



The Value of Standardization

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RANDY W. CLARK is President and Chief Executive Officer of Energistics. He has more than 25 years of experience in the oil and gas industry in a variety of different roles and positions with industry companies, including 10 years with Baker Hughes in Houston. Before joining Energistics, Clark was Senior Vice President of cc-hubwoo/Trade-Ranger, the world's largest electronic marketplace for indirect goods, whose members include many major oil and gas operating companies such as Shell, Total, Statoil, and ConocoPhillips. Additionally, Clark has been active in many global e-business standards development efforts and is immediate past-chair of the Petroleum Industry Data eXchange, the e-commerce subcommittee of the American Petroleum Institute.

Clark's experience has included oil and gas production-facility design and project management, purchasing management, business process re-engineering, new product development, data and information standards development, and e-business strategy and development. He earned BS and MBA degrees from Texas universities and he holds professional certification in new product development from the Product Development and Management Association.

Standardization of data and information exchange is one of the most problematic, yet potentially highest value, issues facing the upstream oil and gas industry. Given the industry's current strong market position, it has never been in a better position to take advantage of open standards adoption and deployment to enhance the industry's key business drivers:

- » Reserves replacement
- » Production optimization
- » Operational efficiency
- » Safety assurance
- » Legal and regulatory compliance

Energistics, formerly known as the Petrotechnical Open Standards Consortium, has the aim of providing the industry with the means to produce, promote, deploy, and maintain data and information standards. The emergence of collaborative performance and design initiatives, visualization centers, and remote-operations centers blur the boundaries of technologies as they are being repurposed and bundled with other technologies to serve new functions. In today's environment of new products, hybrid technologies, and collapsed barriers, the need for industry standards is increasing.

As the market becomes ever more saturated with solutions to the point where no one technology company can dominate the market, the need for standardization becomes critical if these technologies are to work together efficiently and effectively. Issues of technological complexity, semantic inconsistencies, and architectural variations will be with us for some time to come, and the solutions require long-term strategic investment. Energistics' Energy Standards Resource Centre provides access to information about industry standards and best practices from many sources for evaluation.

What has become clear over the past 2 years is that the real product of companies today is not so much standards in isolation as it is noncompetitive, widely adopted, and deeply deployed collaborative technologies with relevant open standards embedded. More than simply establishing standards, the goal of these collaborative technologies is to facilitate operational efficiency by defining a common language for the exchange and use of information and data based on XML and Web Services technologies. These collaborative technologies also provide an architectural context and uniform vocabulary that can be used to design and implement operational programs with greater flexibility and reduced cost and risk.

Identifying the business value obtained from the introduction of any new process, technology, or resource is a key element in assessing the efficacy of such an endeavor. Of course, this also applies to efforts that introduce new standards because standards are often a component of all three: process, technology, and/or resources. There is significant value to be gained by

formulating and driving standardization across the larger process/technology/resource effort in which the standards apply and also by developing the means to measure the impact of standards.

The future success of these collaborative technologies is highly dependent on the commitment of technology companies to develop solutions that incorporate these technologies and of oil and gas operating companies to fully deploy them across their enterprises. At this point, however, there are only a few operating companies making long-term plans for standards deployment as a part of their strategic business priorities.

Failing to develop and execute an approach to standards that reflect a company's strategic priorities, combined with a commitment to develop and deploy the standards, can result in the following:

- » Loss of intellectual-property rights.
- » Until the industry as a whole can agree on what the standard is, standards developed may not meet the needs or technical requirements of individual companies.
- » People participating in development efforts are unaware of the strategic priorities of their company, thus their role could be misdirected.
- » Uncertainty around deployment creates reluctance on the part of vendors to incorporate standards.
- » Loss of benefits of investment in technologies.

Numerous studies have been commissioned in the last few years in the UK, Germany, and other countries and regions on the benefits of standardization. One such study involved more than 250 professionals from a variety of disciplines, including oil company senior management; professionals from various geoscience, reservoir management, drilling and information-technology disciplines; supplier management; project management; and software engineers. The mid-1990s study estimated that implementation of specifications could result in cost savings across the asset life cycle in the range of USD 1 to 3/bbl at the prices of the day.

The findings showed that early adopters realize the greatest benefits. The study also found that to realize the potential business benefits, "assets and suppliers must increase their efforts and proceed with a business-driven, collaborative, evolutionary implementation approach now." In fact, the study indicated that the right time for implementation was immediate because the business climate was set for success, in that there was pressure to improve margins and adopt more efficient business processes; many similar and sometimes redundant activities were taking place across companies, which could be consolidated and leveraged; and the specifications were ready for wider adoption.

