

Commercial Property Valuations

A Time of Change

Supported by:



REPORT WRITTEN BY DAN HUGHES
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Foreword



Robert Courteau
CEO, Altus Group

“There is little doubt that the valuations sector is facing various challenges as we move into a more digital world. While the commercial property sector has historically been slow to adapt to technological change, it is something the industry is starting to increasingly embrace and build into everyday business practices.

At Altus Group, we have been working in and supporting the commercial property valuation market for a number of years and we are committed to staying at the forefront of technological innovation to ensure that we continue to provide the market with leading solutions for valuers and the property industry as a whole.

We believe that as clients’ needs are changing, the valuation process is transforming. Data and technology are now playing an increasingly important role and will play an even greater role in the future. That is not to say we are not optimistic about the future of the valuer; the advice and human interaction that is provided today will not only remain, but will become even more important in the future. The introduction of technology such as automation will change how work is done while the generation of more data will lead to the need for greater analyses. This will create opportunities for resource reallocation to areas that will drive greater value for both firms and their clients alike.

This report highlights a number of different perspectives on how the commercial property market is likely to evolve in the future and in particular raises some of the biggest challenges that cannot be addressed by any one company, but must be faced at a sector level. At Altus Group, we are committed to working with the sector to move into a new digitally-enabled world and we are pleased to support this report as one step of the journey.”

JLL Foreword



Mark Wynne-Smith
Global Head of Valuation
Advisory
JLL

Trustworthy, accurate and timely opinions of value underpin our clients' key strategic decisions for their real estate holdings. Whilst the way that most professional valuers provide these services has remained relatively unchanged for the last 20 years, we believe that the next 5 years is going to prove much more digitally disruptive for advisors and increasingly rewarding and enlightening for our clients.

I welcome this report which has provided a number of key clients a platform to articulate how they believe technology will impact their interaction with valuation and advisory service providers over the coming years. The consensual view of our clients, which concurs with the conclusions of this paper, is their desire to embrace the forthcoming technological changes and to work with service providers who will actively support them to take advantage of the opportunities this revolution presents.

Our determination to put clients and data insight at the heart of our business were the key drivers for JLL's recent reorganisation of our valuation advisory business into a single global service line. This new structure is enabling us to invest appropriately and to better align with client aspirations for independent professional advice - underpinned by deep and extensive data driven insights into the value of their buildings.

This is a very exciting time to be working in valuation advisory services and I'm looking forward to JLL being at the forefront of helping clients on this journey.



Executive Summary

The commercial real estate sector is at the initial stages of a digital revolution and both the value of properties, and the way they are calculated is set to change in the coming years and decades. This paper identifies three broad themes that need to be considered, not just for the traditional valuation sector, but the whole market where property value is of importance.



Theme 1 – How valuers use data and technology is increasingly important for winning work.

A key theme identified in this paper is that clients believe the influence of data and technology in property valuations is going to increase. Furthermore, the ability of service providers to effectively use it will increasingly influence the decision of clients when selecting advisors. In a survey of clients, 92% suggested that a valuer's use of data and technology would influence their future procurement decisions.

88% of those surveyed believed that valuations of the future will be far more data driven, both in terms of volume and variety.

Do you believe that the way valuation service providers use data and technology will become a more important factor in choosing who to use in the future? (within 3 years)

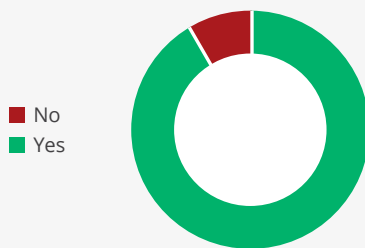


Figure 1

The valuation process of the future, will be much more data driven - both in terms of volume and variety of data used.

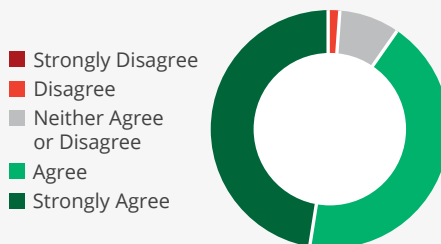


Figure 2

To be successful in the future, valuation providers will need to embrace technology and become much more demonstrably data driven.

Theme 2 – The role of the human will thrive.

There is little doubt that the role of the human in the valuation process will change in the future. Particularly the data collection and analysis related tasks will become increasingly automated as more data becomes available and more powerful technology allows it to be analysed. However, there is also, at least for the foreseeable future, going to be a strong need for professional advice, human contact and ethics.

Some steps in the valuation process will no longer need to be undertaken by one person, or under one roof, and there will be a fragmentation of the supply chain with each step becoming more complex and specialist. Each of these steps will behave increasingly differently, whether in terms of investment profile or skills required. Any company involved with understanding the value of a property will need a clear understanding of what part of the supply chain they provide, and to whom.

As valuers become increasingly customer and use case focused, a range of different solutions will develop which will each depend on a different amount of human involvement.

Technology is increasing the speed and regularity of transactions whilst lowering the cost of analysis, so in the future we can also expect to see a growth in the number of times a client needs to understand the value of their property or portfolio.

The role of the human will remain important for the foreseeable future, but it will change. All companies involved with understanding the value of properties need to engage in this transformation and provide a blend of human and technology. 'We have always done it this way' can no longer be acceptable.



Theme 3 – The whole sector faces significant technology challenges and must get on the front foot today.

The increasing influence of technology on the valuations process is inevitable, but for all of the efficiencies and improvements it can deliver, there are some significant challenges that the whole valuation sector needs to address.

- 1. Trust** – valuations and the advice based on them, need to be trusted as we move into a more digital world. This will be the cornerstone of the valuation professional's role. Who owns the data, how it is regulated and how it is ethically applied are all challenges that the sector needs to come together to address. As can be seen from the client survey, today there is limited understanding of who owns the data created in a valuation report.
- 2. The value of data** – not only will data become more important and central to how the value of the property is calculated, it will also become an increasingly valuable asset in itself.
- 3. Disintermediation** – as technology becomes more and more complex and fragments today's relatively simple value chain, new companies, propositions and technologies will enter the market and separate today's value chain and relationships.
- 4. The value proposition paradox** – for established companies that provide a full valuation service, there is little incentive to charge clients for the different tasks. However, as the overall process fragments, pricing the component parts will become increasingly important for valuation providers. The challenge for the established companies is how to do this without unduly harming the established relationships and value propositions that supply today's revenue.
- 5. Investment profile** – the future of valuation solutions will be provided by a combination of technology and humans. However, these have very different investment profiles and companies need to make sure that they have the correct investment profiles and processes in place to appropriately grow their businesses. The illustration below suggests the different investment profiles with people businesses being relatively low cost to start but expensive to scale, yet technology typically requiring more investment up front, but are then less expensive to scale.
- 6. The next generation timebomb** – As technology automates the very tasks that typically make up the more junior roles in a valuation service provider, there will be less time and effort needed for these tasks, as the human focuses more on the advisory and ethical elements. However, as an industry, we

Do you believe that there is clarity over who owns the data created in a valuation report?

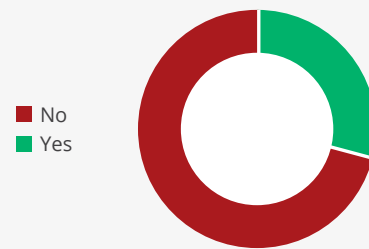


Figure 3

Data and technology will become an increasingly important factor in the value of a property itself in time.

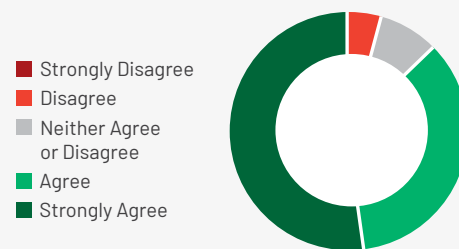


Figure 4

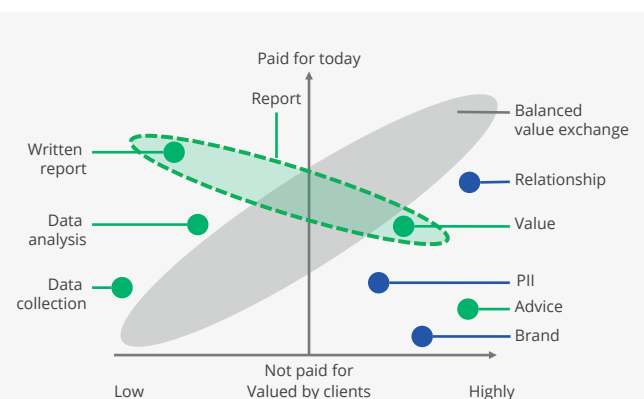


Figure 5



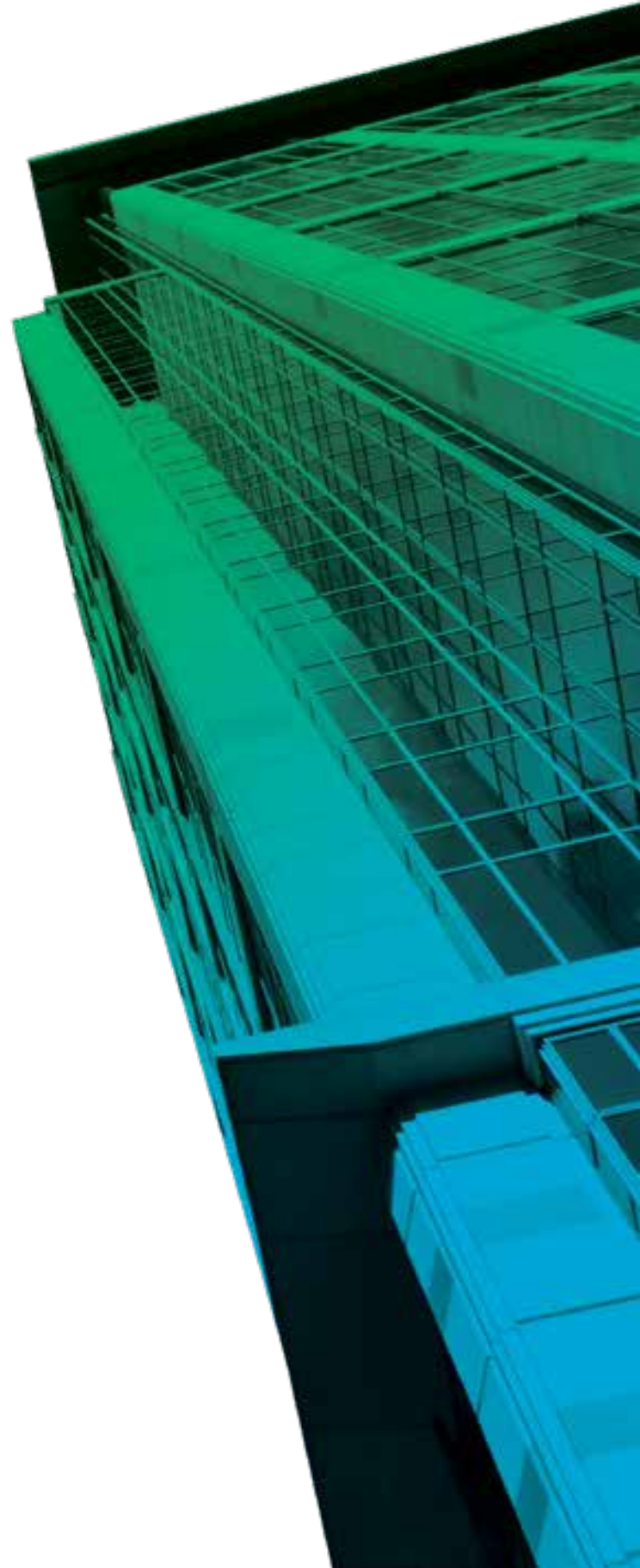
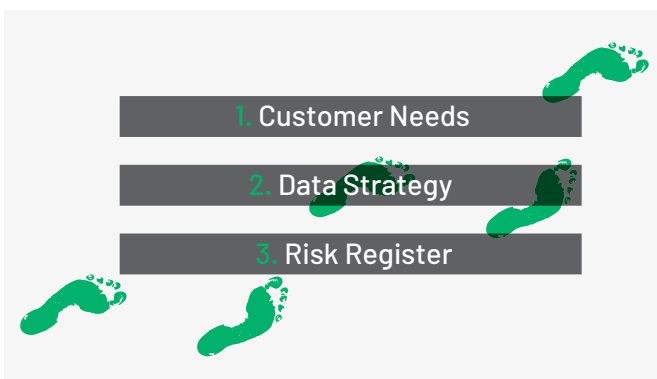
Figure 6

