Innovation in Appraisal:
Alternative Valuation and the Battle Between Authentic and Pseudo-Value

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AppraisalWorld.com
Why should you care?

- We all have shared problems
- We all want good valuations
  - Essential to the health of the financial markets
- We all agree on that
We may all agree on that but....

• What if you are commercial?
• Then learn from those who have gone through this pain
• Commercial is not immune
  – Commercial BPOs
  – Commercial AVMs
  – Commercial AMCs
Perplexing

- IAC: Technology offers the only solution
- Coupled with data
- Prism of my viewpoint
- Innovation and technology appeals to “Millennials”
- Where is this technology?  
  – (AVM/RVM)
In Order to be Successful.....

• We need to solve the problems of our stakeholders
  – Lenders
  – Regulators
  – GSEs
  – The Public

• But its more than that.....
We need to figure out what to do to attract the next generation

• Deconstructing Appraisal Process
  – They want technology
  – They want data
  – They want options
  – They want a cool job

  – Do we offer any of that?
An Example of Cool
Breckenridge

• AI Chapter Presentation
• I learned two things:
  – Lance
    • “In times of change the greatest opportunity is to be found”
  – Pam
    • “The difficulties you experience today cannot be resolved with the thinking that created them. The solutions can be found in new thinking”  -Albert Einstein
What Happens if We Fail?
Appraisers Today

- Appraisers have been unable to offer a market-based solution
  - BPOs
  - 15 - 18 million in 2010
  - 30 million total
- How did that happen?
- My class last year
- Why can’t we demonstrate our worth to our clients?
- We have been hit hard in recent years
Tinkering With the System
He had only one idea.

And that was wrong.

Benjamin Disraeli (1804–1881)
Smart guys
got us into this.

Maybe pixies
will get us out.
Moving from Valuation Infrastructure of the Past
Moving from the trolley to the bullet train

• Where does innovation come from?
  – We don’t think about that enough
• Existing regulatory initiatives have consumed all of the oxygen in the room (My thanks to George Vann)
• There is a new urgency in the market and among the profession
All of Us Have a Shared and Inseparable Fate

• Really a vested interest in the health of the appraisal profession
  – How do you solve the problems of inferior valuation alternatives such as BPOs or inspection enhanced AVMs?
    • Not by legislation alone
    • Not by regulation alone
    • You need a market alternative-

A market-based solution
Gord Nixon, CEO RBS

• “Developing new products to find better and less expensive ways to service your customer—that is innovation”
The Ghost of Appraisal Future
Choices
The Future has Arrived,
It’s Just Not Evenly Distributed Yet
The Future Is Not About.....

- Faster form filling
- Shorter forms
- AVM hybrids
- Credible Appraisals
- Transparent Appraisals
- Consistent Appraisals
- Redefining what the appraisal process SHOULD be
Setting the Stage

• What shaped my view
  – KW401
    • Existing tools were inadequate
    • Data, analytics
      – Data standards would facilitate availability
    • Interactivity versus reactivity
Forward thinkers share real-life examples of modeling and GIS!

Visual Valuation: Implementing Valuation Modeling and Geographic Information Solutions

ORDER NOW
In February 2006, a group of industry thought leaders representing practitioners, academics, and vendors met at the KW401 Conference to discuss the challenges facing the valuation profession and to investigate proposed solutions to ensure a successful course of action for the future of the profession. Several participants felt that no competing factor would ensure that advanced tools would be introduced to the market without the involvement of key stakeholders and the emergence of champions to push the process further.

In 2006, several key participants from the KW401 conference first proposed and identified an analytics engine that empowered an appraiser to determine an independent valuation conclusion, rather than forcing the appraiser to accept the valuation of a vendor or AVM process. This engine—an interactive valuation model (IVM)—would be an entirely new manner of addressing the use of data and analytics and computing power by an appraiser. The key characteristics of an interactive valuation solution require that an experienced appraiser be in control of the data, analysis, and conclusions.

