

Digital era is next big deal for property

New technologies such as artificial intelligence, big data analytics and the internet of things are starting to transform the process of financing and executing real estate deals, offering great opportunities while overturning old business models



BY JAMES WALLACE

Technology's impact on commercial real estate (CRE) financing markets is, so far, embryonic. But the signposts for change are unmistakable. There are at least four identifiable and intertwined trends driving an inevitable digital transformation of CRE financing markets.

First, technologies such as big data analytics, cloud computing and the internet of things (IoT) have fallen in cost sharply and risen in power. These tools enable companies to collect, store, categorise, search and analyse greater amounts of data than ever before. For a data-rich sector such as real estate, increased data management and processing capacity is very powerful. For CRE debt and equity markets, massive data capture and processing power is integral to everything that follows.

Second, global capital flows into CRE equity and debt in the past decade, and advances in technology, are further institutionalising property as an asset class. Savills estimates the total global value of all real estate – commercial, residential and land – to be \$217 tln (€181 tln). To give this figure some context, the total value of all the gold ever mined is around \$6 tln.

As a result, more exacting expectations are leading CRE investors, lenders, asset managers, loan servicers and advisers to develop more reliable and responsive data management, analytics and workflow systems.

Third, a mountain of evidence shows huge value can be created by tools, services and businesses that simplify, are scalable and disrupt existing industries to create new ones. In real estate, global co-working market-leader WeWork is reshaping the urban office sector, while Airbnb has grown hugely to challenge the hotel sector, as have Amazon and Alibaba in retail (see panel, right).

As buildings' use evolves, so can occupancy trends, valuations and yields, requiring closer underwriting scrutiny by loan officers and credit committees. In these three examples, technology is disrupting traditional industries to change demand dynamics and building usage globally.

Fourth, these three trends have led venture capitalists to pile in. In 2012-16, CB Insights recorded \$6.3 bn in global venture capital (VC) funding for real estate technology companies, in 827 investments. This included \$2.7bn over 277 deals in 2016, up 36% year-on-year. The bulk of this went to the US residential sector, due to the sheer size of this market and its deal volumes. In 2017, CB Insights forecasts a new high watermark for

VC technology funding in real estate of just under \$3 bn.

Many US residential innovations have applications in commercial real estate and financing – both benefit from a technology domino effect. As proof of concept grows, appetite for CRE investment will continue to rise.

The wellspring for much of what is possible is artificial intelligence (AI), the science of making machines smart. To explain this, it helps to subdivide AI's development into three stages: stage one, automated intelligence, is the process of using superior processing power to do tasks faster, stage two, augmented intelligence, is the ability to draw insights from data that were previously unreachable by human analysis; stage three, artificial intelligence, combines the first two stages, enabling machines to act on insights, make decisions and execute.

THE DIGITALISATION JOURNEY BEGINS

While the CRE sector is far from stage three, huge change is coming. The majority in CRE and financing are still grappling with stage one, automation, and are moving away from excel-based manual systems to leveraging technology. This is where the journey of digitalising CRE finance begins; using automation to collect data.

And CRE is awash with data. Sumit Gupta, Oxane

WeWork and Airbnb show power of the disruptors

Just five years ago, few had heard of co-working nor had any concept about how big it would become globally. Today, WeWork, which was founded in 2010, has a \$20bn (€16.6bn) valuation and is the sixth largest start-up in the world, according to CB Insights.

In the hotel sector, Airbnb has amassed more than 100 million guests since it formed a decade ago, including a gross booking value of \$6.4 bn in 2016, UBS estimates. Airbnb was valued at \$31 bn after its last \$1 bn funding round in March.

By comparison, the 90-year old prestigious Marriott International and 98-year old Hilton Hotels are worth an estimated \$34 bn and \$20 bn, respectively.

Airbnb represents one of the



most significant headwinds facing traditional hotels, just as Amazon and Alibaba are the biggest headwind for the retail and shopping centre sectors.

Amazon's \$13.7 bn acquisition of Whole Foods is likely to continue blurring the divide between retail and warehousing.



Sumit Gupta, Oxane Partners

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Partners' co-founder, says: 'Lenders and investment managers collect large volumes of data that often goes unharnessed – or in some cases is not effectively harnessed.'

Consider these five groups of data (there are arguably more) which real estate finance businesses might collect:

- First, lenders' and investors' private data sourced from existing and legacy deals, plus those yet to close.
- Second, semi-public databases from proprietary data giants such as CoStar and Real Capital Analytics, freely available data from brokerage, legal and professional advisers, and information from press announcements. There is also valuable data in the UK's Land Registry and

significant US player Honest Building.

