Measuring the Quantitative Value of Data Governance in a Subsurface Setting

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Presentation Objectives

- Share the background leading up to the value calculation method
- Explain the value calculation method
- Site examples
- Share the foundation elements of the Data Governance Programme
- Looking ahead to version 2.0 of the value calculation method
- Solicit your challenge, feedback, generate ongoing discussion
2006 Volume Reporting and Well Back Allocation

Legacy method was based on spreadsheets and individuals
  - Legacy method was not sustainable
  - Process had many errors
  - Errors required many hours to resolve
  - Many versions of “The Truth”
  - 60% of Engineering time spent searching for and wrestling data rather than analyzing data

WBA Outcome
  - Market search
  - Commercial solution (with local enhancements)
  - Centralized database for measured and allocated volumes
  - 4 layers of QC
  - More time spent analyzing the data
The Project Sponsor (Reservoir Engineering) reported 2,200 efficiency hours saved by the new system

Calculating the value (value returned – costs)

The Variables:

- Time spent using old method (time)
- Time spent using new method (time)
- Time difference between old and new methods (net productivity gain)
- Fully Burdened Staff Rate per hour (used for both value and cost)
- Time spent analysing old and new methods (cost)
- Time spent building new method (cost)
- Software license costs (cost)
- Software maintenance (cost)
- Maintenance and Enhancement hours spent per year (cost)
- Value reduction factor (cost) - not every hour recovered is valuable
## Value Calculation Model

### 2,200 Efficiency Hours Gained

<table>
<thead>
<tr>
<th>Year</th>
<th>Efficiency Hours Gained</th>
<th><em>Staff Cost Per Hour (USD)</em></th>
<th>Solution Value (USD)</th>
<th>Software Cost (USD)</th>
<th>Software Maintenance (USD)</th>
<th>Consulting (USD)</th>
<th>Internal DM Cost (USD)</th>
<th>Total Costs (USD)</th>
<th>Net Value (USD)</th>
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</thead>
<tbody>
<tr>
<td>2006</td>
<td></td>
<td></td>
<td></td>
<td>132,000</td>
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<td>(644,000)</td>
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* $200 is a Notional value - insert your fully-burdened staff cost here

*** Assumes 30% efficiency fall off after year 1 (can not be certain that every efficiency hour has value)

** Counting only 7 months for 2012 due to malware strike. Significant recovery effort required
### Other Examples of the Value Calculation

<table>
<thead>
<tr>
<th>Solution Name</th>
<th>Cumulative Efficiency Hours</th>
<th>Cumulative Net Value (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Well Data (Header, XYZ, Markers, Perforations, Directional Survey)</td>
<td>5,336</td>
<td>139,967</td>
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<tr>
<td>Well Production Surveillance</td>
<td>6,325</td>
<td>704,007</td>
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<tr>
<td>Wellbore Integrity Surveillance</td>
<td>5,271</td>
<td>481,174</td>
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<tr>
<td>Data Quality Surveillance</td>
<td>3,370</td>
<td>328,000</td>
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<tr>
<td>File Replication</td>
<td>10,425</td>
<td>1,608,751</td>
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</tbody>
</table>

**Reference:**
- 1
- 2, 3
- 4

[Diagram of Standard Access Method for Access to Governed Data]

- Stratigraphy Completes check
- Stratigraphy Consistency check

[Diagram of Replication System Overview]

- Data Quality Surveillance Methods
- Fluid Analysis from RasGas Laboratory

[Diagram of Wellbore Integrity Surveillance System]

- Data Integrity
- Well Integrity Reporting
- Well Integrity

**Reference:**
- 3

6 | RasGas Public/Data Governance Value | 21 November 2013
The Data Management function is embedded in and is part of the Subsurface Technical Organisation, not in the IT Department.

- Common Reporting Structure
- Mission and Objectives are Aligned
- Efficient Communication and Project Execution
- A Single Team Composed of multiple disciplines
- Cross Training – We know the business behind the data
- Clear Distinction Between Corporate IT and DM Expertise, Roles and Responsibilities

<table>
<thead>
<tr>
<th>Corporate Core Values</th>
<th>Corporate Mission</th>
<th>Corporate Objectives</th>
<th>Subsurface Technical</th>
<th>Subsurface Technology</th>
<th>Systems Development &amp; Enhancement</th>
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Sustainable Data Governance Through Interdisciplinary Cooperation

Positive Indicators of Data Governance Sustainability since 2009

- The Business is aware of the value of the data/information/knowledge
- Data Owners committed to keeping a sharp edge on the data
- Strong Management support
- Data Management team commitment to training and raising the level of data, integrated information, and knowledge management services
- The Subsurface is “Selling” the value of the solution to other parts of the business and to the Shareholders

Sustainable governance processes for each data type:

1. Data Owners Process
   - Describes the Data Owners responsibilities
   - Acquisition, QC, Validation, Completeness, Consistency
   - Periodic process review

2. Data Management Process
   - Describes Data Management responsibilities
   - Data Quality surveillance methods
   - Periodic process review

3. Data Access Process
   - Describes how to find the “One” right answer
   - Data Challenge
   - Functionality feedback
   - Periodic process review
What’s Next for version 2.0?

Thoughts for “Value Calculation 2.0”

What is the Value of:

- Clear and distinct Roles and Responsibilities between Data/Information/Knowledge Management from Corporate IT
- Integration of data and information resulting in the breaking down of silos
- Data Governance processes and Data/Information/Knowledge Management practice that can quickly meet the changing needs of the business
- Access to the right data, at the right time, in the right format, of known quality
Acknowledgements

The authors would like to express their appreciation to RasGas Management for their continued support of the Subsurface Data Governance Programme and their challenge to continually improve the capability and effectiveness of the data/information/knowledge management solutions.

The authors would also like to express their appreciation to our Shareholder Organisations, the Qatar Petroleum North Field Team and the ExxonMobil Qatar Subsurface Team and for their continued support and challenge to generate a high rate of return on the investment in data acquisition and analysis.
1 Ahmad G. Al-Kuwari (23 May 2011). RasGas Digital Oilfield Foundation Elements, Practical Applications, and Results 2nd Annual Digital Oil Field Conference, Abu Dhabi, United Arab Emirates


3 Mark A. Priest (17 May 2011). Building sustainable information and knowledge management processes at RasGas Petroleum Network Education Conferences, 15th International Conf. on Petroleum Data Integration Data and Information Management, Houston, Texas, USA

Thank you!

www.rasgas.com

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