have established these tasks as the building blocks of the education needed to provide these human services. The sector must address how it will attract and train the next generation and ensure that they gain the experience they need.

There are a number of challenges that must be addressed by the sector for it to successfully leverage technology to support a more digital valuation service.

There is no doubt that technology has already started affecting all corners of real estate, and the valuations process is one of the areas where most change is expected. Whilst the approach that any particular company will take may not be completely clear, there are some simple steps that can be taken to ensure your organisation is moving in the right direction.

1. Make sure that you have an in depth understanding of your customer needs.
2. Data will be the most important factor in the future of valuations and, whilst a full data strategy should be developed, a clear understanding of what you have and what you need is a good starting point.
3. Technology will present a number of risks and all companies should spend the time to develop a technology risk register; how it could fail, security implications and how it can challenge today's business models.



Index

Introduction	1
The valuation market today	2
Why now?	2.1
A standard process	2.2
Valuation companies today	2.3
The valuation process today	2.4
The impact of tech on today's valuation process ...	3
The client	3.1
The use of data	3.2
The analytical process	3.3
The valuation transfer	3.4
The advice	3.5
The impact on jobs	3.6
Growth of the market	3.7
The challenges the sector must face	4
Trust	4.1
The drivers of value	4.2
Disintermediation	4.3
The value proposition paradox	4.4
Investment profile	4.5
The next generation timebomb	4.6
Three things to do today	5
Check your valuation clients' needs	5.1
Develop a valuation data strategy	5.2
Develop a valuation risk register	5.3

1. Introduction

One of the single most important drivers of the property market is financial value. There are a huge number of factors that influence this value and it can be interpreted in many different ways. There have been well established valuation standards, and processes to meet these standards, that have often not changed significantly for a number of years. The use of technology in the valuation process is not in itself a new thing, however we are now at a tipping point where, over the coming years, technology will fundamentally re-shape the sector – both in terms of how value is assessed and the value of buildings themselves.

This paper looks at a number of the factors that are likely to change relating to the value of commercial property and how it is calculated, some of the challenges the wider sector faces and suggests some steps to move forward.

Much has been written about technology's impact on the valuation process, but one of the most important voices is that of the valuation customer, the 'client'. To ensure that this is included within this paper, a short survey of some of the leading clients in the UK and from across Europe was carried out to inform the findings of this paper.

The purpose of this paper is to challenge some of the traditional thinking within the valuation sector, identify some of the major trends that are likely to be seen in the coming years and make sure that the client's voice is represented in this discussion.

“Within two years, I predict that an AVM will exist that is >80% accurate in valuing commercial property. Whilst valuers will still have a role to play in providing valuation advice, they do not yet appear to have woken up to the risks, or grasped the benefits. I do not currently see any of the major firms ‘breaking out’ and making a difference. I live in hope!”

John Hadcroft, Aviva Investors

2. The valuation market today

"...valuation surveyors tend to say properties can never be marketed like other commodities because they are so diverse, precise comparisons cannot be made. But a computer can deal with these problems quite simply just as soon as all the possible variables have been broken down into a code.

... the valuer will [still] be needed to interpret the vast amount of data that the computer can assemble."

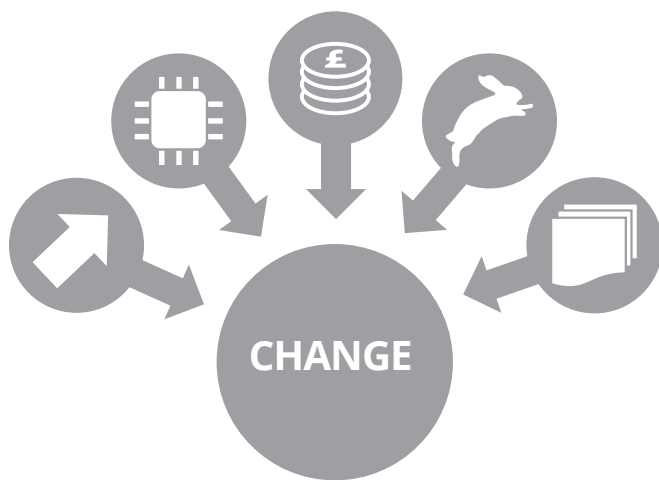
The Chartered Surveyor - 1966



2.1 Why now?

The use of data and technology in commercial property valuations is hardly a new topic, indeed we can see from the quote opposite just how long ago we have been thinking about this. So why are we talking about it so much now?

There are five key, interrelated factors that are driving today's increased focus on technology driven change.

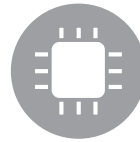


“Valuers need to develop specialist skills, as technology is rapidly taking their core basic work. Many of them are being slow to wake up to this.”

Fiona Haggett, Barclays UK



Growth – more and more things now collect data and so the amount of data available in the world is growing exponentially. Of course, not all data is either structured or useful, but as the technology to process it becomes more powerful, more and more of it can be used to add value.



Computer power – not only is data growing exponentially, but so also is computing power. Moore's Law¹ shows little sign of slowing down any time soon, which is fortunate because, as we have seen, there is more data to analyse than ever before.



Investment – a key trend is the falling cost of technology, whether sensors, computers, or devices in our pocket, the overall cost of technology is falling which, in turn means it is becoming more readily available and an easier return on investment to measure. At the same time, there is a greater amount of investment in technology.



Speed – the property market is quickening, albeit from a sometimes glacial pace. Time frames are reducing across many areas of the sector; from the time it takes to build a building through to the shortening of leases.



Precedent – finally, in our everyday experiences, we come across amazing uses of data and technology. Whether it is the use of Amazon for shopping, Uber for transport or Google Maps for our live traffic reports – this raises our expectations about the use of technology in all aspects of our lives, including at work.

¹ https://en.wikipedia.org/wiki/Moore%27s_law

2.2 A standard process

The value of a property is a key factor for a number of decisions and the process of calculating this value is often referred to as a valuation. International Valuation Standards are in place to ensure global consistency and quality of property valuation, and more local standards are then adopted to deliver valuations that meet IVSC requirements. An example of this is the RICS Red Book² which is used around the world and particularly in the UK.

In the UK, the phrase 'valuation' is often used as shorthand for a 'RICS Red Book Valuation'. In this report the Red Book will be referenced at times, but it will primarily consider the broader topic of understanding the value of a building from a client's point of view.

There is little doubt that standards in the real estate market will need to adapt to new technology, and more quickly than they have in the past which presents a real challenge for industry bodies. We have already seen in other sectors problems arise due to standards not keeping up with the fast-moving technology developments such as the perceived influence of technology to influence election results.

Whilst the purpose of this report is to consider the wider market drivers of value and how it is calculated, it is worth noting that the IVSC and RICS Red Book say little about the methodology to work out the valuation, as this is left to the discretion of the professional to choose the most up to date and appropriate methodologies and data. However, there are some perceptions about current standards that are worth looking at:

1. Are valuations only backward looking?

The RICS Red Book puts significant emphasis on the use of evidence to back up any advice provided. Clearly in a time where little evidence and data was available, this was a difficult thing to do, but as more and more data becomes available to us and there are more sophisticated tools to analyse it, trends can more confidently be identified about the future and data used to evidence these trends. Of course, it is not possible to guarantee what will happen tomorrow, so the case will remain that a valuation is only accurate on the day of the report, but it will become more sophisticated at considering future events in today's value.

2. Does the Red Book allow the use of 'newer' data sets?

The RICS Red Book effectively requires valuers to use the data and information that an investor, or the wider market would typically use. Indeed, the Red Book clearly articulates a wide range of factors that should be considered within the valuation process beyond those that are traditionally included from a data point of view.

3. Does the RICS Red Book consider technology?

The RICS Red Book does address the use of technology, for example explicitly discussing the use of automated valuation models (AVM's) or the valuation of technology as a stand-alone, or integrated element of the building. This is covered by the sections on valuing plant and machinery, but due to minimal amounts of technology being used in a building in the past, other than as part of the building itself, things such as company apps, digital twins or building data are rarely considered as having financial value.

4. Are all of the methods to calculate a value still fit for purpose?

As the way that buildings are used changes, it is often seen that the methodologies for calculating value are becoming less and less relevant. However, there are numerous different ways to calculate the value of something identified within IVS 2017 (shown in the table below) and whilst the model used for a building today may not be the model used tomorrow, it is unlikely that any new ones will be required moving forward.³

Approaches	Methods
Market approach	Comparable transaction
Income approach	Discounted Cash-Flows (DCF)
Cost approach	Replacement cost
	Reproduction cost
	Summation

There seems little doubt that in the coming years, all industry bodies and regulators are going to face some significant challenges keeping standards up to date and relevant, but also stable enough to allow true adoption. However, there is also a larger challenge for the people and companies interpreting the standards to make sure that they interpret them in the modern world and do not just assume that if the standard has not changed, then they do not need to.

