Data Analytics with Power BI
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ABSTRACT TEXT: Goal of the presentation is to introduce the use of Microsoft Power BI desktop, as an analytics tool in an assessment office. Power BI puts business intelligence analytics into the hands of its users, who can import source data, creates datasets, transform or manipulate data, visualize data analysis reports and summary dashboards.

A brief look at how Power BI can:

- Empower assessment professionals to leverage a Business Intelligence application to identify and support better business decision making.
- Use Data Analysis Expressions (DAX) to solve a number of basic calculation and data analysis problems.
- Use ArcGIS Maps for Power BI to visualize and analyze data based on spatial qualities.
- Use built-in support of R for analysis, modeling and visualization.

Presentation will demonstrate basics of Power BI and specific use cases: Inventory Analysis, Ratio Study, Sales-File to Master-File, Pivot Summary Tables, Dynamic Reports and Visualizations with slicers.

Demystifying Predictive Model Markup Language (PMML)
David Whiterell, RES, CAMA Supervisor, Maricopa County Assessor’s Office, Phoenix, AZ

ABSTRACT TEXT: PMML, developed by the Data Mining Group (DMG), is a markup language used by many other industries for deploying analytic models between PMML compliant platforms. In its simplest form PMML code is a set of computer instructions that tell a computer what to do with a set of data. In this presentation we will Demystify PMML by discussing why it’s structured the way it is.

Model deployment has become an increasingly relevant aspect of valuation models as more assessment offices realize the benefits of mass appraisal modeling. PMML (Predictive Model Markup Language) is a standardized format developed by the Data Mining Group (DMG) to represent predictive models and enable deployment on various platforms. In its simplest form, PMML can be thought of as a standardized set of instructions that tell a computer how to apply a predictive model to a set of data.

This presentation will elaborate on the various sections of PMML, particularly as they pertain to regression models. We will discuss the Header, Data Dictionary, Transformation Dictionary, and components of the Regression Model (Mining Schema, Output, and Regression Table) as they pertain to valuation models.
Beyond PMML for Valuation Models: Model Deployment for Communicating Time Trends
Jennifer Rearich, CAMA Regression Modeler, Maricopa County, Phoenix, AZ

ABSTRACT TEXT: In the course of developing the Maricopa County Assessor’s Office new CAMA System, questions arose about how to deploy the results of time trend analysis for the computation of Time Adjusted Sales Prices. Traditionally, time adjustment factors are communicated in a table format, even though they are generated from a mathematical statement. However, as a jurisdiction that annually builds more than seventy valuation models, many encompassing multiple time groupings and variations in spline dates, the challenge of connecting more than ten thousand monthly sales to the applicable time adjustment factor presented an opportunity to reconsider methodology for deploying time trend analysis.

With recent advances in technology, the Maricopa County Assessor’s Office has successfully developed a process to deploy its valuation (regression) models using Predictive Model Markup Language (PMML). Knowledge from this established process enabled us to evaluate the structure of our time trends and determine it was possible to deploy time trend analysis utilizing PMML. As a result, we can easily communicate a series of time trends to a CAMA system, thereby eliminated wieldy tables and producing on-the-fly time adjusted sales prices. Building on past discussion about PMML for valuation models, this session will specifically discuss PMML for deploying time trend analysis and its benefits for the assessment industry. Additionally this presentation will further discuss transformations presented in Demystifying PMML by elaborating on how to deal with SPSS Date Functions in PMML.