

Glossary of Terms & Definitions

European AVM Alliance

Independent - Transparent - Unbiased



Term	Definition	Remarks
Address-Matching Rate	The ratio of cases whose address can be matched to a Unique Property Identifier divided by the total number of cases	
Analyst Assisted AVM (AAAVM)	A Semi-Automated Valuation that relies on the experience and judgment of a professional, but not necessarily a qualified surveyor, to validate and supplement the output of an AVM.	Please note that the modifications or manipulations introduced by the analyst onto the AVM output and/or the Comparable Evidence removes the objectivity and integrity of the fully automated process and it may compromise its unbiased nature.
Arm's Length Transaction	A property sale transaction where the buyer and seller act completely independently of one another and the Sale Price is unaffected by any undue stimulus (e.g. a family relationship, Right-To-Buy discount etc).	
Asking Price	The price advertised by a seller when putting a property on the market to be sold. It may or may not be met by the Sale Price, the latter typically being lower, sometimes significantly so.	
Automated Valuation Model (AVM)	A system that provides an estimate of value of a specified property at a specified date, using mathematical modelling techniques in an automated manner	<ul style="list-style-type: none">- As it only requires a property to be specified, an AVM can function merely based on property address, or cadastral reference or other forms of unique property identification (and possibly a few basic property characteristics), but it does not necessarily require any Previous Values of the property to be provided as input. An AVM, just like a Surveyor Valuation, can therefore value even properties that have never transacted before or whose history is not known to the user. This feature is one of the key differentiators between AVMs and HPIs.- As it deploys modelling techniques, hence the "M" in the acronym, an AVM is typically a lot more complex and therefore more accurate than just applying a simple adjustment to a Previous Value: again, this is one of the key differentiators between AVMs and HPIs. Typically an AVM consists of sophisticated mathematical formulae requiring the deployment of bespoke technology and it includes elements of a comparable-based valuation approach, similar to Surveyor Valuations.- As it is an automated solution, hence the "A" in the acronym, an AVM operates without any human intervention post-initiation, making it an entirely objective tool, whose results are completely independent of the circumstances of the valuation. Clearly this rules out, for example, any manual selection of Comparables or any other ad-hoc subjective adjustments and it is one of the key differentiators between AVMs and Surveyor Valuations.

Average Absolute Error or Mean Absolute Error	Literally the average of the absolute Error, i.e. of the Error taken without its + or - sign	A frequently used measure of Dispersion
Average Error or Mean Error	Literally the average of the Error	A frequently used measure of Bias, although Median Error is the preferred measure for that. See also under Bias
(AVM) Accuracy	Collective term referring to the ability of a valuation solution (typically an AVM) to produce results close to the respective Benchmark Values	Accuracy incorporates the following broadly separate dimensions: - Bias (typically quantified by the Average Error or preferably by the Median Error) - Dispersion (typically quantified by the Standard Deviation, or the Average Absolute Error, or the percentages of results within 5%, 10% etc of the Benchmark Value). Please note that some widely used accuracy measures may capture elements of both dimensions, e.g. the percentages of results less than 10%, 15%, 20% etc above the Benchmark Value.
AVM Assisted Appraisal (AVMAA)	A Semi-Automated Valuation that relies on the experience and judgment of a qualified surveyor, to translate the output of an AVM into a legally compliant valuation. Please note this is obtained without conducting a physical inspection of the subject property, although it is supported by Comparable Evidence, which may or may not incorporate data from the AVM.	Please note that the modifications or manipulations introduced by the surveyor onto the AVM output and/or the Comparable Evidence removes the objectivity and integrity of the fully automated process and it may compromise its unbiased nature.
AVM Coverage	Collective term referring to the ability of an AVM to produce an acceptable result	AVM Coverage depends on all of the following 1. The quality of the data provided as input (completely independent of AVM performance) 2. The AVM Input Requirements and the AVM's ability to interpret and backfill incomplete and/or invalid data (key to AVM Coverage) 3. Hit Rate (key to AVM Coverage) 4. User-defined Output Rules (typically dependent on AVM Accuracy) The overall Coverage of an AVM is typically quantified by its Success Rate, but it can really only be meaningfully measured in the context of a given test sample, where the variability introduced by the non-AVM-dependent points 1) and 4) above is removed. Otherwise Hit Rate is the measure most often quoted independently of a given test sample, but it needs to be considered in conjunction with the strictness of the Input Requirements.
AVM Performance	Generic term used to refer collectively to AVM Coverage, AVM Accuracy and the reliability of the Confidence Levels.	Not be confused with AVM System Performance
AVM Property Database	The database of property information available to an AVM to draw Comparable Evidence and produce a valuation.	It includes both Description and Transaction Data, typically address-matched, geocoded, merged, reconciled and cleansed by the AVM provider, hence it is typically proprietary.
AVM System Performance	Generic term used to refer to AVM speed and up-time.	
Batch Valuation	The process where a large number of AVM results are obtained without individual manual submission.	

