

# Time for Change

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*Oil Company Asset Management*



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# Executive Summary

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Structural changes taking place in the oil supply outlook are making it very complex for international oil companies (IOCs) to pursue their key twin targets: reserves replacement at sustainable cost, and operational efficiency to sustain the levels of profitability that investors and markets expect of them.

Traditional models of asset management – focused on individual asset performance and short term results – are already limiting what IOCs can accomplish today. And additional challenges are emerging for the future: e.g. asset operations will need to be capable of quicker response to accommodate market changes, and greater awareness will be needed of the full spectrum of opportunities and threats to which assets are exposed.

IOCs where asset and field managers merely perform tasks, rather than attempting to run a business as part of an overall enterprise, will not be able to deliver their full potential. They, and their colleagues in the corporate strategy rooms, need to radically rethink their vision of asset management.

To address these challenges, both present and future, we propose here a holistic approach to asset management – one that supports consistent and integrated decision-making at each level of the asset portfolio. This approach provides a route to improving current practises, accelerating response to market changes, delivering better resource allocation and utilization, and ensuring optimum cross-asset use of best practice and innovation.

# Structural Change

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Over the past decade, oil and gas exploration and production have seen dramatic structural change. In particular, the 'balance of power' has shifted away from IOCs as national oil companies (NOCs) became more proficient in managing their resources, and became less dependent on external sources for investment. Resources are becoming harder to find and develop; 'peak oil' may not have been reached, but certainly the end of so-called 'easy oil' has. IOCs increasingly operate in remote and more challenging locations and ecologies. Meanwhile, they have been under increasing pressure to respond to the climate change and other environmental and social concerns of governments and society. Investors, too, have widened the lens through which they assess potential projects to include items such as carbon exposure and reputation risk (which can stem from a diverse range of factors – from the safety of tanker drivers to office energy efficiency).

More recently, the sharp increase in oil price from 2007 to the start of the economic downturn led to record profits for IOCs. These were only partially constrained by a parallel cost escalation of oil service and equipment supply. Fat profits, boosted by rising demand, veiled somewhat a number of the structural changes from the supply side. However, these were revealed quickly in the oil price collapse at the end of 2008 and beginning of 2009.

Prices have now recovered somewhat from the very low levels seen at the start of 2009. Post-recovery oil price outlooks are still clouded by high volatility, but a nose-dive is unlikely. However, the industry cost structure has not come down to the same extent as prices. So structural issues must, of necessity, rise rapidly up the IOC Board agenda.

This pushes the longer-term replacement challenge into even sharper focus, with big question marks around the ability to access sufficient volumes, and – even more pressing – around the profit margins of those volumes.

Most of the published IOC growth strategies seem to rely heavily on an outlook of sustained growth in oil demand and ever-rising prices. We do not think these outcomes can be relied on (as our recent report *The Beginning of the End for Oil?* explains). So IOCs will have no choice but to renew and reinforce their efforts to squeeze every last drop of profitability out of their existing and future portfolios.

And many of them don't have an approach to asset management that will currently allow them to do that.

*“Most of the published IOC growth strategies seem to rely heavily on an outlook of sustained growth in oil demand and ever-rising prices.”*

# Traditional Models – Fit for Purpose?

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In the lower-oil-price environment of the late 1980s, a number of IOCs moved towards asset management models that focused on key performance drivers and strengthened accountability. These models, where each asset was managed similarly to a business unit, had their benefits. There was clear ‘line of sight’ performance measurement linked to oilfield operations. Better capital allocation, profitability and sustainability were maintained along the overall asset lifecycle. A focus on core competences, and constant seeking of outsourcing opportunities, kept the organization lean.

However, there were downsides as well: notably, the focus on delivering short-term results, difficulties in ensuring long-term growth, failure to capture system-wide synergies and cost savings, and loss of company-wide technical excellence because core skills were decentralised.

What we would call the traditional asset management paradigm, in broad terms, encompasses two management models:

- Asset-based organization (ABO).
- Asset lifecycle management systems (ALMS).

