

WHERE IS UPSTREAM DATA AND INFORMATION MANAGEMENT HEADED?

By Jim Lawnin & Mark Allen with The Oil & Gas Journal Research Center of PennEnergy Research.



Raising The Bar On Data Management

The upstream Oil & Gas industry is witnessing an explosion of data. The O&G industry, which is largely broken into silos, is also waking up to the need of raising the bar on data management assets, systems, tools and processes. Increasingly, the O&G industry is seeking ways to meet compliance norms and mitigate risk exposure. The more fat sighted leaders see data governance becoming a regulatory requirement, sooner rather than later.

The more immediate challenge is to effectively capture, store, manage, analyze and deploy the data for upstream assets. O&G businesses need to make significant investments in improving their data management to create better decision-making and ensure they do business better.

The volume of data is predicted to grow exponential due to the development of digital oilfields. A multitude of sensors, higher frequency of data collection, integration with operational, financial, human resource and supply chain data is further adding to the complexity of data management. C-level executives feel the need for vast improvements in data management. The question is “Where to begin?”

Change: O&G Wants to Invest in Data Management

The two key areas that O&G companies must address are Real Time Data Management (RTDM) and Business Analytics. Consumers of data will demand greater emphasis on access, clean-up, and the preparation of data for activities like analysis, analytics, and interpretation. The most immediate outcome of the growth in data volume and the speed with which it needs to be acted upon across the enterprise is on how data is captured, adoption of standards, processes, governance models, collaboration and communication across the enterprise.

With the growth in digital oilfields and a multitude of sensors the industry's reluctance to invest in technology and data management is changing. Newer geographies, regulatory requirements and competition mean that the O&G industry will be compelled to make renewed investments in processes and technology to increase efficiency and profitability.

In a world of constraints, the accuracy of data and the provisioning of standards will be the key to success.

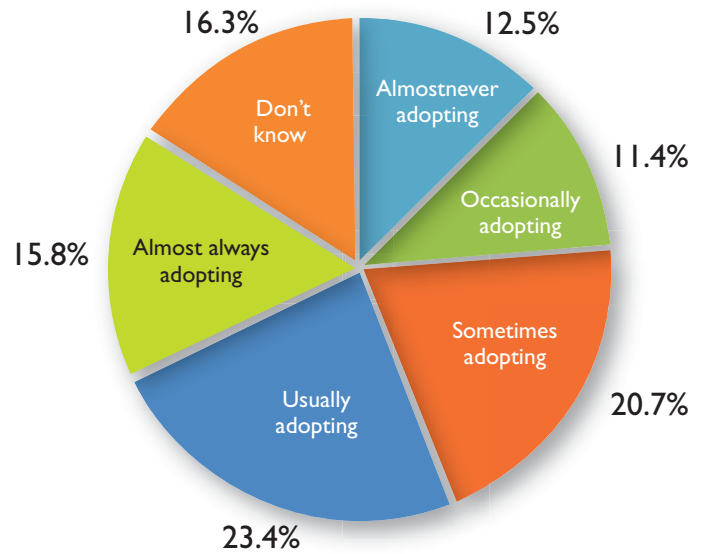
Understanding the Need for Data Management

The Oil & Gas Journal Online Research Center and Wipro conducted a survey among PennWell Petroleum's database and other industry sources. The survey results produced revealing insights into the top barriers the industry faces in addressing its data management imperatives. Responses from 191 individuals to the survey have reiterated the central concerns of the industry, but the appreciation of the problem is startling.

Quick snapshot of study findings

The study attempted to document a variety of data-related needs, constraints and perceptions in the O&G industry. Some of the key questions related to data management show startling and disquieting trends that call for immediate remedy:

- How aggressive is your organization moving toward the adoption of upstream industry IT standards (e.g. Energistics WITSML, Energistics PRODML, OpenSpirit, PPDm, Microsoft MURA, etc.)?

