Automated Valuation Models

Roadmap for RICS members and stakeholders

June 2021

RICS®

AUTOMATED VALUATION MODELS

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Acknowledgements

Introduction

'The valuation of property has long been characterised as both an art and a science: an art because of the need to make value judgments concerning the intangible features that attract certain buyers; a science because it is possible to establish trends and analyse how these are interpreted by buyers and sellers, including the value placed on particular property characteristics.

The use of computer modelling in the science of valuation has merit in a world where there is increased availability and use of data, and where failure to achieve an opinion of value, which takes proper and balanced account of such information and analysis, may result in greater exposure to expensive litigation.'

RICS AVM information paper, 1st edition

The valuation and appraisal sector has reached an inflection point as a result of the application of artificial intelligence, machine learning, and other algorithms to structured and unstructured data sets of increasing size and complexity. An ever-evolving regulatory landscape and the market's demand for speed and innovation is driving change faster than ever before.

The purpose of this paper is to:

- provide a background summary of the recent activity that has been undertaken by RICS around Automated Valuation Models (AVMs)

- stimulate a programme of awarenness, education and engagement with a wide range of external stakeholders to help shape a roadmap for RICS to develop and deliver the necessary definitions, taxonomy, policies, thought leadership, professional support, standards, regulation, assurance, and training to support the profession, users of valuation, regulators, governments and other affected stakeholders and

- suggest an agenda for the programme, outlining themes and questions that need to be addressed and answered, focussing on those effects that our expert groups believe will have a significant impact over the short-, medium- and long-term.

There is a clear need for a better understanding of the opportunities and risks associated with AVMs, and what the role and scope of RICS should be as a public-interest organisation, providing guidance, support, and setting and enforcing standards.

This paper and the engagement process outlined above will enable RICS to embark on a roadmap of tangible outputs from autumn 2021 that reflect the needs of the various stakeholder groups as they use and consume the outputs from AVMs. At the time of writing, RICS retains an open mind as to the nature of these outputs. For exampe, a formal AVM standard could be produced as part of the roadmap if it is felt that the AVM landscape has reached an appropriate level of maturity and that a standard is itself the best solution for the market.

Alternatively, the market may be better supported by alternative forms of guidance and education. The use and application of AVMs varies across asset types, markets, and valuation purposes, so the engagement process and resulting outputs will reflect this.

This paper is not intended to provide guidance, nor recommend or advise on any type of professional procedure to be followed by members. Neither the authors, nor RICS, accept any liability arising from the use of this publication.

A roadmap for market engagement

Stakeholders

Representatives from the following stakeholder groups will be represented with appropriate geographical coverage to reflect the use and maturity of AVMs across international markets:

- valuers
- valuation clients
- AVM and data providers
- professional indemnity insurance providers
- lawyers
- other regulators and supervisory bodies
- academia and research bodies.

Themes

The programme will explore and seek to address the following themes and welcomes additional market insights and perspectives on the use and impact of AVMs.

- The need for education and raised awareness of AVMs across the marketplace.
- The range and methodologies of AVMs and other digital valuation tools
- A high-level understanding of the various statistical, algorithmic, and other artificial intelligence approaches being used such as regression analysis, machine learning and neural networks.
- Definitions and a taxonomy of terminology.
- The range and robustness of data sources, indices, etc. being used.
- The current use of AVMs across different valuation purposes, asset types and geographical markets.
- The market's understanding of the term 'valuation':
  - where are AVMs being used as part of formal valuations?
  - where are AVMs being used for other purposes such as internal underwriting and risk management or consumer facing 'valuations', such as iBuyer type business models?

