Original Development of the AVM Standard and an Anticipated Update

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In 2002, then IAAO President Paul Welcome, CAE, formed an Ad Hoc committee to develop a technical standard providing guidance on automated valuation models (AVMs). At the time, AVMs were coming into use throughout the appraisal industry. IAAO is a long-standing provider of guidance in the form of its technical standards, and by creating a standard on AVMs at a time when no such guidance existed, IAAO intended to fill a gap and provide an independent source of high-quality industry guidance for external property valuation systems.

I was asked to chair the committee, comprising Patrick O'Connor, Larry Clark, CAE, Robert Gloudemans, Mike Ireland, CAE, Bill Wadsworth, and Nancy Tomberlin (participating as 2002–2003 chair of the Technical Standards Committee and as liaison between the committees). The *Standard on Automated Valuation Models (AVMS)* (IAAO 2003) developed by the committee was approved by the IAAO Executive Board in September 2003. The committee continued to meet for about a year and was then disbanded.

Recent discussions between the IAAO Technical Standards Committee and the Research Committee have concluded that the AVM standard needs to be updated to reflect current AVM thinking and practices as well as amendments to the *Standard on Ratio Studies* (IAAO 2013) and possibly other standards. This article describes the original development of the standard, its contents, and ongoing efforts to showcase it.

What Are Automated Valuation Models?

An AVM is

> *a mathematically based computer software program that produces an estimate of market value based on market analysis of location, market conditions, and real estate characteristics from information that was previously and separately collected* (IAAO 2003, sec. 2.1.1).

These models are further distinguished from other appraisal methodologies in that the estimate of market value is produced through mathematical modeling, without necessarily including the traditional component of physical inspection.

Although AVMs are more typically used in the private sector, they are very similar to mass appraisal tools, such as CAMA (computer-assisted mass appraisal) systems, commonly used by assessing officers and appraisers in the public sector—in other words, typical IAAO members.

In the early 2000s, private-sector standards had not been developed for evaluating AVMs. Consequently, there was no way to evaluate the quality of the results or provide consistent guidelines to vendors, AVM developers, or users of the results. The effectiveness and accuracy of CAMA systems, however, can be evaluated by using established standards for ratio studies and mass appraisal. A major concern was that mathematically based *black box* systems, driven by invisible formulas, were generating values being deemed as appraisals, but not subject to sufficient independent scrutiny.

Development of the Standard

Depending on their individual expertise, members of the Ad Hoc committee were assigned to research and develop different portions of the standard. Those with direct, hands-on CAMA model-building experience worked on sections addressing model calibration and specification. These sections included information on the application of the traditional three approaches to value in an AVM environment.

Committee members with expertise in ratio studies and quality assurance worked on extracting relevant information from the *Standard on Ratio Studies* (IAAO 1999) and the *Standard on Mass Appraisal of Real Property* (IAAO 2002) for use in the AVM standard.

Committee members also reached out to private-sector parties, such as the Mortgage Bankers Association, and private-sector individuals with industry expertise, who could *truth test* the draft standard. As a result of this broad stakeholder involvement, additional issues not found in the *Standard on Ratio Studies* were identified. Issues such as appraiser-assisted AVMs, frequency of updates, model diagnostics, and hit rates (*"…a measure of the number of usable AVM valuation reports compared to the total number of valuation reports requested"* [IAAO 2003, sec. 8.5]) were considered

and addressed within the new standard. The IAAO Executive Board adopted the AVM standard in September 2003.

An area of considerable controversy was whether the results of an AVM can be considered to be an appraisal. Notably, the *Standard on Automated Valuation Models* takes the following position:

> *AVM values reviewed for reliability, and generated in compliance with USPAP Standard 6 are considered appraisals* (IAAO 2003, sec. 2.1.2).

Both sides of this issue were aired at an AVM Symposium held in Arlington, Virginia, in March 2004. Although the issue was never completely resolved, the language in the standard appears to be consistent with *USPAP*, which defines mass appraisal as

> *…the process of valuing a universe of properties as of a given date using statistical methodology, employing common data, and allowing for statistical testing* (TAF 2005, p. 4).

In fact, this language has remained unchanged, and the standard has not been amended or updated since its adoption. The standard does acknowledge, however, that,

> *Credibility of an AVM is dependent on the data used and the skills of the modeler producing the AVM* (IAAO 2003, sec. 2.1.2).

In addition to this controversy, the standard is limited in that it does not apply to specialized or unique property, machinery, or equipment or in cases of non-market-value appraisals (IAAO 2003, sec. 1).

