



Data Management Workshop & Field Trip 2019

August 14 & 15, 2019



2019 Perth Data Management Workshop & Field Trip

Speakers Abstracts

August 14, 2019

10:15-11:40 am

Geoscience Data Storage and Management for Advanced Analytics

Chitra Viswanathan, CSIRO

Abstract Information (Preliminary): Geoscience data including seismic, well log, sensor and core measurements are fundamental for Petroleum exploration. Due to recent advancements in sensor and computer technologies, the volume of this data is constantly increasing. Having a unified repository of this data of various types, structure and complexity (Big Data) is crucial for maintaining data integrity. This study addresses petroleum exploration data integrity issues. Current trends in data management technologies and current data practices in Petroleum Geoscience are explored and a practical data management solution to facilitate data access, storage and sharing is recommended. A prototype of a well log database was developed to demonstrate the advantage of having a unified repository of downloaded and sanitized data for multiple users. In comparison with current practices, such a database will prevent duplicate downloads from public websites by petro physicists and make data use more efficient within a particular organisation. The prototype was developed using cloud-based technology and the PAWSEY supercomputing facility (a joint venture of CSIRO with Western Australian universities) for storing both the raw (.las and .DLIS files.) and the sanitized well log datasets from Bonaparte Basin. PostgreSQL database was used to store the sanitized well log data, metadata and links to raw data. PostgreSQL architecture was selected for its ability to support advanced data types (arrays, JSON etc.), plug in to languages like Python, and link to PostGIS, a spatial database extender. A web-based graphical user interface was developed to view, upload and download well log data. In addition meaningful metadata standards were established in collaboration with expert petro physicists.

Short Biography: Ms. Viswanathan is a Geological / Geomechanical Programmer in the Data Analytics team of the CSIRO Energy / Oil, Gas & Fuels Program in Perth, Western Australia.

Large Volume Data Storage on Cloud Platforms

Neil Constantine, DataCo & Jess Kozman, Woodside

Abstract Information: Oil and gas data managers have been adopting cloud strategies for storage and management of large geotechnical data volumes. This workshop will assess the current level of capability maturity of data management on cloud platform using and interactive survey mechanism and comparison with similar surveys from the previous 3 years in other geographic locations. We will also discuss what



Data Management Workshop & Field Trip 2019

August 14 & 15, 2019



accepted practices and lessons learned can be adopted and adapted from other industries generating large volumes of data for cloud management.

Short Biographies: Jess Kozman is the Data and Solutions Manager for the Subsurface Data & Information Management Group at Woodside Energy Ltd. In Perth, and serves as a member of the PPDM Western Australia Regional Leadership Team. He has worked with digital geotechnical data since his first petrology analysis of rare-earth abundance using **FORTTRAN** punch cards on a CDC 6500 mainframe in 1978, and remembers when Amazon used to sell books (the kind with covers and bindings).

Neil Constantine has 20 years of oil and gas experience, having worked in a variety of geoscience, business and data/application roles across operators, consultancies and service companies. He has worked and delivered projects in the UK, Denmark, Norway, Nigeria, Libya, US, Qatar, Saudi Arabia, Australia and New Zealand. As Director of DataCo Asia-Pacific, part of the DataCo Group, he is responsible for business development, recruitment and delivery of services across the region, as well as leading Group activities globally. He is actively engaged with clients, working on governance, business process and digital transformation projects. Outside of work he runs, cycles, plays hockey (badly) and volunteers in his local Surf Life Saving Club and as a coach at the school running club.

~~~~~  
*1:30-2:00pm*

## **PPDM Update**

**Trudy Curtis, CEO, PPDM Association**

**Short Biography:** Trudy 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 data as a strategic asset, and its management as a core business function.

After receiving a BSc. from the University of Calgary in 1978, Curtis went to work in the Oil and Gas industry. 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. In addition to her role as CEO of the PPDM Association, Curtis is co-founder of the Standards Leadership Council.

~~~~~  
2:00-2:30pm



Data Management Workshop & Field Trip 2019 August 14 & 15, 2019



Petroleum Data Management in an Era of Digital Transformation

Neil Hookway, Woodside

Description of Presentation: Companies, including Woodside, are investing in the skills and culture needed to embed digital into the DNA of our organisations. Digital transformation has the potential to drive faster, deeper and better interpretation and modelling, while increasing production volumes and lowering emissions. In practice it is often difficult for companies to deliver the full benefits of digital. In this presentation, we will define digital transformation and the opportunity it presents for the petroleum data management (PDM) discipline. We will argue that we must re-invent ourselves for the next era of technical computing. As a PDM discipline, we need to recognise ambiguity in the term data management, particularly in domains where data management is less mature than in PDM. To conclude, we will use a Woodside example to illustrate how complex digital transformation actually is and leave you with some of my thoughts on what we'll all be doing after we've digitally transformed.