² <https://www.rics.org/globalassets/rics-website/media/upholding-professional-standards/sector-standards/valuation/red-book-2017-global-edition-rics.pdf>

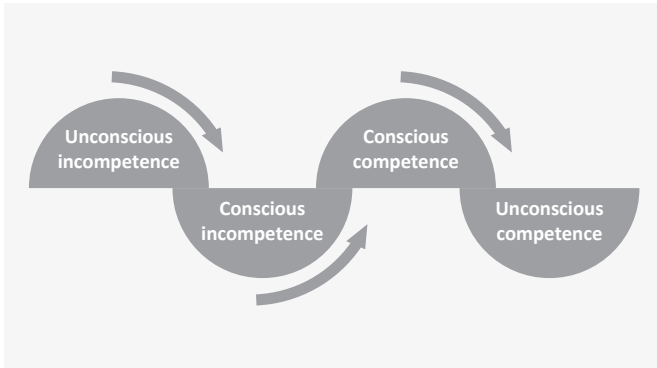
³ IVS 2017

2.3 Today's valuation companies

Valuers and valuation service providers have been around for many years and the stability, historic views and experience that these companies have is what often makes them such expert valuers. However, it is also fair to say that it has been a highly stable environment for many years; whilst property value may have been through the ups and downs of property market cycles, customer expectations, the drivers of value and the way it is calculated have in truth, changed very little in recent times.

The market is now at the early stages of seeing this change with new customer needs, availability of data and drivers of value meaning that different companies, and indeed often teams within the same company, are embarking on very different approaches to the digital transformation journey.

Understanding and adapting to this change can be considered a company skill and so, to understand where different companies are, psychology can help here with using the four stages of competence as a framework.



1. Unconscious incompetence

The company does not know how to adapt to the ever more digital world and does not recognise this.

2. Conscious incompetence

The company still does not know how to adapt to the ever more digital world, but does now recognise this.

3. Conscious competence

The company is now doing something about it, but it is not automatic, it takes work.

4. Unconscious competence

The company carries out the new way of doing things as a matter of course and without thinking about it. It has become standard practice.

If it is accepted that the value of buildings and how they are calculated will change because of technology, then we can use this as a framework to explore where the traditional valuation providers are positioned on this journey. There is little doubt that there are companies at each of the first three stages of this process, with probably a majority in the first two. Whilst there are few companies that would be considered in the fourth category, it is also fair to assume that things are going to be changing on an ongoing basis, meaning ongoing learning and change.

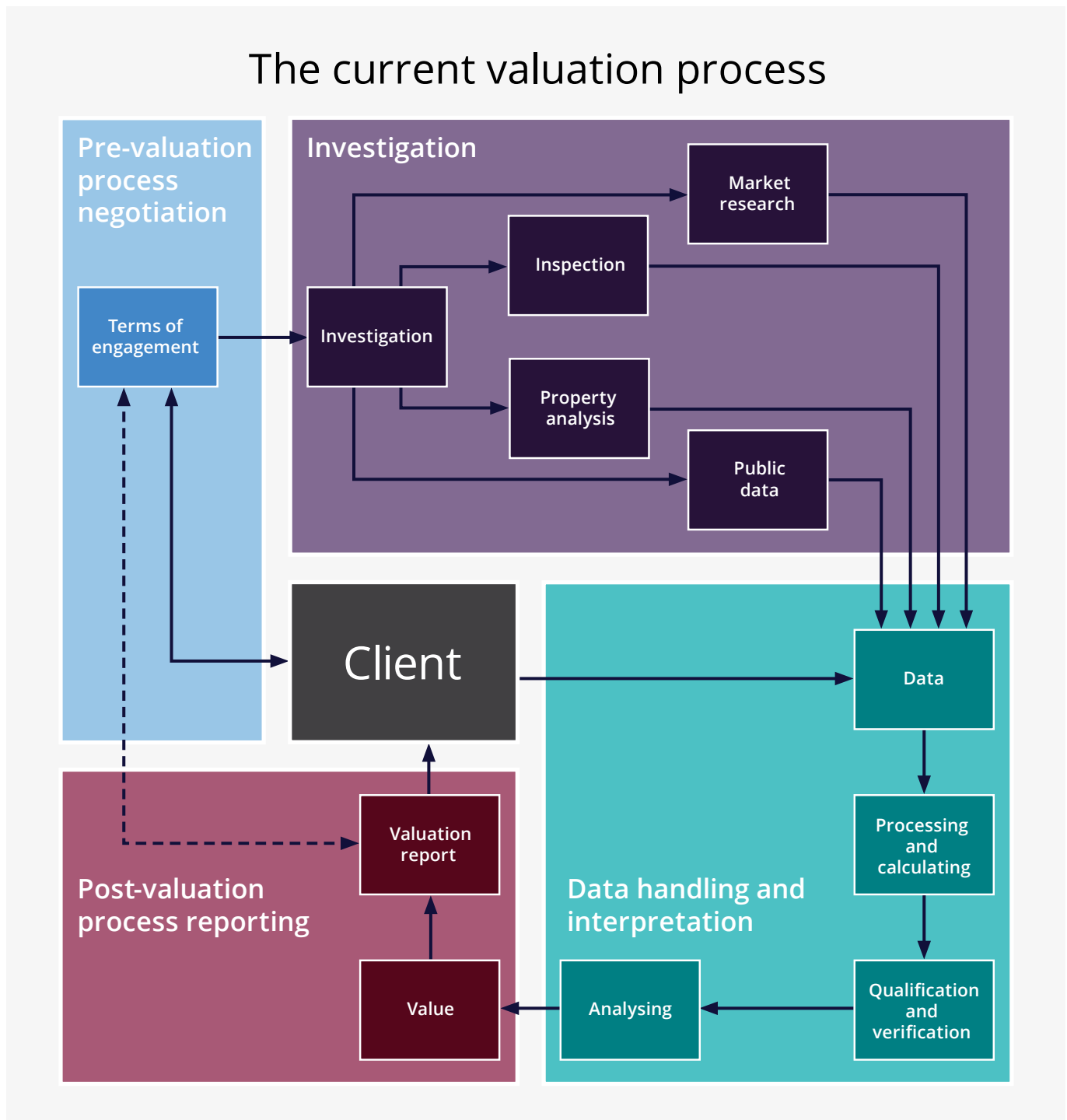
There are also a number of technology companies that are working in this area, all on their own journey of digital transformation, trying to balance product development for the future needs of the valuer and the client, with also meeting today's needs. Alongside this, there have also been a significant number of new start-up companies in this space often backed by VC capital. These new companies are exploring both how to make the valuation process better; and drive the value of the building itself.

⁴ https://en.wikipedia.org/wiki/Four_stages_of_competence

2.4 The valuation process today

A RICS Red Book Valuation is carried out today in a relatively standardised process. A high-level model of this process can be seen in the diagram below taken from the RICS Research Paper titled 'The Future of Valuations' published in 2017.⁵

This diagram shows the overall process for producing a valuation report with individual activities shown at each stage. This process identifies the different steps that a valuer typically goes through to produce a valuation report.



⁵ <https://www.rics.org/globalassets/rics-website/media/knowledge/research/insights/future-of-valuations-insights-paper-rics.pdf>

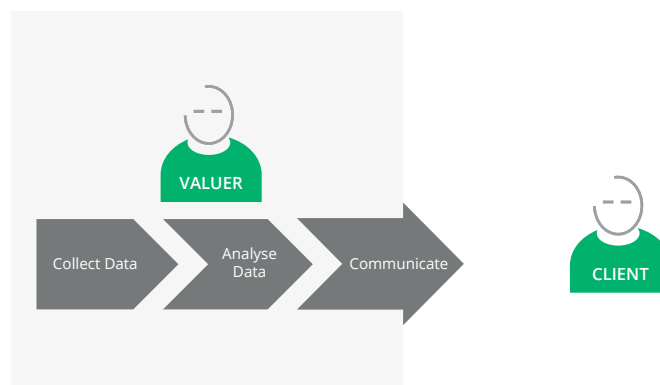


“The leading valuation businesses need to embrace data and start employing non-real estate data professionals to expand their capabilities. They need to lead the industry in the field of big data and analysis.”

Julian Carey, Stenprop

3. The impact of tech on today's valuation process

There are many ways the valuation process can be considered - such as the model shown in section 2.4. However, for the purpose of this report, we will consider a more simplistic model with five key elements: the client, the collection of data, the analytical process, the valuation transfer and the advice. We will then look in more detail at the shift from the human to the computer across all five elements.



3.1 The client

As the world becomes more complex, valuers will need to become more focused on the most important stakeholder, the client, and their needs. As clients find new ways to use the outputs from valuations or look for new insights, valuers will need to embrace new technologies to meet these needs.

There are many reasons to commission a valuation report and depending on the purpose, different approaches will be needed. Today, the valuation sector primarily focuses on the process and compliance with it to deliver a report, less time is often spent considering the various clients' needs.

Institutional Investors ⁶	
1.	(Statutory) financial reporting
2.	Management reporting to shareholder and other stakeholders
3.	Performance measurement and (incentive) fee determination
4.	Regulatory authorities
5.	Securing finance/debt and on-going loan covenant compliance
6.	Corporate acquisitions and assessment of enterprise value

Banks ⁶	
1.	Mortgage origination for property purchase
2.	Underwriting of non-purchase mortgage loan products, e.g. remortgaging and re-pricing of (mortgage) loans
3.	Quality control tool in the mortgage origination process
4.	Support feasibility studies
5.	Regulatory capital requirement purposes
6.	Risk management
7.	Review of balance sheet assets (asset quality review)
8.	Non-performing loans
9.	Covered bonds and securitisation transactions (e.g. eligibility of collateral refinancing)
10.	Investment property fund and asset management
11.	Arrears management
12.	Taxation
13.	Accounting (IFRS)
14.	Property portfolio transactions
15.	Estimating cash flows

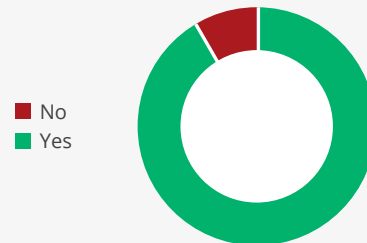
⁶ 4 INREV guidelines 2017: www.inrev.org/guidelines 5 List provided by the European Mortgage Federation via <https://www.rics.org/globalassets/rics-website/media/knowledge/research/insights/future-of-valuations-insights-paper-rics.pdf>

As the valuation market moves to becoming more digital, it is clear from the client survey that how valuers and valuation service providers use data and technology, and how they demonstrate this to clients, is going to become increasingly important to the decision to purchase their services. 92% agreed that in the near future, it will become a more important factor in their decisions about which companies to work with.

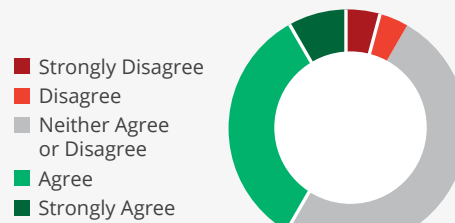
Alongside understanding the views of how important data and technology will become for valuers to win work, it is important to also understand the value that clients currently believe they get from their valuation providers. Of all the questions asked in our survey, this was the one that split views the most and there are two ways of interpreting the results. 42% agreed, or strongly agreed, with the statement that they feel that they get value for money which is a positive sign and when looking at the overall response is a net positive score. However, 50% neither agreed, nor disagreed with the statement. So, an alternative interpretation is that 58% were not able to say they believed that they got value for money.

