

# Innovation in Investment and Underwriting - Towards a New Paradigm?

- > Technology has the potential to add significant value to real estate investors in sourcing investment opportunities and underwriting
- > Digital marketplaces have the potential to be disruptive but are at an early stage of maturity; new data sets and AI are at a more advanced stage and are starting to be integrated into the investment process
- > There are many different organisational approaches to integrating innovation into real estate businesses, each with pros and cons
- > There are lessons to be learnt from other industries – namely the automotive industry and equity trading – that are further ahead than real estate in experiencing technological disruption

## Introduction

This paper will focus on how technology can improve underwriting and investment decisions throughout the full cycle of a real estate investment.

In this context, the investment process may be described as occurring in two phases:

- Sourcing capital and investment opportunities
- Underwriting

## Regulated exchanges

There are several attempts underway to create a public market for single real estate assets. In the UK, IPSX are aiming to create a fully regulated public exchange for single assets. IPSX received the FCA green light in January 2019 and are in the process of launching with their first asset. In the US, Lex Markets recently launched a trading platform for securitised real estate assets.

Generally speaking, technological innovations targeted at real estate investment and underwriting aim to increase transparency, enhance analysis and improve transaction speeds. The ‘technologies’ that can be used to achieve this have reached different stages of maturity. They include:

- Various established and alternative data sources including asset level data
- Advanced data analysis, often under the broad banner of Artificial Intelligence (Machine Learning, Natural Language Processing, etc.)
- Digital dashboards for visualising data dynamically
- Digital marketplaces, including deal matching, transaction processing and collaboration
- Blockchain

The aim of this paper is to provide an introductory overview of how different technologies are changing real estate investment and underwriting. Individual areas will be explored in greater depth in subsequent papers.

## Key solutions through the investment process

### 1. *Sourcing capital and investment opportunities*

This phase of the investment process includes identifying both the capital required to make a real estate investment and the investment opportunity itself. The dominant technological innovations in this phase are digital marketplaces. A digital marketplace can be described as a trading platform that brings together buyers and sellers of properties or one that links buyers and sellers of finance for real estate transactions. Although not easy to set up – due to the chicken and egg aspect of attracting potential buyers while simultaneously

assembling a enticing stock of properties for sale – digital marketplaces are likely to play an integral role in the future of the real estate industry, especially given the potential increase in efficiency that they could bring to markets.

### **Crowdfunding / Open Investment platforms**

Although they are increasingly focusing on larger investors and higher minimum ticket sizes, ‘Crowdfunding’ platforms have historically been focused offering fractionalised shares of single assets to individual investors. However, as they move towards attracting more institutional investors, they are steadily gaining scale and traction. As such, the term crowdfunding is becoming less relevant, with some preferring to describe them as open investment platforms.

In Europe, BrickVest is an AIFMD regulated platform that connect a range of investors (from institutional to private) with direct access to real estate opportunities. In the US, where the base of accredited investors is larger than in Europe, there are also many groups gaining traction, including Cadre, YieldStreet and CrowdStreet.

The digital marketplace has three different components. The first is the ability to register and list both demand and supply – i.e. offers from capital providers and investment opportunities – in one portal. The second is the functionality to match demand and supply, often by presenting the users with opportunities

tailored to their preferences. At the moment this is generally achieved through smart filtering, although in the longer term it is likely to be driven by AI. The third component is the ability to transact in the marketplace once buyers and sellers have been successfully matched. An important condition for the successful operation of a marketplace is trust in the data provided and in the security of the transaction.

Although there are currently no scaled examples of all three of components – the ability to list, the ability to match and the ability to transact – in operation, blockchain and distributed ledger technology (DLT) is a likely candidate for supporting a platform with the required levels of security and data quality, although significant regulatory hurdles remain to be overcome. However, non-blockchain based marketplaces such as regulated exchanges and crowdfunding platforms are also being developed.

### **Tokenisation**

Across Europe, there are several blockchain/DLT platforms that have started to tokenise real estate in recent years. Equisafe tokenised a €6.5 million mansion in France into 1 million tokens of €6.50 each. In the UK, SmartLands tokenised a student housing investment on their blockchain crowdfunding platform. In Germany, Fundament Group received BaFin approval to distribute a blockchain-based real estate bond. There have also been several assets tokenised in the US, including the Aspen St Regis Resort and a New York condo development.