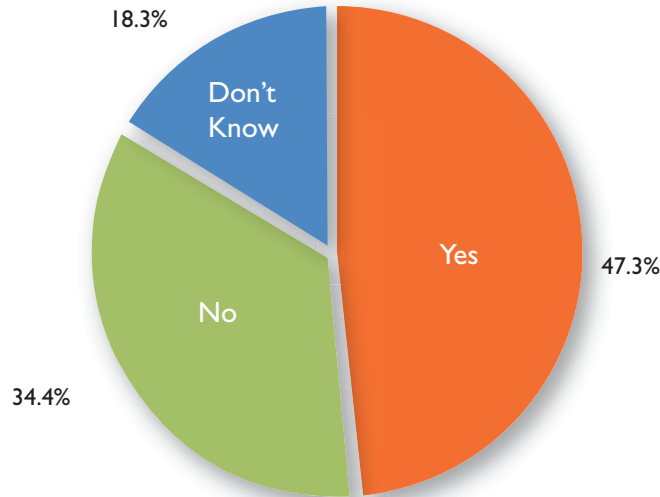


Key insights:

- Significant % not adopting industry standards on a regular basis: 44.6% almost never, occasionally and sometimes adopting standards (not regular).
- 1 out of 6 not sure if IT Standards are being adopted: 16.3% respondent said "Don't know", implying there is opportunity for creating

IT Standards within the organization or for creating awareness around data standards in the organization.

- Definite opportunity to educate community and co-workers: Benefits of adopting IT Standards need to be communicated.
- Does your organization have named Data Stewards (data owners) for "important" upstream data?

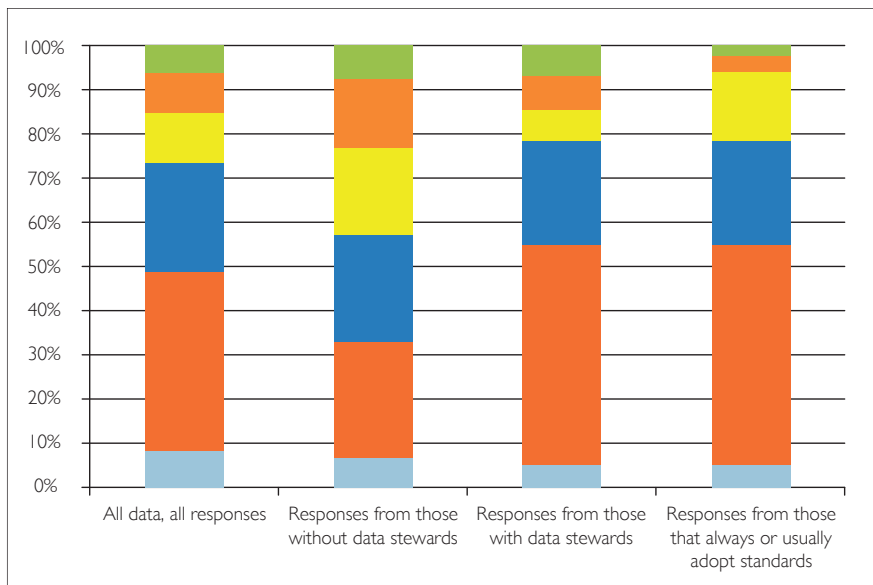


Key insights:

- Half the organization does not know if it has "Data Stewards" (data owners) or do not have Data Stewards: 52.7% say "No" or "Don't know"
- Data Stewards should be more vocal about their role: Awareness of Data Steward's role in maintaining quality of data should rise;

organizations that do have Data Stewards need to create awareness around the role of Data Stewards.

- Please comment on the quality of the following data types: "My organization's data is of sufficient quality to effectively manage our business and make sound business decisions"

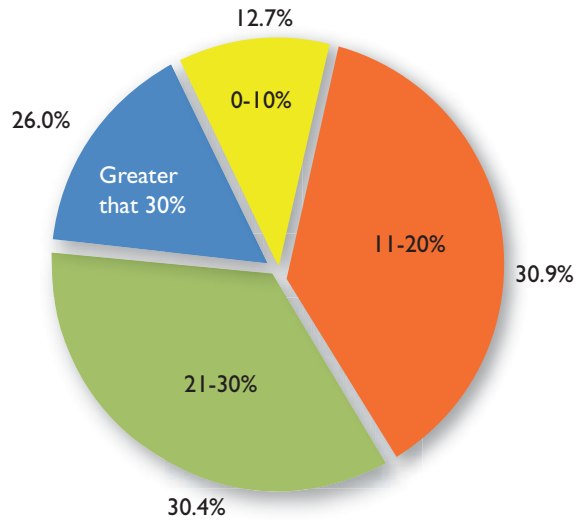


Key insights:

- Clear co-relation observed between Data Stewards/adoption of IT Standards and data quality: High positive response from those organizations with Data Stewards and those who have adopted IT Standards.
- Ability to make good business decisions can depend on Data Stewards: Data Stewards can resolve problems related to different taxonomies and

practices across the organization.