Key finding: *The use of data and technology will play an increasingly important role in the choice of valuation service providers, and today clients feel it is often hard to identify the value that they get from their valuation providers.*

Do you believe that the way valuation service providers use data and technology will become a more important factor in choosing who to use in the future? (within 3 years)



I feel that I get good value for money from my valuation provider.



3.2 The use of data

Valuation is already a data driven sector, but the volume, variety and velocity of data used today is very low and the client survey shows that there is an overwhelming belief that the sector will become increasingly data driven. 88% of respondents agreed, or strongly agreed with the statement that the valuation process of the future will be much more data driven - both in volume and variety of data used.

Today, a valuer often uses the measured outputs of what are believed to be comparable buildings, such as the rent, and they then scale accordingly. This is then combined with the expertise and experience of surveyors to add in other influencing factors.

However, with the amount of new data sources that are already available, and more to come, the valuation process must take this data into account. This has huge potential benefits:

- **Increased transparency and trust**

One of the current challenges for valuers today is that values are often seen as subjective, seen as an art, not a science. Whether fair or not, this approach leads to the perception that reported values can be influenced, which in turn leads to mistrust.

The use of significantly more data will mean that valuations are increasingly objective and logical which will in turn build trust.

A knock-on effect of this is that values will become harder to challenge as there will be an increasingly robust set of criteria and data to support the valuation.

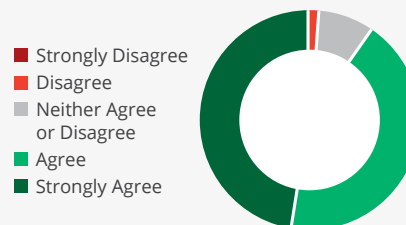
The increased use of data and processes agreed upfront will lead to demonstrably improved objectivity and transparency, which in turn will lead to fewer disputes and ultimately reduce associated costs, such as insurance premiums.

- **Better comparable evidence**

A valuer often has incredible in-depth knowledge of a local market, however it is very difficult for them, for example in Manchester, to also have an in depth understanding of the Bristol, Glasgow or London markets. However, whilst these are different markets, it is not to say that there are not comparable attributes or types of building in those areas. This will mean that the range of comparable data can be significantly increased, leading to better and more in-depth data driven valuation evidence.

There are of course challenges with this approach, for example two identical buildings in each of the above markets would not behave the same, however with enough

The valuation process of the future, will be much more data driven - both in terms of volume and variety of data used.



data a digital model can easily be trained to identify which elements are fair to compare and which are not.

- **See the unseen**

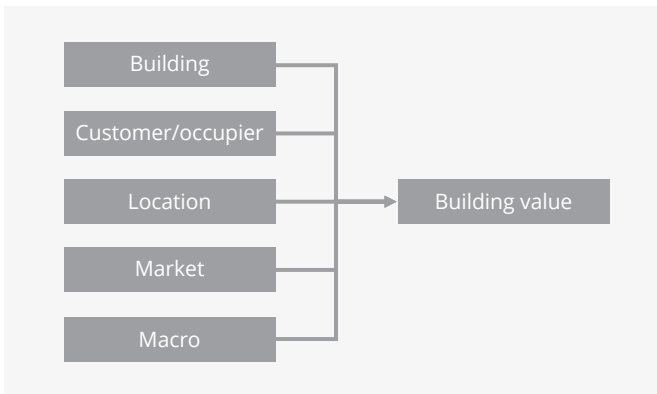
A site visit provides a valuer with a lot of valuable insight about a building, but there are so many factors that can't be seen that may affect the value of a property like air quality, flooding, crime levels, noise pollution, or mobile phone reception. All of these factors may have an impact on the attractiveness and performance of a building - and therefore value. Now that both owners and occupiers are increasingly using data sets such as these to inform their decision making, it is necessary for these to be more systemically included within the valuation process and combined with the more traditional data sets.

- **Data, data, data**

The human mind is simply not capable of collecting and considering the volume of data that a computer model can. It means that huge amounts of data can now be consumed and used to inform ever more accurate value estimates.

- **Much quicker**

In a similar way to the volume of data, the speed can be significantly improved. Whilst the setup of the appropriate criteria, algorithms, data supplies, etc. may take some time, once done, values can become almost instantaneous.



The model above shows that there will be a number of different data sets that will be used to inform valuations in the future. These categories are all considered today, however there will be considerably more data in each of these areas and included in a much more systemic and structured way.

Each of these categories is worthy of a significantly more in-depth study, however for the purpose of this report, we will look at what each category means and give a couple of examples of the type of data that might be used to inform valuations in the future.

- **Building data** – data about the performance of the building, not just the floor area and rents that are used today, but the internal environmental factors from building sensors, the usage statistics of rooms to maximise capacity through to the prediction of future maintenance costs based on comparable evidence from buildings of similar use around the world.
- **Building user** – a variety of different data sets may increasingly be used to understand the performance of a company within the building. Not only financial data, but also characteristics such as employee and customer sentiment which for example, could be determined from social media or rating platforms. But it is not just the company that will be measured, facial recognition may be used to determine employee moods or health tracking apps to measure the health of employees. All of these have an impact on the company outlook and productivity and whilst not all down to the building, they are in part related to the environment within which people work and therefore the value of the building.
- **Location data** – increasing amounts of data will be measured and used about the surrounding location. This is already done to some degree, often at due diligence or planning stages, however as the cost to collect, collate and use this type of data decreases, its use within the valuation process will become more and more complex and granular.

Examples may include the use of crime statistics combined with social media and types of adjacent occupiers to represent the overall ‘attractiveness’ of a location. As data becomes more accurate and more devices start collecting it, there will be an unprecedented real time picture. One of the technologies that is enabling the autonomous car revolution is LiDAR⁷ and as the cost and size of these sensors fall, more and more real time and highly accurate data will become available. Combined with other data sets, such as that collected from mobile phones or credit cards, huge amounts of insight about a location and the impact on property value will be able to be deduced.

- **Market** – there is already a lot of transactional market data being used, but as more and more granular data become available, this will be fed into a model that provides better information about availability, demand, etc. for today and tomorrow.
- **Macro** – data will be used to better understand and articulate long-term trends such as population growth, urbanisation or the environment, not just the likely trends which are already widely available today, but more importantly related to how they will impact specific granular locations longer term.

⁷ A detection system which works on the principle of radar, but uses light from a laser.

3.2 The use of data (continued)

'...every real estate asset owner, investor and stakeholder must now recognize they have a clear fiduciary duty to understand and actively manage environmental, social, governance (ESG) and climate-related risks as a routine component of their business thinking, practices and management processes. Failure to address these risks will not only hinder global efforts to address the climate challenge, but will also hurt long-term returns...'

United Nations Environment Programme - Finance Initiative (UNEP-FI) - Sustainable real estate investment ⁸



Case Study - The growing importance of connectivity

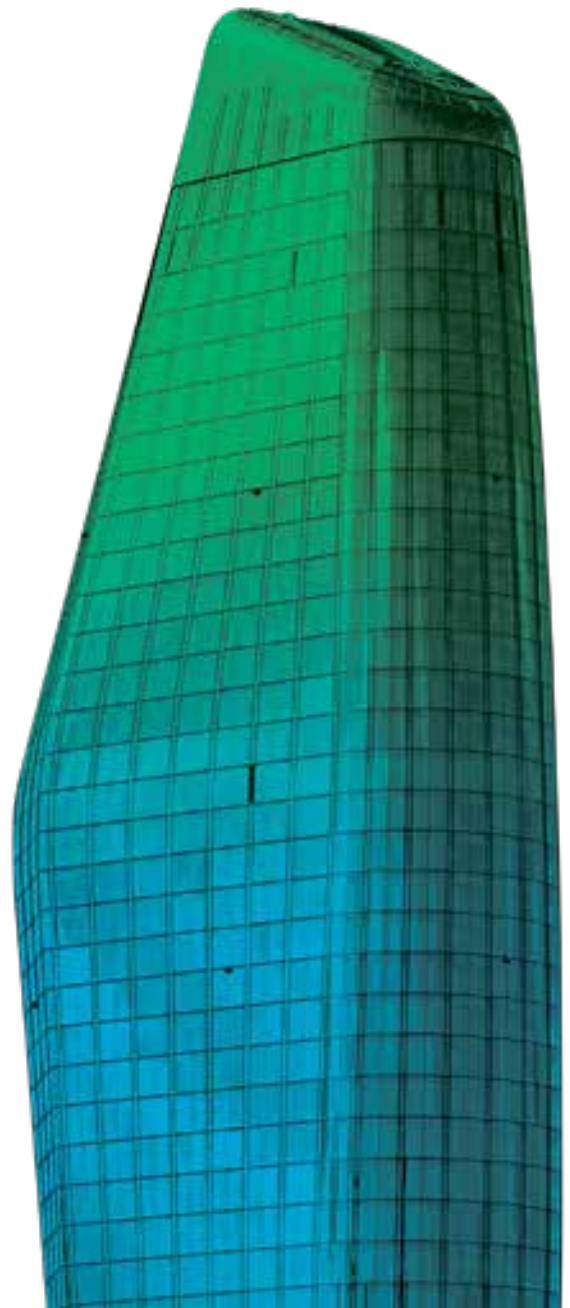
In today's economy, businesses cannot function without fast and reliable digital connectivity within their offices. If an office building's digital infrastructure falls below, or cannot keep pace with, prevailing tenant expectations it will struggle to attract corporate covenants and may become obsolete without capital expenditure.

The quality of digital connectivity within a building can impact capex requirements as well as future revenues from an asset. As a result, we are seeing that investment managers are increasingly recognising digital connectivity as an important factor when making investment decisions. For some, it helps reduce the risk of "surprise" costs to meet tenant expectations, whereas for others, it provides confirmation that the infrastructure is sufficient to meet the needs of existing and future tenants.

Given the link between connectivity and an asset's ability to attract and retain tenants, it is no great surprise that digital infrastructure is increasingly an important part of investors due diligence, with some setting minimum standards that potential buildings considered for purchase must match or exceed.

Data will be a key driver of value in the future and providers of valuation, or value-based services, will be putting data strategies in place today.

⁸ <https://www.unepfi.org/fileadmin/documents/SustainableRealEstateInvestment.pdf>

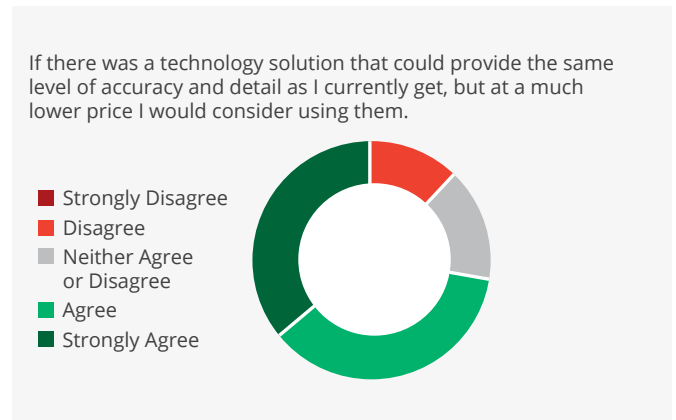


3.3 The analytical process

Now that there are huge volumes of data and potentially many millions of data points, the tools to make sense of it are needed. This is where computer analysis comes into its own; computers are very good at the objective analysis of huge volumes of data, very quickly. Terms such as big data, machine learning and artificial intelligence (AI) are becoming common place in the industry and whilst the valuation profession is unlikely to need to understand the ins and outs of these technologies, it does need to recognise that the technology is, or will be, available to support data driven valuations.