The work of these two groups and the key stakeholders who recognized the need and the opportunity would form the basis of an effort to build an entirely new software application to meet the needs of a data-rich environment.
In 2006, several key participants from the KW401 conference first proposed and identified an analytics engine that empowered an appraiser to determine an independent valuation conclusion, rather than forcing the appraiser to accept the valuation of a vendor or AVM process. This engine—an interactive valuation model (IVM)—would be an entirely new manner of addressing the use of data and analytic and computing power by an appraiser. The key characteristics of an interactive valuation solution require that an experienced appraiser be in control of the data, analysis, and conclusions.

Fast Forward to 2009
Solution: Our practice needs to include interactive valuation models for the appraiser to define the appropriate market, be able to review large datasets, remove the outliers, and run regression tools. This process, in a transparent manner, as opposed to an AVM black box, would demonstrate to the lender all data examined as well as those sales not considered. An examination of historical sales going back to at least 24 months would allow for trending and a more thorough reporting of market conditions. The weaknesses in this process would be lack of available data in some markets to obtain a credible result. But that holds true today with our highly manual processes. The clear advantages are that lenders would not need to order multiple products in an effort to collect data. By including the entire data set within the appraisal file this transparency allows the lender to truly review not only the final report but the logic behind the exclusion of some data.
SELECT ALL MARKET DATA
DEFINE MARKET AREA
SELECT AND MODEL ALL PROPERTIES IN DEFINED MARKET AREA
STEP 4: SELECT MOST COMPARABLE DATA FOR FINAL ADJUSTMENTS
The Future

• Is about interactivity

• The interaction between data, analytics and the appraiser/analyst

• It is about the re-invention of appraisal
What are the dynamics of this process?

• The solution includes
  – Local appraiser
  – Enabled with data
  – Empowered with analytic tool sets
  – Supportable valuation, delivered quickly
We need to find tools that can help us

• What tools do we have today?

• and

• What do we need?
A lot of Time and Effort

• Taking non-appraisal products and making them look like appraisals—but little has been done to empower appraisers

• The industry has to change that
  – And I’ll chat about our solution
Lenders Face New Choices

- Lenders and servicers have choices:
  - An AVM *derivative*
    - *Is your appraisal really an AVM?*
  - **Authentic** Valuation performed by an experienced appraiser
  - What we need to offer is the next generation of valuation—that meets all Interagency guidelines and does it the right way
It’s a jungle out there

- There are a lot of products in the market that look remarkably like appraisals
- Interagency Guidelines and the explosion of “product”
<table>
<thead>
<tr>
<th>Feature</th>
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<td>Is the report an appraisal?</td>
<td>Yes</td>
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<td>Is the report performed by an appraiser?</td>
<td>Yes</td>
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<td>Does the appraiser actually use a tool to analyze and interact with the data to provide an outcome?</td>
<td>Yes</td>
<td>No</td>
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<td>Is the appraiser/user trained in high-level analysis?</td>
<td>Yes</td>
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<td>Is the value result comparable in terms of accuracy to a 1004?</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<td>Is the source of the analysis an appraiser?</td>
<td>Yes</td>
<td>No</td>
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<td>If the report includes valuation models—are they built and controlled?</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Are the models and the analysis transparent and visible to the analyzing the Data</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Ability to define subject Neighborhood</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
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A Growing Realization

• **Collateral Valuation must evolve**
  – Greater scientific basis for valuation
  – Matched pair analysis must go

• **Appraisal as an “art”**

• **The transition to a science**
Where is appraisal as a profession?

- Appraisers need to be open to new techniques that will maintain their importance to their clients
- They need to stay relevant
Are we relevant?

• Our current tools
  – What is the single most important tool for analysis used by appraisers?

  – According to a survey conducted in 2005……
What else was happening in 1982?
BTW, putting an HP12C on an iPhone is also NOT innovation!

You might as well put an abacus on the iPhone......
How do we replace the HP12-C?