Short Biography: A Geology graduate from the University of Liverpool, UK, Neil was re-located to Perth by Paradigm Geo. in 2001 whereupon his career became entangled with Woodside Energy, firstly through technical software sales, then data management consultancy and finally direct employment in 2009. A passionate advocate for the Petrotech skill set and the value it can unlock, Neil describes his current role of "Strategic Technology Manager - Subsurface Digital" for Woodside as the best job in Australia.

~~~~~

*2:30-3:00pm*

## Enabling Data Management by Governance, Regulatory Compliance and Contract

**David Yates, Corrs Chambers Westgarth**

**Description of Presentation:** Effective data management is a technical process, and a people process, but it also a legal process. Proper data governance is a critical framework for technical solutions and people initiatives. Any data management process (and a digital transformation) must ensure that the organisation is complying with its regulatory obligations (and this is more, much more, than privacy). The organisation's contractual framework can and should protect, manage and enable commercialisation of data. All of this needs to be front and centre in the Board room. This presentation will address these legal aspects of data management; explain the requirements, and what it means if these requirements are not met; and explain the legal path forward to enable the data management process to be completed properly.

**Short Biography:** David is a Technology, Data and IP lawyer, a Partner of Corrs Chambers Westgarth heading up the firm's IP / TMT practice in WA, and President of the WA chapter of the Data Management Association.

~~~~~



Data Management Workshop & Field Trip 2019 August 14 & 15, 2019



3:15-4:25pm

Digital Transformation: Opportunities and Risks

Martin Storey, Well Data QA

Description of Presentation: This is intended to be a highly participative session to make participants think of aspects of the digital transformation which involve them. Three parts are envisioned:

- A (traditional) presentation of broad personal views and observations on the on-going digital transformation, the possible vs. the unlikely, the imperative vs. the hazardous, illustrating with recent examples and relating the examples to the community of data management professionals. < 20 mins, segueing into:
- A discussion of perhaps a half-dozen specific topics, not all technical, by group of about 8 persons (1 group: 1 topic), again focusing on opportunities, risks, mitigation and relating these to our roles. 30 mins leading to:
- A presentation of each topic by the group(s) working on this topic, combined with a discussion, possibly involving a couple of facilitators from the P-REL and friends. 50-60 mins?

Short Biography: Martin is an independent petroleum engineer and data scientist with over 25 years of industry experience working in the field, offices, tape rooms and classrooms internationally. He is a member of the Western Australia PPDM Regional Leadership team.

~~~~~

4:25-4:55pm

## Accelerating a Complex Technical Library Migration With Python

Amy Weiss, Oil Search & Mike Ball, DataCo

**Description of Presentation:** Oil Search approached DataCo in 2018 to migrate their geoscience technical library and related network-drive content to their Documentum EDMS. Working collaboratively, we developed an approach that overcame challenges of scale, variety of content, range of standards, complex object relationships and metadata dependencies. Our combined domain knowledge, with Oil Search’s inside track on the data and DataCo’s analytics and rule-based approach to content analysis, rationalisation and standardisation delivered a successful large-scale, complex migration from disparate legacy repositories to a single EDMS. This presentation will share key insights to an offline, highly-iterative approach with hundreds of business rules applied in Python, allowing virtual content migration and rapid review cycles. Benefits included shortened project delivery, improved taxonomic fit and metadata enhancement; delivered with minimal disruption to the business environment under a condensed “go-live” timeframe.



# Data Management Workshop & Field Trip 2019

August 14 & 15, 2019



**Short Biography:** After graduating with a BSc (Hons) in Geoscience from the University of Aberdeen, Mike joined DataCo as a Data Manager in 2011. Initially based in Aberdeen and working on a variety of subsurface data and information projects throughout the UK and Europe, Mike joined the Australia team in 2014 and is currently the Data Services Lead for the Asia Pacific region.

~~~~~

August 15, 2019

8:15-9:15am

PPDM Update

Trudy Curtis, CEO, PPDM Association

Short Biography: Trudy 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 data as a strategic asset, and its management as a core business function.