- Clarity on when exactly an AVM output is within the scope of IVS/RICS Valuation – Global Standards and other valuation standards:
  - where do we 'draw the line'?
  - developing a full understanding of the level of human involvement, supervision and due diligence through design, training, operation, ongoing maintenance, risk mitigation, robustness, efficacy, validation, avoidance of bias and bias drift, assurance, and governance.
- What are the opportunities, risks and shortcomings of AVMs:
  - can they be forward looking?
  - what are the requirements for physical inspections of assets?
  - how do they handle so called 'edge-cases'?
  - are clients fully aware when AVMs and other automated, data-driven tools are being used?
  - is there a risk that AVMs start leading, rather than reflecting, the market?
- 'Explainability':
  - How does the market deal with the range of approaches and models from 'white-boxes' such as simple algorithms or statistical models, through to complex 'black-boxes' such as neural networks?
- Liability and assurance:
  - what happens 'if AVMs go wrong', and which stakeholders provide assurance and Professional Indemnity Insurance?
- The role of data quality, its source, provenance and the rights to use and share data.
- What role should professional scepticism play in reviewing the outputs of AVMs?
- What new and updated skills do stakeholders need to become intelligent customers of AVMs, data and technology in the valuation sector?
- What does the future hold:
  - a thought experiment on how open and consistent data for commercial real estate could support AVMs for this asset type.

Fundamental questions

- What are the roles and responsibilities of all affected stakeholders?
- What is the role of professionalism, standards, and regulation for AVMs?
- Does the market need standards, or rather continual guidance and the adoption of best practice?

- What role and responsibilities should RICS and its members adopt?
  - Should RICS provide market confidence in AVM as well as 'traditional' valuations?
  - What should be the scope of RICS' standards and regulatory offering for AVMs?
  - Do AVMs provide a surveying service as per the RICS Charter?
  - What should RICS' priorities be in the short-, medium-, and long-term?
  - What forms of guidance and information should RICS provide to support the market?

Programme of activities and timeline

- Spring-Summer 2021:
  - Execute thematic review on due diligence when using AVMs.
  - Run webinars and forums across all world regions.
  - Establish external advisory group.
- Autumn 2021:
  - Integrate findings with the current RICS valuation review process.
  - Publish roadmap of outputs across guidance, practice alerts, information, training, standards, etc. based on findings and insight from the engagement programme.

Thematic reviews

The surveying profession is global in scope and influence, and broad-ranging in its application. It is therefore of continuing importance that, in its capacity as a regulatory body, RICS has a clear understanding of how effectively certain key areas of guidance or standards are being implemented by the profession across firms and members in different markets. This enables RICS to identify and address any areas of risk, communicate good practice, and provide additional guidance and clarification as required.

Thematic reviews are undertaken to cover specific on-going and emerging risks. The reviews allow for assessment of compliance and risk management in relation to a regulatory requirement, area of work or business practice.

A thematic review is a detailed look by RICS at a specific area of surveying work, practice or standards. It involves the use of appropriate research techniques, including bespoke questionnaires and discussions with firms and members. Following completion of the research, the findings are reported, presented and communicated, and used to inform further guidance and policies.

Outputs of the research will be anonymised, although RICS may segment the findings according to firm characteristics such as size, number of offices, type of work undertaken, geographical area of operation, and so on. This is to enable us to gain a more granular understanding of the results across a wide range of firms and markets.

Background

Why are robust valuations important?

'Valuations are arguably more important for investment in real estate than any other major asset class. For non-listed real estate vehicles, they play a crucial role in reporting to investors, monitoring portfolio strategy and undertaking transactions, and as a basis for secondary market trading.

As digital technology advances apace, investors' expectations and demands of real estate valuations are growing. In part this reflects the increasing complexity of many real estate transactions, which often now involve large portfolios of assets. But more importantly, investors want to benefit from the full potential that technology promises for valuations, potentially making them quicker, less prone to human error and sensitive to a far wider range of evidence than is currently the case. We agree that big data, blockchain and automated valuation models (AVMs) are all likely to have a role, but an openness among valuers to new ways of harnessing information is likely to be just as crucial as any single technology.'

Jeff Rupp, Director of Public Affairs, INREV, RICS Insight Paper, The future of valuations, 2017

What is an AVM?