- By making the approaches to value more relevant by adopting available data and technology
Expert Testimony: Regression Analysis and Other Systematic Methodologies

by Peter E. Colteel, PhD, John A. Heller, JD, and Joseph W. Trefzger, PhD

On May 8, 2008, the U.S. Court of Appeals for the Seventh Circuit decided the easement condemnation case of Guardian Pipeline, L.L.C. v. 916.80 Acres of Land, et al. In 2001, Guardian began construction of a 144-mile underground natural gas transmission pipeline, certified by the Federal Energy Regulatory Commission, from Joliet, Illinois, to Janesville, Wisconsin. The line's Illinois section traversed hundreds of tracts in four northern counties. Guardian negotiated for much of the needed right-of-way, a 50-foot wide permanent easement and adjacent temporary construction easements. Approximately eighty landowners rejected the offers, however, and Guardian initiated condemnation action under the Natural Gas Act in U.S. District Court in Chicago. In 2002, the federal trial court entered an order of condemnation, allowing pipeline construction to go forward, while leaving for later determination the just compensation that Guardian would have to pay for the easement interests.

As allowed by the Federal Rules of Civil Procedure, the court subsequently appointed a commission, consisting of three experienced Illinois lawyers, to conduct evidentiary hearings and recommend compensation for each landowner. Hearings were held, conducted in accordance with the Federal Rules of Evidence (FRE) per the court's instructions, over the course of seventy-six days between June 2005 and July 2005. Both Guardian and the landowners presented extensive appraisal testimony concerning the pipeline easement's impact on market values of the contested tracts. The evidentiary record ultimately consisted of 12,500 pages of testimony and hundreds of exhibits.

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The Seventh Circuit's Guardian Pipeline decision encouraged wider use of multivariate regression analysis in condemnation proceedings in place of the long-standing matched pair comparison canon. This article reviews applicable evidentiary rules, providing details on cases appraisers often hear cited but may not know well, such as Duhart and Kimble, and on Federal Rule of Evidence 702. A well-designed regression model would seem to meet all requirements for admissibility imposed by federal rules and case law, and by state rules favoring systematic analysis. Yet other techniques also might meet these requirements.
The Drive Towards Better Analytics

88 years ago
– Caspar G Haas
– 1922
– “Sales Prices as a Basis for Estimating Farmland Value”
\[
\frac{r_{15-34} - r_{12-34} \cdot r_{25-34}}{\sqrt{1 - r_{12-34}^2} \cdot \sqrt{1 - r_{25-34}^2}}
\]

From the coefficients of correlation, we can determine the coefficients of relationship expressed in absolute units, known as coefficients of regression: for example, \( b_{15-234} \) (\( \sigma \) representing standard deviation).

\[
b_{15-234} = \frac{r_{15-234}}{\sigma_{5-1234}} \cdot \frac{\sigma_{1-5234}}{\sigma_{1-5234}}
\]

The forecasting formula is readily determined when once the regression coefficients are known. Following is the generalized formula:

\[
X_1 = a + b_{12-345} \cdot X_2 + b_{13-245} \cdot X_3 + b_{14-235} \cdot X_4 + b_{15-234} \cdot X_5
\]

(\( X_1 \) represents value per acre in this case, and \( X_2, X_3, X_4, X_5 \), the other factors considered.)

The probable error involved in predicting \( X_1 \) from the other factors is expressed in the formula:

\[
\sigma_{1-2345} = \sigma_1 \sqrt{(1 - r_{12}^2)} \sqrt{(1 - r_{14}^2)} \sqrt{(1 - r_{13}^2)} \sqrt{(1 - r_{12}^2)} \sqrt{(1 - r_{13}^2)}
\]

Probable error = \( \sigma_{1-2345} \times 0.674489 \)