In Europe, a group of emerging businesses such as Voyanta, Oxane Partners and Xplora Markets house private data for investors and lenders, automate data capture, digitalise workflows and create digital ecosystems that connect the corners of the CRE sector together.

- Fifth, a growing 'soft data metrics' pool, such as insights drawn from social media and mobile phone data, which can be captured through AI and machine learning.

COMBINED POWER OF MULTIPLE TECHNOLOGIES

All these concepts come to life at the intersection of several technologies, such as automation, data mining, AI, machine learning and deep learning. Automation facilitates large data capture without human involvement; cloud computing provides the processing power and speed to conduct analysis; data mining processes huge swathes of data, documents, video, audio and photos to identify salient information.

With sufficient accurate data points, AI, machine learning and deep learning combine to reorganise information in a unified form, processing it in multiple languages and providing real-time insights.

For CRE finance, this is very useful. It leads to advanced analytics, namely: descriptive analytics (what happened?); predictive analytics (what could happen?); and prescriptive analytics (what should we do?). All of this is far beyond what humans alone can do

For CRE financing markets, access to this kind of data capture, management and advanced analytics can support a comprehensive range of work processes:

origination, underwriting, due diligence, credit approval, valuations, asset management, loan servicing, capital raising and even some aspects of the legal process.

These technologies allow CRE professionals to work smarter and faster, and be better informed. Lenders, for example, benefit from improved confidence in credit assessments, loan monitoring and default predictions.

First movers say today's picture is mixed but encouraging. While we have a lot of data on loans, assets and tenancies at our disposal, it remains uneven in accuracy, depth, availability and cost – as well as across geographies, sectors and the size of the loan or asset.

Paul Lloyd, co-founder and managing partner at loan servicer and debt adviser Mount Street, says: 'Data is powerful and many people do not use it very well, but some people in our sector are getting to understand the power of technology.' Last October, Mount Street established a joint venture with Gresham Technologies to roll out Clareti Loan Control, a cloud-based platform focused on loan servicing and asset management (see p56).

Brian Bartaby, CEO at Proplend, which arranges funding for income-producing offices, industrial, retail, leisure and residential blocks in England and Wales through a peer-to-peer lending business, says in his experience the smaller the asset, the weaker the data.

'Information will improve over time as data becomes ubiquitous,' he predicts. 'One day, every property in the country will have its own data room complete with Land Registry details, old valuations, transaction and tenancy history, as well as ratings. And investors and lenders will have inexpensive access to this. Over time, it will start to open up a bit. Transparency is coming.'

No one expects the CRE sector to transform into an entirely open source information sector. Some data will never be shared. But technology will drive further transparency, leading over time to greater appreciation of the value created by this 'CRE sharing economy'. Many predict investors and lenders will *choose* to share more of their data (see panel, left).

'It is important to understand what the benefits will be,' says Sanjoy Chattopadhyay, managing director of H.I.G. Realty, the real estate investment affiliate of H.I.G. 'Faster and cheaper probably means you will have more asset churn – assets will be traded more. Transactional activity feeds all other CRE industries, including finance.'

'In a sector such as global commercial property – estimated to be worth \$19 tln – that is a lot of money. Further, more information and increased accuracy, both in debt and equity markets, probably translates into less uncertainty and potentially reduces the risk in pricing – by at least a few basis points, or maybe more.'

Oxane's Gupta adds: 'We are seeing interest in technology and CRE digitalisation from some of the



Brian Bartaby, Proplend

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largest investors, including sovereign wealth funds, which are looking to monetise one of their most important assets – their own data. A part of this digitalisation process for us is educating investors and lenders about the value of leveraging technology.'

AI GIVES LENDERS GREATER INSIGHT

AI technologies could enhance lenders' knowledge in underwriting, due diligence and loan servicing. Using AI tools can gather a new layer of information to provide deeper insights as to the health of the tenants and properties, factors that have an impact on loan performance.

Imagine a loan secured by a retail property where the tenant is a restaurant. In addition to the usual tenancy information provided by the borrower, lenders can also source information by plugging into the restaurant's social media feeds and websites such as Tripadvisor, Trustpilot, Booking.com, Agoda etc.