The RICS information paper *Automated Valuation Models (AVMs)*, quotes a defintion from a 2008 RICS AVM Standards Working Group:

'Automated Valuation Models use one or more mathematical techniques to provide an estimate of value of a specified property at a specified date, accompanied by a measure of confidence in the accuracy of the result, without human intervention post-initiation.'

However, there is no universally agreed definition, and this represents a fundemental issue, as stakeholders may not necessarily be referring to the same thing. In addition to the lack of an agreed defintion, data and technology is also being applied in other ways, such as producing sets of comparable evidence, that are affecting the valuation process. At the time of writing, the International Standards Valuation Council (IVSC) are in the process of consulting on an industry agreed definition of AVM. RICS, as a key stakeholder, have inputted into this consultation and will continue to monitor developments as they occur.

Types of AVM

There are different types of AVM that are used in the market, some wholly automated, others a blended with human input :

	US Models	Features described by Zillioux (2006)	UK Models	
Valuer Assisted AVMs	Not discussed in Zillioux (2006)		**Model 1: wholly automated loan decisions**	**Desktop valuations**
	ditto		**Model 2: AVM with administrative sense check**	
	a. AVM with desk review	Sense check of AVM Alerts to incorrect value Limited additional research by appraiser Uses appraiser expertise May use local knowledge Can upgrade to higher level valuation if required	**Model 3: outsourced 'surveyor overview'** operated by central valuer. No local knowledge used. Can upgrade to higher level valuation if required	
	b. AVM with additional comparables	As a) above plus: Uses local knowledge Appraiser fully researches and evaluates extra comps Uses offer figures as well as recent sales not yet in AVM database	**Model 4: in-house valuer assisted AVM (VA AVM)** Operated by valuers with local knowledge For cases marginally outside AVM valuation policy constraints. Can upgrade to higher level valuation if required	
AVM Assisted Valuations	c. AVM with appraiser adjustments	As b) above plus: Valuer can consider subjective attributes of the property (e.g neighbouring uses, unusual improvements) Valuer can adjust the AVM figure		
	d. AVM with inspection and photo	Trained technician or appraiser inspects the property Allows for factors external to the property Allows for internal/external condition		
	e. Desktop valuation with AVM engine	Appraiser picks, evaluates and then supplies comparables for AVM to use		

Source: adapted from Zillioux (2006)

Table taken from RICS Research Paper 2009 (*Integrating automated valuation models with valuation services to meet the needs of UK borrowers, lenders and valuers*, Gill Robson and Mary Lou Downie, Northumbria University, UK)

The above classification was developed by Victoria Zillioux of Strategic Development Worldwide.

Regardless of the AVM approach used, it should be capable of being explained and tested, and a judgement made on its performance and efficacy (using confidence levels where available) in the context of the purpose of the valuation.

What is a confidence score?

Where available, a confidence score indicates the accuracy of an AVM's estimate of value. A low confidence score may occur when the subject property has more unusual physical features, or is in an area where market data is sparse, making value ranges difficult to model. UK commercial AVM providers use different scales to measure accuracy, which complicates interpretation and comparison.

Confidence measures are usually based on:

- the relevance, quantity and recency of the comparable data on which the output figure of value is based or

- the forecast standard deviation (FSD) of the individual output, relative to the true value benchmark, usually a valuation carried out by a valuer or a sale price.

Uses of AVMs

Some examples of AVM uses are set out in the table below. It is important to note that the use of AVMs in the ways listed below are independent of interaction with a valuer.

