Industry Challenges

- Reservoir complexity is increasing

- Developing unconventional plays require a different way of working

- Data volumes and types are increasing

- Diversity of technology creates silos and data duplication
TIME SPENT BY E&P COMPANIES ON TASKS¹

NOCs

Independents

Majors

Source: (1) 2013 Welling Survey and Report on E&P Software
Areas for Improvement

- Better connectivity with supplier suite:
  - NOCs: 24%
  - Independents: 28%
  - Majors: 25%

- More open/neutral frameworks:
  - NOCs: 28%
  - Independents: 48%
  - Majors: 31%

- Better integration with other software:
  - NOCs: 63%
  - Independents: 48%
  - Majors: 39%

- Up-to-date data with good quality:
  - NOCs: 25%
  - Independents: 19%
  - Majors: 19%

Source: (1) 2013 Welling Survey and Report on E&P Software

EXPECTED CUSTOMER OUTCOMES

- Open Platform with Seamless Integration
- High Quality Data
DecisionSpace Integration Server

Information Foundation
- Landmark Databases
- 3rd Party Databases
- Semi Structured data
- Unstructured Data
- Real-time

Integration Foundation
- DecisionSpace Integration Server
  - Data Server
  - Connectors
  - Search
  - BPM
  - Web Framework
- DecisionSpace Analytics & Real Time
- DecisionSpace Data Quality
DecisionSpace Integration Server

Geoscientists

Admin, Data Mgr.

Geoscientists and Engineers

Managers

Integration Foundation

DecisionSpace Integration Server
- Data Server
- Connectors
- Search
- BPM
- Web Framework

DecisionSpace Analytics & Real Time

DecisionSpace Data Quality

Information Foundation

Landmark Databases
3rd Party Databases
Semi Structured data
Unstructured Data
Real-time
Data Quality

Data Quality is not…
- A one size fits all solution
- A one time event

Data Quality is…
- unique to each organization
- a continuous process
Data Workflow

Data rejected and captured in audit trail

Does data satisfy data rules?

Data of known quality stored

Transfer, sync, subscription

Vendor 1

Vendor 2

Vendor 3

Vendor 4

Master Data

PROJECT ENVIRONMENT

OpenWorks®

EDM™

Other

Other

Other

Vendor 4

Vendor 3

Vendor 2

Vendor 1

Load data

YES

NO
Types of Data Quality Rules

Completeness
- Null values
- Placeholder values
- Missing child records
Types of Data Quality Rules

- Completeness
- Consistency
  - Inconsistent values
  - Bad computed values
  - Differences among matched sources
Types of Data Quality Rules

- Completeness
- Consistency
- Conformity
  - Numbers within range
  - Dates within range
  - Expected formats
Types of Data Quality Rules

- Completeness
- Consistency
- Conformity
- Duplication
Types of Data Quality Rules

- Completeness
- Consistency
- Conformity
- Duplication
- Integrity
  - Orphan child records
Automation is key

- Perpetual monitoring and continuous improvement of data
- Business best practices ensures efficient and effective data management
- Reusable & repeatable processes
What is DecisionSpace® Data Quality?

Landmark’s DecisionSpace Data Quality is a suite of data quality tools designed to evaluate, correlate, correct, and monitor data across the enterprise.

- **Quickly assess** the health of their data
- **Automate & schedule** data quality jobs for perpetual monitoring and continuous data improvement
- **Remove data bottlenecks** that hinder a project’s progress
- **Communicate** data quality improvements over time to management and end users
DecisionSpace® Data Quality

- Leverages the power of DecisionSpace platform
- Delivers over 5,600+ preconfigured data quality queries (canned QC rules)
- Preconfigured data quality-over-time web dashboard with metrics and KPIs
- Mobile support of the web dashboard
Data Quality Project

- Company did not know the quality of their data and users lacked confidence in the data they used in their applications.

- Transferring data and ensuring the data sources were aligned was primarily a manual process.

- Database performance issues and user application crashes were reported which required a significant portion of the data managers’ time to address.
The Results

Improving database and application performance by identifying and deleting orphan records in data sources.

- Database sizes were reduced by as much as 20% due to cleaning up of orphan records
- Eliminating orphan records also reduced user application crashes

Matching and merging data across different sources reduced data duplication and ensured data consistency across databases

Communicating results of the improved data quality to end users made them more confident when using it in the applications.

Dashboards provided metrics to upper management

- Value of the initial cleanup process
- On-going data management
In Summary…

- Having best practices in place for data governance and data QC are key in decreasing decision cycle time.
- Data Quality should be present at all stages of the data lifecycle.
- Automation reduces the time it takes to monitor and correct common problem.
Demonstration
Questions and Next Steps
Thank you

Duane Moonsammy