On November 5 and 6, 2015, one year after oil prices started to slide from their $100-plus peak, Accenture Strategy Energy Upstream held its fourth Capital Projects forum in London. As in previous events, executives from the oil and gas industry gathered to explore new thinking about management priorities for projects and to be inspired by other industries’ experience. Unsurprisingly, the focus in 2015 was on costs: what more can operators do to restore development project profitability?
The good news: costs are coming down

Many presenters confirmed that a year-long effort to reduce project costs was beginning to bear fruit: Most analysts reported a cost reduction of 10 to 30 percent for Upstream capex in the first six months of 2015, depending on category. Some more cyclical activities such as seismics or drilling posted even steeper declines.

Most of this decline came from renegotiating terms with suppliers and delaying marginal projects. At the same time, a need for more fundamental cost cutting remains. At our 2014 forum, when the barrel was still hovering around $100, we suggested four levers were key to curbing cost inflation and developing increasingly marginal fields: specialization, standardization, lean engineering and collaboration with suppliers. Companies quickly embraced the three latter concepts when the reality of low prices became clear. These concepts also, in the course of the year, received considerable attention in many strategy statements, public communications and industry conferences.

What was new at the 2015 forum is that some companies—operators and EPCs—reported the application of some of these principles generated tangible results. Presenters made convincing cases for standardization and reuse, either at a component level—in subsea, for instance—or at the level of entire concepts—such as in the Gulf of Mexico. They also demonstrated compelling returns on deeper collaborations with selected suppliers, albeit still at a project level.

Even more interesting, game-changing initiatives from other industries were the highlight of the forum when they would have seemed only marginally relevant a few years ago. That is because participants could see a direct parallel between the motivation behind each of these cases and the challenges the Upstream industry faces today. More important, they also could envision how similar initiatives could pave the way to a quite different—and, in some way, more effective—approach to oil and gas capital projects.
The other good news: a lot of efficiency potential is still on the table

These initial results may signal a shift in thinking in the Upstream industry. However, as effective as they have been, current efforts will not be sufficient to restore the competitiveness of conventional oil in a world of $30 to $50 per barrel. To align the costs of new projects to the current economic reality, much more is needed than simply increasing pressure on suppliers (Figure 1).

Similar dynamics were at play in the 1980s in the North Sea with CRINE and in 2008 during the recession. In both cases, the industry undertook efforts as it does now, only to revert to traditional practices once the skies started to clear. Forcing suppliers to forfeit their margins and slash costs also has limits because the industry’s performance depends on the supply chain’s capabilities and reliability. After a year of activity decline, pressure on prices and heavy cost cutting, the industry is reaching these limits. High-performance drilling rigs are scrapped in the yards, entire seismic acquisition fleets are decommissioned, tens of thousands of experienced engineers whose scarcity was lamented until two years ago are made redundant, and leading suppliers are struggling to survive.

With oil prices flirting with $30, our industry needs to enact deeper structural changes—to “go after the 90 percent of project costs, rather than the 10 percent margins of our suppliers” as one forum participant put it. The good news is that significant potential exists for the more daring to capture, as demonstrated by some forum presenters.

Figure 1: Impact of capex and opex reduction efforts on lifting costs, in a typical offshore development (USD/bbl)

| Depreciation drilling | 8 |
| Depreciation other capex | 16 |
| Opex | 46 |
| "Old World" lifting cost | 70 |
| Renegotiation drilling (-30%) | 2 |
| Renegotiation opex & other capex (-15%) | 9 |
| Leaner designs (-30% of capex) | 5 |
| More effective designs (-10% of opex) | 5 |
| "New World" lifting cost | 49 |

Source: Accenture Strategy, Energy
Thames Water, for instance, presented its Eight2O alliance with six key suppliers\(^1\) to deliver its five-year work program. BoostAerospace\(^2\) discussed the aerospace collaboration platform that brings together nearly 2,000 clients and suppliers of the European aerospace industry. Rolls-Royce made a case for lean engineering, continuous improvement and collaboration with suppliers. And the UK Major Projects Authority\(^3\) reviewed its activities, including the requirement in 2016 for all UK public civil works projects exceeding £50 million to be integrated on a single Building Information Management (BIM) system\(^4\). EPC participants also highlighted the potential benefits from deeper collaboration with clients and integrated data management platforms.

A few years ago, these presentations would have been met with polite interest by Upstream practitioners. This year, they served as a stark illustration of the gap that remains to be closed.

In Upstream, reuse and standardization are only beginning: Developing two comparable offshore fields with the same design base is too seldom the consequence of purposeful growth and engineering strategies. Many operators still insist on maintaining their own proprietary specifications for valves, or to impose their own technical standards for railings, ladders, or cranes. According to DNV-GL, specifications for a typical subsea project have grown sevenfold in the past three years: from 15,000 man-hours in 2012 to 120,000 today, with each of the 120,000 documents being revised an average of three times.

