

# Taking Advantage of Turbulent Times

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Set in motion by the global financial markets collapse, oil and gas markets have suffered a huge setback since July 2008 when commodity prices began to fall. Energy demand has fallen in all sectors of the global economy, and the lack of available credit and seizing of credit markets had an immediate impact on economic activity in all sectors, signaling the beginning of a deeper and longer recession than we have seen in the last 30 years. These turbulent times require fast and immediate reaction.

Supply and demand balances have been difficult to determine, and oil prices have been volatile over the past year. Today's uncertainty adds considerable complexity to the process of making the right investment decisions for future supply. If the situation does not change soon, the industry may be subject to a very severe supply crunch in the middle of the next decade.

Extraordinary times can also create opportunity. Many companies used the last four years of rising commodity prices as an opportunity to reduce debt and bolster their balance sheets. That may lead to an uptick in mergers and acquisitions of companies with strong and proven reserve positions in politically stable host countries. The risk/reward balance is tilting toward the purchase of whole companies to replace reserves produced.

The ability to quickly integrate an acquisition into the enterprise, which can save millions of dollars, is a significant agility requirement in these troubled times. Today, technology can enable the faster integration of an acquired company's assets with overlapping assets within the enterprise. Using Web-based systems and service-oriented architecture, a virtual consolidation of the underlying enterprise systems can be quickly achieved at the presentation layer, pulling data from the different legacy systems into one unifying view. This virtual consolidation enables the quick integration of overlapping assets with consistent work processes, resulting in faster realization of economies of scale and elimination of redundancies, and gives the acquisition-integration teams more time to harmonize the legacy business systems.

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## Drive for Productivity Enhancements

Over time, geology and geophysics, supply-chain management, manufacturing execution systems, enterprise resource planning, and point-of-service systems have evolved from legacy systems. These systems are typically siloed within their functional areas and are limited in reach to "power users." A new collaborative environment will overcome these constraints.

- Role-based productivity solutions address the need to fundamentally change the way people work. These solutions do not simply gather people in an onshore "remote operation center" just for cost-saving purposes, but rather provide a novel workflow that takes advantage of the new ways people prefer to work. They also maximize scarce labor talent by bringing the information to workers wherever they are by providing vast amounts of historical and current operational data to petrotechnical engineers or operations people throughout the whole company and across the entire global value chain of oilfield services companies, suppliers, governments, distributors, and customers.

- Enabling real-time access to enterprise systems and real-time decisions to be made based on a familiar user interface and desktop suite.

- Allowing engineers to share both structured and unstructured information, and to engage in both structured and unstructured collaboration. This is especially important when exceptions arise and normal business processes break down.

The impending loss of a significant share of the industry's most experienced people also creates major challenges in terms of knowledge capture and best practice dissemination. The need to capture the institutional knowledge of this retiring generation remains a priority for most large companies. The implementation of an information technology platform will be required to capture knowledge, publish best practices, and transform these best practices into flexible workflows to guide the next generation of oil and gas professionals. This capability will enable knowledge to be transferred and will make it widely available in expert systems that can support consistent, high-quality decision making.

## Imperatives Along the Value Chain

The current crisis and resulting business challenges and industry reactions described earlier will cause the oil and gas industry to face several business imperatives through 2012:

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- Drive corporate performance and manage risk and compliance to reduce time-to-decision. Drive insights, increase transparency, and manage risk and compliance across the oil and gas tiered value network.

- Accelerate the innovation process to improve time-to-oil by leveraging new technologies, global collaboration teams, and new alliances and partnerships.

- Enable a resilient and high-velocity supply-chain performance network to respond flexibly to market changes and new opportunities across multiple enterprises and organizations, from the well head to the pump.

- Observe and serve customers globally, with insights into their specific needs. In oil and gas marketing and retail, enhance consumer experiences with innovative services, all to drive profitable revenue growth.

