



# MANAGE OIL AND GAS ASSETS GIVEN FLUCTUATING COMMODITY PRICES

## KEY QUESTIONS:

**P2**

What are the business implications of a boom-bust commodity cycle?

**P4**

What four business factors must you balance to deal with shifting commodity prices?

**P7**

Is it best to implement corporate performance management, business process optimization, business intelligence or something else?

IFS WHITE PAPER

Chuck Rathman, Senior Marketing Communications Analyst, IFS



# MANAGE OIL AND GAS ASSETS GIVEN FLUCTUATING COMMODITY PRICES

BY CHUCK RATHMAN,  
SENIOR MARKETING COMMUNICATIONS ANALYST, IFS

The challenge faced today by executives with asset-intensive oil and gas industry organizations is significant. How do you profitably manage an asset-based business that relies on long-lived assets like drilling platforms, land-based drilling rigs, refineries and pipelines when the commodity price that impacts profitability tends to fluctuate?

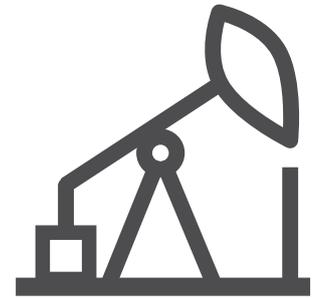
The oil and gas industry has tended to boom and bust. Oil was at about \$30 per barrel for almost 20 years before hitting an uptick in 2004, eventually reaching \$99 per barrel in 2007 and peaking at more than \$143 in 2008. Six months later, prices plummeted back to \$33 per barrel. Price will be driven by a number of factors including:

- An increase in supply as through additional exploration and production, which will drive prices down
- A decrease in demand, as during a recession, which also drives prices down
- A decrease in supply or availability, as may be exerted by OPEC nations or other cartels
- Government intervention and regulation, which can constrain supply increasing prices or mandate fuel efficiency, lowering demand and therefore driving price down
- An increase in demand, as through greater consumption in the developing world, which will increase prices

As Bob McNally, nonresident fellow at the Center on Energy Industry Policy points out, this is something those in the industry may have to get used to. Getting used to the upswing is difficult enough, as companies must figure out how to maximize extraction during those peak times to optimize return, which means a struggle to hire skilled workers and a sudden push to deploy assets and ensure they are operating reliably at peak efficiency given heavier duty cycles.

It does not take much imagination to understand the implications of this boom/bust cycle on business:

- Financial stress
- Periodic layoffs and loss of a skilled workforce, along with skill and leadership gaps in front line management



---

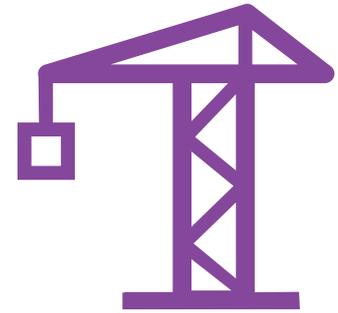
How do you profitably manage an asset-based business that relies on long-lived assets like drilling platforms, land-based drilling rigs, refineries and pipelines when the commodity price that impacts profitability tends to fluctuate?

---



- Regular needs to activate and deactivate equipment
- Difficulty meeting commitments from customers and stakeholders during peak times
- Safety issues given inexperienced workers and due to inadequate staffing during boom times

Employees are vital components of business success in the oil and gas industry, but more so than is the case in most industries, so are capital assets. These assets have long lifecycles of 10, 20, maybe even 50 or more years. So how do you plan to liquidate the cost of these assets given fluctuating oil prices that impact the value of the product that may be produced, but the value of services that are delivered to those who produce the product? Individual equipment components alone may last 25 years or more in the case of an oil storage tank, 20 years in the case of a gas-fired boiler, Jackups, semisubs and drillships are still in their usable lifespan after 30 years. But during slow times, that rig may be idle for a year, two years or even longer. Deactivation and re-activation of equipment both carry hefty price tags, and the equipment is not worth much from a resale perspective on the open market. How do we plan for the construction of new assets, overhauls and lifecycle extensions of current assets and make buy/replace/decommission decisions given the volatility of the business?