Similarly, collaboration with suppliers is on many operators’ agendas. But it is still often limited to the scope of a single project—unlike many other industries, which focus on the benefits of long-term collaborations.

Upstream information systems are similarly lagging. Document management remains a hot topic in our industry, with each revision of changes often taking more than two weeks when it is not lost. In contrast, Airbus has 2,000 suppliers working concurrently on a single digital mock-up of the airplane, updated at the end of each week; and large European aerospace companies and tier-one contractors jointly developed BoostAerospace, a collaboration and supply chain management platform that integrates nearly 2,000 clients and suppliers. Scanning technologies to create 3D models of installations is a fast-growing market in Upstream, when other industries simply inherit the 3D models and corresponding technical data directly from the design models.

Non-oil and gas industries adopted these changes five to 20 years ago, when they confronted challenges similar to those our industry now faces. It took a few visionaries, a lot of persistence and the courage to change company cultures. We believe it is time for a few companies in oil and gas to do the same.

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1. [www.thameswater.co.uk/about-us/17410.htm](http://www.thameswater.co.uk/about-us/17410.htm)
2. [www.boostaerospace.com/](http://www.boostaerospace.com/)
3. [www.gov.uk/government/groups/major-projects-authority](http://www.gov.uk/government/groups/major-projects-authority)
So where do we go from here?

It is certainly possible for the industry to emulate what happened in 2008: Oil prices rebounded and companies reverted to the unchecked growth and inflation that characterized the past 10 years.

However, even if the oil prices rebound, the pressure will remain. Unless we change our approach to capital projects, conventional resources will continue to become increasingly more marginal, while unconventionals and alternative energies will increase their cost advantage and continue to gain market share.

If, however, enough players decide to pick up the gauntlet and embark on a full transformation, how would that impact the industry? We believe it would lead to changes quite similar to what we saw in aerospace 10 years ago and in automotive 20 years ago: deeper and longer-lasting collaboration with key suppliers, leading to the emergence of supply chain ecosystems built around a couple of majors and EPCs who together impose new sets of cost and performance benchmarks, at least for specific categories of projects.

The value of such collaborative ecosystems is evident in industries where they function: They allow more effective working practices supported by more integrated systems; they facilitate the development and fabrication of solutions and concepts that can be reused and improved over time; and they encourage joint continuous improvement over longer horizons than a single project, thus boosting performance and lowering costs. Companies that get ecosystems to work capture huge benefits, as shown in industries such as aerospace, automotive, heavy equipment and utilities.

But while ecosystems make sense conceptually, they inevitably raise a host of challenges. One of the biggest is the culture change required to foster and support deep collaboration. Interests are hard to align. It is difficult to devise a mechanism to share value between a client and a supplier that both parties consistently perceive as fair. Long-term commitments are prone to withering in the face of uncertainty. Mutual trust takes a long time to build and can be destroyed in an instant. And all suppliers will have limited capabilities, and all their teams will not be “the A team.” Yet those issues can be addressed. Companies in other industries have faced the same challenges, figured how to make ecosystems work and now enjoy levels of project performance that would seem unattainable to the Upstream industry.

A fascinating analysis of this journey in the automotive industry was written by Susan Helper, an economist at Case Western Reserve University. The automotive industry had the advantage of the example set by Toyota and Honda, which provided an alternative to what Helper calls the “exit” procurement strategy. The aerospace industry came to similar conclusions. As one aerospace executive participating in our forum explained it during our preparatory discussions:

“In Aerospace, we discovered that it is so hard to find suppliers that have the right certifications and bring the capabilities that match our requirements, that when we find them, we want to keep them and to help them improve; the last thing we want is to switch them!”

5 Susan Helper & John Paul MacDuffie Collaboration in Supply Chains, With and Without Trust
http://faculty.weatherhead.case.edu/susan-helper/publications/
How to make change happen

We believe the Upstream industry is at the beginning of a similar journey. This means there is an opportunity for a select few to take the lead and claim a durable competitive advantage.

The questions are, who could be such a “first mover” and how could that company make it happen?

A look across industries suggests that any company can choose to encourage more or less collaboration with its suppliers. Some Upstream players, however, will find they are better positioned to implement the full suite of changes—standardization, lean engineering, and collaboration—and derive the greater value. At a minimum, a company would facilitate the development of lean standards, push the reuse of components and proven designs, identify capable suppliers, and develop effective collaboration practices and systems. Mutual trust will also be facilitated if both the client and the suppliers have a robust experience with the developments in scope, and if the suppliers are motivated by the possibility of repeat business. The natural candidate, therefore, will be either a major that can leverage the size of its portfolio and carve a suitable portion from it, or a “specialized” independent that enjoys a similar scale advantage despite its smaller size. The major would probably benefit from its extensive staffing capacity and its greater negotiating power, but the specialist would benefit from shorter management lines and superior flexibility.