We can also see from our client survey that there is a strong appetite to consider using new technology-based solutions - with 72% considering their use if a comparable outcome was possible at a lower price.

Clients are broadly open to using new analytical technology solutions and existing companies must either embrace, compete or differentiate from them.



3.4 The valuation transfer

Once the value of a property has been identified, it needs to be communicated to the client or customer. This is often done today through the production of a written report. The most obvious example of where technology can aid this element of the valuation process is through automation of report writing. However, this is very much about driving a small amount of production efficiency rather than adding value to clients. Increasingly, the use of other technologies will be used to convey the value message; perhaps the use of videos, animations, Augmented Reality (AR) or Virtual Reality (VR). In contrast to the two previous parts of the valuation process, this is unlikely to have such an impact on the role of the valuer as this is primarily focused on adding value to the client by helping them understand, engage with and navigate the information that is being created.

It is worth noting however that this is all based on delivering the 'valuation' directly to a person. As clients increasingly use technology to inform their own decision making, it is likely that in some cases, the value and supporting evidence will not be required in the traditional format, but fed directly into the client's own data systems, for example through an API⁹. This is likely to occur more for some use cases than others, however when it does happen, it

will lead to less client contact and therefore purchasing decisions will more likely be driven by procurement teams or compliance and financial modellers or even third-party suppliers.

The primary focus of using technology for the communication of values should be to meet and exceed client expectations, helping them to use the insights for the purpose for which they need them.

“Not too far away in the future, the valuation clients will demand a more digital process and much more insights about what data was used and how in a valuation. The PDF/paper report will not disappear but more will be added to it.”

Magnus Svantegård, Stronghold Invest AB

⁹ A set of functions and procedures allowing the creation of applications that access the features or data of an operating system, application, or other service.

3.5 The advice

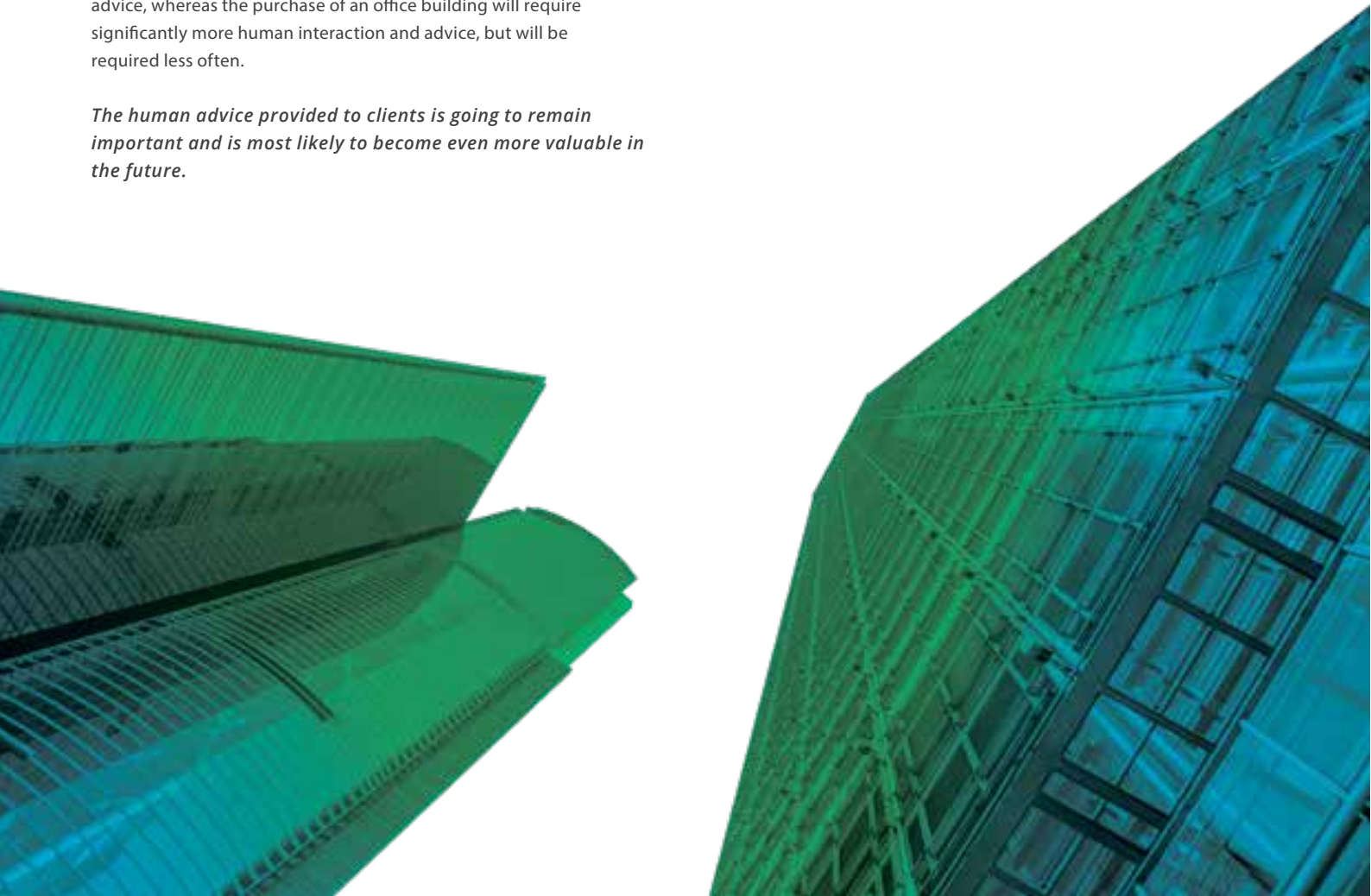
The value of human advice will likely always be needed at some point along the valuation judgement and provision. However, as we have seen from the earlier stages, the advice will need to meet evolving and differing client demands and will need to advise on richer and more complex data sets and analysis. There is a challenge that the sector will need to address relating to what depth of knowledge can be expected to support the valuer's advice in the future. Whilst an understanding of the overall process from start to finish is possible, the sheer complexity and volume of data, analysis and communications of future valuations will mean that it will not be possible for one person to understand the whole process. An analogy might be that one person could understand how to design and build a mud hut from start to finish due to its simplicity, but one person could not be expected to understand the complexities of building a modern day office block; from planning permission to designing the structural steel work, or from raising the appropriate capital to leasing to the occupiers.

It is also worth noting that the amount and type of advice is likely to vary dependent on the purpose of the valuation. As an extreme example, a daily understanding of value may be useful to monitor asset performance, but requires little human advice, whereas the purchase of an office building will require significantly more human interaction and advice, but will be required less often.

The human advice provided to clients is going to remain important and is most likely to become even more valuable in the future.

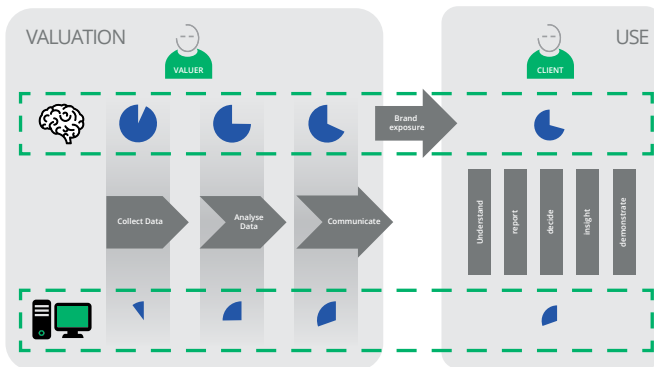
"I believe there is a place for data in valuations, however, in many instances valuations also require an experienced opinion due to nuances that cannot be identified by technology."

Benjamin Davis, Aldar Properties



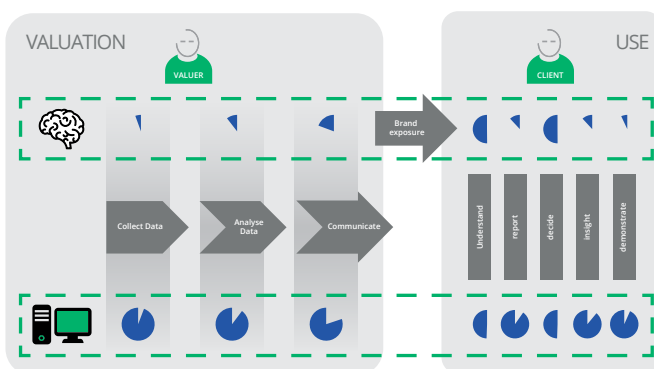
3.6 The impact on jobs

It is often speculated that the role of a valuer will be largely automated, but this is an overly simplistic view. In order to understand the impact on the valuer's role, we need to consider how the separate tasks will change in more detail.



The diagram above reflects the same process as used earlier in this section and suggests the split of work between the human, in the top row and the computer, in the bottom row. An estimated proportion of work done by each is shown in blue. Figures are for illustration only; however, it suggests that the majority of tasks are largely done by people today by both valuers and clients and that there is a relatively consistent approach for all use cases.

The diagram below shows how the same tasks may look in the future with data driven valuations.



Today, the emphasis of the valuation process is often the production of the report with the use and interpretation of this left to the client. In the future, different use cases will mean that the value will be used in very different ways and each of these use cases will have a different proportion of the work done by the human and the computer. As an example, it can be assumed that if a client is required to report the value of a portfolio to its investors, and this is the sole purpose of purchasing a valuation

report, it is unlikely that significant human input will be needed as long as the value is within tolerable parameters. However, in the situation where a building is being bought, for example, a much higher amount of human input will be required to assess the value to support a decision. The amount of advice that a valuer will provide will directly correlate to the amount of human input required by the client for a particular use.

Along with the human relationships and quality of advice, three of the key factors that drive purchasing decisions for a valuation today are cost, insurance and brand. Costs are falling due to technology, however, it is often much easier to start with a blank sheet, than automating today's processes, therefore incumbents may find themselves at a disadvantage in this regard. Insurance policies are often of importance when choosing a valuation provider, however there is no reason why automated valuation models and products could not have similar insurance policies. Indeed, there is an argument that better use of data would lead to a lower risk, which if demonstrated, could lead to lower premiums further exaggerating the cost competitive advantage. And lastly, it is likely that in some cases, future valuation data will be purchased based on cost, speed, accuracy and the ability to integrate data into a client's systems, completely ignoring the human relationship and brand.