After receiving a BSc. from the University of Calgary in 1978, Curtis went to work in the Oil and Gas industry. 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. In addition to her role as CEO of the PPDM Association, Curtis is co-founder of the Standards Leadership Council.

~~~~~

*9:15-9:45am*

### A Generational Shift In Data Management

**Kerry Blinston, CGG**

**Description of Presentation:** Data management is a critical enabler of digital transformation. Although technology plays an important role, people and process are equally critical and a generational shift in all three is required to achieve value creation. Such generational shifts carry significant opportunity but also risks such as data integrity and loss of knowledge. Through highlighting the required changes, we examine the challenges and risks that must be overcome. We review five critical areas that next-gen data management technology must address. Process automation is evaluated with respect to the requirement and advisability of retaining the 'human in the loop'. Human aspects are often overlooked and we will reference the results of an interactive session at PPDM Houston Expo 2019 entitled "The Digital Transformation of the Workforce" examining the factors that will impact the ability



# Data Management Workshop & Field Trip 2019 August 14 & 15, 2019



to integrate digital immigrants with digital natives.

**Short Biography:** Kerry Blinston is VP of CGG Smart Data Solutions. A geologist by background Kerry's current interests span cloud computing and how industry processes will evolve as a result of adoption, machine learning systems and their role in automating data management tasks in addition to the development of academic routes into O&G data management. Kerry is widely involved in the data management community and is currently co-leading the OSDU team responsible for data security, entitlement and obligation.

~~~~~

10:15-11:45am

Professionalizing Our Discipline - Workshop

Margaret Barron, PPDM & Oliver Thistleton, DataCo – PPDM's Professional Development Committee

Description of Presentation: The PDC is tasked with mapping out a global competency framework that identifies job families, job roles, descriptions, compensation structure, career maps and competency matrices for petroleum data managers. To create a truly global framework, we need input from each membership region to ensure each area is represented in the data.

This presentation and workshop will provide an opportunity for Perth delegates to be the first international group (outside of North America), to add to this body of work. Although PPDM leads this critical initiative, it's important to remember, PPDM is made up of Members, Volunteers, Professionals, who are passionate about their professional discipline and want to see themselves represented on a career map, in the nation's Standard Classification of Occupations, or within a National Occupation Code (NOC). Let's make sure Australia is represented by participating in this PPDM event workshop.

The outputs from this project will help all petroleum-related companies understand what data management competencies are needed for employees to be successful in their jobs, and how to better transition employees through various petroleum data-related roles. The benefits are endless – employees will gain confidence in their chosen professional discipline and future job potential, and new graduates will be informed, with petroleum data management on their career radar.

During the presentation we will focus on the importance of establishing a professional discipline and the foundational pieces developed by the PDC, which include data management Job Families, Job Roles and Job Descriptions for seven (7) identified job titles within the petroleum industry.

The workshop aspect will provide an opportunity for delegates to have their say. They will get to contribute data to the job role definitions, draft job descriptions, add competencies and engage in meaningful discussion and debate related to the body of work. We will map out next steps related to competencies and the competency matrix.

Short Biography: As a career data management practitioner and consultant Oliver has worked internationally in a wide range of data management environments – from new basin appraisal to asset



Data Management Workshop & Field Trip 2019 August 14 & 15, 2019



development. Oliver's technical experience has led to him becoming an acknowledged expert and trainer on the practices, principles and realities of data management, advising a range of companies from small independents through to the super majors.

Margaret Barron is the Chief, Professional Development, at the Professional Petroleum Data Management Association.

~~~~~

*11:45-12:00pm*

**What Being a CPDA is All About**  
**Antonie du Toit, ANTS GeoConsulting**

**Description of Presentation:** INTRODUCTION - A Personal encounter with data. (Using digital family photographs as an example, show how difficult it is to manage unorganised data. Touch on CPDA Competencies using photographs as examples: Data Quality Management = edited v.s. unedited photos, resolution. Master Data Management = managing multiple copies from camera to computer. Data Governance = decision to sort photos by date, event, location, or people photographed. etc. ) - Petroleum data: Digital Transformation, Analytics, AI... More value would be attained if data is managed better. By whom?...someone with a CPDA.

**Short Biography:** I have worked with digital data in the Petroleum industry since 2002 and have attained my CPDA in 2017. 1996: B.Sc. (Geology) 1997: B.Sc.(Hons, Geophysics) 1998-2001: Minerals industry. Managed data of over 1000 boreholes in GeoFrame software 2002-2008: Geological modelling in oil industry, UK. Contracted for 2 years in each of Shell, Chevron and BP's offices. 2009-2014: Geological data management and modelling in oil industry, AUS. 2014-present: Independent geological consultant, AU.