Benchmark Value (BV)	The property value against which the accuracy of a valuation solution (e.g. an AVM result) is measured	It is intended as the correct Market Value; hence it typically consists of either a reliable Surveyor Valuation or Sale Price, which of the two often depending on the established market practice in different jurisdictions.
Bias	Any tendency of an AVM to systematically overvalue or undervalue properties when compared to the Benchmark Value.	AVM Bias can be quantified by the Average Error, but in order to minimise the effect of a few potentially spurious outliers, e.g. due to questionable Benchmark Values, the more robust Median Error is usually preferred.
Blind Test	An accuracy test where the AVM has no access to the Benchmark Value.	This may require removal of certain pieces of information by the AVM supplier before running the test or removal of certain cases by the AVM user after the test. Blind testing is critical to meaningful accuracy assessment.
Bulk Test	An AVM accuracy test where the Subject Properties and their Benchmark Values are extracted from the AVM Property Database.	The AVM provider still ensures that these be Blind Tests by not using the Benchmark Value for the purpose of computing the AVM result, but the user has to take this on trust and has no way of validating the integrity of the test. This is the main disadvantage of the Bulk Tests, their main advantage being the ability to source very large samples and conduct very specific analyses on cases with only certain given characteristics.
Comparable	A property used during the valuation process as evidence in support of a valuation of a different property.	The description of the comparable will typically include its address, some value information such as Sale Price at a particular date and some indication of the similarities with, or differences from, the Subject Property.
Comparable Based Model	An analysis that seeks to identify recent Comparables that resemble the Subject Property in terms of location and attributes, possibly adjusting their values to compensate for any dissimilarities, to produce an estimate of Market Value.	
Comparable Evidence	A set of Comparables used in support of a valuation.	
Competitive Test	A Lender Test where the client is assessing the accuracy of several AVMs on the same test sample.	Please note that in the context of a Competitive Test, the suitability of the Benchmark Values becomes key, e.g. any cases whose Benchmark Value (or proxy of it, e.g. Asking Price, Customer Estimate etc) may already be available to some of the AVMs being tested must be excluded. For this reason Competitive Tests should focus on very recent cases not yet captured in any publicly available sources, e.g. national cadastres, and on Remortgage cases, whose Property Characteristics and/or proxies of values have not been advertised.
Computer Assisted Mass Appraisals (CAMA)	A Mass Valuation conducted by a government agency using a software solution for the purpose of computing property tax.	The main differentiators between CAMA systems vs AVMs include <ul style="list-style-type: none"> - the purpose of the valuation: for property tax calculation vs for mortgage lending - the typical recipient of the valuation: a municipality, State or national governmental office vs a bank or other player within the mortgage industry - the frequent inclusion of surveyors' / appraisers' input vs the entirely objective and mathematical nature of an AVM - the less up-to-date nature of CAMA systems typically producing valuations only on a yearly basis or even every few years vs the very up-to-date nature of AVMs including daily or monthly data refreshes and the ability to value properties even as of the most current Effective Date