1	By lenders for the loan origination process or subsequent revaluation for credit decision purposes.	Lenders can now obtain an AVM that can sometimes be used prior to processing a case, to see if the proposed figures are likely to be adequate, without going to the cost of a full valuation by a human valuer. It introduces a level of risk that the lender necessarily accepts. Alternatively, an AVM can be used part-way through a mortgage term to check how a property value may be changing.
2	In-arrears assessment and planning	Lenders may wish to check the value of a security to establish, where the customer is in arrears, if the loan is still likely to be secured by the value of the property and what scope there is in arrears planning. The AVM offers a cheap and quick indication.
3	In an audit of valuations	Lenders, and those who audit valuations, will sometimes obtain a second valuation from an AVM supplier to serve as an audit of the original valuation. This can occasionally be applied across a range of properties, as well as in individual cases.
4	For mass appraisal, such as for local taxation purposes	A model sometimes called Computer Aided Mass Appraisal (CAMA) is a sophisticated AVM capable of providing valuation estimates for thousands or millions of properties, cost-effectively.
5	For the provision of valuation estimates for individual capital tax purposes	An AVM can be used in these instances for individual properties or for a portfolio, to provide a quick estimate of likely tax implications to aid with tax planning.
6	For the identification of fraudulent activity	An AVM applied to a range of properties and their valuations can distinguish activity that does not follow the normal market trends.

7 For the provision of valuation estimates for large-scale asset valuations, for example, a portfolio of local-authority-owned properties, or the sale of a mortgage book in respect of 'securitisation'	Here an AVM can be used, potentially cost-effectively, to provide sample valuations for portfolio purposes or for the valuation of a whole portfolio.
8 For estimating compensation payments to owners of property due to the effect of the use of new public works, for example, road schemes or airport expansion, etc.	Public authorities may find an AVM a quick and cost-effective way of estimating the likely cost of compensation as part of a total 'scheme' cost. An appropriate model can provide a pre-scheme value estimate of affected properties and keep this up to date as necessary.
9 For cost/benefit analyses for potential public expenditure	Similar to 8 above, when estimating the cost or benefit of public works, an AVM can rapidly and economically provide a total cost estimate of the residential value of properties likely to be affected to aid a cost benefit exercise.
10 For lending (capital adequacy purposes)	AVMs can be applied to a portfolio of property subject to mortgage finance, to obtain an indication of how well they are performing. This can assist the lender and their accountants in determining capital adequacy ratios.

Source: *Automated Valuation Models (AVMs)*, RICS information paper, 1st edition

Advantages and disadvantages of an AVM

Advantages	Disadvantages
AVMs are particularly attractive to lenders for mortgage valuations as they can be built into existing electronic valuation processing platforms, to support lower-risk lending decisions.	The property is not usually inspected when an AVM is used. An average condition is often used, which could well be inaccurate. The commercial AVM providers require large amounts of reliable, detailed descriptive data about properties and market transaction prices in order to model the market accurately.
AVMs can be useful to tease out nuances/statistical analysis that valuers may not ordinarily be able to observe in the course of their usual investigations.	There is little consumer transparency in AVM use. In the residential field, the complexity of the house buying process creates difficulties in informing consumers about their valuation and survey choices.
Saves time, money and resources, and helps manage the ever-increasing data stream, providing a level of certainty.	System can be subject to fraudulent activityy.
Removes the human element, reducing the risk of fraud.	Lack of quantity and quality of good comparable data could lead to a valuation with a low confidence level.
	The provenance of the underlying data being used: • how has it been collected? • is it subject to any selection bias? • can the data source be updated on a regular basis and will it be available over the lifetime of the service being provided? • are previous valuations based on sales prices and/or figures provided by a qualified independent valuer?
	AI, machine learning and neuro linguistic programming mean increased AVM sophistication. This can lead to valuation outcomes that are not only independent of human input but are also incapable of a simple explanation of the process and functions undertaken to create a valuation.

Current RICS guidance in this space

See Appendix A for more detailed information on this. For ease, the key valuation-related publications that reference AVMs include:

- **RICS Valuation – Global Standards**, effective from 31 January 2020
- **RICS Valuation – Global Standards 2017: UK national supplement**. Issued November 2018, effective from 14 January 2019
- **Comparable evidence in real estate valuation,** RICS guidance note, global, 1st edition, October 2019.

RICS believes that standards supporting and recommending appropriate valuation rationale will avoid an increasing divergence between automated output and the human understanding that might be needed to ultimately accept and approve related risks and decisions.