## A DELICATE BALANCE

In order to maintain their footing during these wild fluctuations in price and demand, companies in the oil and gas industry need to balance a number of interdependent factors:

1. Profitability and Revenue, over which executives have partial control
2. Commodity Prices, over which executives have limited control
3. Compliance, which will be easier to control if management adopts a balanced scorecard view of company performance as opposed to looking just at revenue
4. Performance and operations, which underpins profitability and compliance from a practical standpoint

Going forward, companies in oil and gas industry that cannot balance these will not be in business.

Finding this balance, however, is challenging in that most companies rely on separate systems or entities in an organization to manage and execute on each of these four factors. An enterprise resource planning (ERP) system may contain financial data, along with push-pull demand and supply chain information. Hopefully, it will also encompass human resources, project management and other essential business functions, but often these are siloed off in separate software platforms.

---

How do we plan for the construction of new assets, overhauls and lifecycle extensions of current assets and make buy/replace/decommissions decisions given the volatility of the business?

---



An asset maintenance system will, in the oil and gas sector, comprise the heart of operations. How well are you maintaining your assets? Is someone gold plating the assets by performing too much maintenance on some pieces of equipment? How well are you handling predictive and prescriptive maintenance in order to reduce unplanned down time? You will need to include not just maintenance work orders and spares and repairs inventory in an asset management system, but also a full view of the cost of operating the asset over its lifecycle so you can make intelligent decisions.

Compliance is typically a separate department within the organization, and only risk/compliance managers think about it. While numerous other factors from around the enterprise play a role in ensuring and then documenting compliance, this function is often siloed off in separate governance, risk and compliance software packages.

Yet another department, human resources with its standalone human capital management software, must contribute to the overall performance of the assets and the organization by balancing between staffing shortfalls during periods of high demand and slash-and-burn layoffs during slower quarters. Human resources are a major performance factor—skill level of technicians is particularly important with drilling given the attendant need to follow detailed processes and procedures.

Establishing balance across these different sides of the business is easier with a very complete and comprehensive ERP platform that encompasses as many of these disciplines and functions as possible. But the final element that originates from outside the organization and is therefore a wildcard is commodity price and various leading economic indicators that can provide insight into where the price and therefore demand are headed.

That is why oil and gas executives need the ability to pull all of these factors together from multiple enterprise software products, along with leading indicators and commodity price information from external data sources on a real-time basis. And this is exactly what a newer class of software, operational intelligence, can provide.

## THE ROLE OF OPERATIONAL INTELLIGENCE

Decision support in the oil and gas industry, and in other sectors, is often supported by standard business intelligence tools ranging from Tableau to Microsoft PowerBI. These tools are not up to the unique task faced by the industry, though, for a few reasons. They do a great job of displaying information from published data cubes, but they rely on third party applications and manual implementation to pull information from multiple sources in an intelligent way. They will not map directly to goals and to business processes where work is executed to achieve those goals. And while they may generate an attractive visual representation of individual metrics, they are not designed to act on that information by pushing down or even automating decisions in the operational systems data is sourced from.

---

How well are you maintaining your assets? Is someone gold plating the assets by performing too much maintenance on some pieces of equipment? You will need to include...a full view of the cost of operating the asset over its lifecycle so you can make intelligent decisions.



The ability to map business data in real time against corporate goals—commonly referred to as corporate performance management (CPM)—is very attractive. Operational intelligence will take this further by enabling you to take action on the information either manually or through automatic triggers.

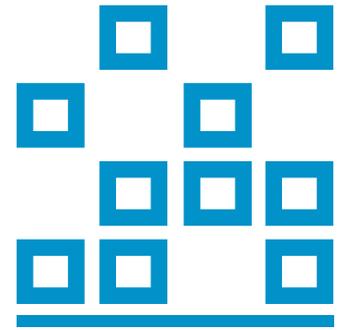
And as oil and gas executives seek to key in many of our business activities including hiring, capital investment, purchase of maintenance inventory and asset lifecycle extensions, they should seriously consider implementing operational intelligence. Organizations that must simply manage based on real-time business signals from within their four walls benefit from operational intelligence because it:

- Starts with a business map—a clear visualization of how value flows through the organization.
- Aligns metrics from numerous enterprise or point source systems with the business map to better identify constraints in the enterprise value stream
- Provides a way to take immediate action directly in those operational systems, enabling a very rapid response to emerging information

But for organizations impacted substantially by external factors including commodity prices, operational intelligence can provide advance notice of potential business impacts before business signals would manifest themselves looking simply at internal metrics. Operational intelligence will also provide a way to act on this advance notice.