Contents

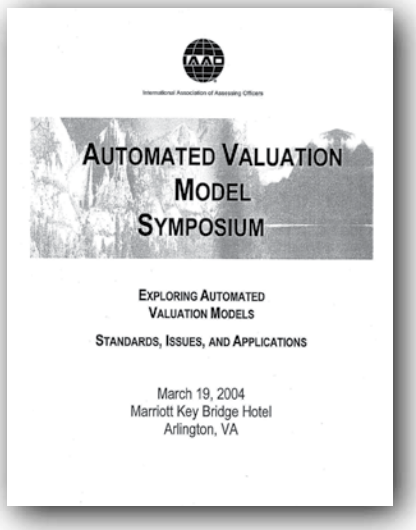
The standard addresses the following AVM-related topics:

- Differences from traditional valuation, including advantages such as objectivity, consistency, speed, and low cost
- Cautions
  - Must follow sound statistical and mathematical modeling practices
  - Must be tested for accuracy and uniformity before application
  - Will not provide accurate estimates in cases in which market value is impaired due to superadequacy or functional obsolescence
- Development steps
  - Property identification
  - Documentation of assumptions, special limiting conditions, extraordinary assumptions, and hypothetical conditions
  - Data management to ensure use of valid, verified sales
  - Model specification
  - Model calibration
  - Testing and quality assurance, including ratio study standards, statistical diagnostics, hold-out samples, and outlier identification and trimming
  - Model application and value review procedures, including testing and validation before application to other properties and review of generated values for reasonableness and consistency
  - Stratification
  - Value defense

One goal in developing this standard was that the product be applicable in a wide variety of property valuation disciplines and purposes beyond the assessment profession. In addition to involving private-sector industry representatives to participate and provide feedback, the committee used terms more familiar to appraisers than to assessors. For example, although quality assurance content was largely adopted from the *Standard on Ratio Studies* (IAAO 1999), the terminology was changed to use more standard statistical terms, instead of terms specifically associated with assessment. Finally, terms such as *hit rates* and *standardized addressing* were added because they were in common use in the private sector.

Ongoing Efforts to Showcase the Standard

Following formal adoption of the *Standard on Automated Valuation Models*, the committee remained in operation for about another year. The committee organized an AVM Symposium in March 2004 in Arlington, Virginia, to encourage discussion of the standard, including controversial sections. Presenters were committee members who developed the standard, AVM vendors and developers, risk management bankers, a representative of the Appraisal Institute, IAAO members with particular perspectives or concerns, and a member of The Appraisal Foundation Appraisal Standards Board. The symposium was well attended and was introduced by then IAAO President Fred Chmura, AAS, who announced that the goal of IAAO was



…to provide a national forum for the dissemination of both theoretical and practical information within the field of property valuation…to assist in the further development of the field's theory and practice and place policies, methods, techniques, and practices into their fiscal and economic context…and to discuss the future of this methodology (Chmura 2004).

Following the symposium, on July 15, 2004, the Joint Industry Task Force on Automated Valuation Models informal steering committee met in Denver to further discuss AVMs and, as its charter states, to "develop and publish a comprehensive set of common principles, standards, and requirements for AVMs" (Olsen 2004). The task force comprised representatives from IAAO, the Collateral Risk Management Consortium, and the Appraisal Institute.

In the summer and fall of 2004, there were several additional AVM-related activities, including

- AVM-related sessions at the IAAO Annual Conference in Boston
- A half-day workshop at the Education Conference of the National Association of Independent Fee Appraisers in Chicago
- The fall meeting of the Collateral Assessment & Technologies Committee of the Real Estate Information Professionals Association in San Francisco.

The next major IAAO effort was planned for July 2005; it was to have been a day-long seminar dedicated to AVM standards and reliability. A broad array of speakers was enlisted, and topics considered to be of interest to the private sector were planned. The seminar was to be, "held in conjunction with and immediately prior to the ESRI International User Conference to allow participants to take advantage of both events" (IAAO 2005). Unfortunately, the number of registrations was insufficient to justify conducting the seminar and it was cancelled.

Continuing the Discussion

Despite continuing and ongoing discussions of AVMs and demonstrations of various AVM systems and uses, the *Standard on Automated Valuation Models* did not return to the forefront for several years. Plans to provide additional IAAO-directed seminars and events related to AVMs and the new standard were not realized. The standard came to be used by some assessment jurisdictions and, in a much more limited way, by the private sector.

In ongoing discussions between the IAAO Technical Standards Committee and the Research Committee, it has been agreed that the standard needs to be updated to reflect current AVM thinking and practices as well as amendments to the *Standard on Ratio Studies* (IAAO 2013) (and possibly other standards). As one of the original authors, I'm excited at the prospect of reinvigorating this standard, which addresses a topic still important to the appraisal industry. I hope that the update will be accompanied by a revival of interest by the broader appraisal community.

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