THE THREAT OF OPERATIONAL RISK TO THE OIL INDUSTRY

Time for the industry to rethink its risk mitigation process and revitalise its safety roadmap

Sebastien Planche – Senior Consultant, DuPont Sustainable Solutions
Mieke Jacobs - Senior Consultant, DuPont Sustainable Solutions
Davide Vassallo - Global Managing Director, DuPont Sustainable Solutions
For the last two years, the oil price as been in free fall and, at the time of writing, is at around 50 USD/bbl, up slightly since OPEC’s announcement at the end of September 2016 to cut production by 2.2%. Caused by slowing demand from the BRIC economies and oversupply of crude oil, the industry initially appeared to believe low pricing would not last and was therefore slow to react. It then introduced drastic cost cutting measures in order to readjust company cost structures to deflation. What has now become apparent to the industry is that sharp drops in crude prices, which are not new, are occurring in ever shorter cycles. Oil producers need to become more agile in adjusting if they want to remain profitable. After two years of cost cutting and industry transformation, that leaves them with the question of how to quickly readjust their safety roadmap and risk mitigation processes to protect all their efforts aimed at delivering cash from their operations.

**Figure 1: Brent monthly average**

**COST CUTTING MEASURES SLOW TO SHOW RESULTS**

When crude prices drop, oil producers have historically cut costs, but the impact of these cost cutting exercises is slow to take effect. Like a ship whose engine has just been stopped, most of the big oil companies continue to be carried forward by existing momentum. Traditionally, it has taken oil and gas companies more than four years to adjust operating expenditure (OPEX) to market deflation due to inherent portfolio and operating constraints.
It is during these times of price instability that operational risk management – the identification, evaluation and control of hazards based on potential levels of severity and likelihood of occurrence – should remain a top priority for companies in the oil and natural gas industry. Taking such steps will enable companies to avoid costly incidents and high insurance premiums, and thus continue to drive profitability, ensure the safety of their workers, and maintain their future right to operate.

**Figure 2: Upstream Operating Cost index trend**

It is during these times of price instability that operational risk management – the identification, evaluation and control of hazards based on potential levels of severity and likelihood of occurrence – should remain a top priority for companies in the oil and natural gas industry. Taking such steps will enable companies to avoid costly incidents and high insurance premiums, and thus continue to drive profitability, ensure the safety of their workers, and maintain their future right to operate.

**How will you qualify your Operational Risk Management system after 2 years of cost-cutting measures?**

**Figure 3: Strength & weaknesses in ORM system**

The UOCI measures cost changes in the oil and gas field operations arena. UOCI is similar to the consumer price index (CPI) in that it provides a clear, transparent benchmark tool for tracking and forecasting a complex and dynamic environment.

**Source:** EIA, HIS UOCI, DSS Analysis
SAFETY IMPACT NOTICEABLE TWO YEARS LATER

Currently, oil companies are about half way through the journey of cutting necessary CAPEX and OPEX costs and past experience has shown that a drop in oil price is followed, after about two years, by a rise in lost time injuries frequency in the industry.

![Graph showing Brent Monthly Average and Lost Time Injury Frequency](image)

**Figure 4: LTIF per 200,000 hours**

As Figure 4 demonstrates, the drop in oil prices between 2000 and 2002 was followed by a six per cent rise in Lost Time Injury Frequency (LTIF) in 2002 and 2003. And again, when the barrel price fell sharply in 2008 and 2009, the industry experienced a 14 per cent increase in LTIF rates in 2012 compared to 2010.

The reasons for these increases in safety incidents are multiple. Oil producers who cut costs will lay off personnel. Many of these are experienced, older workers who would have been used as mentors or coaches for promoting the company safety culture. Cost cutting exercises also lead to added pressure on suppliers to cut costs. This tends to have an effect on quality and hence safety of materials supplied. A reduction in operating expenditure is also often tied to a decrease in maintenance, because pipes that have been shut off, for example, are not deemed to require it. This and other risks represent a real dilemma for the oil industry. Most companies know that, when the market picks up again, they will not immediately have enough people to address all the potential risks and problems.

Despite being in the middle of oil price crisis, that should prompt oil companies to take urgent action now to avoid problems in two year’s time. They cannot afford to wait until the oil price goes up again, otherwise future safety incidents are likely to cost both lives and output.
IDENTIFYING WEAKNESSES

That requires an understanding of the current safety culture in an organisation. Although oil companies have seen some good safety performance figures in times when barrel prices were high, the industry as a whole operates in a fairly rigid and rules driven culture, in other words a dependent culture. As Figure 5 shows there is a correlation between cultural maturity and industry LTIF rates over the years.

Figure 5: Relative Cultural Strength (Min/Max/Median)

SOURCE: DSS SPS, BASED ON 103,000 ANSWERS
The industry would benefit from a move towards a more independent culture which enables and can count on employees - and thereby the whole organisation - to make the right, safe decisions in often complex, fast-changing environments. Such a culture would also allow oil companies to adapt more quickly to ever shorter cycle times as the whole organisation would become more self-reliant and flexible. An evolution that would translate into more reliable, sustainable safety for the company as well as increased productivity.

