estate investment management clients, and technology is at the heart of their offering. Software platforms mean the traditional 'back office' functions, which many managers outsource, can be dealt with more efficiently, but big data technology is potentially expanding the scope of the service provider. Managers can harvest more data than ever before, but it means nothing without the capacity to use it. Service providers working across multiple managers and funds can generate the economies of scale needed to invest in the best technology solutions. However, with the business of real estate investment management becoming ever more global and thus more complex, many challenges remain.

Alter Domus leaders Anita Lyse, global head of real estate, Michael Gregori, head of real estate fund administration – North America, and Alex Droste, global real estate platform leader, discuss the key issues, with PERE's Mark Cooper listening in.

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### Outsourcing tech

**Anita Lyse:** When managers look at their own operating models, one of the things they consider is how much they want to focus on their core activities and outsource what is non-core, thus reducing costs around the non-core activities. We find technology considerations are among the top reasons why many fund managers and investment managers choose to outsource.

**Michael Gregori:** My background is in investment management accounting and reporting, so this debate is very familiar. The ability to reduce costs and headcount is a crucial part of managers' decisions regarding outsourcing. A lot of the cost savings and access to greater efficiencies and scale through a service provider are driven by their technology platform. The real estate

industry is looking for solutions from service providers with a need and requirement for purpose-built technology that makes their reporting more efficient. However, we are also in the era of big data, and managers want to be able to make sense of it and additionally use non-financial data to help with front and middle office decision making. Also, managers tend to focus cost savings discussions around headcount, but the systems required to manage data also come at a material cost and it is an ongoing one.

**AL:** The cost of developing and maintaining good and leading-edge technology is not small, which is why some investment managers have taken the decision to outsource a lot of this. A service provider can naturally have a purpose-built technology platform and has the advantage of being able to spread the cost across multiple clients. Sometimes it just makes more sense for a service provider to go deeper and further into the development of different aspects of a tech platform as it will

need to cater to different client requirements. It is also important to keep in mind that a tech platform is not only about a single system. Most of the time it is a combination of multiple systems, and the performance of the overall platform depends on how you make those systems connect and also the processes in place to optimize the use of it.

**Alex Droste:** When a manager goes through the process of evaluating its outsourcing strategy, technology is often not the primary focus as they are first looking at reducing costs and head count.

There is also a trend in the market right now where a lot of really high-quality applications and systems are coming down a bit in price. This might make keeping things in-house more attractive but what ends up happening is an unforeseen headcount increase, because of the need to build up the technology group in order to research, and subsequently administer, the applications. This can lead to a technology and reporting environment composed of multiple applications, so an increase in headcount is needed to support that. Often it is a huge challenge for a manager to support such a platform, whereas for an administrator like us, it is a prerequisite to make sure we have an environment which will support our entire client base.

*“Technology considerations are among the top reasons why many fund managers and investment managers choose to outsource”*

## ANITA LYSE

**AL:** Our strategy is to work with a global accounting system, which sits as the overall backbone for the technology platform, but which needs to be able to link with other systems in order to accommodate the needs of different clients and jurisdictions. There is no such thing as a silver bullet solution in the market today. As to the importance of our tech platform to our clients, we get all kinds of levels of interest. For some, as long as we have something that works, that is fine. Some of our other clients, in particular the bigger or more global ones, will take more interest in our technology platform and perform a much deeper review of it as part of the selection process. Of course, it comes back to what you can deliver and at what cost.

**MG:** All service providers have access to the same external software providers, but what really creates a differentiator is how you implement a system. What services do you want to provide and where do you want to fit in the marketplace, and then how you use the applications that you choose to build your platform with. Then accessing your in-house tech talent to build tools to strengthen and enhance your platform for your clients.



**AD:** As a service provider, the key investments are in the right technology and the right talent to best utilize the technology platform.

### Security checks

**AL:** Cybersecurity is a perennial hot topic for all businesses and when an investment manager decides to outsource work and to outsource some of the tech platform, then it has effectively outsourced certain aspects of its own cybersecurity. Managers need to make sure their service provider has the right policies in place and has the right level of security.

**AD:** The cost of deploying your own disaster recovery and security processes and procedures comes at a high cost. A lot of managers determine that it is best for them to focus their internal costs on the investing side – that is where they add value. What we are seeing is an increased migration toward cloud services support for a lot of these processes. Cloud service providers create all the necessary security and redundancies should anything actually happen. Relying on these types of service providers allows both the fund administrator and the real estate manager to focus on their primary objective, the capital investment and subsequent financial reporting.

**MG:** Strong systems are not just there to mitigate viral attacks or something simi-

lar. Where I work and live, we sometimes have quite a bit of snowfall or extreme cold temperatures that prevents us from getting into the office. That leads to stress on the remote access system. You might not think of this as a disaster, but having your systems be able to function under these sorts of stresses is very important. We can never be too prepared in terms of being able to access all of our networks wherever we are in the world and carry on even if staff cannot access the office they typically work from.

