

A date which will live



Board directors, CEOs and their staff are tasked with a number of challenges; perhaps none more important than assuring proper corporate governance standards are put in place and strictly adhered to. In the aftermath of the BP Macondo blowout on 20 April 2010, the stock price of BP and its partners, the drilling company, manufacturer of the blowout preventer, cementing firm and others were negatively impacted, and substantially so in the case of the operator.

Perception being reality, other stakeholders including governments at the federal, state and local levels piled on when the appearance of poor performance was broadcast 24/7 across the globe. The damage to the industry's reputation has been substantial and will be long lasting.

Dealing with a crisis of confidence is not new to industry. In one of the classic case studies, pharmaceutical giant, Johnson & Johnson was widely praised for its handling of the 1982 Tylenol poisoning scare¹. Not so fortunate was the nuclear industry for its handling of two major incidents, the 1979 Three Mile Island partial core meltdown and Chernobyl accident, despite the nuclear industry operations in 32 countries with over 14 000 cumulative reactor years².

The petroleum industry is no stranger to crisis management having endured a number of high profile mishaps over the decades, over 35 since 1967³. In each case, the industry addressed the problem; new regulations were put in place, and added cumulative knowledge was passed along to future operations. However, something is quite different this time.

Focus on governance

In 2002, at the height of another energy driven crisis, Enron's collapse, McKinsey & Company, in conjunction with the Global Corporate Governance Forum, found that more than 75% of over 200 fund managers would be willing to pay more for stock in companies with strong governance. According to that study, in North America and Europe market value averaged 12 - 14% higher for firms with strong shareholder rights. This suggests investors view good corporate governance as important as company financials⁴.

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processes that are being put
in place after the Macondo
disaster on 20 April 2010.**

One of the consequences of that crisis of confidence was The Sarbanes-Oxley Act of 2002 (H.R. 3763), which introduced major changes in corporate governance and financial reporting for all public companies in the US⁵. Of particular note is Section 404 of the Act that requires management, 'to include in their annual reports a report of management on the company's internal control over financial reporting.⁶ To achieve and demonstrate adequate internal control mechanisms, companies required appropriate information management and decision support systems necessary to assure

the Board of Directors, CEO, CFO and others that when they sign disclosure documents that in fact the information is correct.

Interestingly enough, later surveys showed that strong governance delivered high value during the period 2002 - 2005 when Sarbanes-Oxley was being implemented, and then later tailed off when firms engaged in competitive behaviour became compliant with the new regulations. In other words, the delta (Δ) during the ramp up process raised the bar for all⁷.

Initially, many met Sarbanes-Oxley with distrust and uncertainty. However, it is the law and over time it has been integrated into daily activities. The oil and gas industry is now seeing signs that similar regulations for drilling and production operations are emerging as a result of the current crisis.

Licence to operate

When passed into law, The Blowout Prevention Act of 2010 (H.R. 5626) will establish new US federal government requirements that, 'apply to all oil and gas wells on the Outer Continental Shelf and to other high risk wells that could cause extensive and widespread harm to public health and safety or the environment in the event of a blowout.⁸ Highlights of this bill include:

- Increased oil company accountability: the CEO will be required to certify that well design, blowout preventer and event management processes are safe and adequate.
- New blowout preventer standards: new minimum standards established, including enhanced reliability, two sets of blind shear rams, and redundant emergency backup control systems.
- Well design and cementing requirements: more stringent requirements including maintaining safety engineers' availability throughout the drilling and completion process.
- Independent third party certification: chosen by the federal government, well design and major processes and equipment will be certified as compliant by independent inspectors.

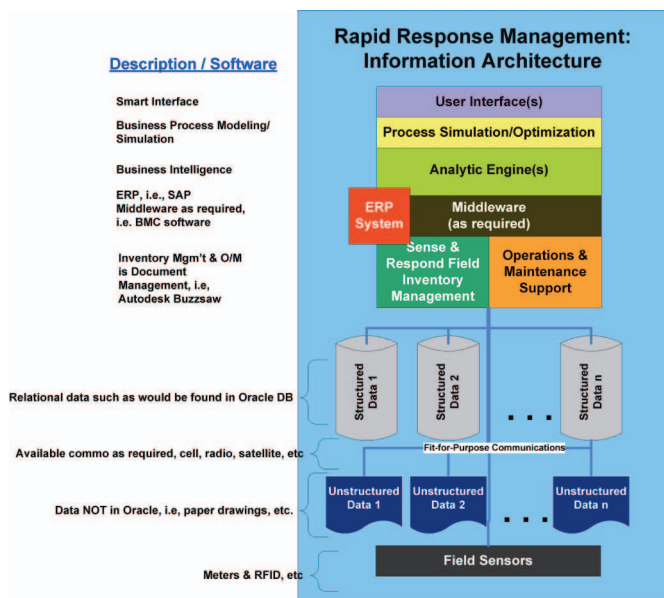


Figure 1. Rapid response management: information architecture.