As an illustration of how important this is, let's consider another industry where commodity prices play a major role in profitability—the airline industry. The highest-paid person in an airline is usually the individual who buys the fuel. That person must forecast when they should buy the fuel for the aircraft based on what has happened historically with fuel prices and what is likely to happen next. If he or she makes a mistake, the fallout can be hundreds of thousands of dollars. Similarly, your business must pay close attention to the price of oil. What is going to happen next? Does it make more sense for you or your E&P customer to drill now or drill later? What drilling operation should you put on hold?

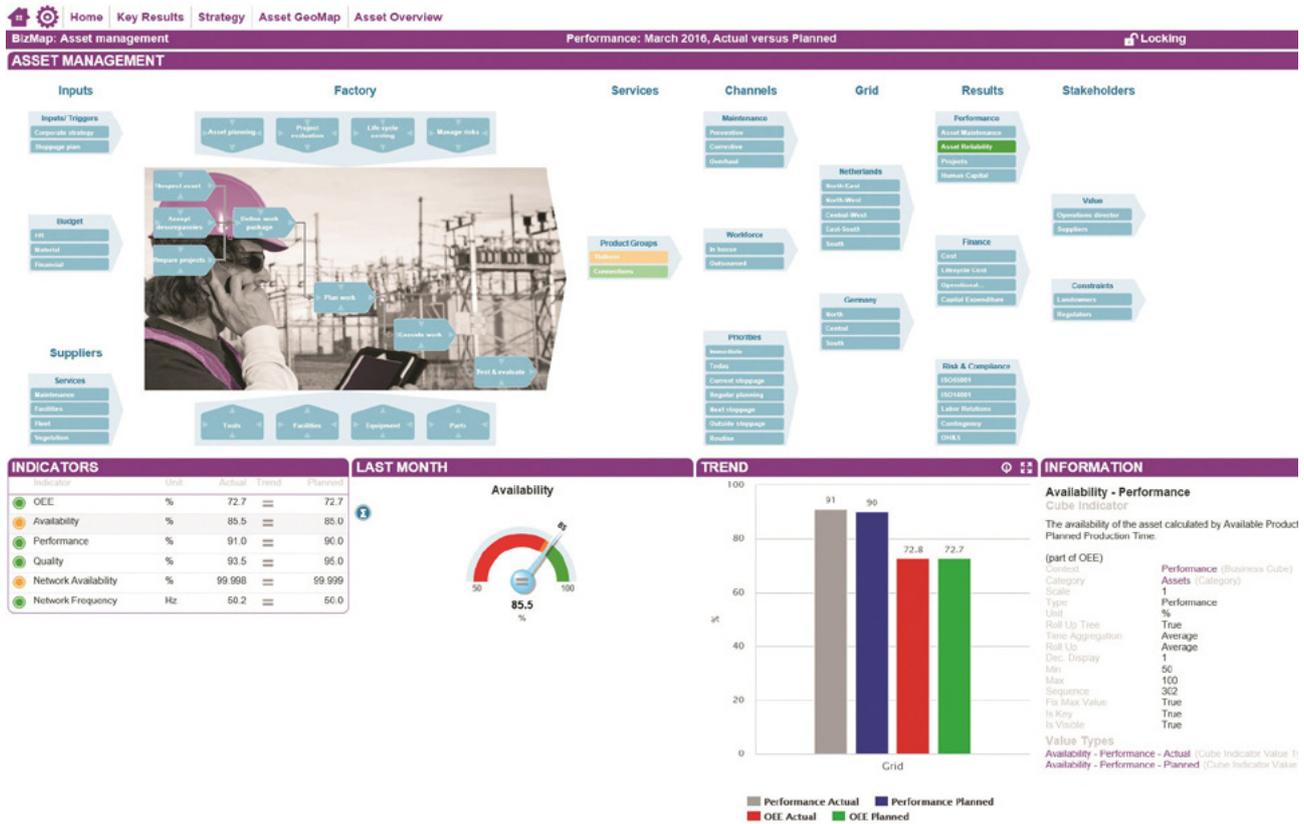
If prices are headed towards a peak of, say, \$80 per barrel, you need to be able to mobilize quickly because as the mandate across the industry will be to produce as much product as possible at that higher price. As prices are likely to return to a more typical level, you need to be cognizant of this as well, and slow down spares and repairs ordering and hiring.