~~~~~

12:00-12:15pm

SPE WA Data Analytics Community of Practice
Steve Smart, SPE

Description of Presentation: The Data Analytics Community of Practice is an initiative to build a community of upstream engineers and scientists interested in growing expertise and capability in data science, predictive analytics and machine learning. In this presentation we will discuss the history, vision and goals of the Data Analytics CoP and how we are fostering personal growth by focussing on "Learning by Doing".

Short Biography: Steve Smart works with engineering and operations teams in Oil & Gas companies and specialises in the practical application of data science, machine learning and workflow automation to



Data Management Workshop & Field Trip 2019 August 14 & 15, 2019



operational challenges. Driven to help engineers get what they really want, Steve has led and advised on the technical development of major digital platforms on some of the largest E&P development projects in the world.

~~~~~

*1:15-1:45pm*

### **Adding Power BI to the Data Manager’s Toolkit**

**Cyril Gagnaire, DataCo**

**Description of Presentation:** The Data Managers’ toolkit evolves as the Digital Transformation brings new capability including Business Intelligence (BI) tools to the Oil and Gas industry. This 20/20 interactive session proposes a live demonstration to highlight how we can use BI tools to enhance data discovery and boost our reporting capabilities as part of our role. This demonstration, targeting Data Managers with an introductory-level awareness of BI, will go through the typical BI workflow: Data Gathering / Mining, Data Preparation, Data Analysis, creating metrics and visualisation and providing reports / dashboards. It will present a worked example, all from the perspective of an LWD engineer turned data manager and now business analyst. It is intended to provide practical experience and prompt discussion as to how data managers need to evolve our skillset to remain relevant under the Digital Transformation – and how doing this increases our value proposition at a time when the focus is on data.

**Short Biography:** After receiving his master’s degree in Geo-resources from the University of Bordeaux (France), Cyril has worked in Western Africa and the Middle East as a Logging While Drilling engineer for three years before joining DataCo in UK as a Data Manager. Cyril is now based in Perth as a Business Analyst / Data Analyst for DataCo Australia.

~~~~~

1:45-2:15 PM

Unlocking Data Power As Part Of A Wider Digital Transformation

David Cavanagh, Integrated Energy Pty Ltd.

Description of Presentation: Unlocking the power of Data as part of a wider Digital Transformation - A safer, more valuable way of Working This presentation will illustrate how better ways of working can be created considering data + people, working processes, organisation design, physical working environment and technology. In particular, it will serve to demonstrate how the wider business community can be engaged to see the value and application of good data completeness and quality and its linkage to hard outcomes in safety, production and cost. Examples will be drawn from first hand experience of more than twenty global digital transformation projects around the world with an incremental client value exceeding \$20 billion and many lives saved, mainly in oil and gas but also some mining, research and space. Locations include Australia, PNG, Malaysia, Indonesia, Morocco, UAE, with



Data Management Workshop & Field Trip 2019

August 14 & 15, 2019



clients such as ConocoPhillips, Woodside, Shell/QGC, ADCO, BP. In addition, a number of AR and VR experiences will be used.

Short Biography: David is a recognised global expert in integrated operations and digital transformation across the full resource value steam, with a proven track record in consulting assessments which have identified tens of billions of dollars of value for his clients around the world, while also saving and enhancing lives. David brings three decades of energy and resources experience, with locations spanning six continents, and a practice that integrates psychology, technology and architecture.

~~~~~

*2:15-2:45pm*

**Data Management in a Sky of Clouds**  
**Stephen Malajczuk, Katalyst Data Management**

**Description of Presentation:** As many organisations undergo their own digital transformation journey, managing data across multiple domains has become increasingly complex. It is not uncommon for an organisation to have data residing in not one but multiple clouds, as well as on physical media. However if the correct methods and principles are employed, this new reality should not limit a data manager’s capacity to ensure secure, timely access to the right information for their stakeholders. In this presentation, we will describe some methodology to managing data across multiple domains, how the PPDM Data Model supports this endeavour, the role of Master Data Management, technologies utilised, data security, and some examples and lessons learnt.

**Short Biography:** Stephen has a first-class honours degree in Geophysics and a post-graduate certificate in Project Management, with 15 years of international experience in the seismic exploration industry. In his time in the industry he has worked as a field geophysicist, a team leader on seismic processing projects, and also managed the day-to-day operations of a small processing centre in Perth. More recently, Stephen has applied his knowledge and experience to the field of data management. Stephen earned his CPDA in May 2019.

