

Data Visualization: Interpreting and Presenting Meaningful Data

1. What is Big Data (15 mins)

- a. Brief history
 - i. Storage costs over time
 - ii. How has it has changed/influenced business and technology
 1. Machine learning
 2. Predictive analysis
 3. Data Science boom
 - iii. Accessibility of data
 1. Courthouse
 2. MLS Books
 3. Paid MLS subscriptions
 4. MLS Exports
 5. Real-time streaming data available to everyone
- b. How are Lenders/FMNA/and consumers using Big Data to check our work
 - i. Avm's
 - ii. Collateral Underwriter
 - iii. Zillow/Trulia/Realtor.com

2. How has this lead to a change in Lender expectations (10 mins)

- a. Discuss what appraisal specific tools are currently available to us
 - i. Are those tools cutting it?
 - ii. Do we understand what they are doing?
 - iii. Pros/cons/limits of these tools
- b. What tools can we adopt from the greater BI (Business Intelligence) community for use in our industry

Part 2- How to build interactive Data Visualizations

3. Start thinking like a Data Analyst (15 mins)

- a. Data analysts translate numbers into plain English. Every business collects data, whether it's sales figures, market research, logistics, or transportation costs. **A data analyst's job is to take that data and use it to help companies make better business decisions.**
- b. What metrics are important to our clients and what metrics are useful in *our* analysis
- c. 5 step process
 1. Ask a question
 2. Get the data
 3. Explore the data
 4. Model the data
 5. **Communicate and visualize the results**
- d. What is data visualization

- i. **Data visualization** is the graphical display of abstract information for two purposes: sense-making (also called data analysis) and communication. Important stories live in our data and data visualization is a powerful means to discover and understand these stories, and then to present them to others.

4. Data visualization tools (20 mins)

- i. Brief overview
- ii. Products available
- iii. How to connect to MLS exports
- iv. Basic functions
- v. Example- finished dashboard that tells a data story

5. Neighborhood Section (20 mins)

- a. What is the purpose of that section
 - i. Discuss how it benefits the client to see and understand the neighborhood mix and where/how the subject fits within the neighborhood
 - ii. Boilerplate junk vs meaningful information
- b. **Build neighborhood histogram**
 - i. Building re-usable models is how we can we do this on a consistent basis

6. 1004MC / market conditions (20 mins)

- a. What is the purpose
 - i. Can you understand the market conditions by looking at the current 1004mc
 - ii. Is it enough to just fill it out
 - iii. Example from a report with a written paragraph stating numerous prices points from the past year vs scatter plot with trend line.
 - iv. Charts and graphs **better communicate** the data
- b. **Build market conditions viz**
 - i. What types of charts/graphs are appropriate for your data
 - ii. How different views can skewing the story
 - iii. Present enough information in the graph to make it useful
 - iv. Keep it simple, no chart junk!

7. Supporting adjustments (20 mins)

- i. Discuss why Lenders are asking for more support
- ii. How exploring the data will tell you if an adjustment is needed
- iii. When you make an adjustment, show the client how the data backs up what you are saying
 - 1. Show how to build viz's to support adjustments possible examples:
 - a. Location adjustments

- b. Linear regression
- c. Condo floor level adjustment
- d. Pool adjustments
- e. View adjustment

8. Learn how to utilize this new technology, continue to develop tools that help you analyze data, and strive to **communicate** this data in a way that is **meaningful** to your client.