---

The ability to map business data in real time against corporate goals—commonly referred to as corporate performance management (CPM)—is very attractive.





IFS's Enterprise Operational Intelligence maps real-time performance against goals, and provides forward-looking, actionable views based on data from inside and outside the company.

## MORE THAN COMMODITY PRICE

Of course the price of oil is not the only external variable operational intelligence software can track. Price shocks and other forms of operational risk can also be associated with compliance.

Regulation of fracking, traditional land-based drilling and offshore operations can change on a national level, but in a country like the United States, national regulations typically include lengthy periods of notice that act as a cushion for business impacts. As this is written, we are seeing a greater tendency to roll back existing regulation for HSE than we are the addition of new regulation. But what is the additional cost benefit of delaying a project in order to operate in a less regulated environment? Or would potential civil liability exposure suggest that compliance activities continue at current or even more stringent levels regardless of regulatory changes?

Given the impacts of fracking operations on municipal transport systems and water resources though, we are seeing more county governments passing local ordinances that could impact operations or the ability to exercise lease options for given sites where your company or your customer's company may initiate drilling operations. These regulations could impact site viability in the case of a ban or moratorium or increase cost through the imposition of

Offshore drilling is also affected by regulation, but even as regulations designed to protect health, safety and the environment (HSE) are rolled back, the underlying HSE concerns must be addressed to prevent civil or even criminal liability.



impact feels or mandates for water treatment reclamation. State governments are also re-examining such things as minimum royalty statutes which again could drive cost a developing or continuing operation at a given site or group of sites affected by advancing regulation.

Offshore drilling is also affected by regulation, but even as regulations designed to protect health, safety and the environment (HSE) are rolled back, the underlying HSE concerns must be addressed to prevent civil or even criminal liability. As rigs move from United States to international waters, different regulations also apply, and this can impact not only safety and design of the rig but the amount of inventory kept on the rig in instances where a tax is levied on that inventory.

Operational intelligence software can include these compliance concerns and provide alerts if regulation begins to threaten the viability of a project or if changes to a project design begin to run afoul of current or planned regulation. It can also identify or even automate operational changes like staffing levels or inventory levels to avoid compliance problems or unnecessary taxation given the patchwork of regulations in international waters.

## PROBLEMS EASY TO IDENTIFY, SOLUTION HARD TO DEFINE

The terminology used to refer to operational intelligence software is still developing, so trying to research solutions is difficult. Some vendors and analysts use the term “business operating system.” Others lump operational intelligence in with CPM solutions. There are strategy management, business modeling, BPO, BI and action management tools. Operational intelligence includes elements of all of these.

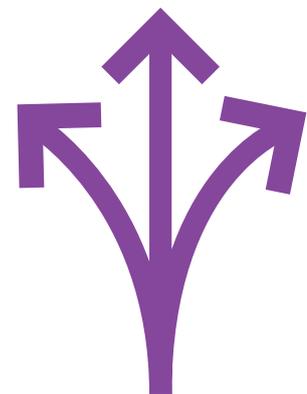
In fact, operational intelligence can more easily be defined by the problems that it solves. In short, you may need operational intelligence software if you:

- Need to make sure your drill manager, who is responsible for a site understands about a balance sheet so he does not make bad decisions that hurt you financially. He is by nature a troop leader, but you need to give him the insights of a CPA.
- You hire a lot of ex-military people, who understand how to give and act on orders. But you need them to also make decisions based on accurate data, and know they need some computer guidance in this.
- You need to aggregate data from different systems inside and outside of your business to enable decision support.