However, many oil companies are currently unaware of their cultural weaknesses, having focused their attention on other issues. That leaves them open to exponential dangers as they don't know what hidden risks may be lurking in a stretched organisation. Are their staff, in the current situation, motivated and engaged in safety or have recent cost-cutting measure come at the expense of risk mitigation?

Safety managers need to be able to take the measure of their organisation's safety culture to manage their resources effectively and efficiently. One tool that allows them to find out relatively quickly what areas need urgent attention is a professional safety perception survey of employees. In the oil industry, it is important for this survey to focus on staff at assets, where people are immediately affected by risks and also where operations can react quickly to identified hazards. If carried out correctly, the results provide a barometer of the prevailing safety culture and help company management to direct their efforts at the right targets.

DuPont has been using regular safety perception surveys and HSE assessments of staff to assess the safety culture at its own businesses for years and has also effectively employed this approach to help many companies across a wide range of industries, including oil and gas producers, begin the journey of cultural transformation.

In the current climate, a professional employee safety perception survey offers a quick method for a cultural safety assessment. It takes DuPont just 30 days to carry out such a survey and compile the results. The findings allow companies to take a differentiated approach to risk and zero in on the top threats along the entire value chain. Based on the extensive experience DuPont has in achieving cultural transformation within the oil industry, this is an effective approach to identifying hidden areas of risk in the current oil industry operating climate.
IDENTIFYING & ADDRESSING THE RIGHT ISSUES

The results of a well-conducted employee safety survey make it possible to differentiate between short-term risk containment and long-term sustainable risk reduction goals. DuPont can design a roadmap based on the risk assessment that enables organisation to implement critical actions after just 90 days.

We have just recently used this method to support a number of oil & gas companies in overcoming the technical plateau through a breakthrough culture change to secure cash from operations and prepare them for the eventual industry rebound. It has allowed them to identify and stop urgent safety gaps, then assess and prioritise those areas that not only improve safety, but also offer productivity gains.

In a climate where all expenditure has to be highly effective, it is critical that safety efforts are determined by an alert approach and a cohesive, independent culture. Otherwise the oil industry risks being hit by safety incidents whose roots lie in unfocused safety efforts now when the oil price eventually rebounds.

Learning to be agile now is likely to benefit oil companies in future, too, as crude oil prices are likely to continue to fluctuate in shorter cycle times. Flexibility in cutting production, operating and capital expenditure costs when the oil price is low without putting people and assets at risk will become ever more critical to survival. This will also allow them to react more quickly when the price rises again. Although this may seem a tall order, it is possible to achieve with the right tools to identify and prioritise risks.

DIFFERENTIATED RISK APPROACH

Focus on Top Risks:
- To Critical Assets / Processes / Activities
- Along the entire Value Chain

Differentiate between short-term Risk Containment vs. long-term sustainable Risk Reduction

INTEGRATED CAPABILITIES

Effective risk governance to overcome risk management silos and foster integration with core asset & operations management processes.

Move from individual capabilities to a learning organizational process

RISK CULTURE & OPERATIONAL DISCIPLINE

Embed a strong and aligned risk culture and operational discipline to drive the implementation of risk management efforts.
For more information on DuPont Sustainable Solutions, call us today on:

- United States and Canada  **Phone: 1.800.532.7233**
- Latin America - North  **Phone: 52.55.5722.1393**
- Latin America - South  **Phone: 55.11.4166.8967**
- Europe/Middle East/Africa  **Phone: +41.22.717.5920**
- Asia Pacific  **Phone: +65.6586.3031**
- Australia and New Zealand  **Phone: 1 800 252 9971**

or visit us at: **www.sustainablesolutions.dupont.com**

Please join us in discussing these and other industry-related topics on the DSS LinkedIn Group.

[linkedin.com/groups/DuPont-Sustainable-Solutions-4617132](https://www.linkedin.com/groups/DuPont-Sustainable-Solutions-4617132)

[twitter.com/DuPont_DSS](https://twitter.com/DuPont_DSS) | @DuPont_DSS

**About DuPont**

DuPont Sustainable Solutions (DSS) is one of 8 DuPont businesses. Bringing customers the benefits of an integrated global consulting services and process technology enterprise, DSS applies DuPont’s real-world experience, history of innovation, problem-solving success, and strong brands to help organisations transform their workplaces and work cultures to become safer, more operationally efficient and more environmentally sustainable.

For more information, visit our website at: **www.sustainablesolutions.dupont.co.uk**

DuPont (NYSE: DD) has been bringing world-class science and engineering to the global marketplace in the form of innovative products, materials, and services since 1802. The company believes that by collaborating with customers, governments, NGOs, and thought leaders we can help find solutions to such global challenges as providing enough healthy food for people everywhere, decreasing dependence on fossil fuels, and protecting life and the environment.

For more information about DuPont, visit: **www.dupont.com**

---

**DuPont Sustainable Solutions**