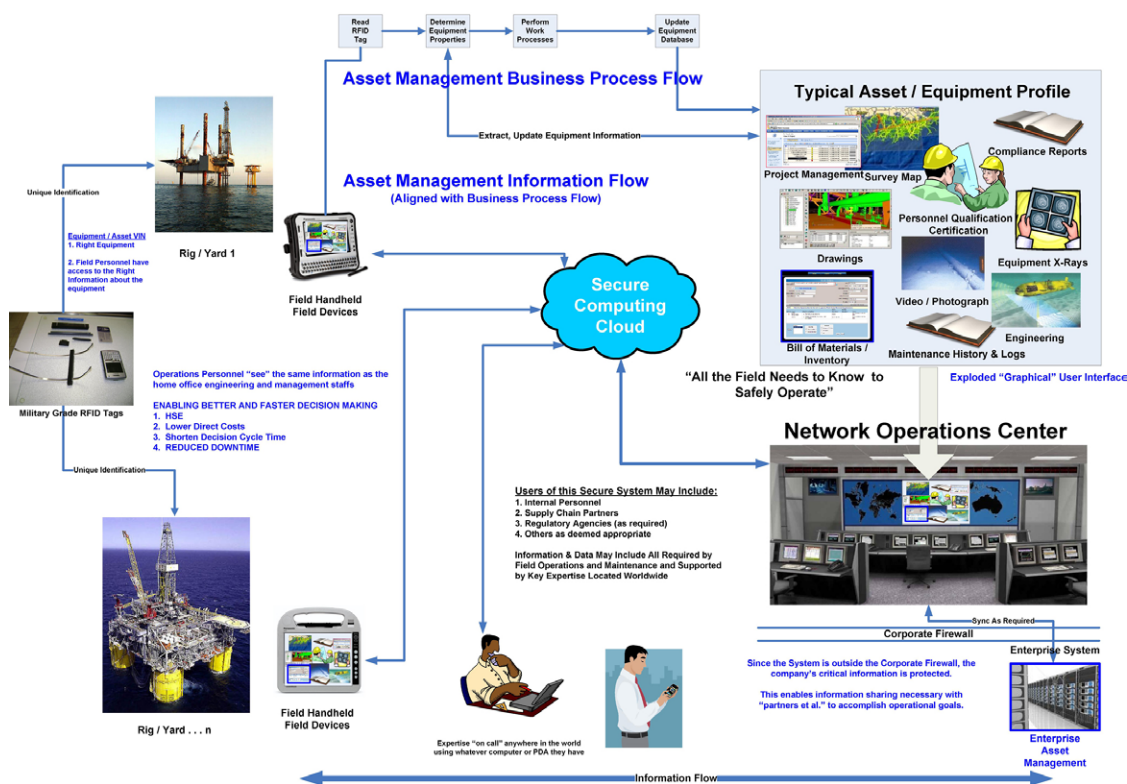


Figure 2. Maximising field operations' process and equipment integrity: operational efficiency and disaster planning and recovery.

Other aspects of the bill include whistleblower and work stoppage processes, penalties up to US\$ 10 million/d, establishment of independent engineering and spill management boards, and enforcement procedures⁹.

H.R. 5626 parallels H.R. 3763 with many of its key provisions. Specifically, it develops a regulatory framework for the operations side of the industry, as well as dovetailing into financial reporting transparency. As such, reporting processes similar to Section 404 described above will be necessary to manage these processes as well as document company compliance with the law.

Sarbanes-Oxley also exposed weaknesses in financial processes that heavily depend on spreadsheets. Spreadsheet models are often developed by a power user and can be quite complex and large. In this sense, they are similar to much of the data and information routinely found in operations today. For example, engineering and economic models, budgets and a host of other applications use spreadsheets, often with significant errors or lack of fundamental understanding on the part of some users. To address the Sarbanes-Oxley requirements relating to the material deficiencies of spreadsheets, organisations developed and implemented frameworks combined with extensive spreadsheet testing¹⁰. It is reasonable to believe that a similar requirement will also be necessary for H.R. 5626.

Moreover, many in the industry expect that this regulatory framework will be replicated on a global basis to assure accidents do not occur elsewhere. This is a logical expectation considering lessons learned from this event, which will now need to be incorporated into standard operating practices regardless of geographic locale. The industry certainly anticipates that these regulatory issues will be far reaching and long lasting, and that will include efforts in the emerging markets¹¹.

There is one major difference to the requirements of Section 404. With the exception of corporate auditors, all financial management processes occur behind the corporate IT firewall. Corporate ERP systems are designed specifically to operate in a highly secure environment, with such sensitive information such as employee data.

Current operational work processes capitalise on the expertise and knowledge of an extensive supply chain. Drilling companies, energy services and engineering firms, and a host of equipment suppliers work closely together and constantly share information.