The outcome from this is that the incumbent valuation providers are better placed for some use cases than others, and no longer will it be possible to consider a valuation product or service without considering the reason that a client wants to use the valuation and adapting accordingly. Approaching all use cases in the same way will lead to failure.

The role of the human and the computer will vary depending on the clients' needs. One size will not fit all.



“How are we going to manage and gain value from the data generated from our built environment, the volume of which is growing at an unprecedented rate, if we don’t embrace new advancements in AI and Internet of Things platforms? As real estate professionals, if we don’t adapt, change and grow our thinking, someone else will.”

Claire Penny, IBM ¹⁰

3.7 The growth of the market

So often the market talks only about the impact technology will have on automating or replacing parts of the valuation process, which will undoubtedly have an impact on jobs. However, it is also likely that the overall size of the market will increase substantially, in large part due to technology.

Firstly, the commercial property market is quickening; transaction costs are reducing and processes improving leading to more and quicker transactions. Buildings are faster to construct, leases are getting shorter and therefore leasing transactions are more regular, and the funding sources are more diverse and readily available. All of this is being driven by technology and whilst only at the early stages of this wider market shift, there will be an increasing need for valuations as decisions and transactions happen more and more frequently.

In addition to this, when the advice is needed, it is likely to be much more complex and in-depth. In the next section we look at some of the challenges that the market needs to address as data becomes a key determinant of the valuation.

Finally, as the traditional market silo's blur and different stages of the lifecycle become more closely related, more of the market's decisions will be driven by value, which in turn will require broader advice from valuers.

Overall, whilst automation of certain tasks within roles will happen, there will also be an ever-greater need and appetite to understand the value of property. Client use cases will determine how much advice from a human is needed, and in certain circumstances it will be significantly more than is required today.

Significant amount of today's tasks will be automated, but there will also be significant growth in the frequency of a value-based insight.

¹⁰ <https://www.bpf.org.uk/sites/default/files/resources/BPF%20PropTech%20Report%20-%20BPF.pdf>

4. The challenges the sector must face

“Our client base is a wide range of senior stakeholders across the property, construction, and FM markets. Data and technology are quickly rising on the client’s agenda; not just their application of it but the importance their suppliers now associate with it. There’s no doubt that the role of a valuer will remain important, but the skills required to fulfil this will need to quickly evolve to keep pace with demand.”

Richard Moss, PSD Group

4.1 Trust

One of the largest challenges that the real estate sector faces is how it takes responsibility for what it does and the advice that it provides in an ever more digital age. This is an enormous and complicated topic in itself, but not one to be avoided, as it will become the backbone for both the role of the human advisor, and the trust in brands.

Here we look at three specific elements:

(i) Intellectual property

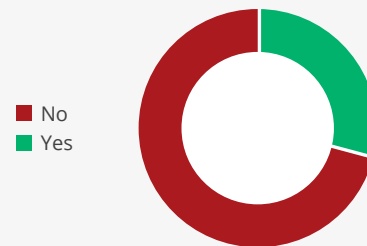
As the industry becomes increasingly data driven, it is important to better understand the intellectual property of, and rights to use, different data sets. This is increasingly important to consider as the use of data becomes more commercially sensitive, either as a company's differentiator or as the 'ingredients' of a valuation product itself.

In 2013, Ordnance Survey carried out a study that showed 40% of land and property professionals could be using out of date or unlicensed mapping information in their work. Of course, this study only looked at the mapping or location data, but it seems fair to assume that if this amount of data is unlicensed, where there are clear guidelines and organisations to enforce its correct use, a similar attitude is likely to be applied more widely.

Even in the relatively short period of time since this study, there has been enormous growth in the volume of data available, so this is not a problem that will get easier.

Not only can using data without the rights to do so be costly to a business or damage the brand, it could have other damaging consequences. GDPR is an example where the penalties for incorrectly using data have become much more significant. In certain circumstances they could be up to €20 million or 4% of global turnover, whichever is higher. GDPR only relates to personal data, but gives a good indication of the future direction of data regulation.

Do you believe that there is clarity over who owns the data created in a valuation report?



Specifically, regarding valuation data, ownership and IP is all too often not appropriately considered or clear. As we can see from our client survey, there is a strong feeling of uncertainty about who owns the data created in a valuation report; only 29% believed that there was sufficient clarity.

Clarity over who owns data and ensuring that we use only data that we have the appropriate rights to use will become more and more important.

“Land and property professionals have a legal duty to ensure all copyright mapping data is correctly licensed.... If a practice is a small business, the owners or directors are more likely to know of the unlicensed use, which is more serious in law. Under such circumstances a professional indemnity insurance could be put at risk.”¹³

¹¹ <https://www.ordnancesurvey.co.uk/about/news/2013/dont-lose-way-with-incorrect-mapping.html>

¹² <https://www.gdpreu.org/compliance/finer-and-penalties/>

¹³ <https://www.ordnancesurvey.co.uk/docs/collateral/os-think-up-to-date-trade-press-release.doc>

4.1 Trust (continued)

(ii) Standards and regulation

We have already seen huge amounts of work done on the production of standards in the property sector. These standards cover how the data is produced, captured, stored and shared and range from high level principles to detailed and highly technical. So, on the face of it, the sector is doing well for standards. But, when we dig a little deeper, there are some challenges with these standards that will need to be overcome. As mentioned earlier, the volume and variety of data that will be used to understand real estate value will grow enormously and much of this will come from sectors of the real estate market which have their own data standards. Facilities Management, Construction, Internet of Things - all have data standards specifically focused on the issues pertinent to those industry sectors. If there are series of different data standards that do not align then this will cause issues when seeking to rely on this data for standardised valuations. The sector must find a way to let data flow across the whole real estate lifecycle. This may be achieved in a number of ways; through new data standards, mass adoption of existing ones, enabling the translation of one set of standards to another or finding new data exchange mechanisms. Whichever approach is correct or selected, the valuation sector must become more focused on the use of standards to enable effective data flow.

There are also major implications for the regulation of valuations in a digital world. Often, standards and regulations in the valuation sector have been written with a human valuer in mind. They are written for an expert to apply their own judgement to. A computer does not work this way, it needs rules and parameters to work to and has little room for interpretation or judgement.

To drive this point home, in 100 years, it is hard to imagine that calculating a building's value won't be largely computer driven. We have already seen how data will be collected and

analysed largely by the computer, so what part of this process do we regulate?

The obvious answer is that we regulate the human who takes overall ownership of the end product – the valuation. But can a person be expected to be an expert in the value of a property and understand the complex ins and outs of the algorithms that are designed to calculate the value? This seems unlikely, so will the regulators need to regulate the analysis itself? This is not something that the industry and existing regulators have traditionally done, so this creates some very real challenges for regulators. And at a time where we want to encourage small and agile companies into the sector, can we afford to be putting heavily prohibitive regulation barriers in place to put the bar so high that only the very strongest and most established can achieve the necessary levels?

So, regulators could perhaps regulate the algorithm that determines the value. This becomes extremely complicated if true artificial intelligence is developed and applied – as the decision making will be unique to each occasion. This is by no means an issue for real estate valuations alone.

It is fair to say that regulating property valuations is going to become increasingly complicated, but vitally important. The valuation, and wider real estate industry, needs to ensure that it is set up to cope with future regulations, so irrespective of the direction and approach taken, it is important to be considering it now, and engaging with regulators. If the real estate sector doesn't engage with this, it is likely that heavy and complicated regulation will be imposed by other sectors or Governments where they are more able to cope with the high barriers to entry.

The real estate sector needs to have a clear, 10-year valuation regulation strategy in place to demonstrate how it is dealing with some of these challenges and to reassure other markets and governments.



(iii) Ethics

Ethics is something that often gets talked about, but as we move into a more and more complicated digital world, this is not only going to become increasingly important, but is also one of the areas that is a very 'human' skill that is hard to automate. Just because something can be measured or collected, doesn't mean it should. For example, it is hard to argue that the use of facial recognition can bring a range of benefits for the secure and effective management of a building, but do people feel comfortable with this? The more we measure, the better we are able to offer customised services or more refined processes. But at what cost?

From a valuation point of view, we can build ever more complicated models to estimate and predict the value of a property, but how far should this go? If a key requirement for an office building is to support wellbeing and productivity, then should we be using facial recognition to understand how happy the occupants are? Should we be monitoring every key stroke to make sure that work rates are kept up? Should we be measuring employee biometrics? There is a logic for all of these data sets to be collected and included within an AVM, but should they be? This is a question of human preference and ethics, and there will likely come a point when we are prepared to accept that the most accurate model is not necessarily the best model.

We can also take this data ethics argument beyond 'what data should be captured' to 'how it is captured'. Imagine a retail AVM that uses credit card spend data, footfall from mobile phone tracking or car park activity from satellite imagery – all used today to support investment decisions. We can assume that all these data sets will be collected in a fair and objective way, but could we manipulate them in some way? Imagine paying people to drive, rather than take the bus, to carry several mobile phones rather than one. To buy a number of items in the shops and then return them to a different store.

There is little incentive to manipulate the data in this way today, but as these data sets influence value more directly, who is going to be responsible for making sure that the appropriate data is used and collected in an objective way?

It is not just what should be collected or used, but there will also be ethical judgements to be made over what it should be used for. For example, if 'Company A' employs a sophisticated piece of software with multiple data sets to help the company avoid regulation then most would agree this is an unethical use of data. However, if 'Company B' were to use the same data sets and the same software to help make the product or service better, then most agree that this would be an ethical use of data.

As the world gets more complicated, human ethical judgement will become more important as to what data is collected and how it is used.



4.2 The drivers of value

As a sector, in recent years, we have been exploring how we can collect more data about buildings to inform our decisions, make things more efficient or to better engage with the customer. But we rarely consider the value of the data itself. The data has a number of benefits that will increasingly need to be factored into the value of a building.

For example, it is well reported that BIM (Building Information Modelling) leads to significant operational cost savings. Estimates of the scale of these savings vary a lot, in a large part due to the fact that there are simply not many examples of buildings with BIM models that have been in operation for decades to compare and measure. The accurate cost savings that can be achieved will vary building by building, but in time it will be clear that an effective BIM model is a vital part of a building's mechanics that supports more efficient operation. So it is fair to assume a building with a BIM model should be more desirable, and therefore valuable.

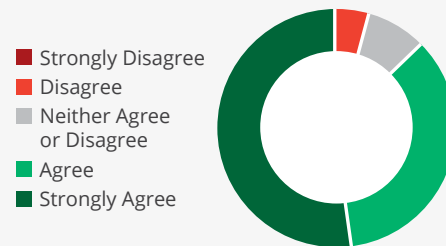
And it is not just cost savings that demonstrate the value of the technology, there are many examples of where technology is leading to better customer engagement and satisfaction. This in turn means that people will pay higher rents and stay longer in a building with a detailed digital infrastructure that supports their goals. 87% of our survey agreed, or strongly agreed that data and technology will become an increasingly important factor in the value of a property in time.

