

Dallas/Fort Worth Petroleum
DATA WORKSHOP

February 15, 2022



*Data in Mergers
and Acquisitions*

AGENDA

Register Now: www.ppdm.org/DFWPDW22

L2 Conference Room, IHS Markit Office Complex in the Lincoln Centre
5420 Lyndon B Johnson Fwy, Dallas, TX

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8:30-9:00 AM	REGISTRATION - IHS Markit's Office Complex in the Lincoln Centre
9:00-9:10 AM	Introduction Dallas/Fort Worth Leadership Team
9:10-9:40 AM	PPDM Update Trudy Curtis (PPDM Association)
9:40-10:10 AM	The Era of Consolidation and What it Means for Data Managers Scott Cooper (Pioneer Natural Resources)
10:10-10:20 AM	Sponsor Spotlight
10:20-10:30 AM	Networking Break - sponsored by Texas A&M University Master of Geoscience Online
10:30-11:00 AM	AssetAI: A Machine Learning Approach for Asset-Transaction-Value Prediction Jiajun Jiang & Braden Orr (IHS Markit)
11:00-11:10 AM	Sponsor Spotlight
11:10-11:20 AM	Networking Break
11:20-11:50 AM	Strategies for Managing Data: Data Lake vs. Data Warehouse Abel Tan & Jonathan Tan (PetroGrid LLC)
11:50-12:50 PM	Lunch
12:50-1:20 PM	Information to come.
1:20-1:30 PM	Networking Break
1:30-2:00 PM	Business-Driven Data Quality Management Abel Tan & Jonathan Tan (PetroGrid LLC)
2:00-3:00 PM	Closing Remarks followed by Networking Time Dallas/Fort Worth Leadership Team

Sponsor Spotlight - geoLOGIC systems ltd (Workshop Sponsor)

geoLOGIC systems ltd. is based in Calgary, Alberta, Canada and has been providing high-quality, integrated data and analytics to the upstream oil and gas industry in Western Canada and elsewhere for almost 40 years. geoLOGIC's relentless focus on innovation, quality, and service has made it the trusted standard in the upstream Canadian industry. Customers include exploration and production companies in oil & gas and related products; pipeline and midstream companies; service companies; the financial sector government and regulatory organizations, and educational institutions. Key products include geoSCOUT, a decision-support tool providing high quality data and analytics for all disciplines within the oil and gas industry, and gDC, geoLOGIC's comprehensive upstream oil and gas database.

For more information, please visit www.geologic.com or email info@geologic.com.

Thank You To Our Leadership Team

The PPDM Association would like to thank the Dallas/Fort Worth Leadership Team for all their invaluable efforts in making the 2022 Dallas/Fort Worth Workshop a success. Throughout the year, these individuals help organize and enhance all our local events, and we are truly fortunate to work with them to build our Dallas/Fort Worth Community.

- Syed Baber (Chair)
- Nick Crain (Secretary)
- Adam Wilson
- Bill Barna
- Bimal Thomas
- David Willis
- Derek Gonsuron
- Richard Jackson
- Ryan Woodson

Abstracts & Biographies

PPDM Update - Trudy Curtis (PPDM Association)

Biography: Trudy Curtis is the Chief Executive Officer of the Professional Petroleum Data Management (PPDM) Association, the global Not-For-Profit society focused on data management best practices and standards and data management as a professional discipline. Based in Calgary, Canada, Curtis has nearly four decades of years of experience in the industry and is known around the world for her outspoken advocacy of data as a strategic asset, and its management as a core business function. In 1996, she joined the PPDM Association as architect, CIO and ultimately CEO of PPDM Association. Curtis is leading the way to the emergence of data management as a global discipline, the creation and industry adoption of data management standards and best practices, the development of professional development and certification programs for data managers, and the professionalism of data management in the petroleum industry.