RICS thought leadership activity

WBEF

RICS World Built Environment Forum Summit in New York, May 2019, session titled: 'Valuing Real Estate in the 21st Century: How is technology redefining the art and science of valuation?'

Some of the key takeaways from this session included:

Proposed increases in appraisal thresholds

The panel noted a shifting regulatory environment (certainly from a US perspective) with proposed increases in appraisal thresholds using AVMs. Examples cited included:

FDIC/Federal Reserve/OCC RESIDENTIAL	From $250,000 to $400,000
FDIC – Enacted 2018 COMMERCIAL	From $250,000 to $500,000
US. SBA COMMERCIAL	Bring in line with the new federal threshold ($500,000)
National Credit Union COMMERCIAL	Double the federal threshold to $1.0 million

According to one panel member, 'there have been a number of changes over the past five years which have created a "tipping point"':

1   The digitisation of data – the data was available, but not in a digital form, so machines can't access it. Historically you could only access manually.

2   Technology has improved – for example 'Elastic search', which powers Uber searches (the tech that runs in the background deciding which car to send you), has come to fruition.

3   Demand from consumers that professional staff spend less time on low value data collection type work and focus on providing high value professional judgement areas.

Another panel member noted an increasing use of AVMs on income-producing commercial properties. Traditionally AVMs have been used to value residential properties as using a

comparable approach, not so with commercial space. Income information is traditionally contained within a lease, which historically has not been available for public consumption, in the way sales transactions are. Many firms developing technology that extracts lease information so you can start determining values of space that is vacant and/or will soon become vacant.

Other panelist comments included:

'Appraisers will need new skills to be able to anaylse data, including greater volumes of data than they currently do.'

'It's time for us (the appraisers) to really add value in the process. Let the technology deal with the inefficies in our world.'

'An AVM by itself is not an appraisal. An appraisal is when a valuer understands the inputs, the outputs and then turns this into an opinion of value. AVMs by and large have been utilised in a steadily rising market; it will be interesting to see what happens when we have some hiccups.'

'Investors, owners and lenders are demanding more transparency with less subjectivity. With more data science supporting the adjustmetns and the inputs. The appraiser of the future will be validating, checking the automated system.'

The panel also discussed the Moneyball scenario – is there something to be learned from the sports arena, where data is being used to support and lead on decisions made about player purchase/disposal in a less biased, more informed way than humans? Can real estate learn something from this?

Where next?

'In 1997, Blockbuster video charged a $40 late fee to a customer called Reed Hastings for the movie Apollo 13. Two years later he founded Netflix. A year later Blockbuster video were offered the chance to buy Netflix for just $50m, they declined. By 2010, with in the region of 9,000 stores in their portfolio, they were bankrupt.

In 1975, Kodak invented the worlds first digital camera, but opted to put it on the shelf in the lab as they were in the film selling business. They had a 90% market share, with over 11,000 patents at over 120 years of history, and were bankrupt by 2012. Companies and industries have to adapt.'

Technology-smart millenials are an increasing share of the workforce.

Is *this* the Valuation industry Kodak moment?

RICS Leaders Forums

RICS hosted a number of Leaders Forums around the world including Germany, Netherlands, Sydney and the UK under Chatham House Rules, so no comments are attributed to a single person or organisation, nor are any necessarily the opinion of RICS.

The following questions were posed at each Forum:

1   How are AVMs currently being used and how will this develop?

2   What are the opportunities and risks associated with the use of AVMs?

3   Are there, or should there be, regulatory requirements for AVMs?

4   Are AVMs in the public interest?

5   Which actions can be taken to seize opportunities or mitigate identified risks?

'The first thing to consider is the appropriate use of an AVM. The suitability of an AVM is largely dependent on the type of property, purpose of the valuation, availability of input data, confidence level required and risk exposure (e.g. loan to value ratio in mortgage lending). Unusual properties and limited comparable evidence will reduce the confidence score of an AVM and may make the output unreliable, It is essential that the appropriateness of applying an AVM is considered as part instruction process.