~~~~~

3:00-3:30pm

A New Field Development Database to Aid Offshore Regulatory Assessments
Roland Hamp, NOPTA

Description of Presentation: The technical and commercial work of the National Offshore Petroleum Titles Administrator (NOPTA) entails undertaking assessment and monitoring reviews for a range of oil and gas development proposals and production operations. This presentation describes NOPTA’s development, construction, QC and early application of a new digital gas fields development database,



Data Management Workshop & Field Trip 2019 August 14 & 15, 2019



including the use of benchmarking plots during field development plan (FDP) assessments, plus routine field and facilities performance monitoring. The work was in part informed by consultation with other jurisdictions (e.g. OGA, NPD) and is one of several benchmarking activities either underway or being considered by NOPTA. The digitalisation of a range of subsurface and facilities data will make the assessment of recovery efficiency, production system performance, development costs and resource maturation timelines more easily accessible and visible. The new database will also promote faster, consistent and insightful assessment and communication of field development proposals and performance monitoring, with the aim of facilitating optimum long term recovery and good oilfield practice. The information collated will remain confidential and be used for advice purposes only.

Short Biography: Roland is a Petroleum Engineer with an M.Eng from Imperial College, London and over thirty years experience working in the North Sea, Indonesia and Australia in all aspects of field development planning, productions operations, economics, HSE and asset management. During that time he has held a number of technical and management roles with Enterprise Oil plc and Woodside Energy Ltd., and since April 2018 has held the position of Group Manager, Technical at NOPTA, based in Perth, WA.

~~~~~

*3:30-4:30pm*

## **Application of a Cloud First Approach to Seismic Acquisition and Dynamic Reservoir Modelling**

**Matthew Holsgrove & Bimal Wanigaratne, Wipro/Woodside**

**Description of Presentation:** As early as 2015, Woodside highlighted the benefits of cloud computing and storage in defining the use of cloud services as part of a global strategy for increased efficiency, capability and growth. Woodside also identified the risk that failing to adopt and leverage new data and information technologies coming to market within a reasonable timeframe could lead to rework costs and longer times in delivering value. Woodside proposed a cloud first strategy in which all new IT solutions and services would be required to utilise cloud services unless it could be shown that this would significantly increase overall cost of ownership, provide an inferior experience or business outcome and the inability to provide appropriate risk mitigation controls. **This presentation will describe the application of this approach to seismic acquisition and dynamic reservoir modelling.**

Woodside’s aim is to move all seismic data, supporting files and documents to the cloud and proof of concept initiatives are in place to make data dynamic, increase data accessibility and reduce cycle times for data ingestion and delivery to interpretation applications. New Woodside seismic acquisition and processing contracts specify that data should where possible be delivered direct to the cloud. When data is delivered direct from an acquisition crew, an automated machine-learning driven ingestion workflow can use cloud-native microservices to accelerate harvesting of meta-data attributes, determine data confidence based on defined criteria and leverage compression and streaming to publish data to interpretation applications. This optimised approach is being used to ingest fast-track products for a



# Data Management Workshop & Field Trip 2019

August 14 & 15, 2019



current large-scale 3D marine seismic acquisition survey to enable geoscientists to make key decisions while the survey is still being shot.

Optimising running of computationally intensive reservoir dynamic models requires high-end computer systems to maintain acceptable runtimes. Purchase, maintenance and upgrading of such on-premise systems is expensive and becoming an ineffective business outlay and current flexibilities in cloud computation are proving to be a cost-effective alternative. Woodside have implemented cloud simulation submission functionality to run simulations in the cloud and on specific cloud workstations, enabling running of jobs on multiple high-performance machines. Availability of unlimited licenses for simulation applications allowing available compute power to be fully utilised. Woodside have developed reporting and monitoring capabilities to effectively manage cloud-compute costs for users and teams including protocols on management of created output files. This approach is improving reservoir engineering modelling workflow efficiency by defining an optimal number of models for the required decision, effectively managing simulation results and providing a substantive strategy in managing licencing and cloud compute costs.

**Short Biography:** Matthew is a Consulting Partner in Wipro's Energy, Natural Resources and Utilities Practice based in Perth, Australia. His 22 years of upstream O&G experience includes work on E&P data management strategy, E&P architecture, application rationalisation, workflow analysis, governance, corporate and master data management projects. He is currently the Seismic Solution Lead for Woodside Energy's Subsurface Data and Information Management group, focusing on delivery of their seismic cloud solution.

Bimal is a Reservoir Engineer with 20 years of experience in Field Development Planning, Reservoir Management and Project Management at multiple companies including BHPbilliton, Conoco, Schlumberger and Shell. His current role is Reservoir Domain Data Manager at Woodside Energy focusing on initiatives for applications capacity planning, activity integration and workflow optimisation for improved Reservoir Engineering data management and workflows

~~~~~