AssetAI: A Machine Learning Approach for Asset-Transaction-Value Prediction

Description of Presentation: IHS Markit has an M&A database dating back to 1988 that contains over 45,000 energy transactions. These historical transactions can be analyzed to understand what factors drove individual deal valuation, as well as to predict the value of future transactions. Distilling the insights from transaction data is significant for oil and gas companies as they reshape their portfolios over commodity price cycles and strategy execution. Machine learning (ML) has become a critical and powerful tool for answering important questions that were previously impossible to answer efficiently. ML and related technologies have been widely applied in various aspects of the oil and gas industry including production, exploration, transportation, and refinery. For petroleum economics and finance, most prior ML works have focused on commodity price, asset simulation, and consumption analyses. AssetAI is designed to (1) offer a platform to visualize and explore the transaction database; (2) build ML models to predict values for future transactions; (3) analyze the factors to drive the values of each transaction. The source data used in this product include implied production values, implied reserve values, acreage quality, well density, commodity prices, and market sentiment data from IHS Markit. Users can customize comparable transactions based on geography, date, oil/gas split, and commodity prices. A powerful XGBoost algorithm is used to predict the implied value per daily BOE for each transaction. By examining the models, this product can identify which historical transactions were overvalued or undervalued, as well as the underlying factors in valuation. The ML models serve as engines for the valuation of assets currently on the market.

Short Biography: Dr. Jiajun Jiang is a data scientist with IHS Markit with a dedication to applying machine learning and artificial intelligence to the oil and gas industry.

Coupling Machine Learning and Optimization Algorithms to Maximize Net Asset Value (NAV) - Hoss Belyadi

This presentation will cover leveraging big data to assess the potential uplift in an area. By coupling machine learning algorithms with optimization techniques such as Particle Swarm Optimization (PSO), it is feasible to determine the optimum drilling and completions design parameters. Once the optimum parameters are determined, a better assessment of the net asset value can be identified prior to making an acquisition.

Abstracts & Biographies

Strategies for Managing Data: Data Lake vs. Data Warehouse - Abel Tan & Jonathan Tan (PetroGrid LLC)

Description of Presentation: A data storage structure together with data governance and data management tools is one of the most important building blocks in data management. The data storage structure determines the way by which data is catalogued, maintained, queried, accessed, and processed. The two commonly used data storage structures in upstream oil and gas are the data lake and the data warehouse. A data lake is generally used for unstructured data or objects such as files, images, and other data cluster formats. Examples include LAS files for well logs, WITSML files for upstream well data, and SEGY files for seismic data. To help locate and access the contents of a specific file, a catalog (metadata) is created which also facilitates file identification. In addition to the catalog, an associated application(s) enables the processing and extraction of file contents. A data warehouse, on the other hand, stores data in a relational database as defined by an associated logical data model or schema. The data is organized in tables or entities consisting of records (rows) and attributes (columns). As a result, a data warehouse stores data at a more granular form with attributes potentially being distributed over multiple tables. The data model informs users, programs, and applications where specific data will be located as well as other associated data. The data is then accessed through SQL (Structured Query Language). This presentation will describe the strengths and weaknesses of each data storage approach and illustrate ways in which these two can be configured to work together in synergy through a practical example.

Short Biography: Abel Tan's petrotechnical data management experience began in the early 1980's initially as a geoscientist and later progressed to become a data management consultant for medium and major oil and gas companies. He received several awards from multiple client companies for developing innovative solutions for managing subsurface data and workflow optimization, including a chairman's award for a G&G/IT project. He is currently a solutions architect and consultant with PetroGrid LLC.

Jonathan Tan is a solutions developer and data manager with PetroGrid LLC. Using his background in geoscience, he has designed and developed applications and custom solutions for accessing, managing, integrating, and visualizing upstream oil and gas data.

Business-Driven Data Quality Management - Abel Tan & Jonathan Tan (PetroGrid LLC)

Description of Presentation: Just as beauty is in the "eye of the beholder", so too is data quality. Data quality often depends on the one evaluating the data based upon a specific intended use. A geoscientist might look at data quality from the perspective of the geoscience task to be accomplished; whereas, a reservoir engineer might assess the same dataset to be "good enough" for its use in reservoir modeling. Other factors based on data usage that can influence data quality assessment include legal compliance (contractual and governmental), reliability of derived business KPI's, safety, and organizational constraints among many others. These factors, when present in combination, can further complicate data quality assessment. From an enterprise perspective, data quality assessment and the value of data quality is heavily influenced by the desired business outcome. For example, data quality has less value for a hydrocarbon asset that is no longer economical compared to an asset that is in the early stages of its production lifecycle. As such, data quality assessment can change over time. Business activities such as mergers and acquisitions can also drastically change data quality requirements. These factors affecting data quality perceptions can help explain the variance in the way data management is carried out in different organizations. With these factors in mind, this presentation will attempt to provide a structured approach to data quality evaluation and to give an example of how improved data quality can be correlated to measurable business value.