These equations and explanations are presented so that the reader will be familiar with the notations when they are used later.\(^{10} \)
Solution: Our practice needs to include interactive valuation models for the appraiser to define the appropriate market, be able to review large datasets, remove the outliers, and run regression tools. This process, in a transparent manner, as opposed to an AVM black box, would demonstrate to the lender all data examined as well as those sales not considered. An examination of historical sales going back to at least 24 months would allow for trending and a more thorough reporting of market conditions. The weaknesses in this process would be lack of available data in some markets to obtain a credible result. But that holds true today with our highly manual processes. The clear advantages are that lenders would not need to order multiple products in an effort to collect data. By including the entire data set within the appraisal file this transparency allows the lender to truly review not only the final report but the logic behind the exclusion of some data.
Predictions

- Lenders will want more analysis
- Regression will become the new standard in analysis
- We will have more data than ever before
- We will need tools to analyze this data

- Tools will require training
- Appraisers need to understand what will be required
- Appraisers will be called upon to understand what tools are appropriate
SUPER CRUNCHERS

"Today the name of the game is data. Ian Ayres shows us how and why in this groundbreaking book. Not only is it fun to read, it just may change the way you think."

—STEVEN D. LEVITT, creator of Freakonomics

IAN AYRES

PETER L. BERNSTEIN

Journal of Quantitative Analysis in Sports
The Emergence of *Best in Class* Solutions

- Interactive Valuation Products
  - Interactive
  - Data-rich
  - Statistically-supported Appraisals
  - Superior to existing product offerings by non-appraisers
  - Cost competitive
What Does Interactivity Look Like?

- Starts with integrated data
- Defined by the appraiser
- Controlled by appraiser
- Powerful tool set
- Regression analysis
- The final valuation is driven and accepted by the appraiser
Distinguishing Characteristics

• The appraiser attains mastery training in statistics and regression

• Experienced appraisers at the local level

• Neighborhood-level analysis driven by a local expert

• The appraiser defines the neighborhood

• Robust data delivered to the appraiser’s desktop

• The final valuation is a reconciliation of the regression, direct sales comparison and listing data
Defining the neighborhood - identifying the influences that are most critical in influencing value - drawing boundaries and considering external influences on the subject property.
In the neighborhood analysis, all of the 1004 MC characteristics plus a spatial display of data.
Information on sales, listings, absorption and the general state of the market at the neighborhood level is presented........
The heart of the application is the regression analysis, which begins with a listing of all of the sales and all of their relevant characteristics. The application scores each sale on a scale of 1-1000, ranking each sale that is most comparable to the subject property, comparing location, size, age, # of baths and so on. Once the information is reviewed by the appraiser-regression analysis is run ...
Appraisers are trained to understand and use regression analysis.
Appraisers build an actual model that predicts sales prices based on the sales considered in the analysis......they are able to determine how accurate the valuation conclusions are for the assembled sales.
They can examine the model output, the amount of data and other relevant factors and comment on the valuation conclusions.....
Appraiser determines the contributory value of each significant component of value, such as gross living area, bathrooms, garages etc.

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Most Probable Value</th>
<th>Probable Value Range</th>
<th>Significance of Variable</th>
<th>Include in Regression</th>
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<tbody>
<tr>
<td>Base Neighborhood Value</td>
<td>$62,424.8</td>
<td></td>
<td></td>
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<tr>
<td>GLA</td>
<td>$43.08</td>
<td>$38.61 to $47.56</td>
<td>28.50 %</td>
<td></td>
</tr>
<tr>
<td>Total Baths</td>
<td>$3,007.39</td>
<td>$1,454.42 to $4,560.36</td>
<td>05.33 %</td>
<td></td>
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<tr>
<td>Site Area SF</td>
<td>$2.73</td>
<td>$2.34 to $3.12</td>
<td>11.39 %</td>
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<tr>
<td>Garage Spaces</td>
<td>$19,214.8</td>
<td>$13,150.52 to $25,279.09</td>
<td>18.31 %</td>
<td></td>
</tr>
<tr>
<td>Carport</td>
<td>Insufficient Data</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basement Area</td>
<td>$46.86</td>
<td>$41.87 to $51.85</td>
<td>18.32 %</td>
<td></td>
</tr>
<tr>
<td>Basement Finished</td>
<td>Insufficient Data</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year Built</td>
<td>-$1,143.66</td>
<td>-$1,360.44 to -$926.88</td>
<td>13.21 %</td>
<td></td>
</tr>
<tr>
<td>Fireplaces</td>
<td>Insufficient Data</td>
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<tr>
<td>Pool</td>
<td>Insufficient Data</td>
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<tr>
<td>Spa</td>
<td>Insufficient Data</td>
<td></td>
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<tr>
<td>Sale Date (Monthly)</td>
<td>$346.57</td>
<td>$192.68 to $500.46</td>
<td>03.26 %</td>
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</tbody>
</table>
Sales are ranked and displayed; adjustments drawn from the regression.
In a similar fashion, listings drawn from the neighborhood are displayed, adjusted and utilized to gain a sense of the current market in real time.
Appraiser reconciles all value indications and concludes a value.
The final Collateral Valuation Report generated by the application provides a supportable valuation estimate for the client, validated and derived by the appraiser, empowered by the data, the analysis and the powerful regression tools. The final result can be relied upon by the client for lending decisioning.
Statistically Supported Appraisals
Rebuilding Confidence