Confidence Interval	See Value Range (preferred terminology)	
Confidence Level (CL)	A predictive measure expressing the estimated accuracy of each AVM result and as such directly translatable into a Forecast Standard Deviation. It is typically given on the EAA's 0-7 proprietary scale.	Please note that the degree to which the Confidence Level actually correlates with the accuracy of the AVM result when compared with the Benchmark Value is key to the assessment of AVM accuracy.
Confidence Measure	Similar to Confidence Level, but intended as a looser term, which may be given on any scale of less universal use, e.g. defined by and specific to a given AVM provider.	
Confidence Score	See Confidence Level (preferred terminology)	
Current LTV	See Updated LTV	Avoid the misleading term Actual LTV: while in many languages Actual may seem equivalent to Current, in English it is not.
Data Cleansing	The process of merging and reconciling data from different sources relating to the same property and rejecting or re-weighting any values deemed as spurious or possibly unreliable, in order to maximise AVM accuracy	It is typically applied in two separate contexts: 1) in the creation of the AVM Property Database 2) in the validation of a Subject Property's inputs
Data Input	The information available, e.g. to an AVM or other Statistical Valuation Method, to produce a valuation	Comprising elements for property identifications (e.g. address, governmental unique identifier etc), any known Property Characteristics and possibly transactional information from the property's history (e.g. Previous Values etc).
Description Data	The information within an AVM Property Database that relates to Property Characteristics, i.e. typically of a static nature	e.g. floor area, number of bedrooms, approximate construction year, parking facilities etc.
Desktop Valuation	Ambiguous term used sometimes to indicate all Semi-Automated Valuations, sometimes to indicate only AVMAA	
Dispersion	The relative frequency of all different sizes of Errors	This typically displays the shape of a Bell curve with a tall narrow peak and thin tails if Dispersion is low, or a low broad peak and thicker tails if Dispersion is high.
Drive By	The valuation produced by a qualified surveyor based only on the external inspection of a property. This is typically conducted literally through a drive-by, merely checking the property's existence, apparent external condition and neighbourhood characteristics, without stopping to assess any of its individual characteristics.	
Effective Date	The specified date as of when the AVM is requested to value the Subject Property	
Error	The relative difference between a valuation result, e.g. from an AVM, and the Benchmark Value, expressed as a percentage of the	

Benchmark Value (not of the AVM): $(AVM - BV) / BV$

External Valuation

See Drive By (preferred terminology)

Forecast Standard Deviation (FSD)

The Standard Deviation of the Error distribution predicted for a set of AVM results with a given Confidence Level

Fraud Detection

A specific application of an AVM being used as a Second Opinion. It requires that the Surveyor Valuation be provided as input when the AVM is run, so that the AVM can produce a Y/N flag as to whether the SV is likely to be overstated. The sensitivity of the flag can be tuned to meet the user's operating requirements, while the underlying AVM result and CL may not be necessarily disclosed.

Further Advance

A transaction where an existing mortgage is amended to merely increase the loan amount

Here, both the property and the borrower are already well known to the lender, hence the least strict of all possible underwriting procedures apply, e.g. often just using HPI.

Gap Product or Gap Solution

See Semi-Automated Valuation (preferred terminology)

Geocoding

The process that attaches spatial coordinates to a property record

Hedonic Model

An analysis of how various Property Characteristics influence property value in a given time period and geographic area. These models typically describe property value as a function of the attributes of both the property itself and of its location.

Hit Rate

The ratio of cases producing an AVM result divided by the number of cases where an AVM can be attempted (after points 1. and 2. to do with Coverage have been considered)

Unlike the Success Rate, Hit Rate can be quoted in general terms, regardless of a given test sample.

House Price Index (HPI)

A time series capturing the price development of residential properties over time

This can be used as a set of multipliers to be applied to a Previous Value in order to update it to a subsequent point in time, thus producing an Indexed Value

An HPI can be computed following different methodologies, e.g. Repeat Sales, Hedonics, Weighted Averages or other techniques adjusting for differences in location, characteristics and condition of the properties available as data: this often results in contrasting figures from different HPI suppliers.

Also the use of an HPI within an Indexation Model to produce an Indexed Value clearly requires a Previous Value and Previous Valuation Date to be known for the Subject Property and to be provided as input. As a result, this technique cannot be applied to properties that have never transacted before or whose history is not known to the user. This feature is one of the key differentiators between AVMs and HPIs.

