



CONFERÊNCIA **VALUATION** 20 BRASIL 2024



Automating Property Valuations for Tax Assessments

Automatização de avaliações de imóveis
para fins tributários



Automating Property Valuations for Tax Assessments



About IAAO

IAAO is a nonprofit, educational, and research association.

It is a professional membership organization of government assessment officials and others interested in the administration of mass valuation and the property tax.

It was founded in 1934, and now has more than 8,000 members worldwide from government, business, and academic communities.



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About IAAO

We offer education in a variety of formats:

- Five day courses (live, live online and self-study)
- On-demand online workshops
- One to three day programs

We offer six internationally recognized professional designations.



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IAAO Standard and Principles

Definition

Purpose

Development and Application

Data Quality

Specification and Calibration

Market Analysis and Intended Use

Quality Assurance

Documentation and Reporting

AVM Advantages



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Standard

IAAO Standard on Automated Valuation Models (AVMs) (2018)

Principles

Transparency

Public Trust – providing confidence for the stakeholders

Broad applicability

Based on statistically sufficient information

Certification and quality assurance



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Definition

A mathematically based computer software program that market analysts use to estimate market value based on a market analysis of location, market conditions, and real estate characteristics from previously and separately collected information.



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Purpose

The purpose of an AVM is to efficiently provide an accurate, uniform, equitable estimate of fair market value.



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Development and Application

AVMs are developed using appraisal principles and techniques.

Two major components of valuation modeling are specification and calibration.



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Development and Application – continued

General Steps:

- Creation of a scope of work
- Identification and acquisition of property data
- Exploratory data analysis
- Stratification
- Determination of data representativeness
- Model specification
- Model calibration
- Quality assurance
- Model application and value review



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Data Quality

- **Data availability**

Data used in a model should be examined for quality and completeness and to ensure that attributes are adequately represented.

Publicly available data from sources, such as assessors and commercial sector third-party information services are the basis for most AVMs.



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Data Quality – continued

- **Data verification**

Analysts should verify data quality by its relationship to sale prices of properties with similar characteristics

- **Qualitative and Quantitative data**

Qualitative data may be descriptive and subjective

Quantitative data are objective and can be counted or measured



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Specification and Calibration

- **Model specification** starts with a review of the data to determine which type of valuation model or models is/are likely to yield the optimal results for the desired quality.
- **Model calibration** is the development of coefficients through market analysis of the variables in the model.



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Market Analysis and Intended Use

The AVM requirements to value different property types can vary significantly. An AVM should be optimized to provide accurate estimates of value for specific property types or classes.

Once the property class or type is determined, the availability of property data and economic information should be used by the analyst to determine the applicability of the estimates of value.



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Market Analysis and Intended Use – continued

Regardless of the property type, when economic or sales information is limited, sales and income data can be expanded by using data from multiple years for similar property types.

The comparable sales, income and cost approaches may be used for all property types based on the data and intended use of the AVM application.

AVM developers and analysts should understand the intended use of an AVM before choosing the valuation approach.



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Quality Assurance

Data used in model specification and calibration should pass the following screening tests:

- Data should be sufficient to produce reasonable valuation models
- Sales should be valid transactions that reflect market value.
- Property characteristic data should be accurate – for use in the model and application to population of properties
- Sales data and characteristics should be representative of the underlying population



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Documentation and Reporting

Documentation needs to be available to explain and support the model.

The type of AVM dictates the nature of the documentation.

Report design should clearly indicate the value results output by the model.



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Why are AVMs advantageous?

They have the ability to isolate many simultaneous contributors to value and isolate each characteristic's own impact on value (either monetary or as a percentage adjustment).

This promotes defensibility – adjustments are broken out and can be explained.

Incorporate many “comparable sales” resulting in increased reliability and decreased subjectivity – results are reproducible.



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Why are AVMs advantageous? - continued

There are diagnostics. If the model isn't performing well, you will know and can use it as a tool to improve.

It is a less expensive alternative to value many properties.



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IAAO Standard on Automated Valuation Models (AVMs)

The criterion for measuring fairness, quality, equity and accuracy.

(Approved July 2018)

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