• When you combine
  – Local Appraisal Expertise
  – Data and Interactive Analytic Tools

• You get
  • Transparent
  • Supportable
  • Credible
  • Accurate
Its all about adoption

- Lenders, servicers
- Appraisal Firms/AMCs
- Industry Advisory Council/TAF
- Professional Associations
- E & O Insurance Providers
- Federal Regulators
- GSEs
- Regulators
What we are doing now: building out a network

• Expanding training with more than 1600 appraisers in queue

• New expedited training program
  – Online-Interactive
  – In-person, multiple cities

• Working with AMCs, appraisal firms, top 10 lenders, regional lenders and credit unions
Getting the Word Out

Bloomberg
TELEVISION

Mortgage Banking
THE MAGAZINE OF REAL ESTATE FINANCE

Forbes
.com

HOUSINGMATRIX.com
RESOURCES FOR HOUSING INDUSTRY PROFESSIONALS

SECONDARY MARKETING EXECUTIVE

MT MORTGAGE TECHNOLOGY

HOUSINGWIRE
FINANCIAL NEWS FOR THE MORTGAGE MARKET

Valuation Review
News and analysis for the real estate appraisal industry.

Mortgageorb.
Required Content for Real Estate Finance Professionals

MORTGAGE PROFESSIONAL
Your source for the latest on originations, settlement, and servicing
At the end of the day....... 

- Remaining relevant 
- Providing value to clients/stakeholders/the public 
- Leveraging market knowledge 
- Providing innovative solutions 
- Better appraisals 
- That is how appraisers **survive** and **prosper** 
- This is a battle for the future of valuation....
Our Goal

• Partner with appraisers and appraisal firms to deliver best in class solutions to their clients
• Provide lenders with superior solutions
• Ultimately
  – To bring much needed innovation to an industry seeking solutions
    • More credible appraisals
    • More transparent appraisals
    • More supportable collateral valuation

• We **all** win
I often wonder

• The graying of the profession
  – What does it take to get new blood into this profession?
  – We need to bring the technology and best practices to attract the next generation

• Three Stories
  – Last year in Dallas
    • 29 to 76 year olds
  – Last year in Minneapolis
    • Jackie Glubka
  – Last month in Honolulu
The era of innovation is asymmetric – the winners will be *rewarded handsomely* and the laggards will be left languishing far behind. Everyone understands that *we live in a world of technological change.* But companies that do not innovate will struggle to survive. They will be digitally disoriented, quickly losing touch with their customers, who will be more technologically literate than those who seek to provide them with services and products.

So, far from killing us off, *I see the great disruptions we are now going through as the prelude to a new golden era* for companies like News Corporation.

[Signature]
OPPORTUNITIES WILL ABOUND
AI Annual Meeting · Aug. 15-17 · The Cosmopolitan of Las Vegas
Thank You!

• Mark@appraisalworld.com

www.TheFutureofValuation.com