The use of open industry standards as applied to business activities directly or through technological solutions can improve operational performance.

ONGC's Standardization Initiative

India's Oil and Natural Gas Corporation (ONGC) and Energestics are working together to improve geophysical standards and best practices. Energestics' newly established Geophysics Special Interest Group (SIG) has formed a Geophysical Standards Assessment Work Group, which, over the next few months, will assess and recommend standards to be developed and deployed throughout ONGC and made available to other members. The Society of Exploration Geophysicists will participate in the project.

Since 2000, implementation of the Indian government's New Exploration Licensing Policy has opened the Indian E&P industry both to international participation and to new domestic operators. As a result, a number of significant discoveries have been made and developed, and participation has grown rapidly, both onshore and offshore.

Consequently, the amount of E&P data being created, used, and exchanged in companies, in partnerships and with government has mushroomed. This has created a need for information standards and best practices to enhance the speed and effectiveness of decision making in the newly stimulated industry for the benefit of all players in the region.

Based on existing data and early evaluations, several benefits could come from the adoption of new geophysical standards, including

- » Delivery of consistent geophysical data from various service companies' field crews and acquisition systems in a manner that is neutral toward geophysical application products and storage solutions.
- » Rapid availability of geophysical data for analysis and operational decision making.
- » Elimination of the need for vendor-specific processing software products before analysis.
- » Preservation and easy re-use of value-added information and knowledge from previous work steps across acquisition, processing, and interpretation.

If the improvements in geophysical standards identified by ONGC are not addressed or, more

importantly, not adopted, then companies, especially those in emerging regions or with less seasoned geophysical staffs, could face delays, higher costs, and lower confidence in their geophysical results. For example, consider a standard to be comparable to a shared language. If two people speak the same language, they have the same standard, and little should be lost in communication between them. However, if one person speaks English and the other speaks Hindi through an interpreter, there is always the chance that something small but vital will be lost in translation.

By embracing standards, the industry focuses on a common shared language across the industry—the standard of best practices. This is also vital in regions affected by the coming crew change, where new geoscientists are replacing retiring veterans and important institutional knowledge is lost. By improving the ability to encapsulate best practices gained by generations past through the effort of establishing standards, the industry will be able to preserve much of the knowledge gained over the course of many years.

If the industry does not develop, adopt, and deploy open standards that provide better processes and data-exchange standards, the tipping point will come as the crew change plays out. If we do not have better processes and standards in place, the industry will pay a large price financially through missed opportunities and reduced operational efficiencies. However, if the industry continues to collaborate to improve standardization processes, technologies, and resources while the veteran oil and gas experts remain at the helm of the industry, the new guard and the industry as a whole will reap the benefits.

Ideally, the entire industry will invest in and help create, adopt, and deploy improved open data exchange standards. The benefits will be substantial and continuous, resulting in significant gains toward the industry goals of operational efficiency and production optimization.

Realizing business value, in general and even more significantly in specific areas, from the use of open standards is contingent on satisfying the four following critical success factors, which we call The Four Pillars of Success:

1. **Strategic Perspective.** The upstream industry needs to understand how including standards-development and -deployment activities in strategic business improvement programs enhances the value of their own objectives. In contrast, seeking value from standards independent of strategic business improvement programs most often achieves limited success.
2. **Standards Collaboration.** The upstream industry needs to determine which standards to develop based on what standards are the most appropriate and would bring the highest value relative to strategic business improvement programs, both on behalf of themselves and, where competitive forces are not present, on behalf of the entire industry.
3. **Industry Commitment.** The upstream industry needs to understand how to implement the

resulting business solutions and associated standards and commit to doing so within their organizations and where appropriate with their partners, suppliers, and government regulators.

4. **Value Delivery.** The upstream industry needs to seek to understand and measure the added business value resulting from the implementation and deployment of the standards as contrasted to not doing so.

Data-exchange standardization is the key to successful implementations of technology tools in the upstream industry. The ability for data structures to be universally applicable and plug-and-play between multiple products will enhance the ability of energy companies to use data from highly instrumented assets and allow oilfield service companies to focus on development of new technologies in their competitive arenas. Industry adoption of The Four Pillars concepts will allow it to significantly improve accessibility to quality data, information, and knowledge while enhancing operational efficiency through the use of open data-exchange standards. ❖