The necessary systems that will be required to support the final regulatory framework resulting from passage of H.R. 5626 will most certainly reside in the field operational environment. These systems will support ongoing operations, compliance, and be positioned in the event of future disasters, including but not limited to natural disasters such as hurricanes.

Fortunately, these types of systems do have a proven track record. In fact, an early case study documented the use of a similar system to support recovery from the Gulf of Mexico, Hurricane Ivan in 2004¹². Subsequently, organisations such as the US military routinely use such well vetted systems to manage field operations¹³. These systems are dual use and presently available without modification.

Rapid response

At the height of the Gulf of Mexico disaster, in May 2010, the need for a new industry business model was posited by one of the principal players¹⁴. Shortly afterwards, major industry players instituted and committed US\$ 1 billion in a rapid response plan designed to move quickly in the event of future spills and codify lessons learned in the summer of 2010 and beyond into the industry knowledge base¹⁵.

In any disaster, early decisions can determine whether the event is rapidly contained or whether it balloons out of control. This is true in the hospital emergency room, hurricane recovery, operational accident or terrorism. Moreover, first responders and military train against different scenarios to assure maximum performance in the event their services are needed. Certain aspects of oil and gas field operations, such as safety, require ongoing training and certification. The processes are generally well understood and mature.

However, training for disaster recovery can be expensive and time consuming, while requiring that some critical human capital and other assets be offline or away from production. Increasingly, firms are using computer simulation and scenario ‘gaming’ to practice responses and assess. Of course, valid, current and accurate data is critical to fuel these models¹⁶.

One might expect that these types of training scenarios or war game exercises would involve the full complement of responders, including supply chain partners and government officials. In this event, data and information will need to be disseminated outside the corporate firewall.

Finally, it would not be cost effective to design a decision support system for this process alone. Systems that can support training and disaster recovery should be part of the normal course of business if they are to be effective. Personnel will resort ‘to their training’ in times of stress and will use solutions they are comfortable with.

Operational decision support

Financial data and information is very straightforward, generally alphanumeric text in a structured database. Conversely, field operations require a great deal of diverse, discrete, structured and unstructured (paper, etc.) data. As shown in Figure 1, modern field operation decision support solutions are quite complex and are composed of a wide variety of software applications, including communications from the field.

For example, a generally accepted model for well design includes the geologic earth model and all of its data, well design engineering, and economic models (often on spreadsheets)¹⁷. This is just the start of a complex and information intensive process that hopefully results in bringing a completed well online and into production. Along these same lines, in conjunction with a large independent, a drilling risk assessment simulation model has been developed. This model enables risk managers to play ‘what if’ scenarios prior to making a major capital expenditure, thus maximising economic performance¹⁸.

As shown in Figure 2, this construct has been manifested as an operations and maintenance solution. Designed to work with a number of constituent parties including regulatory agencies, this solution has been vetted by the US Navy, used by the offshore oil and gas marine services, and with petroleum operators. This solution is not new as its roots go back to the recovery efforts for post Hurricane Ivan in 2004.

Since that time, the ability of the industry to have command over field operations has continued to mature and is now generally available. Currently, field handheld units enable field engineering personnel to download the full knowledge content for any specific operation.

The CEO needs certain knowledge to sign off on new wells. Field operations need to know what they ‘need to know’ in order to deliver superior performance. Finally, as the great crew change moves towards its chronological destiny, supporting younger field personnel with the collective wisdom that may be semi-retired and accessing data from their golf carts helps assure continued superior performance. A single version of the truth serves all users meeting the challenges in this new environment.

Conclusion



Schumpeter’s creative destruction dictates that, ‘process of industrial mutation that incessantly revolutionises the economic structure from within, incessantly destroying the old one, incessantly creating a new one.’¹⁹ For most in the industry, 20 April was an exogenous event

precipitating an industry sector mutation. In any disruption process, there will be some winners and some losers, and some may not survive.

While Sarbanes-Oxley dictates transparency in financial reporting, H.R. 5626 will require transparency along with a high standard of performance in the field. Together, management can be assured that they have a commanding visibility into revenue producing assets and performance of the firm at all levels.

Moreover, strong shareholder rights beget confidence in management's ability to weather storms and take advantage of disruptions. Enlightened executives and boards can capitalise on the current situation and create even more shareholder value.

One dimension that is similar to the change process driven by the mandated Sarbanes-Oxley compliance measures required by 2005, is that the delta during that 2002 - 2005 change period did indeed raise the bar for all public companies. However, in today's environment, attaining a licence to operate will not allow for a three year adoption cycle. Operators and their drilling company partners will need to employ proven systems quickly to assure all stakeholders that events of April 2010 will not be repeated.

While demanding, the processes and information support systems are ready and up for the challenge. No longer just in the back office, creative destruction is catapulting new ways of adding shareholder value while proactively engaging broader constituents and stakeholders.  

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