We also need to consider the opportunity to commercialise the data and use it as a source of income. Data today is collected and commercialised from all sorts of sources, and as buildings create more and more data, and we can capture and analyse this data, then it is likely it will hold higher value.

“Concrete has done deep research on the valuation space with our Braintrust partner network of global leading real estate players. We have identified exciting strategic options available for innovation-minded real estate companies to secure seats at the several future tables that will arise as the layers of additional, digitally-driven, value creation become clear.”

Taylor Wescoatt, Concrete VC

Data and technology will become an increasingly important factor in the value of a property itself in time.



As an example, imagine if an office does not charge any rent? Instead of rents, income would be generated from advertising, the commercialisation of data and the provision of services. It may be hard to imagine, especially in some markets, but whether rents are removed or subsidised by the revenue generated from technology, the value of the building, and the way it is operated, will very likely be affected by the use of data.

Real estate needs to recognise there is value in data and technology that in turn, will influence property value.

4.3 Disintermediation

We have seen that the valuation process is likely to become increasingly specialist and fragmented. Different people, skills and companies will carry out different parts of the overall process. As this happens, companies are at risk of becoming distanced from their existing client relationships. This may happen in a number of different ways:

4.3.1 Disintermediation by technology

In certain circumstances, we have seen that calculating the value of a building may be fully automated and then delivered to a client's computer. There is still likely to be a role for people to consider the ethics, judgement, etc. in this process, however, there will not be the same human interaction with the client. As the human relationship and the 'brand' associated with the value becomes more remote, these will become less important in the client purchasing decision. The client relationship and the brand are two of the primary drivers for purchasing decisions today, so as these become less relevant, it will become easier for new companies to enter the space and compete.

4.3.2 Disintermediation by new valuation advisors

In other use cases, we have seen that the human advice and relationship will remain very important, but here we may see the growth of specialist advisory companies that will simply leverage the most suitable third-party technology available depending on clients' need. This would introduce a much clearer value proposition and enable the advisory firm to specialise on the value they offer, whilst leaving the technology to specialist firms. This would mean a much more transparent and focused value proposition for clients from a company that can be more agile and customer focused than the traditional one-stop shops.

4.3.3 Disintermediation by accident

The value of property drives so much of the wider market, there is scope for a number of different companies to enter the property valuation space, not specifically to compete with valuations companies, but as a necessary step to a wider goal. For example, insurance companies, large technology companies or lenders could all start offering services in this space which would challenge the traditional real estate valuation models.

Knowing what part of the ecosystem you provide, and who your customer is, will become increasingly important for any company working in the valuation space.

“If the incumbent valuation firms do not embrace a more transparent and data-driven approach, AVMs and other disrupters will render them obsolete in the next five years.”

Hans Vrensen, AEW



4.4 The value proposition paradox

What part of the process do you do, what do you charge for and what does your customer value? Whilst the industry has provided a one stop shop offering to date, this has never particularly mattered, but as we have seen in the earlier section, the provision of valuation services is going to become an increasingly complex ecosystem, and so different companies will offer different elements of it.

Today, a typical valuation team will earn its fee by charging for delivery of a valuation report. The report is delivered, paid for and then advice is offered. However, we also need to consider what part of this process the client really values. It is often the advice that is most highly valued by clients, but this is not necessarily what is charged for.

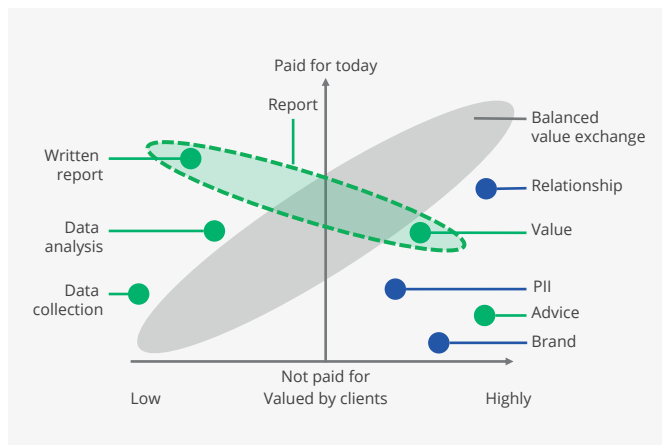
Of course, today this is usually all supplied by the same company, so this dissection of value is less important, but as the sector and process fragments, we will see this understanding rise in importance. A valuation provider must decide whether to provide both high and low value services as one solution – and therefore one cost, or whether to split them, and charge accordingly. As the components of valuation fragment, and we see specialists emerge, it could lead to companies being stranded and priced out of the market.

The diagram below estimates which individual elements of the valuation process are valued by the client and which are paid for today. Clearly this will vary depending on a range of different scenarios and factors, but we can see that today, when most of these are provided as a single solution, which part is charged for makes little difference. However, as each of these elements becomes more specialist and potentially provided by different companies, each element will need to align with the 'Balanced Value Exchange'. It is likely that the elements shown in blue, client relationship, PI cover and brand, are the most at risk from disintermediation.

The paradox for the incumbent valuation companies is how

they get out of this situation. We are already seeing a number of technology companies provide services at, comparatively, low cost through the use of technology. Should a more traditional provider now switch its model so, for example, the valuation report is offered for free (or very low cost) and the most valuable element, the advice, is charged for? If so, why would clients pay for the advice that they will continue to be able to get at a relatively low cost or free elsewhere?

The incumbent valuation provider companies are in pole position with their existing client relationships, but must ensure that their value proposition is aligned with client perception.



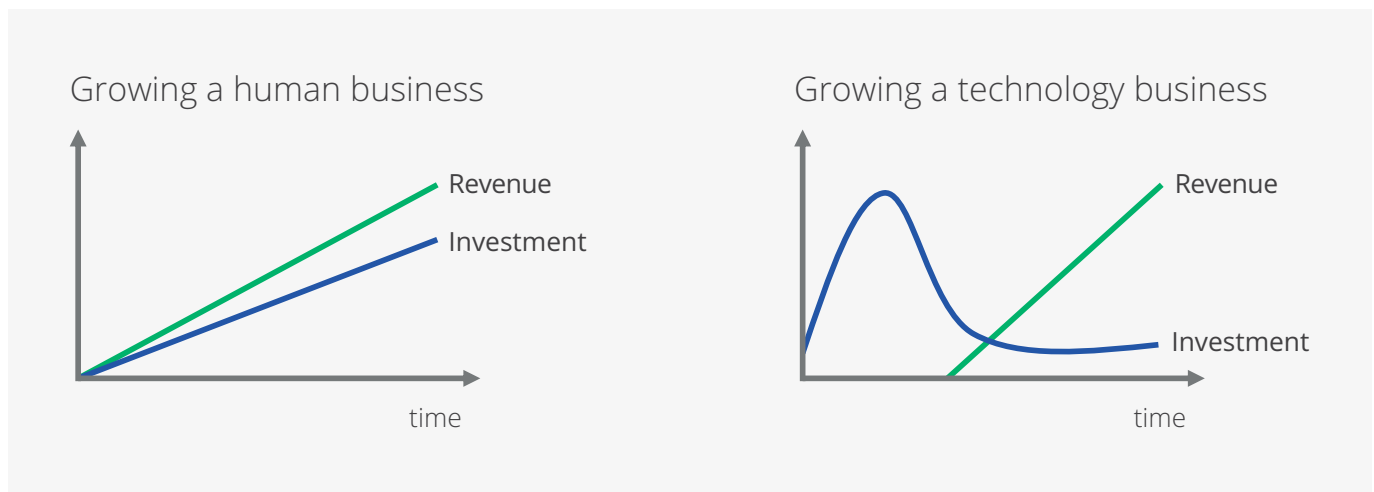
4.5 Investment profile

As the valuation process becomes more binary between the human and technology, we will need to consider our business and investment processes. Human advice is relatively inexpensive and can be very rapidly deployed to start generating revenue quickly. However, it is expensive to scale. As a valuation team wins more work, they will need to employ more and more valuers – which is timely and expensive.

Technology on the other hand is relatively expensive to

develop from scratch, and so needs a completely different investment profile. Investment is required up front to build the AVM solution and it can be months or years before it can be deployed to generate revenue. When it is ready, however, it can be scaled much quicker at relatively low cost.

Valuation companies will need to ensure that their investment profiles and business decision making processes reflect those that are needed to operate effectively.



4.6 The next generation timebomb

The real estate valuation sector needs to work hard to attract the next generation of real estate professionals. The need for increased diversity, in all senses of the word, and the need to improve, wider public perception, is well documented.

Today, the career path for a valuer is often based on joining a real estate firm as a graduate, learning on the job and working their way up. Typically, more junior valuers will be given the more repetitive, mundane tasks to complete, while the senior, more experienced valuers, will typically hold the client relationships and oversee the delivery of work.

The challenge with this model is that technology is automating the very foundations of the valuation education. The tasks that are typically done by the junior staff are likely to be automated.

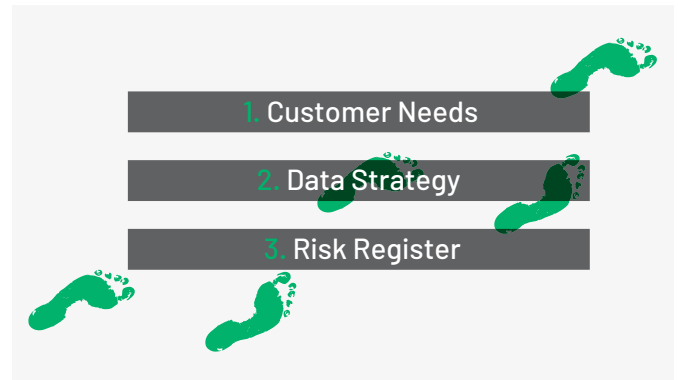
So, companies may decide to replace junior valuers with investment in technology. This works in the short term, but what happens when the senior valuers begin to retire? Who takes their place?

The challenge of recruitment and skills will take many years to play out, but the sector must start planning for this scenario now by reviewing the career path and training for the senior valuer of the future.