It is clear that AVMs will not be suitable for many types of valuation, including complex commercial valuations, until the appropriate data sources become available. The key difference is that a human valuer can make subtle adjustments to allow for variations in unique features of a property, especially where volumes of evidence are relatively small. These decisions rely on the professional experience and opinion. On the other hand, if there is a reasonable volume of transactions in property that are broadly similar, and the differences in transaction prices can be highlighted by differing attributes (such as two bedrooms as opposed to three, or a smaller physical size compared with a bigger one) the AVM should be able to work successfully with a high degree of confidence.

AVMs can significantly remove cost and time barriers in updating valuations for large numbers of residential property within mortgage portfolios or track the development of residential property markets more generally.'

'...urges the adoption of a consistent set of definitions about what constitutes a "valuation", "calculation", "Automated Valuation Model" in order to clearly state the nature and extent of the valuation work, including investigation and the limits thereon.'

'...would like to see more transparency and standards on AVMs to improve the understanding of the underlying statistical valuation methods, their suitability for specific requirements and how users can assess performance and accuracy of the resulting valuation outputs.'

'The quality of AVMs varies considerably, depending on features such as the available data and sample sizes, together with the design and development of the model. Standards guiding AVMs would enable valuers, regulators and the valuation user community to better distinguish between a high-quality AVM and a less accurate AVM. The valuer is unlikely to have detailed knowledge of the inner workings of the model however, the valuer should be

able to compare the outputs of a model against what a reasonably competent valuer would be able to produce.'

'…recognises the value of AVM in a world where there is increased availability and use of data. It is an important, but not very different, addition to other tools used by valuers, or other professionals and lenders, to undertake their analyses and arrive at supportable estimates of value.'

'Availability of reliable, up-to-date property market data is critical to professional valuation practice and an even stronger requirement for AVMs. Public transaction databases and registries are known for being incomplete and slow to react to changing market trends, thus questions raised about heuristics and bias are often justified. AVMs attempt to address these shortcomings to some extent by calibration, statistical validation and sifting through a lot of data quickly.'

'While developers also emphasise that for AVMs to be effective, considerable volumes of up-to-date market data are necessary, the main challenge lies with identifying recent, arms-length sales to use as market values in the development databases.

AVMs could become self-generating if the AVM evidence is reintroduced in the algorithm, which then raises questions about the independence and objectivity of valuation. Therefore, we recommend that statistically significant non-AVM data be a compulsory element to be part of the AVM model, so that the risk of self-generation is avoided.'

'Currently AVMs are looking backward in search of comparable evidence of property transactions. The advent of more advanced modelling techniques, including machine learning, data mining, the growth of data availability, both in frequency and level of observation will be continue to change the way AVMs operate and will improve statistical valuation methods.'

'GPS and other geographical information systems, have provided AVM services with more complex geospatial data, allowing them to more effectively tackle the location challenge. Given the time and cost efficiency gains, AVMs could in many instances be deemed by valuation users to provide adequate due diligence to e.g. a bank loan with a low LTV (loan to value) ratio.'

'In response to rapid technological change, the real estate industry and the valuation profession are compelled to move toward, providing added value through more efficient and more transparent processes taking account of new expectations and the requirements of clients as well as innovation and digital technology…initiating a conversation with valuation users and providers alike to ensure valuations continue to add value and remain fit for purpose.'

'…the role of the valuer as an objective impartial judge will remain crucial and, in many cases, the valuer will need to check an interpret the outcome of the AVM, so the understanding and use of AVMs and statistical analysis will need to become a core skill of any valuation professional.'

The role of regulators

To date, professional bodies in Canada, the USA and Australia have responded to the introduction of AVMs with policy statements, guidance and in some cases by adding to professional standards, possiblity reflecting their earlier introduction of AVMs.