If the web and social media reveal 'this is a great restaurant, you can't get a table, it's packed every night', there is a very good chance that restaurant will carry on paying its rent, giving the lender some extra certainty that the borrower can make its loan repayments. But if common social media reactions report 'no one is here, poor service, rats running around everywhere', then the lender may suspect trouble ahead – possibly before the landlord is even aware, if it is not monitoring such data.

'It will become normal in a few years' time for all lenders to plug into these tenant performance soft metrics as greater amounts of relevant information become ubiquitous and free,' says Proplend's Bartaby.

Valuation is another area which is ripe for a technol-

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European equivalents, as well as surveys such as De Montfort University's annual Property Lending Survey.

- Third, the new generation of 'big data' focused proptech firms – such as CompStak, Datscha, Realla in the UK, and Reonomy in the US (which has amassed a CRE database of 47 million assets, inclusive of debt history).
- Fourth, businesses that digitalise CRE owners' and lenders' workflows, housing all their private information enabling crowdsourcing of data capture and integrating external data. Early market leaders include VTS and Reonomy, which have expanded to the UK, as well as

A new appetite for sharing 'secret sauce' of data



Charlie Wade, VTS

Many in real estate, which is fundamentally a private market, regard transparency as a double-edged sword. But a new generation of proptech entrepreneurs has a far more collaborative approach to data sharing.

'When people talk about the sharing economy, two polarised positions emerge: those that believe sharing information is for the greater good and those who say information is their competitive advantage,' says Charlie Wade, UK managing director at asset management and leasing business VTS, which provides real-time analytics to its clients.

'There is already a huge amount of information in CRE that generates data every day, but we don't track that data efficiently – most firms track small bits of it and that becomes their secret sauce. A huge raft of data is not being tapped, analysed and resourced, but companies will figure out how to aggregate, benchmark, share, analyse, mine and distribute that data.

'And when they do, they will quickly realise that some data is better being shared, because the power of the whole is better than the small bit you have. The market will find its balance as to where it works for the industry and makes people smarter, faster and better informed.'

Sanjoy Chattopadhyay,
H.I.G. Realty



‘I’m a firm believer that given the right amount of unbiased data points, a machine will be able to predict way better than a human’

ogy overhaul. In the far better funded US residential market, automated valuation models (AVMs) are already in use. Proptech firm HouseCanary uses machine learning to generate US residential real estate valuations. Its current margin of error, compared with human valuations, is 2.7%, meaning its middle most projected price is just 2.7% from the actual sales price. Further, HouseCanary claims half of its projections are better.

MACHINES WILL GIVE INSTANT VALUATIONS

This technology is expected to eventually arrive in commercial property markets. Given sufficient, accurate data points, over time, machine learning-enabled computers will be able to produce rapid, or instant, CRE valuations.

H.I.G. Realty’s Chattopadhyay says: ‘The difference between machine learning and traditional valuation methodology, which uses the regression model, is that machines effectively say: “just give me the data. I don’t know what your model is, or what affects cap rates and prices, but I’ll cluster all the relevant features and tell you what the price is. Plus, I’ll keep on learning and getting more accurate.” I’m a firm believer that with the right amount of unbiased data points, a machine will be able to predict way better than a human.’

Lendinvest, the UK’s online property finance marketplace, which lends project finance for residential and commercial properties, uses automated valuations for its residential financings using Hometrack, which is part of ZPG, owner of Zoopla and PrimeLocation.

Lendinvest managing director Rod Lockhart says: ‘Automated valuations support our lending decisions, but are not the key driver, because the difference between

Hometrack valuations and traditional ones is still big, so we need to use both. But I have no doubt it will get better.

‘All these technologies – AVMs, AI, machine and deep learning – will eventually fundamentally change areas such as valuations. Before, CRE operated by people applying specialist knowledge to originate and close deals. The ability to aggregate and understand massive volumes of data will fundamentally change that and will start to disintermediate a very traditional space.’

Chattopadhyay adds: ‘I think parts of the CRE world are probably a little bit scared. But in real estate, much more data is still needed.’

While there may be some concern over future revenues attached to valuation work, AVMs are more likely to be used to allow brokerage firms to work faster. In the years ahead, rather than replacing people entirely, mature AVMs and AI tools are more likely to speed up and add deeper layers of information to the process, while reducing headcounts as people’s work gets reorganised.

The legal side of a property financing or investment deal is process-driven but slow and would benefit from digitalisation. Workflow digitalisation can provide all parties – the buyer, vendor, financier, agents and lawyers – with a real-time picture of a deal’s status. This would expose bottlenecks and end one side blaming the other for delays – a common complaint in the legal process.