Hybrid Model	An analysis that incorporates elements from different models, e.g. Comparable Based, Hedonic, Indexation etc.	
Hybrid Valuation	See Semi-Automated Valuation (preferred terminology)	
Indexation Model (or Index Model)	A computation that applies a House Price Index to a previous property value in order to update it to a subsequent point in time.	See House Price Index.
Indexed Value or Indexed Valuation (IV)	The valuation resulting from an Indexation Model	
Input Requirements	The pieces of information needed for an AVM to attempt a valuation. They often vary depending on intended AVM use, e.g. for mortgage origination vs portfolio revaluation vs fraud detection etc, and as the Subject Property needs to be specified, they also define which identifiers are acceptable, e.g. cadastral reference and/or property address.	Please note that - adopting stricter Input Requirements may result in an apparently higher Hit Rate, but may actually reduce overall Coverage - if an unformatted or un-normalised address is also acceptable as input, the Address-Matching Rate too needs to be considered in conjunction with the Input Requirements.
Input Rules	User-defined rules preventing an AVM to be attempted, not because the Input Requirements are not met, but because the user does not wish to employ AVMs in those circumstances.	
Lender Test	An AVM accuracy test where the Subject Properties are controlled by a Lender and their Benchmark Values are disclosed to the AVM supplier only <i>after</i> the AVM results have been delivered to the Lender	This aims to ensure that the exercise be truly a Blind Test, hence the typical requirement for the Lender to use only recent cases, whose Benchmark Values or any other indications of value (e.g. Asking Prices, Customer Estimates etc) should not yet be available to the AVM supplier being tested. The main disadvantage of the Lender Tests is the resulting relatively small sample, as well as sometimes the reliability of the Benchmark Values.
Loan Amount (or Loan Balance)	The amount owed by the borrower to the lender in the context of a mortgage loan	Typically the term Loan Amount is preferred at Mortgage Origination, while Loan Balance is mostly used ever after, when the original Loan Amount has been subsequently affected by interest charges, mortgage repayments, Further Advances etc
Loan-To-Value (LTV)	The ratio between Loan Balance and property value, widely used as a key measure of mortgage risk	Please note that the details of the LTV definition and its calculation can vary significantly, e.g. see Origination LTV, Updated LTV, LTAVM etc
LTAVM	Loan-To-AVM, the ratio between the loan balance and the property value as computed by an AVM. It can be produced at origination or at any point in the future life of a mortgage, e.g. to update key risk measures to the current date	
Mass Valuation	The practice of valuing large numbers of properties as of a given Effective Date by the systematic and uniform application of valuation methods and techniques that allow for statistical review and analysis of the	

results.

Match-Pair Analysis	An analysis conducted on a sample of properties whose Benchmark Value is known at two distinct points in time.	This allows for a direct comparison of the accuracy of an AVM and an HPI.
Median Error	Literally the median of the Error.	See also under Bias.
Mortgage Applications	The number of mortgages being applied for by borrowers, including multiple applications to different lenders and declined mortgages.	Applications constitute the universe of potential AVM hits at origination.
Mortgage Approvals	The number of mortgages actually granted by lenders.	Please note that approval volumes understate the universe of potential AVM hits at origination, but they are often the only figures being published.
Mortgage Origination	The circumstances and purpose where an AVM is used to underwrite a new or amended mortgage. It therefore includes all of the following Transaction Types: Purchase, Remortgage and Further Advance.	
Market Value	The notional price that a property would achieve in an Arm's Length Transaction between a willing buyer and a willing seller	
Open Market Value	See Market Value (preferred terminology)	
Origination LTV	The ratio between the loan amount issued at Mortgage Origination and the property value at the same time. The latter can be provided for example by a Sale Price, a Surveyor Valuation or an AVM.	
Outliers	Extreme values in a distribution.	
Output Rules	User-defined rules preventing an AVM result to be returned, not because it could not be produced, but because the user does not wish to employ AVMs in those circumstances, e.g. minimum CL requirements, minimum LTAVM requirements etc.	
Pass Rate	The ratio of valid AVM results passing the Output Rules divided by the total number of AVM results.	This refers specifically to point 4. to do with AVM Coverage, which is both sample-dependent and user-dependent. As such the Pass Rate can really only be meaningfully measured in the context of a given test sample, e.g. in a Competitive Test, not quoted in general terms, unlike Hit Rate.
Percentage within 10%, 15%, 20% etc	The percentage of results (from an AVM or other valuation solution) with an Error \leq 10%, 15% or 20% respectively, regardless of its + or - sign	This is the most often used measure of AVM Accuracy, capturing the Dispersion of the Errors in perhaps a more intuitive way for the layman user than the standard deviation or other indicators that may be preferred by the statistician.
Portfolio Valuation	The circumstances and purpose often defining a distinct AVM product, where batch valuations are used to value a large number	This specifically excludes valuations for the purpose of Origination, hence typical features of this AVM product include artificially long response times and reduced outputs (e.g. no Comparable Evidence).

