

# E&P Data Management Challenges

*Doing more with subsurface data ...*

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# Data Management Challenges - Outline

1. Data Quality
2. Data Integration & Accessibility
3. Managing Legacy Data Backlog
4. Physical Data Management Problem
5. Lack of Right Talent
6. Data Governance Problem
7. Tangled up in spreadsheets Chaos
8. Challenge in Leveraging Big Data
9. Constantly Changing Landscape
10. Other Data Management Challenges

# 1. Data Quality – a never ending story

End users recognise poor data quality more readily

- Poor data ownership enforcement. (External Data Quality questionable.)
- Poor data quality in legacy system (Data Migrated)
- No data audit(data measurement) ever conducted (in-house or outsourced)
  - No dedicated team or inexperienced team
  - No data quality tool available
  - No/Limited budget
- No data cleanup ever conducted. If done, hard to sustain.
- No data quality dashboard(DQM) available.



GIGO

## 2. Data Integration & Accessibility

Not all data readily available and data not up-to-date when needed

- Data resides in multiple systems and databases(data silos), format, etc. Multiple copies and versions.
- No single standard across organisations
- No single system like Google search to access all data for respective assets
- No helpdesk or Call Centre
- Many datatypes still not digitized and backlog in data migration(still in hardcopy format or some media).
- Integration of business and technical data
- Bandwidth issues esp. with International operations and host country issue
- Real time data



# 3. Managing Legacy Data Backlog

Never ending back-log in Legacy Data

- Voluminous incoming data
  - New data/assets (not aware of new data generated)
  - From data acquisition (esp. during M&A or new prospect)
  - Data handovers upon PSC relinquishment
- Never ending data migration
  - from old to new media
  - from retiring legacy applications/databases
- Incompatible legacy data (Legacy data junkyard)
- Phasing out of old systems requires data migration
- No Retention and disposal policy for physical data
- No data migration(ETL) tool available
- Delays in data submission by PSC's



# 4. Physical Data Management Problem

Not all organization manage physical data

- No Policy & Procedure
  - No retention and disposal policy
  - No Workflow on how to handle physical data
- No proper Asset management system
- No proper storage facilities. Normally outsourced.
- No industry standards



# 5. Lack of Right Talent

Finding qualified and experience people is always a challenge

- Small pool of E&P Data Management due to niche field
- A struggle to find the right talent
  - Lack of skilled resources resulting in organization taking in less experience and qualified staff)
- No career path for DM in E&P
- Shortage of new talent called “Data Scientist”



# 6. Data Governance Problem

- Standards, Policies and Procedure not in-place or poor enforcement
  - No Standard Naming across organisation
  - Business Process Workflow not integrated with Data Management
  - Duplicated data across the organisation
- No Data Steward or multiple data stewards.
- Ownership of data is fragmented across organisation
- No Data Supplier Management
- No internal Data Dictionary (Meta Data Management)



Data Management Committee



# 7. Tangled Up in Spreadsheet Chaos

When nothing else is available, spreadsheets filled the need.

- Excel is readily available and easy to use.
- No database available to store specific data
- Boil's down to behavior(habits) – collaborative culture (what's in it for them). Some organizations are more geared to individuals, some a geared more to collective.
- When data is created, it either stashed in excel files or thrown over to DM departments

Class Goal:	80.00%	
2 Your classroom goal		
Overall Mastery:	69.6%	
4 All Students		
Tested Mastery:	77.3%	
6 Only Students Who Have Tested		
Coverage:	100.0%	
8 Percent of Learning Goals Assessed		
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# 8. Challenges in Leveraging BIG Data

80% of data still resides in unstructured format

- Dealing with voluminous and various category of data. Majority of data still resides in unstructured format(not digitized).
- Traditional architecture and infrastructure not up to challenge
- Getting the data in right shape
- No proper domain expert in the organization
  - Difficulty in conceptualization the data as data volume increases
  - Difficulty in identifying the right data and determining how best to use it
- Leveraging BIG data means working across function like IT, engineering, finance and procurement. This is not achievable due to ownership of data is fragmented across the organization



# 9. Constantly Changing Landscape

The only thing constant is change

- Vendors changing/updating platforms and application
  - Multiple version of applications
  - Multiple data management platforms
  - Multiple Operating Systems
- New technologies and tool being introduced
  - BIG Data (e.g. Cloud Computing, Hadoop)
  - Mobile Computing (e.g. Handheld devices)
  - New products being introduced by vendors
    - Specialised applications
    - Integrations and Visualisation software
    - New products being introduced by vendors
- New datatypes being introduced
  - Crude Finger printing
  - Core Scratch technology
  - Core Imaging



# 10. Other Data Management Challenges

- Limited Budget
- Data Security
- Model Management





**PETRONAS**

# Thank you



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