### Global challenge

**AL:** The globalization of real estate investment is a significant operational challenge for our clients and for ourselves. Managers invest in many different jurisdictions across multiple continents or even globally. Some of these jurisdictions tend to have very specific local requirements, so it is practically impossible to find a single system that does it all.

The challenge is: how do you get consistency in the data in order to report to investors in a consolidated way? This does not just apply to financial data but also to non-financial data such as occupancy, types of assets or tenants etc. A manager of a regional or global fund needs to know, for example, if rental income in country A means the same thing as in country B and to find a way to compare apples with apples.

**AD:** The challenge around the requirements for clients in various locations relates to the way we store, process, and report data. From an operations perspective, there is a desire to have the work done in a uniform manner globally to ease the final reporting process.

There is also a challenge around the accessibility of the data in all jurisdictions, and by all audiences. This often prompts the data warehouse and data lake conversations.

Both of these are challenging to put together from a cost and effort standpoint. Data warehouses are often easier for the end consumers of the data to use based on their predetermined, and often rigid, format for input and output. Data lakes offer a more flexible reporting ability in the end, but require significantly more maintenance, and an experienced staff to mine and compile the data. Investment managers often don't want to take on the costs associated with building and maintaining databases like these. This

*“The real estate industry is looking for solutions from service providers with a need and requirement for purpose-built technology that makes their reporting more efficient”*

**MICHAEL GREGORI**

prompts them to look for the right service providers and/or software to achieve their reporting needs.

**AL:** One of the things we will continue to see more in the future is this reporting of non-financial data, which traditionally has not been part of a typical fund administrator's scope of services. As a result, we will see fund administrators going more and more into the middle office roles with clients and not only being at the back office end.

**AD:** Client portals are becoming more important to investment managers and their clients. A few years ago, most portals were simple document repositories where all of the client's data were just stored in static reports.

However, with the need for more data transparency and ease of viewing there is now a broader range of portal products with more functionality. As a service provider, you need to decide if you will put forth the resources to develop your own portal or outsource the portal to one of these dedicated portal providers. We are taking the route of creating our own portal to maintain a single, comprehensive service offering for all of our clients, who need something flexible and accessible. ■

*“As a service provider, the key investments are in the right technology and the right talent to best utilize the technology platform”*

**ALEX DROSTE**



# View from the owner-operator

*Proptech is creating operational efficiencies and driving returns in the US rental housing sector, says Tricon Capital Group's managing director, Jonathan Ellenzweig*

## **Q** Proptech disruption - a challenge or opportunity for the real estate sector?

Clearly an opportunity. Technology should allow operators to better serve residents through an enhanced product and service offering. Proptech can also drive returns for investors through increased operating efficiencies. The key to leveraging proptech is looking beyond existing systems, processes and technologies and not being afraid to do things differently or challenge conventional wisdom. In Tricon's single-family rental business, we've reinvented the traditional leasing model, allowing residents to do 'self-showings' on their own schedules with digital lock boxes. We've received resoundingly positive feedback for this initiative.

## **Q** To what extent is proptech allowing investors to make better investment decisions?

Proptech allows investors to improve decision-making by expanding access to data and by enabling efficient and accurate analysis of massive amounts of information. Tricon's proprietary technology allows us to increase our underwriting efficiency for single-family rental acquisitions. Our software can scan online residential listing services and use an algorithm to screen against dozens of acquisition criteria. We can underwrite each home in fewer than five minutes by assessing historical portfolio performance across precise investment metrics allowing for a better-quality portfolio combined with process efficiency.

## **Q** Is proptech facilitating a more customer-centric investment sector?

It enhances customer experience by providing a broader suite of products and services that simplify people's lives. At Tricon's recently completed a state-of-the art high-rise



apartment building in Toronto, we offer innovative consumer technology, from smart features in suites to easy-to-use apps that allow for everything from submitting a maintenance request to booking a yoga class in the gym. Residents are thrilled. But companies can become reliant on technology at the expense of personal interaction and a high level of customer service. There's no substitute for a great concierge to welcome you home every day.

*"Companies can become over reliant on technology at the expense of personal interaction and a high level of customer service"*

## **Q** Is there a positive correlation between technology and investment returns?

It's opening up new opportunities in real estate where adequate investment returns could not be made in the past. We've seen a positive relationship between the use of technology and investment performance and Tricon has numerous examples of how technology has driven operating efficiencies and enhanced investment returns. Tricon's single-family rental maximization program allows us to toggle between occupancy and rent growth to optimize returns.

## **Q** What are some examples of Tricon's use of proptech across its residential portfolio?

For property management, we use 360-degree (3D) imaging technology that captures every component of a home, eliminating the need to take pictures to document its condition. We can then catalogue the age and make of various major home components, including appliances, water heaters and air conditioning units. The collected data can be mined to estimate the cost of annual repairs and to better manage inventory in our maintenance trucks. And with more than 100 maintenance crews across our single-family rental operation in the US, we've invested in new network fleet technology to ensure timely and high-quality service to our residents. We can track the location of our fleet at all times, allowing us to optimize travel routes to ensure on-time arrival for maintenance calls or provide accurate updates if needed.