So when issuing requests for proposals or requests for information, you will want to focus more on functional requirements and a broad description of the business dynamics the solution must encompass. You will want to clarify that the solution must encompass the central pillars noted above:

---

When issuing requests for proposal or requests for information, you will want to focus more on functional requirements and a broad description of the business dynamics the solution must encompass.



1. Profitability and Revenue
2. Commodity Prices
3. Compliance
4. Performance and operations

You will want to define your strategic objectives, but also stress the importance of:

- A balanced scorecard approach to ensure that compliance, HSE and risk mitigation are dealt with accordingly
- Overall modeling capability of operations, some of which may be sourced from your ERP system of record, but displayed with other data sources as a holistic to map and model of your business operation
- Resources required to execute processes, to make sure you are in control of reaching required outcomes
- Self-service analytics

## CONCLUSION

Without all of these elements encompassed in a real time operational intelligence system, you will always face a delay in action and decisions that will leave you exposed to needless enterprise risk. Particularly in a market driven in large part by fluctuating commodity prices, real-time and even prognostic insights could even prevent your company from going out of business. Today, many even middle-market to large companies in the oil and gas industry still rely on spreadsheets for decision support. That can result in lag times of a month or more, and a lot can happen in that time that you will not be able to react to. Many more things can happen that would give you signals of changes to come. Operational intelligence will tell you what you need to know in real time, give you suggestions for decision support and help you operationalize those decisions in the enterprise.

Chuck is the executive leader for IFS's Enterprise Operational Intelligence (EOI) for the Global Competency Center (GCC) in the Americas. Chuck manages the IFS Team in the Americas and works with current and potential customers to understand requirements and facilitate the implementation of IFS's Operational Intelligence platform to improve program and operational performance, and transform their organizations into intelligent business operations. This includes working with companies and organizations in the aviation and defense, manufacturing, oil and gas, and power generation industries. Prior to joining IFS, Chuck was the General Manager for VisionWaves US corporation for over six years before it was acquired by IFS in 2015 where he helped develop the roadmap for EOI and ensured its successful deployment in North America.

---

Today, many even middle-market to large companies in the oil and gas industry still rely on spreadsheets for decision support. That can result in lag times of a month or more, and a lot can happen in that time that you will not be able to react to.

---



## ABOUT IFS

IFS develops and delivers enterprise software for customers around the world who manufacture and distribute goods, maintain assets, and manage service-focused operations. The industry expertise of our people and solutions, together with commitment to our customers, has made us a recognized leader and the most recommended supplier in our sector. Our team of 3,500 employees supports more than ten thousand customers worldwide from a network of local offices and through our growing ecosystem of partners.

For more information about IFS, visit [IFSworld.com](http://IFSworld.com)



## ABOUT CORNING DATA

Corning Data has provided professional technical services for nearly 40 years. By Partnering with world-class technology providers such as DSI, IBM, IFS, and Oracle, we offer our customers the world class solutions. And by employing only senior-level talent, our customers receive support and services from true experts.

For more information about Corning Data, visit [CorningData.com](http://CorningData.com)



[IFSworld.com](http://IFSworld.com) | [CorningData.com](http://CorningData.com)

COPYRIGHT © 2018 INDUSTRIAL AND FINANCIAL SYSTEMS, IFS AB. IFS AND ALL IFS PRODUCTS AND SERVICES NAMES ARE TRADEMARKS OF IFS. ALL RIGHTS RESERVED. THIS DOCUMENT MAY CONTAIN STATEMENTS OF POSSIBLE FUTURE FUNCTIONALITY FOR IFS'S PRODUCTS AND TECHNOLOGY. SUCH STATEMENTS ARE FOR INFORMATION PURPOSES ONLY AND SHOULD NOT BE INTERPRETED AS ANY COMMITMENT OR REPRESENTATION. THE NAMES OF ACTUAL COMPANIES AND PRODUCTS MENTIONED HEREIN MAY BE THE TRADEMARKS OF THEIR RESPECTIVE OWNERS.

IFS AB ©2018