- Within your organization, how much time does a “high-end” consumer of upstream data spend on “lower value” activities like looking for, accessing, cleaning-up, or preparing data before “higher value” activities like analysis, analytics, and interpretation can be done?

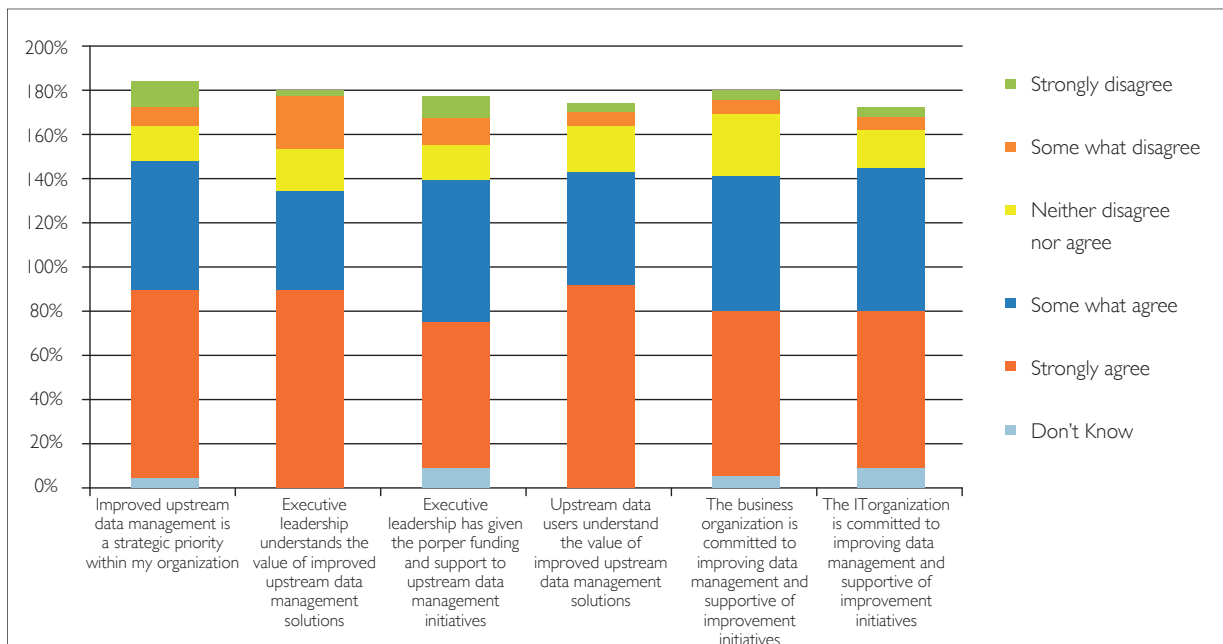


Key insights:

- Significant time spent on low value activity by data consumers: Data cleaning and processing can translate into one work day of each week for high-end consumers of data.
- Indicative of resource constraints: High-end consumers of data can do with some “help” from specialists/ automation/ standards to free up time.
- Indicative of organizations operating in complex environments: Data

cleaning and processing could be more intensive activity in environments like deep water, new geographies etc where organization may not have enough resources to manage the data.