We've also been rolling out a 'smart home' system that provides keyless home entry for residents, smart thermostats to reduce energy consumption, and in-home sensors to monitor any water or moisture intrusion in key areas. In essence, we believe proptech is benefiting our residents and investors, which makes it a great area of focus for Tricon. ■

# Revolutionizing real estate sales



Guest comment by **Johnny Horgan**

*The managing director of BidX1, a property trading platform, explains how the rise of a digital marketplace is a value-add to investors and managers*

In the last decade, non-performing loans have become a significant part of the real estate landscape. The legacy of the global financial crisis and the requirement to restructure balance sheets led banks to make major moves to deleverage by selling large loans related to real estate.

Private equity funds have been the largest buyers of NPLs globally. While some funds are still buying NPLs, others are responding to market changes and are now looking to liquidate their legacy assets. Across Europe this has been achieved through the traditional sales process, which is fractured in nature and time consuming. Private funds have been frustrated with the current routes to market, which lack agility and flexibility within the transactions process, and are often opaque.

However, alongside changes in the market driven by the property cycle, and political and economic events, the use of property technology – proptech – is also having a profound impact, challenging traditional processes across the entire landscape of the real estate industry. The process for trading real estate is an area that has been ripe for disruption, and we are now seeing significant game-changing innovation.

## Seamless transacting

The digital model for sales has been revolutionary, allowing funds to sell assets quickly, with full transparency of the process and clear visibility on pricing. Historically, private funds would take a fractured approach to disposing assets, which given the granular

nature of most of the portfolios is very inefficient. But the use of technology allows for multiple sales to be achieved at the same time, within a dedicated timeframe, making the digital model an extremely viable alternative.

What we know at BidX1, having launched our global digital marketplace for

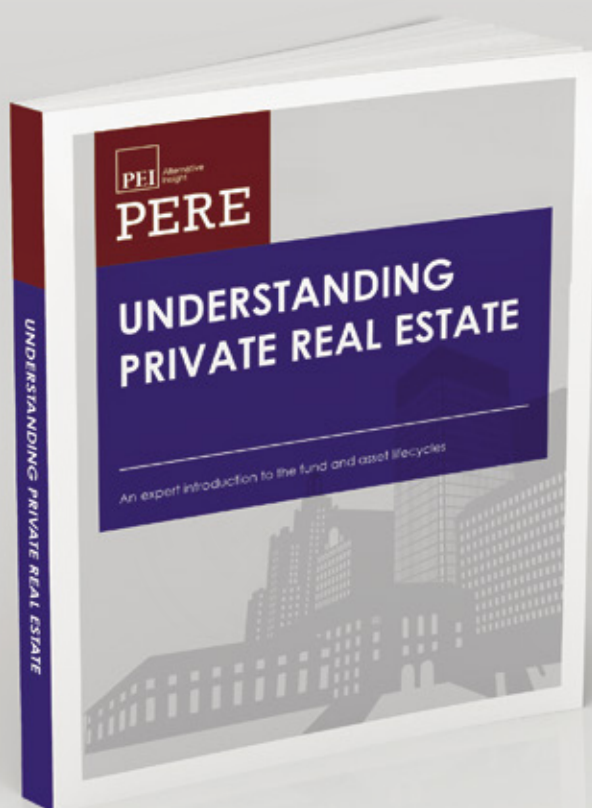
real estate, is that many private equity firms are multi-jurisdictional. Historically, when selling real estate assets across multiple geographies, funds would have to work with separate agents in each individual country, with limited collaboration and lacking in cross business visibility. The digital model is creating global connections, aligning sales across the business in every country, with full visibility. It also provides an improved process through the use of data. The ability to aggregate and interpret data is offering a better insight to facilitate business decisions and allows for more intelligent marketing.

By understanding the buying patterns within each market, asset marketing can be tailored depending on specific demographics and trends, meaning higher visibility, a wider potential pool of buyers and ultimately a faster sale at a potentially higher price. Data allows us to understand buyer behaviors – a valuable asset to funds. When an asset is listed to sell, by using a digital model there are multiple channels available to reach audiences, which is far more advanced than the traditional methods previously on offer.

The ease of selling across multiple jurisdictions, with increased insight, targeted marketing, visibility on pricing and timing of sales and a coordinated approach to business, means that funds can shift assets in larger volumes. And with clear timelines from listing to sale, funds can create clearer strategies. All of this leads to greater agility, efficiency and transparency, which ultimately equates to less risk and increased success. Technology is game changing. ■

*“The digital model for sales has been revolutionary, allowing funds to sell assets quickly, with full transparency of the process and clear visibility on pricing”*

## Understanding Private Real Estate



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# Q How do you | quickly access investor data?

"To be able to log in to InvestorPlus and see what trusts or entities a client has invested with, what actual investments those are in, and the returns they're receiving has been incredible. I can't put a price on it."

SCOTT MCGINNESS  
CHIEF FINANCIAL OFFICER  
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