Arthur D Little

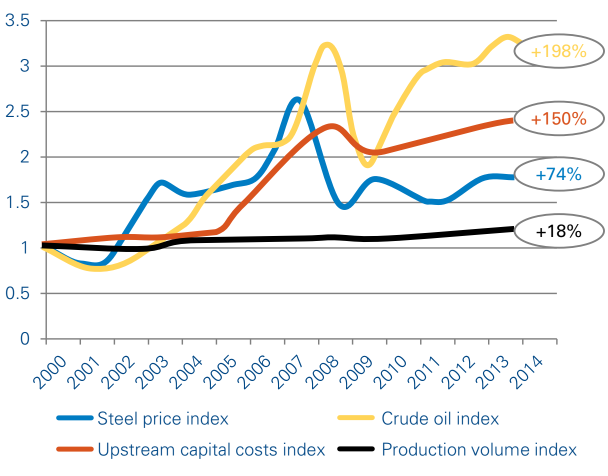
Viewpoint

# Delivering the promise, with lower oil prices

*Building in higher efficiency*

**One might believe that there is nothing new to be learnt about managing oil and gas assets, and their associated supply-chains, that operational efficiency must be as good as it can get, and that the industry is easily capable of being highly competitive. And yet, at the time of writing, after another substantial plunge in oil prices, the industry yet again has to deal with unprecedented change. Despite steady growth in overall global oil and gas reserves and production rates over recent years, the entire industry is now inevitably under severe pressure. Productivity has not increased in line with capital spend (Figure 1), in part due to an increase in field maturity and depth, remote locations, labour cost inflation and the growth in unconventional resources.**

Figure 1. Capital productivity in decline (CAGR 2000-2014)




Source: Arthur D. Little, CRUspi, EIA, IEA, IPAA, HIS, GlobalData

In addition, the energy market has become increasingly competitive and producers need to be efficient to remain profitable. The recent Wood Report highlighted many of the key challenges, noting that management of ageing assets may be the biggest problem of all.

However, the industry can, and has, delivered and managed huge investments and projects time and time again.

So, what is the way forward; cost cutting? It is true that reducing the cost of production is one way to becoming more competitive. But simply driving down cost has often proven to be a false economy. Becoming more innovative, perhaps? It is true that the oil and gas sector has embraced technology to a certain degree, for example by digitalizing oil fields. But when you look at the challenges faced in other industries, in the end it is not a choice; efficiency and innovation must go hand in hand.