### **From data platforms to marketplaces**

In the journey to build a fully-fledged marketplace, some groups have taken the approach of building the data platform first, with a view to expanding it into a marketplace over time. For instance, 21 Real Estate is a German PropTech company that aims to enable real estate online trading with all necessary data, digitally and on a single platform. As a first step towards this, they have aggregated millions of data points in Germany to discovery and streamline the underwriting process.

If, through these innovations, a more efficient and liquid marketplace for real estate assets does emerge, it could have a significant impact on real estate as an asset class, with the potential to start blurring the lines between traditional definitions of private and public markets. First, it could help democratise access to real estate for a broader range of investors (for example, non-institutional, smaller investors), whose options may previously have been restricted to investing into large portfolios through REITs. Second, it might create greater market transparency and much more availability of granular data on the real estate market, opening up the potential for sophisticated data-driven investment strategies. Third, by creating fractionalised liquidity and an active secondary market, it could change how real estate assets are valued and the return profile of real estate as an asset class, potentially reducing its ability to act as a diversifier to equities.

Finally, this would also mean that ‘passive’ investment strategies – allocating capital to be invested across an index – and other financial instruments (e.g. options, shorting) would also become possible.

Although this is still far in the future (and is not necessarily certain to occur), digital marketplaces could clearly bring significant structural changes to real estate as an industry and an asset class, and their progress is therefore worth tracking.

## 2. Underwriting

This phase of the investment process involves undertaking due diligence and evaluating the investment opportunity. Here technological innovation is primarily dominated by new data sources and AI. In this area, technological solutions are aiming to improve the accuracy of underwriting assumptions and investment decisions.

### Alternative data sets

Placense is an Israeli geolocation data company that uses anonymised and aggregated mobile phone GPS signals to provide information such as footfall, dwell, catchment area and demographic profile on any real estate asset (typically retail) in select European countries. Taking a different approach, Orbital Insight is a group that analyses satellite data to count cars in car parks, thereby providing indications of which assets are likely to be trading better or worse over time.

The most established data platforms of this kind aggregate data on real estate assets and the real estate market by building networks across the industry and providing incentives for market stakeholders to share this information. These are well known and broadly adopted.

‘Alternative’ datasets are non-traditional indicators that provide useful insights about an asset. There are several sources of data that are open (and free) to use, typically provided by local government bodies. These differ between cities, but typically include datasets such as demographics, construction permits, crime statistics, transit usage and many more. They are usually employed to get a better understanding of how submarkets are evolving.

There are also alternative data sets that are very large and would qualify as ‘Big Data’. These include Points-of-Interest data (e.g. local amenities), transaction/spending data, mobile geolocation data and satellite data. These datasets are typically anonymised and provided at a high level of aggregation through digital dashboards. The use cases for these can often be asset-specific and can be used to understand the micro-location and the asset itself. Because most of these datasets come from the activity of consumers, they tend to be more relevant to B2C sectors like retail and residential.

Combining both alternative datasets and granular market information together, models can then be built using AI and ML to create

### Automated Valuations

GeoPhy creates automated valuations that are statistically more accurate than human appraisals through an algorithm trained on thousands of data points from public and private sources, including satellite images, sales data, demographics, crime data, local amenities, transport and more. Having initially focused on residential assets in Europe and the US, they are now moving into other sectors.

outputs such as automated valuations – where, given a limited amount of information on the asset (e.g. NOI), a valuation can be calculated with relatively high accuracy, particularly for more homogenous and transparent sectors such as housing.

Although they are not comparable with full underwriting, these can be used at the start of the investment process to help filter through deal flow. In the future, as more sources of data and sophisticated AI models are created, automation in the underwriting part of the investment process is likely to increase.