‘There is definitely fat to be trimmed off a legal process in a property transaction – whether it’s a purchase or a refinancing,’ says Proplend’s Bartaby.

Progress is under way in this area; many legal firms have embraced AI tools. In the past 12 months, Clifford Chance, CMS, BLP, Baker Mckenzie and Dentons have all announced the adoption of AI and machine learning software to identify, analyse and extract clauses and other information from contracts and other documents. AI can also automate document generation.

Last December, Dentons announced a partnership with Nextlaw Labs to develop a search engine to review high volumes of contract documentation to identify provisions that could potentially be affected by Brexit. Working with tech start-up firm slicedbread, BLP has developed software that provides clients with real-time deal information and in-depth analysis of the legal process, which the firms say enables ‘continual improvement and process optimisation’.

German-based data analyst Leverton applies deep learning technologies to extract, structure and manage data from corporate documents in more than 20 languages, simplifying data and document management. CRE financiers welcome advances such as this.

Chattopadhyay says: ‘Much of what these machines do for law firms involves the first stage of analysing documents and is essentially computer speed reading.’

Machines offer value in settling CMBS disputes

Perfecting automated valuation models (AVMs) would have benefits for all stakeholders.

In this cycle there has been plenty of litigation over valuations in pre-crisis CMBS deals, with cases brought against CBRE and King Sturge in Gemini (Eclipse 2006-3) in the UK (settled out of court); Colliers International in German deal Titan Europe 2006-3 (the defendant won); and Colliers in UK deal White Tower 2006-3 (the case was dropped by the claimant).

In future disputes, a machine learning-enabled computer could give valuations based on the largest possible collection of relevant, accurate data. A machine



Paul Lloyd,
Mount Street

The borrower, senior bondholders, controlling class owner and B-noteholder usually want a different valuation outcome to progress their claim or strategy.

valuation would also remove the suspicion of bias, often a thorny issue in CRE finance, as many complex legacy restructurings involve multiple stakeholders with different economic interests.

The loan servicer, usually not motivated directly by asset sale price, needs to balance the interests of a fundamentally misaligned stakeholder group. In time, AVMs could be the answer.

‘If a machine does the valuations, there is no persuasion, it is a matter of fact,’ says Paul Lloyd, co founder of loan servicer Mount Street. ‘You can’t persuade a machine. You take it or leave it. You cannot say “I don’t agree, it should be 10% more because of x, y and z”.

‘It can also be done cheaper. As long as they have all the data and information of all the trade comparables, machines will eventually be better than humans.’

In the US, Cloud Virga has digitalised mortgage workflows for the residential market. ‘My sense is what Cloud Virga has done would be easy to apply to commercial real estate,’ he adds.

Technology can also eliminate counter-party risk when executing and completing deals. For example, when a borrower draws down a loan, the lender has a period of counterparty risk prior to the registration of its mortgage charge against the property with the registry in that jurisdiction. If the legal sector were to adopt blockchain technology – which manages electronic cash without a central administrator, among people who know nothing about one another – this would make the loan draw-down and mortgage charge simultaneous.

THE POWER OF BLOCKCHAIN TECHNOLOGY

Blockchain technology replaces traditional intermediaries with the collective verification of data, providing a huge degree of traceability, security and speed. ‘As a lender, if the counterparty can send me money and I can get my charge registered instantaneously, that is unbelievable,’ says Proplend’s Bartaby. ‘If the legal sector, and others, can work up to that standard of execution and completion it will be a big game changer.’

Again, progress is under way. The UK Land Registry is conducting trials of ‘digital registers’ that use blockchain technology. In May, Land Registry announced: ‘In the near future, we expect to begin a live test of a “Digital Street”, which would enable property ownership to be changed close to instantaneously. The Digital Street would also allow Land Registry to hold more granular



Rod Lockhart,
Lendinvest

‘All these technologies – AVMs, AI, machine and deep learning – will eventually come in and fundamentally change areas like valuations’

data than is possible at present. Blockchain is one of the underlying technologies that will be trialled.’

The technologies that are adopted will be just a few pieces of a far bigger puzzle. CRE ‘super’ trends, such as e-commerce and supply chain innovations, are changing real estate’s demand dynamics.

‘These changes are driven by technology so investors are taking note of it, and financiers are too,’ says Oxane’s Gupta. Change is coming. It will be fantastically rewarding for some and a possible existential threat for others.