of properties, e.g. for capital modelling, provisioning, whole loan trading, surveyor management etc.

Previous Valuation Date	The date applicable to the Previous Value.	Naturally it always precedes the Effective Date.
Previous Value (PV)	A property value, typically the most recent available, produced at a point in time preceding that being considered, i.e. belonging to the history of the property. It may be provided for example by a Sale Price, a Surveyor Valuation or an AVM.	Naturally it is never available for new-build properties. Even for non-new-build properties, where it may exist, it may not be known to the user or valuer,
Property Attributes	See Property Characteristics (preferred terminology).	
Property Characteristics	The attributes describing the features of a property, e.g. Property Type / Style, floor area, number of bedrooms, approximate year of construction, parking facilities etc.	
Property Style	See Property Type	
Property Type	The Property Characteristic that expresses which wide category of residential real estate a given property belongs to, e.g. house or flat.	Property Type is often accompanied by Property Style, i.e. a secondary classification that applies within a given Property Type. For example, when the Property Type is a house, typical Property Styles may be Detached, Semi-Detached and Terrace (or End-Terrace and Mid-Terrace); when Property Type is a flat, typical Property Styles may be Converted and Purpose-Built.
Purchase	A transaction where a property is sold. It comprises both cash transactions and transactions financed through a mortgage,	Mortgage originations for a Purchase attracts the strictest underwriting procedures, because the property (and often the borrower as well) are typically unknown to the lender, who tends to pass all costs onto the borrower.
Purchase Price (PP)	See Sale Price (preferred terminology).	
Random Error	The intrinsic value range due to the fact that for any individual property at a particular point in time, different prices are possible due to different circumstances of sale, differing buyer preferences, different buyer information sets or other factors.	
Reference Value	See Benchmark Value (preferred terminology)	
Remortgage	A transaction where a new mortgage is originated because the borrower changes lender and/or product, e.g. for a new interest rate, new terms and conditions etc.	In this case the property has been inspected and valued before at the time of purchase and the borrower already has some mortgage history often resulting into a lower LTV, hence remortgages are regarded as a lower-risk scenario and lenders compete fiercely in this space, e.g. by offering no fees deals, creating an incentive to minimise valuation costs.
Repeat Sales Index	One type of HPI computed through a specific methodology that only uses pairs of Sales Prices of the same property at two or more points in time, thus removing any effects	Examples of a Repeat Sales Index include the Case-Shiller index in the US and the Land Registry Index in the UK. Other methodologies to compute an HPI include for example Hedonics (e.g. the Halifax and Nationwide indices in the UK), Weighted Averages etc.

