A Promising Analytics Approach for Oil and Gas Companies

With a strong technology platform and an approach designed to bring business value to an asset-intensive client base slow to adopt new technologies, GE is positioning itself to make the Industrial Internet a strong component of a more efficient oil and gas industry.

General Electric has embraced digital technology solutions and analytics. It produces an array of offerings for customers seeking to gain value through a platform of data-intensive applications connected to machines. The company calls this its Industrial Internet. GE’s efforts to bring operational improvements powered by these technologies to oil and gas companies could have important ramifications for the industry.

The moment has been a long time in the making. Two decades ago, when crude oil prices were low, technology costs were relatively high and companies lacked incentives to invest in systems that would boost efficiency. Then, when prices rose dramatically, market forces pushed the industry to find new reserves, at the expense of high efficiency. Today, with oil prices depressed and the cost of technology low, the ROI for digital technologies and analytics is attractive. Combine this with the pressures on oil and gas firms to improve the profitability of their operations, and the time for digital technologies and analytics is now. As the case study, “GE’s Big Bet on Data and Analytics,” notes, a one-percentage-point increase in the productivity of existing assets can make a huge difference. And newer technologies offer more analytical power to crunch more data for less cost.

Although the oil and gas industry is just one group of customers for the new GE Digital unit, the fact that companies in this industry have lagged others in adopting new technologies throughout the value chain makes it both an opportunity and a challenge for GE.

The case study cites the following approaches that GE is taking to make a more efficient oil and gas industry:

- **A strong and flexible technology platform**. GE is building out Predix, its cloud-based platform for creating Industrial Internet applications, to serve oil and gas, power and water, manufacturing, mining, healthcare, transportation, and aviation. This comes after having developed an Internet of Things operating system for its own machine data collection and analysis. As GE continues to gain experience, it can transfer great ideas from one industry
sector to another through this common platform. And GE is not alone; Predix is designed to include applications from third-party developers who can apply their software innovations to the company’s Industrial Internet.

For the oil and gas industry, using proven solutions to business problems is a critical factor in any technology initiative. Notably, the Predix platform has the potential for GE to do more than demonstrate an application’s business value. It can help ease the adoption of new business processes.

Take user experience. One application offered through Predix is a real-time visual representation of pipeline risks. Its user interface is based on familiar consumer applications used on mobile devices. This is a fresh approach for the oil and gas industry. Making applications on the Predix platform easy to use can increase technology adoption—a key driver in reaping the financial benefits of digital technologies and analytics. At EY, we believe that taking the consumer of analytics into consideration is critical in deriving value. That is particularly important as the consumers in this industry—engineers, field technicians, and contractors—are part of an aging workforce.

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• **Addressing multi-layered problems for a complex business environment.** The oil and gas industry’s business model and workforce include many stakeholders and partners. A single oil platform or refinery represents multiple companies; oil company employees work next to contractors, services organizations, and consultants. A range of manufacturers provides heavy equipment.

The oil and gas industry’s expensive assets and hazardous work environments mean executives face two challenges simultaneously: First, maximize productivity and improve both their cost structure and their efficiency despite using outsourced processes. Second, avoid buying a “point solution” technology that addresses only one piece of a problem and instead compress business processes to create more value from existing resources.

GE’s multi-pronged approach has the potential to address these concerns. By focusing on improving the productivity of assets and operations, the company is tackling the industry’s core issues of high production costs and asset intensity. By collecting and analyzing data from the machines it makes, as well as those of others, GE is taking steps to expand its Industrial Internet beyond its own products.

Predictive maintenance applications are a prime example. For one pilot project, GE is analyzing data on all rotating and static equipment, regardless of its original manufacturer. This is a valuable idea because, as one executive notes, if a valve fails it can shut down a $10 million gas turbine. Preventing the failure of a small part in a big rig can save millions in production time.

• **Pilot testing for risk-averse customers.** Pilot testing gives business leaders a way to prove the value of an analytics project. It is particularly relevant in the oil and gas industry, where the high risk and reward nature of the business means downtime is excruciatingly expensive and safety is paramount.

At the same time, an engineering culture dominates the industry. This makes evidence-based analytics applications useful from an adoption perspective. Pilot projects, once successful, can lead to better insights.

In the big data age, the oil and gas industry has tremendous opportunities to gain productivity through initiatives such as the Industrial Internet. As with other analytics efforts, it takes more than stellar technology offerings. It means understanding how to reach decision makers and others who will choose whether to adopt these business-changing systems. GE is accounting for these factors as it works to help an industry under stress move forward in this age of big data.

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