A number of business-critical actions are now imperative in the oil and gas industry. First and foremost is the need to re-examine the E&P projects in the current capital-expenditure portfolio. This requires the ability to quickly rescore the internal rates of return while resetting underlying hydrocarbon reference pricing and assumptions on development costs. Projects already under way will be analyzed to see the impact of delaying or mothballing the project vs. accepting the penalties incurred. Potential new projects will also be reviewed and re-evaluated.

Project-management solutions can help oil and gas companies make better business decisions faster by modeling global assumptions embedded in their project portfolio through “what if” analyses for fast-changing conditions. Once committed, capital-project lifecycle solutions enable projects to

be managed from concept to fabrication and on to handover and commissioning, by ensuring that critical documentation is captured and used through the life of the project. Integration of this information into an asset lifecycle plan increases efficiency and reduces costs.

Risk re-evaluations and improved risk controls are required, and new risk-management scenarios must be considered. Such evaluations call for improved modeling capabilities. High-performance-computing cluster servers create the opportunity to increase the modeling capacity for evolving business environments and dramatically increase the speed at which business models can be tested against new scenarios.

Optimization of production curves will be required to ensure that every well and reservoir is optimized for maximum recovery. Optimization on this scale will require more use of real-time surveillance data integrated with data from other disciplines such as geology and petrophysics. This, in turn, will require better visibility and use of real-time data to improve upstream operations, combining integration tools into backbone systems such as production-history repositories, well-history document repositories, and maintenance systems. Role-based portals can be created from this platform, enabling consistent high-quality decision making across the upstream enterprise.

In summary, there is increasing pressure on oil and gas companies to achieve more with less. Greater business agility is required to cope with the fast-changing volatility of the new business environment. Speed and faster reaction times are needed, supported by business systems that are flexible and adaptable to any business condition. **JPT**

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place on Wednesday. Moderated by Ed Crooks, energy editor, *Financial Times*, the session will feature speakers Peter Barker-Homek, CEO, TAQA; Ayman Asfari, CEO, Petrofac; Andy Bartlett, global head, oil and gas corporate advisory, Standard Chartered; and John Browne, former CEO of BP. Speakers will investigate the traditional relationship between contractors, oil companies, and host nations. As the industry sees the current operating landscapes change responding to oil price and tight supply and equipment markets, the speakers will be asked to assess different operating models such as production facility companies and equity agreements, and how each fit different types of organization and host countries.

“Breakthrough Technologies” will take place on Thursday. This session will begin with a discussion of several significant breakthroughs in our industry’s history—with a focus on those that are game changers. Looking closely at drivers and barriers, the session will then progress to a discussion of the innovation cycle, followed by a close examination of the implementation



**Jacobs**

Steve Jacobs, president of RMI, and speakers Axel Rosenø, assistant professor, Copenhagen Business School; Bob Peebler, Input/Output; Arthur Delargy, independent consultant, Petro-Canada; and Richard Ella, Schlumberger.

The panel sessions will conclude on Thursday with “The Next Trillion Barrels.” The session will take a look forward to the discovery and extraction of the next trillion barrels of oil equivalent. In addition to examining the expected characteristics and challenges of exploiting the next generation of reserves, the session will also explore what new technologies and efficiency models may be needed to accomplish this task. Finally, given current economic backdrop and commodity prices, the discussion will turn to discerning who will pay for—

of three emerging technologies: cableless seismic, floating liquefied natural gas, and integrated reservoir modeling. The session will feature moderator and speaker



**Probert**



**Hobbs**

and develop—the technology needed to discover and extract the next trillion. Speakers will include Lee Tilman, production manager, North Sea production, ExxonMobil; Tim Probert, president of the drilling and evaluation division and corporate development, Halliburton; Bill Pike, editor-in-chief, *E&P*; and David Hobbs, head of research, Cambridge Energy Research Associates.

The final day of the conference will feature “Energize Your Future at Offshore Europe,” which is traditionally known as Education Day. Future engineers are encouraged to learn more about the oil and gas industry and the opportunities that are available. **JPT**

More information about the conference is available at [www.offshore-europe.co.uk](http://www.offshore-europe.co.uk).