	from spatial factors and Property Characteristics.	
Sale Price (SP)	The price agreed between buyer and seller within an Arm's Length Transaction.	
Second Opinion	The circumstance where an AVM is used at origination as a check for, not as a replacement to, a Surveyor Valuation.	
Semi-Automated Valuation	Generic term used to indicate all valuation solutions that comprise both automated and manual elements	They include for example all of AAAM, SAAVM and AVMAA. Please note that, as they comprise a manual element, Semi-Automated Valuations can be subjective, unlike fully automated valuation that are entirely objective.
Single Parameter Valuation	A Statistical Valuation Method that estimates property value on the basis of one Property Characteristic, e.g. most often floor area or property type.	The concept can be extended to comprise a combination of two or more Property Characteristics, e.g. number of bedrooms and property type / style (like 4-bedroom detached houses). These can be referred to as Multiple Parameter Valuations.
Standard Deviation	Frequently used measure of the Dispersion of the Error, computed through its well-known statistical formula.	
Statistical Valuation Method (SVM)	A mathematical tool or approach used to estimate property value through deterministic computations rather than human judgment	Different Statistical Valuation Methods can vary widely in the degree of their complexity, both from a mathematical as well as from a technical point of view. They comprise the following main types: - Single Parameter Valuations - House Price Indices - Hedonic Models (also called Hedonic AVMs) - Comparables Based Automated Valuation Models (also called Comparables Based AVMs or simply AVMs) The techniques underlying the various Statistical Valuation Methods can comprise a variety of different analytics approaches, such as linear and non-linear regressions, genetic algorithms, neural networks and fuzzy logic, among others. Statistical Valuation Methods are entirely objective in the sense that the values are calculated on the basis of measurable characteristics of the property and its location without applying any element of subjectivity.
Subject Property	The specified property being valued.	
Success Rate	The ratio of cases producing a valid AVM result (after all points 1. to 4. to do with AVM Coverage have been considered) divided by the total number of cases	As point 1. is sample-dependent and 4. is user-dependent, the Success Rate can really only be meaningfully measured in the context of a given test sample, e.g. in a Competitive Test, not quoted in general terms, unlike Hit Rate.
Surveyor Assisted AVM (SAAVM)	A Semi-Automated Valuation that relies on the experience and judgment of a qualified surveyor, to validate and supplement the output of an AVM.	Please note that the modifications or manipulations introduced by the surveyor onto the AVM output and/or the Comparable Evidence removes the objectivity and integrity of the fully automated process and it may compromise its unbiased nature.
Surveyor Valuation (SV)	The valuation produced by a qualified surveyor following the full internal physical inspection of a property	
Transaction Data	The information within an AVM Property Database that relates to property values, i.e. typically of a dynamic nature	e.g. Surveyor Valuation, Sale Price, Valuation Date, Valuation Type, Transaction Type, data source etc.

Transaction Type	The circumstance leading to the production of a property value, e.g. Purchase, Remortgage, Further Advance, Arrear Management	
True Value	This is a subjective term. The term Benchmark Value should always be used in the context of AVM accuracy.	
Unique Property Identifier	The field(s) used by the AVM to uniquely reference individual properties, e.g. cadastral reference, UPRN, AddressPointToid, 3D coordinates etc.	
Updated LTV	The Loan-To-Value based not on property value at the time of Mortgage Origination, but on a value updated in light of the subsequent market developments. The update could be obtained trivially via an HPI or preferably by performing a re-valuation completely independent of the property value previously obtained, e.g. one performed by an AVM (see LTAVM).	<p>Please note that ideally the Loan Amount should be updated too from the one issued at Mortgage Origination to the outstanding balance at the time of the valuation.</p> <p>When referring to the current date, this may also be termed Current LTV, but please avoid the misleading term Actual LTV: while in many languages "actual" may seem equivalent to "current", in English it is not.</p>
Usable Hit Rate	See Success Rate (preferred terminology)	
Valuation Date	Ambiguous term that may refer both to the Effective Date and/or to the date when a valuation was conducted.	
Valuation Type	The process producing a property value, e.g. Sale Price, Asking Price, Surveyor Valuation (full internal), Drive By, Desktop, AVM, HPI etc.	
Value Range	The value range within which the Market Value is expected to fall with a given level of confidence, hence a result of the Forecast Standard Deviation.	For example, a Value Range of $\pm 1\text{FSD}$ is expected to include the Market Value with approximately 68% confidence; a Value Range of $\pm 2\text{FSD}$ is expected to include the Market Value with approximately 96% confidence and so on.