- Indicative of need for systemic inadequacies in data management and processes
- As it relates to upstream data and information management within your organization today, please comment on the following statements:



Key insights:

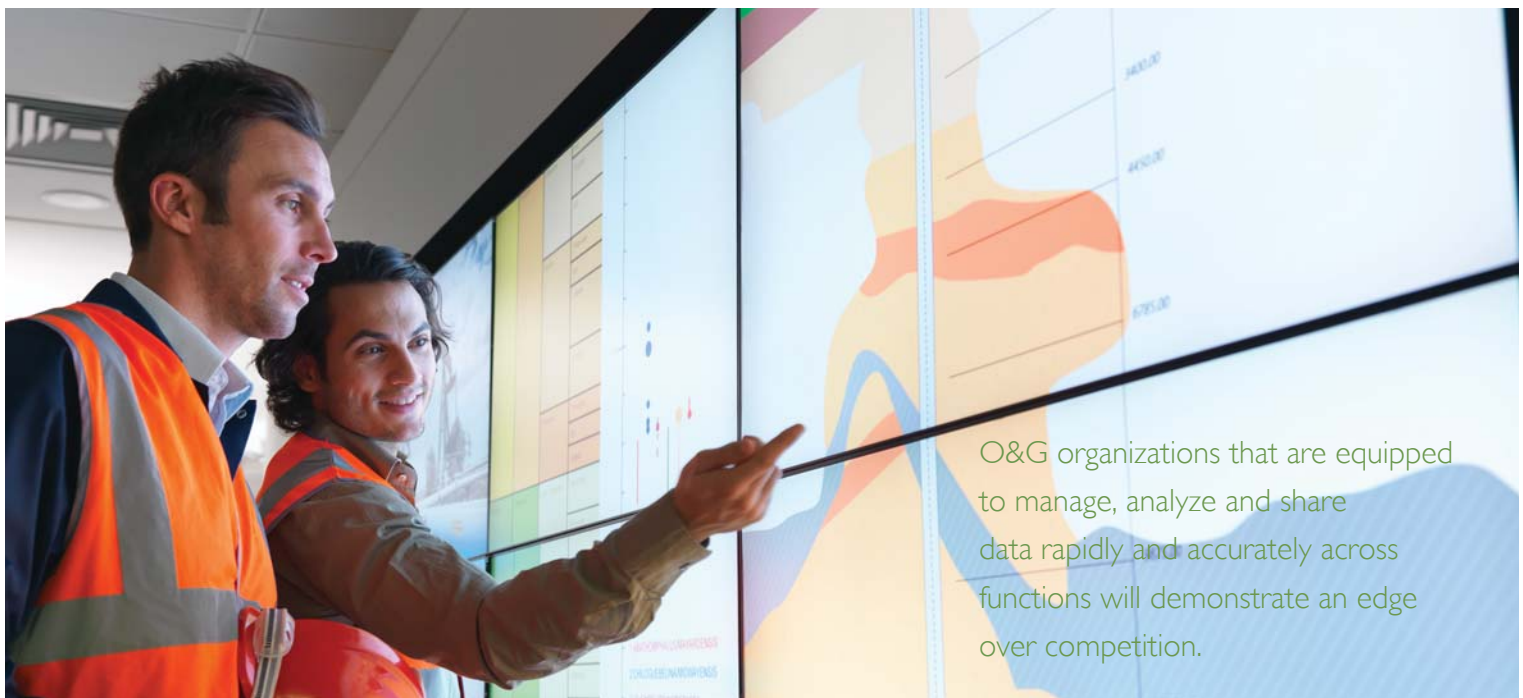
- Clear correlations between good data management and leadership.
- Clear correlations between good data management and IT organization.
- Clear correlations between good data management and business organization.
- Leadership needs to fund data management.

The Business Imperative

The data “deluge” in Upstream O&G presents an opportunity to improve efficiencies and profitability. The business insights available through analytics can transform operations and enable quick and accurate decision making. O&G organizations that are equipped to manage, analyze and share data rapidly and accurately across functions will demonstrate an edge over competition.

However, O&G Upstream organizations have to face reality. Our research shows that adopting data standards, improving the quality of data and emphasizing the role of Data Stewards should be a top priority. In addition, ensuring top level sponsorship for data management strategies and investments can accelerate success.

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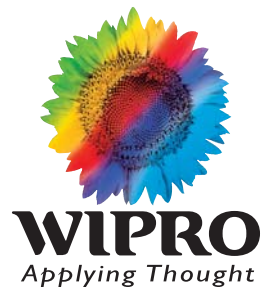


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