The last type of data worth mentioning is asset level, operational data. More and more data is being captured and generated at the asset level, whether from sensors within the asset, more documentation of the property management, a higher intensity of operational activity (e.g. co-working), or new data sources like tenant engagement apps. There are clearly operational benefits that can be gained by sharing this data, but

### Digital twin

Groups like CityZenith are trying to pull all asset level data together into a single 'digital twin'. This typically builds on the Building Information Modeling (BIM) and layers on other sources of data (temperature, air quality, system performance, etc.) by integrating different systems. As these models grow in sophistication and collect more historical data over time, they will represent a comprehensive digital record of the asset's operational history, which can be used both for benchmarking and during due diligence.

there are now moves to try and leverage it in underwriting to accelerate due diligence and increase transparency. Efforts are underway to understand which of these data sources are useful to the underwriting process and how they could be aggregated into some standardised form of 'property passport' or 'digital twin' of the asset. This is still at an early stage, but the ultimate question is whether an asset that provides this level of data transparency should command a validation premium over an identical asset without it.

In many cases, these types of data will be used to confirm an existing view within the underwriting process and provide independent validation of the underwriting assumptions. In other cases they may provide extra insight and help to generate alpha.

### Innovating in real estate organisations

Driving innovation in real estate is hard. This is a capital-intensive asset class that takes a long time to build, has a low velocity of turnover (long investment hold periods and lease lengths) and a fragmented value chain that can be difficult to align and standardise. The culture of the real estate industry reflects these structural features and can also be a hindrance to innovation and trying new approaches. However, the industry is quickly coming to realise that innovation is necessary: change is inevitable and has already arrived in some areas. Real estate has reached an inflection point in how various spaces function and are used. For instance, e-commerce has boosted the demand for modern and efficient warehouses that use the most advanced raking technology to speed up delivery to market, while shopping centre and high street retail is undergoing a process of rationalisation and reinvention. There is a structural shift that is working itself through the industry.

In order to respond, real estate organisations must first understand the impact of technology on the business of their customers and tenants, have an open mind to new ways of conducting business, and experiment with new approaches that seem to work and can have a competitive edge. Every organisation is different and will have to find the model that works for it. However, there are several common factors that are typically strong indicators of success, some of which are expanded on below.

First, best results are typically achieved if innovation is articulated as a business priority by the leadership of the business. This top-down sponsorship is key to aligning the expectations of the business with achievable goals that reflect the level of technological change it is capable of absorbing, given constraints such as resources, budgets and competing priorities.

Second, bottom-up buy-in from the broader business will ultimately be required to implement the benefits of innovation across a wider portfolio. This cannot always be achieved at the start of the innovation journey, but it is a key factor for success that should be achieved over time.

Third, it is important to acknowledge that cultural change and new types of skills (e.g.

### Property passport

There are many groups helping to move the industry towards a position where each asset has a 'passport' of all the documentation that would be required to transfer ownership. In practice, these are lifecycle datarooms that often have an additional layer of AI to assist in document management. For example, Architrave is a platform that leverages AI to recognise a kind of document a file represents (e.g. lease, warranty, etc.), label it, file it appropriately within the folder structure and extract key information (e.g. lease length, rent, area etc.).

digital, data, working with start-ups) will be required. Most solutions are not 'plug-and-play' and may require changing the process to make best use of the available technology rather than adapting the technology to fit an existing process.

Fourth, the strategic long-term vision should be matched with very practical steps that can

be initiated today. This might include setting up workshops to familiarise the business with new technologies, holding 'pitch days' to meet start-ups, or doing pilot projects.

Fifth, it is generally sensible to identify areas of highest marginal impact for the business and focus on them to start with. Ideally these are opportunities which, if delivered on,

would move the needle for at least part of the business.

Another key question is the kind of organisational structure that needs to be created to drive innovation. There are several different models, each with their own strengths and weaknesses, which will work better for some organisations than for others.

Approaches to Innovation	Strengths	Weaknesses
Working group with innovation/tech champions	Low resource commitment up-front, embedded into business from Day 1	Lack of dedicated resource means slow progress / no progress if the innovation champions have busy day jobs, may not be a sustainable solution for driving full innovation agenda
Dedicated innovation team within business	Can be positioned close enough to business to build goodwill and achieve bottom-up buy-in	Potential to be slowed down by existing business processes, difficult to find right team with real estate and tech expertise, requires investment in new headcount
IT-led digital transformation	Existing resources with good understanding of technology and technological innovation	Often lack the real estate expertise to understand the reality of applying innovation in practice and the pain-points of end-users; depending on organisational structure, can be too far away from the investment side of the business to get bottom-up buy-in
New standalone business unit	Agility to move fast without being encumbered, create something exciting on the side of the business	High investment up-front, risk of being seen as 'separate' from business and not achieving bottom-up buy-in
Investment in a Venture Capital (VC) fund or direct VC investment in start-ups	Most direct way to get visibility on innovation ecosystem, statement of intent that doesn't rely on existing processes, investment not expenditure if VC investment meets return expectations	Risk of not integrating outputs/learnings into broader business and not achieving bottom-up buy-in, risk of conflicts of interest, lack of expertise to pick the right VC fund or start-up to invest in