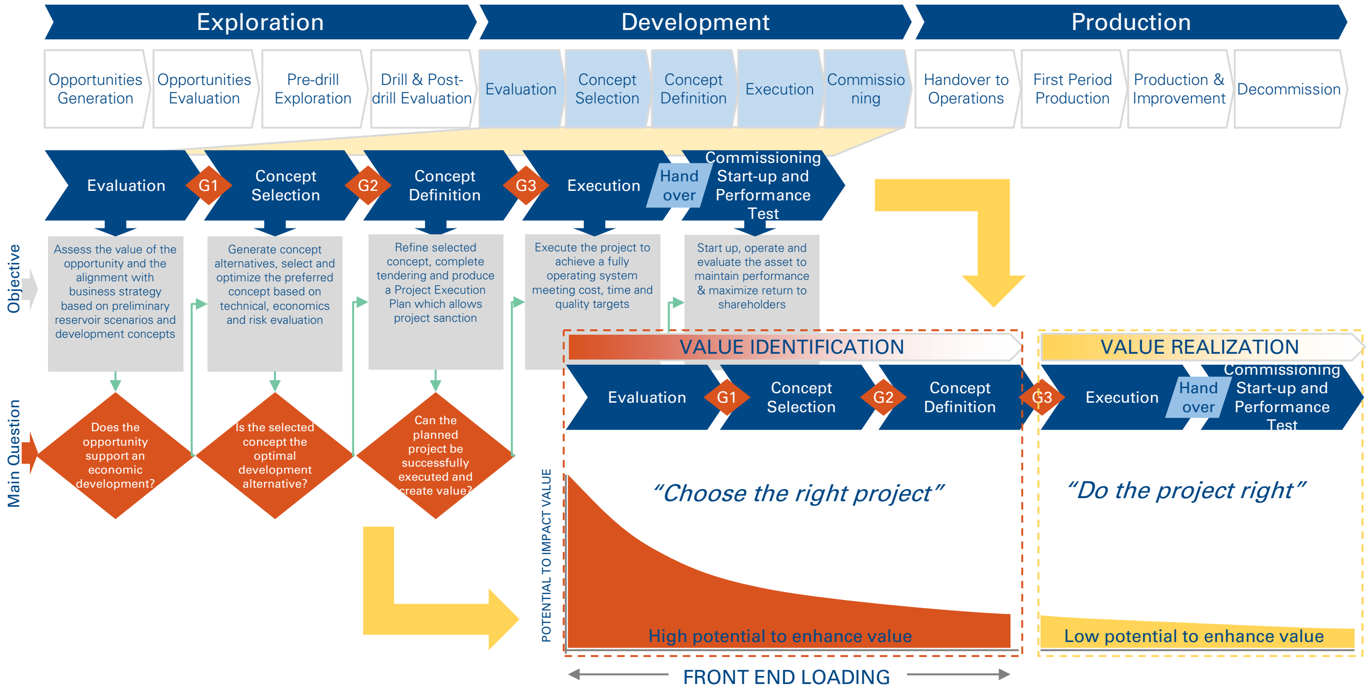
So has the oil and gas industry pushed the boundaries far enough? The answer is probably not, in Arthur D. Little's recent experience of supporting clients through the type of transformations required.

Time is money in oil and gas. From the moment a discovery is made there is relentless pressure to appraise, develop and commence production. Every delay to first oil, every barrel deferred or not produced, simply reduces value. Our view therefore is that it is essential to pursue two key areas, in order to deliver the efficiencies required:

- How do you deliver on your promises, once the decision to develop a new field has been made, and the investment capital has been raised?
- As each asset moves into production, what must be done to maximize production revenue whilst optimizing costs?

The relative importance of these issues of course will vary from one company to another. Large oil and gas companies have several major projects going on in a variety of locations, allowing them to offset and balance the portfolio, whilst small to mid-sized companies do not. Larger scale businesses may have more projects in their portfolio, but these projects may well be more highly complex.

Figure 2. Development phase – the main phases and objectives




Source: Arthur D. Little

So what is critical for the successful development of an upstream asset, and the subsequent challenge of operating that asset to its full potential?

## The Development Phase

It is the experience of Arthur D. Little that as companies transition their assets from exploration/appraisal into field developments they all need to establish a range of new governance structures, management systems, processes and procedures. They also need to build an organization capable of delivering the project. Staff must clearly have the right competencies to develop an asset capable of meeting production targets in a cost efficient and safe manner. Such preparation will help the business avoid the project delays and cost overruns that can often significantly impact value.

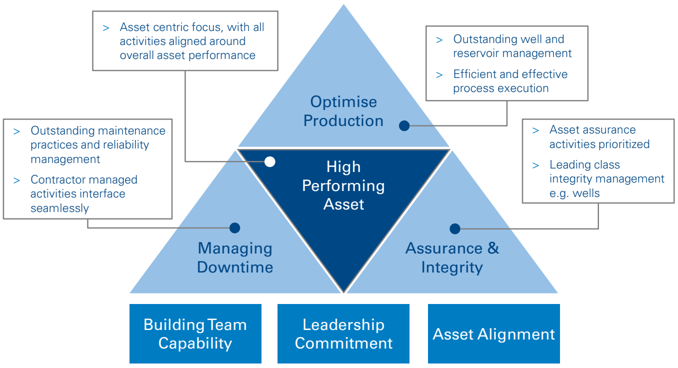
To successfully transform an organization towards one suited for field development in this way, it is critical to understand the objectives and needs of each asset life cycle phase (Figure 2), as this will help in identifying and prioritizing where senior management must focus. Five particularly important focus areas for change, where Arthur D. Little has supported clients undergoing such a step-change, can be outlined as follows:

- **Implement a Capital Project Management System,** and use it. Best-in-class CPMS involves a phased process framework, a suite of supporting systems and clear protocols to ensure consistency.
- **Establish an effective project governance and organization,** ensuring roles and responsibilities are clearly defined, communicated and adhered to with clear governance and line of sight from the Board right down to the project team.
- **Focus on cost reduction and improving time to first oil** - Optimizing the overall development cost of a project and improving time to market including a robust value engineering approach. It is possible to generate double digit savings over a new asset lifecycle by getting this right. Re-using previous facilities designs can often yield real value.
- **Agree a contracting and procurement strategy, and manage compliance** against it. Proper sourcing and supplier management strategies are key to achieving time and cost targets.
- **Set up a risk and quality management process** - a well-established concept for identifying factors that could affect timing, budget, safety and quality. This should include looking at both “hard” and “soft” factors that can affect performance. “Going red early” should be seen as a positive step, and crucially, implementing mitigating actions in a timely fashion. Risk remediation planning and investment is particularly important.

## The Production Phase

As an asset is handed over to the operator it is then our experience that companies generally face quite different challenges, starting with ensuring an effective handover and transition, and continuing to the maximization of production revenue whilst simultaneously optimizing costs (Figure 3).

Figure 3. The high performing asset



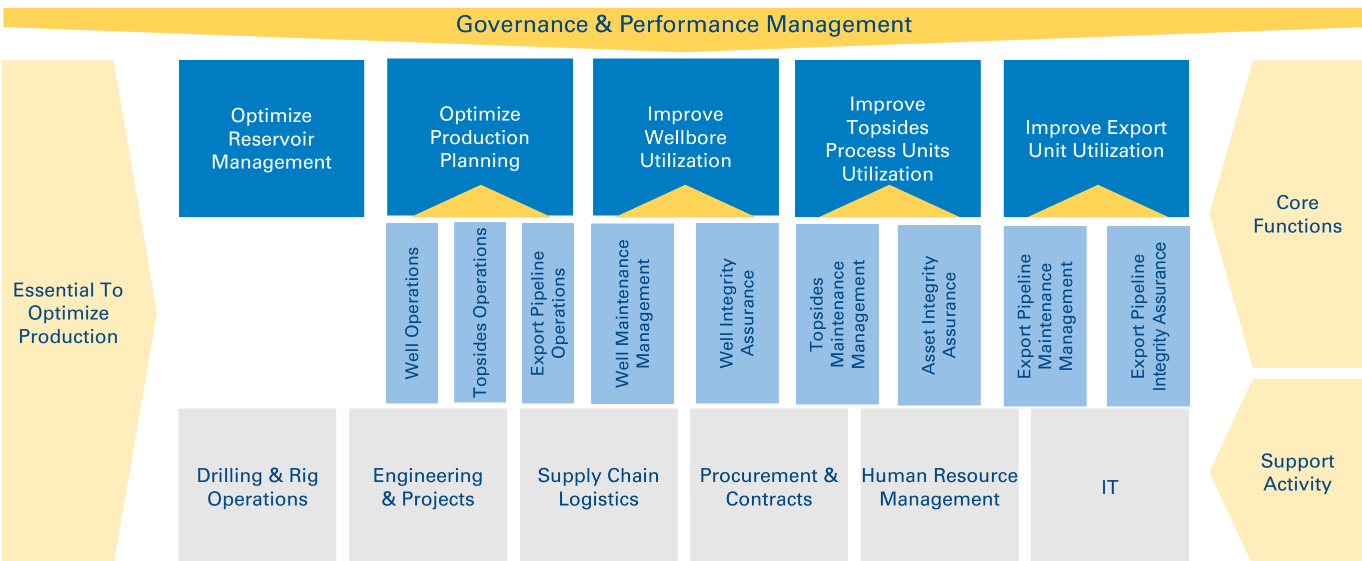

Source: Arthur D. Little

The key areas of operational focus in which Arthur D. Little has provided companies with advisory support in their pursuit of production operations efficiency and transformation will often include:

- **Focus on optimizing production** - everyone knows this, but it requires a high degree of coordination, outstanding process execution and all the necessary functional support.
- **Managing downtime efficiently** - ensuring high levels of reliability and mechanical availability to maximize utilization and revenue generation, at the lowest cost and appropriate safety level, including a reliability-centred maintenance plan.
- **Assurance and integrity governance** - critical for both asset and well integrity. The tendency is often to focus on immediate technical issues; however there are also a range of softer issues which often receive insufficient attention.
- **Invest in capability** - having the right team capabilities which include specific functional expertise, and the right tools and applications to support it. But more than that, it means having individuals who exhibit the right behaviors, and show the potential to solve issues rapidly as a team in a continuous operations environment.
- **"Hands on" leadership** - leadership that is fully committed to successful and completely safe operations, providing clear, well aligned messages to all staff, are clearly visible, and get directly involved in operational issues and problem solving.
- **Asset alignment** - Planning of activities should be aligned across the asset. Decision making should be based on the right outcome for the asset as a whole, and involve onshore and offshore teams and management. Targets and objectives should be set so as to encourage contribution to overall operational performance. This should also include collaboration across the supply chain of the asset base, as it is often the relationship between third parties that can solve the biggest issues.

All of these factors need to be taken into account in establishing the most appropriate operating model for an oil company (Figure 4), to fully leverage the relationship between operators, service providers and the supply chain. Investment in people and the right choices of what to outsource are always a key part of such a transformation.

Figure 4. Essential to optimize production

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## Conclusion

Many companies recognize very clearly the challenges and threats brought on by this changed oil price environment. They are able to fully embrace the need for the right combination of cost reduction delivered by innovative change, coupled with sound project delivery and more rigorous operations management. Some have not yet made this transition however.

As oil and gas companies move their assets through development and on into the production phase, they often need a wide range of new skills and capabilities in order to meet the specific complex challenges at each stage, a set of challenges quite different to those faced during exploration. A failure to invest in the building of the right capabilities, or to collaborate effectively with other operators, partners, service providers or along the entire supply chain, leveraging the skills of others, can have severe repercussions. The ability to make decisions over the entire lifecycle of an asset requires long term planning and the efficiency of both capital projects and production operations. This is especially so in a lower oil price environment, where efficiencies can be materially improved by the re-engineering of both critical systems and processes and the use of value-enabling technology. These approaches can add substantial value, making the difference between commercial success and economic unviability.

The broader strategic challenge faced by some companies may be whether or not that company should move from explorer to developer, and then on to producer; and, if so, how to set itself up to be competitive at each stage of the asset lifecycle. Some companies choose to farmout or dispose their way out of the various "growing pains" difficulties that each transition may present. But for those companies looking to reap the rewards of owning and operating their own assets, even in conjunction with partners, there is a great deal of transformational change that they must undergo in order to be truly successful. And this change will mainly revolve around building the right suite of organizational capabilities to take it all on. For the more established operators, the challenge may be a little different. They may instead need to get over the inertia of many years of established ways of working, often developed under different oil-price conditions, and to get the entire organization focused on creating value in these new, prevailing economic conditions.

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## Arthur D. Little

Arthur D. Little has been at the forefront of innovation since 1886. We are an acknowledged thought leader in linking strategy, innovation and transformation in technology-intensive and converging industries. We navigate our clients through changing business ecosystems to uncover new growth opportunities. We enable our clients to build innovation capabilities and transform their organization.

Our consultants have strong practical industry experience combined with excellent knowledge of key trends and dynamics. Arthur D. Little is present in the most important business centers around the world. We are proud to serve most of the Fortune 1000 companies, in addition to other leading firms and public sector organizations.

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