In the UK, the Financial Coduct Authority (FCA) provides general guidance in its Prudential sourcebook for Banks, Building Societies and Investment Firms (known as BIPRU) in relation to statistical methods used to monitor the value of the property. The Prudential Regulatory Authority (PRA) differentiates the criteria for building societies, who have their own sourcebook (known as BSOCS – Building Societies Sourcebook). Building societies are required to put arrangements in place for obtaining reliable security valuations, including the use of AVMs.

Through the RICS Valuer Registration Scheme (VR), RICS regulate the individual members and registered firms who undertake valuation related activity, providing the quality assurance that gives trust and confidence to our stakeholders.

Appendix A: RICS valuation-related guidance

RICS Valuation – Global Standards, Effective from 31 January 2020

PS 1 Compliance with standards where a written valuation is provided

All members, whether practising individually or within an RICS-regulated or nonregulated firm, who provide a written valuation are required to comply with the international standards and RICS global standards set out below.

Members must also comply with the requirements of RICS Valuer Registration (VR).

1.4 For the avoidance of doubt, the provision of an automated valuation model (AVM)-derived output or one based on a valuation modelling tool (see VPS 5 paragraph 4) is regarded as the provision of a written valuation for the purpose of these standards.

VPS 1 Terms of engagement (scope of work)

3 Terms of engagement (scope of work)

i) Nature and extent of the valuer's work – including investigations – and any limitations

thereon

Any limitations or restrictions on the inspection, inquiry and/or analysis for thepurpose of the valuation assignment must be identified and recorded in the terms of engagement.

If relevant information is not available because the conditions of the assignment restrict the investigation, then if the assignment is accepted, these restrictions and any necessary assumptions or special assumptions made as a result of the restriction must be identified and recorded in the terms of engagement.

Implementation

1 A client may require a restricted service; for example, a short timescale for reporting may make it impossible to establish facts that would normally be verified by inspection, or by making normal enquiries; or the request may be for a valuation based on the output of an automated valuation model (AVM). Note that the provision of an AVM-derived output would be regarded as the provision of a written valuation for the purpose of these standards (see PS 1 paragraph 1.4). Accordingly valuers should be alert to, and aware of, the implications of either accepting or manually modifying an AVM output. A restricted service will also include any limitations on assumptions made in accordance with VPS 2.

RICS Valuation - Global Standards 2017: UK national supplement. Issued November 2018, effective from 14 January 2019

UK VPGA 13 Residential secured lending guidance for other related purposes including RICS HomeBuyer Service

UK VPGA 13.7 Valuations without internal inspection

The valuer may be asked for a valuation without the benefit of an internal inspection, and with or without the benefit of an earlier report. This may be called a 'desk-top', 'drive-by' or 'pavement' valuation, or an 'external appraisal', and may include reference to automated valuation models (AVMs).

UK VPGA 18 Affordable rent and market rent under the Housing Acts in a regulatory context

UK VPGA 18.5 Analysis of comparable market evidence

6 Output from an automated valuation model (AVM) may also be considered. However, care should be taken to understand how that output relates to the valuation requirements – see RICS information paper, *Automated Valuation Models* (AVMs), 1st edition.

Comparable evidence in real estate valuation, RICS guidance note, global, 1st edition, October 2019

4.3 Automated valuation models

The providers of automated valuation models (AVMs) may offer access to their data in certain circumstances. Some of this data may be detailed and more rapidly available than that from other databases though care in verifying it will still be required and the same caveats apply. Aggregated data may be used to show trends, but it cannot account for the characteristics of an individual property and the effects these may have on its value.

Data from an AVM may be used as part of the evidence in support of a valuation, and the valuer should decide on the weight to give AVM outputs when assessing the total body of comparable evidence available.

Delivering confidence

We are RICS. Everything we do is designed to effect positive change in the built and natural environments. Through our respected global standards, leading professional progression and our trusted data and insight, we promote and enforce the highest professional standards in the development and management of land, real estate, construction and infrastructure. Our work with others provides a foundation for confident markets, pioneers better places to live and work and is a force for positive social impact.

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