The first task for this operator would be to confirm which portion of its project pipeline is best suited for the exercise. A large gas specialist could select LNG plants, or FLNGs; an offshore operator could choose semi-sub, subsea installations and a range of water depth in the Gulf of Mexico; and an onshore operator could opt for its light tight oil operations in US land.

The operator would then select one or two of its most trusted EPCs, and the top leadership from all companies would agree on their commitment to the long-term vision: building a common supply chain ecosystem that will boost performance across the segment in the next 10 years. The operator might also evaluate if it makes sense to recruit one or two other operators facing similar development challenges to increase the size of the pie.

From there, this team of “founding members” would jointly define the nascent ecosystem’s principles, components and supporting platform: the shared philosophy and the governance model; the client-supplier engagement models; and the collaboration and coordination systems.

They would then engage with the broader supplier community to jointly work toward a common framework for technical standards, libraries of standard modules and concepts, certification and quality assurance guidelines, and a continuous improvement philosophy. As the work progresses and the activity develops, new suppliers would be qualified to join the ecosystem and leverage its collaboration mechanisms.

Many industry groups and independent parties are currently working on some of these issues. What we propose, however, is different. It is competitive, performance driven and proven in the real world.

During the definition phase, a number of questions will need to be addressed: How can we reconcile long-term engagement with activity unpredictability? How will members of the same ecosystem compete with each other and how can we comply with competition regulations? How can such an ecosystem satisfy local content requirements? How will the collaboration IT platforms interface with the systems of each ecosystem member? What is the bigger picture—the “end-game” for the eco-system—and what role will each of the participants play in its development?
Many of these questions are used to excuse current E&P practices. But most of them have also been faced in other industries that started a similar process 10 or 20 years ago, and found workable answers. Each of these other industries have their unique characteristics. But the challenges, the potential pitfalls and the opportunities for value creation are remarkably comparable, and much can be gained by studying their experience. In fact, by understanding what has happened to those industries that are one or two decades ahead of ours, we can imagine what the oil and gas industry could look like.

Operators would gradually focus on a narrower and more stable base of suppliers (such as key aerospace companies do, as illustrated in Figure 2). Clients would therefore be able to dedicate more resources to help these select suppliers strengthen their capabilities and to work on improving the joint performance. Suppliers, in turn, could co-invest in more repeatable solutions to drive costs down and boost performance. Eventually, the performance gap would increase between suppliers benefitting from an ecosystem and others—leaving fewer, bigger and, importantly for their clients, more capable suppliers.

Simultaneously, first-mover operators would develop decisive cost and performance advantages in a segment of their portfolio. Based on the experience of other industries, those advantages, for equivalent developments, could reach 50 percent less capex, 20 percent lower lifting costs, 50 percent faster time to first oil, and a five-year lead time on new technology implementation. Operators enjoying such advantages would be tempted to grow their corresponding business and gain market share. Slower-moving mid-size players would join these ecosystems to benefit from the supply chain’s performance. Four or five ecosystems eventually would emerge and claim a sizeable share of the market.

Whether deliberately or not, some companies are already experimenting with the early stages of these concepts. Shell, for instance, has teamed up with Technip and Samsung to design, construct and install multiple floating liquefied natural gas (FLNG) facilities for the next 10 years (Figure 3), planning to enjoy the benefits of standard solutions and a supply chain ecosystem as just described.

Another example is Anadarko, which has chosen to work intensively with FMC and Technip on a segment of its offshore developments.

The questions that remain are how fast will the lessons be learned, and how aggressively a few players will pursue this strategy.

Figure 2: Supplier concentration in the aerospace industry
It’s time to challenge the traditional approach to projects

For the foreseeable future, intense pressure to reduce project and extraction costs will remain. The oil-price slide marches on and, even if prices return to higher levels, oil and gas extraction will remain increasingly challenged as reserves become more marginal.

The Upstream industry must see the current situation for what it really is: not a temporary storm to wait out, but a strong call to make structural and sustainable changes to how they approach development projects.

As the experience from the automotive, aerospace, utilities, and other sectors show, the players that get these strategies right first enjoy substantial and durable competitive benefits—much like the Japanese automotive players have done for nearly 20 years.

The challenge for companies keen to lead the pack is to quickly move from concepts and early experiments to establishing a clear vision of where they want to go and how to get there. The companies that are left standing will find themselves marginalized. They will lose their ability to compete in the large-project space and will be forced into a niche that doesn't require development efficiency. For operators that want to move, the current period may be a one-time opportunity to launch such a transformation. In the next two years, project executives should have more bandwidth and suppliers should be more open to discussions than in the past decade. When activity resumes, it probably will be too late.

Figure 3: Collaboration structure for Shell’s FLNG project

Source: Accenture Strategy, Energy
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