### Beyond PropTech - Lessons in structural disruption from other industries

There is a natural tension between focusing on the sort of innovation that brings incremental improvements within existing processes and the broader business model innovation that businesses may need to go through in order to stay relevant, often driven by technological disruption. The reality is that both are important and that having a successful approach to incremental innovation sets a strong foundation for broader business model evolution. Several industries have already gone through – or are in the process of going through – technological disruption and are changing business models in response. Real estate can learn some lessons from their experiences.

An interesting case study is the automotive industry. There has been a macro shift in this industry away from selling cars and towards providing mobility services. This is a trend that has already started with the growth of ride-hailing apps and is expected to be supercharged by the advent of autonomous vehicles. The response from incumbents has either been to try and build their own mobility services platform (vertical integration), or partner with one of the leading mobility groups.

In real estate, this is analogous to the move towards Space-as-a-Service that is currently being witnessed in office, retail, housing and even industrial. This prioritises the importance of the end-user experience, often through the provision of additional services and greater lease flexibility, as the value of real estate



assets is increasingly not just the space itself but is the broader package of services that allows a tenant to attract and retain talent, while driving productivity. Ultimately, this is pushing landlords to evolve the traditional landlord-tenant paradigm towards a closer relationship with the end-users of the space and place higher value on operational excellence at the asset level.

All of the trends that real estate faces – focus on user experience, the move to providing value added services, flexibility, selling the

end goal (productivity/mobility) not the means (office space/transport), and having a closer relationship with the end consumer – have strong parallels with the automotive industry. Accordingly, although we are at the start of this trend today in real estate, real estate groups will increasingly have to face similar questions on vertical integration and business model evolution that the automotive industry has already started to grapple with.

Another useful case study is equity trading. Over the last 20 years, equity trading

has been increasingly automated, with a significant proportion of capital shifting away from active managers and towards passive funds and quant funds. In both of these, the role of investment professionals is very different and asset managers have had to change the type of talent they hire in order to compete in this new world.

For real estate, the investment process is unlikely to be truly automated in the near future, but with digital marketplaces slowly maturing and ever greater opportunities to leverage large datasets in underwriting, the role of the real estate investment professional will shift in years to come. It is likely that real estate investment will become both more quantitative and more qualitative. More quantitative because of the greater role that advanced data analysis will play in driving investment strategies and investment decision making, taking advantage of all the data on the market as well as large 'alternative' datasets. More qualitative, because understanding the value that the real estate can bring to end-users in terms of experience, brand and sense of identity is increasingly

important to investment success. Similar to equity trading, the most successful real estate investors will have to evolve their talent base in order to make faster and better investment decisions, drive investment performance and ultimately differentiate themselves by clearly demonstrating alpha.

### Conclusion

Technology has great potential to drive value throughout the investment process. In sourcing capital and investment opportunities, digital platforms are emerging and have the potential to democratise access to real estate, driving greater transparency and potentially changing real estate into a more public market asset class. In underwriting, as buildings and consumers produce more and more data, technologies from digital twins to AI can enable more informed investment decision making.

However, the existence of these technologies and their implementation in the existing organisation is not, by itself, enough. In order to make the most of these technologies, real estate groups need to learn how to

build a positive culture around innovation. Each firm will need to find the approach that works for them, but universal principles include leadership, bottom-up buy-in and prioritisation. Finally, there are also lessons to be learnt from industries that have already experienced technological transformation, such as how to react to the As-a-Service business model and the different skillsets that firms will need to attract to stay competitive in a fast-changing world.

This is the second in a series of papers from the [Technology Committee](#) that aim to help INREV members understand how technology can be leveraged to address recurrent challenges in the real estate industry.

If you have any questions or comments, please reach out to [ruimendes@inrev.org](mailto:ruimendes@inrev.org).

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