5. Three things to do today

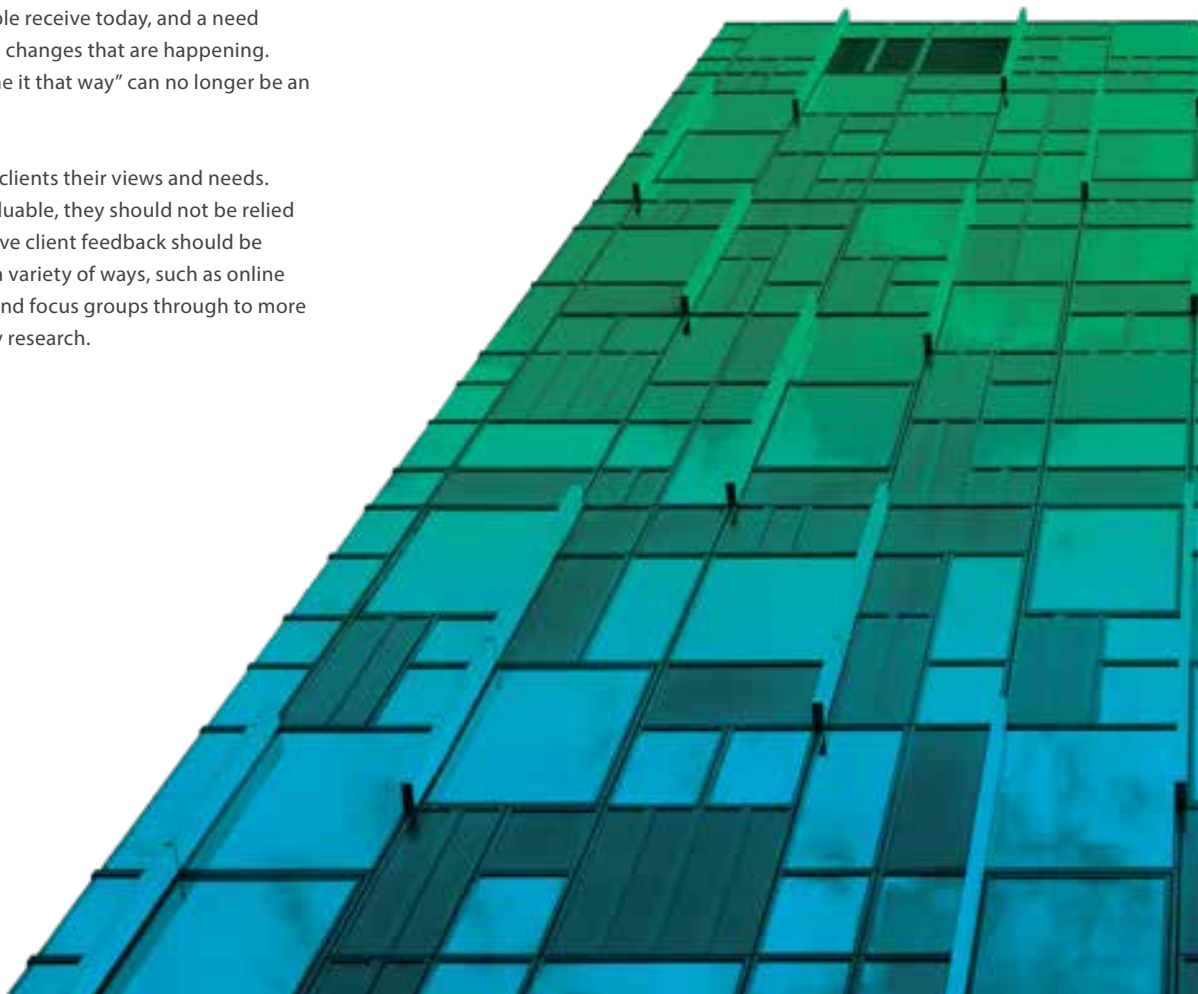
There is no single correct approach to take to the future of valuation, indeed we are likely to see a divergence of solutions and strategies by companies in this space. The approach taken by a company will dictate the digital strategy, however, there are some simple steps that can be taken today to start moving in the right direction.



5.1 Clearly understand your clients' needs

At times, there seems to be a growing distance between the opinions and needs of clients and the traditional valuation companies. Whether this is a fair representation of the whole market or not, it is clear that there are mixed views about the value of the service that people receive today, and a need to embrace the technological changes that are happening. "Because we have always done it that way" can no longer be an acceptable answer.

The first step to take is to ask clients their views and needs. Whilst internal views are invaluable, they should not be relied upon in isolation, and objective client feedback should be sought. This may be done in a variety of ways, such as online surveys or client workshops and focus groups through to more detailed, in-depth third-party research.



5.2 Develop a valuation data strategy

The second key step is to consider the role of data for your company within the valuation process. A detailed data strategy is essential, however again, there are some simple questions that can be asked to make sure that you are moving in the right direction.

- What data do we need now?
- What data do we have now?
- Do we have the rights and permission to use it?
- What data might we need in the future?
- How can we get this data?
- Will this data provide a competitive edge?
- Can we compete with other existing and new entrants in this market?
- Are we prepared to invest into the collection and management of the data that we need?

It is only when you know the answers to these questions that you can start formulating a way forward, from a data point of view.

5.3 Develop a valuation risk register

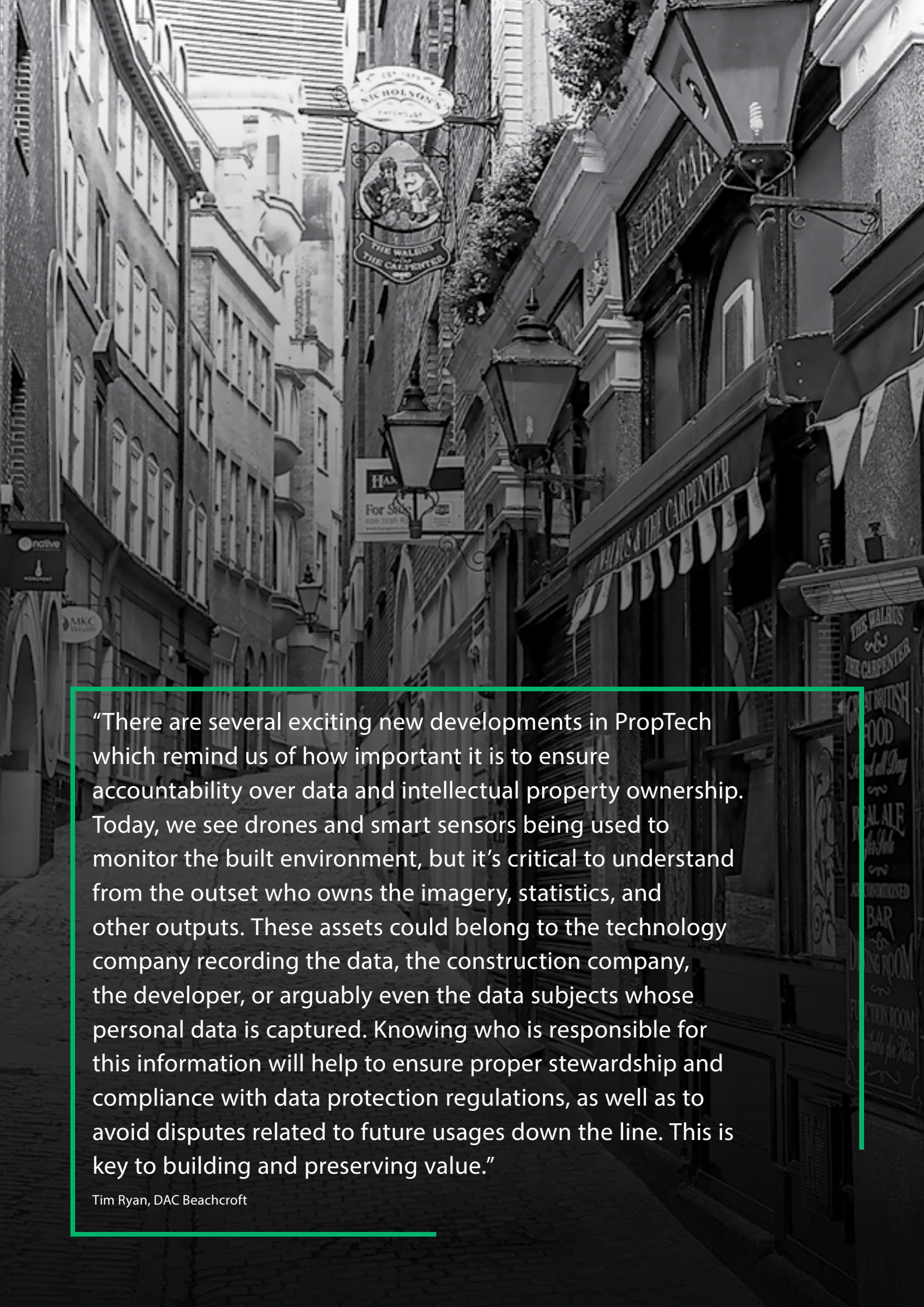
Finally, whatever your approach to the use of data in the valuation process, there are a number of risks associated with it, many of which we have already looked at. The management and use of data will grow over time and so will the problems that it poses. Things will go wrong and it is important that companies prepare. One of the easiest ways to get started with this is through the production of a valuation risk register. This can be a relatively easy process by including appropriate stakeholders from all parts of the valuation process to spend a short amount of time articulating some market scenarios, outlining the risks that they face, ranking the risk, the mitigation measures, and who is responsible for each one.

Many of the problems that the sector will face will be very costly and difficult to solve in the heat of the moment, but relatively inexpensive and easy to plan for now.

The key to this process being successful is that this is not a one off, static event, but a 'live' document that is regularly reviewed.

If you work in valuation, you will face challenges in the future and it is much better to prepare for them now.





“There are several exciting new developments in PropTech which remind us of how important it is to ensure accountability over data and intellectual property ownership. Today, we see drones and smart sensors being used to monitor the built environment, but it’s critical to understand from the outset who owns the imagery, statistics, and other outputs. These assets could belong to the technology company recording the data, the construction company, the developer, or arguably even the data subjects whose personal data is captured. Knowing who is responsible for this information will help to ensure proper stewardship and compliance with data protection regulations, as well as to avoid disputes related to future usages down the line. This is key to building and preserving value.”

Tim Ryan, DAC Beachcroft

Appendix 1 – Acknowledgements

We would like to thank all of those who have supported the creation of this report, the content does not necessarily reflect their individual, or company views. We would particularly like to thank:

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Appendix 3 – About the author and report methodology

This report is written on behalf of LIQUID REI by Dan Hughes. Dan has worked across a wide range of organisations in the real estate sector covering all sectors and stages of the lifecycle. Dan worked for KONE and DTZ (now C&W) before moving into the data world where he held senior roles at Ordnance Survey, the leading Geospatial provider, IPD, part of MSCI and the leading investment data provider and at RICS where he was responsible for the product management of products such as BCIS and iSurv. Whilst at RICS, Dan also led the PropTech strategy positioning RICS as the leading global PropTech brand.

In all of these roles, Dan has had a particular focus on the valuations process, how it is changing and the use of data within it. Dan now leads Alpha Property Insight, a consultancy which has worked with a number of the world's leading organisations to help them navigate the changing valuation sector. It is this range of different perspectives that have been the basis of this report.

To support the research, a short survey of 27 leading valuation clients was carried out. The results of this, more

detailed views of the respondents and conversations with several leading influencers and practitioners have then been used to further shape and influence this report.

This report was written with advice and technical assistance from Ben Elder, Chair of the IVSC Tangible Assets Board, Member of the IVSC Overarching Standards Board and RICS International Director of Valuation. For the avoidance of doubt, this in no way suggests that Ben Elder, RICS or IVSC agree or endorse the content of this report.





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