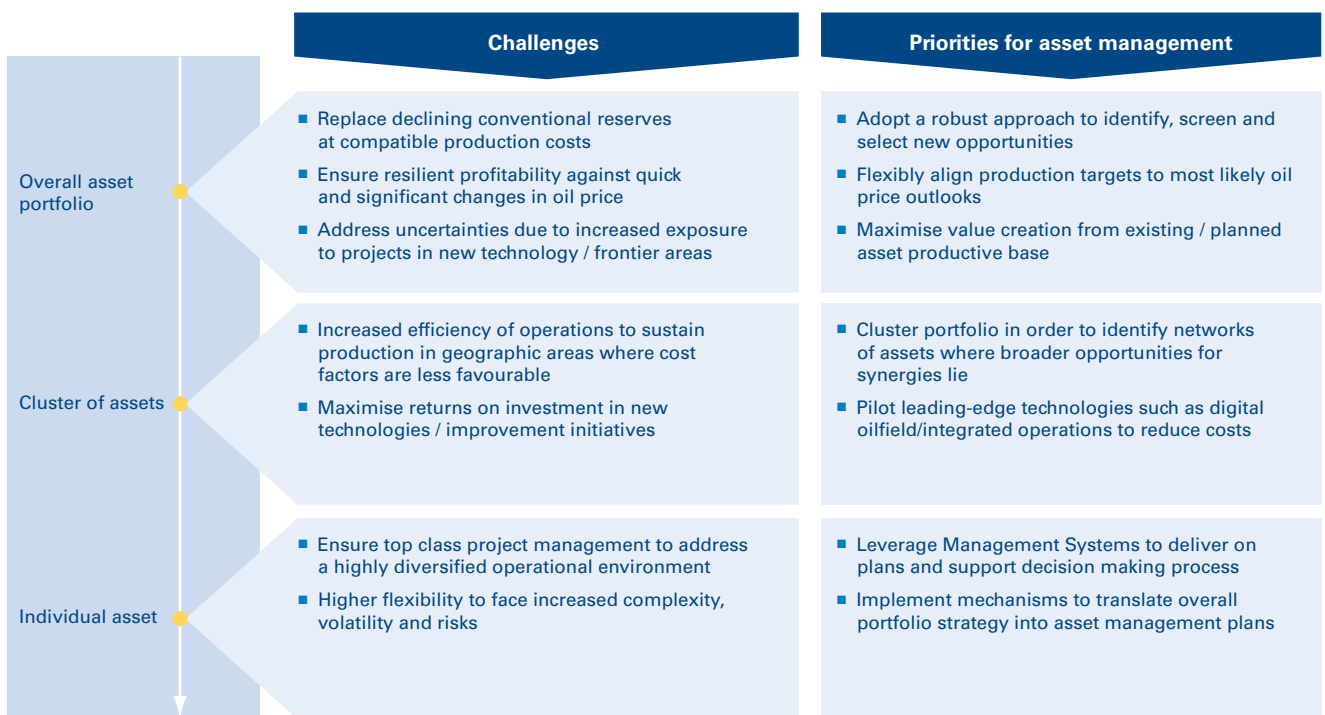
These two models played very complementary functions. ABO fosters decentralization and delegation to the Asset Manager with heavy accountability for final results. Meanwhile, ALMS – with its stage-gate processes and predefined central requirements – acts as a counterbalance mechanism, constraining the commitment of capital investments.

The traditional asset management paradigm has not lost all its relevance. It is still especially appropriate for capital investment programs, as recent examples of over-budget and over-schedule exploration and production projects have confirmed.

However, the traditional paradigm has its shortcomings. The focus on individual asset performance means limited cross-asset line of sight and portfolio control. There are difficulties in ensuring long-term growth, when the focus is so firmly on delivering short-term results. A third serious drawback is the failure to capture system-wide synergies and cost savings.

*“There was clear ‘line of sight’ performance measurement linked to oilfield operations. Better capital allocation, profitability and sustainability were maintained along the overall asset lifecycle.”*

Figure 1. Challenges ahead – a broader perspective needed



Source: Arthur D. Little analysis

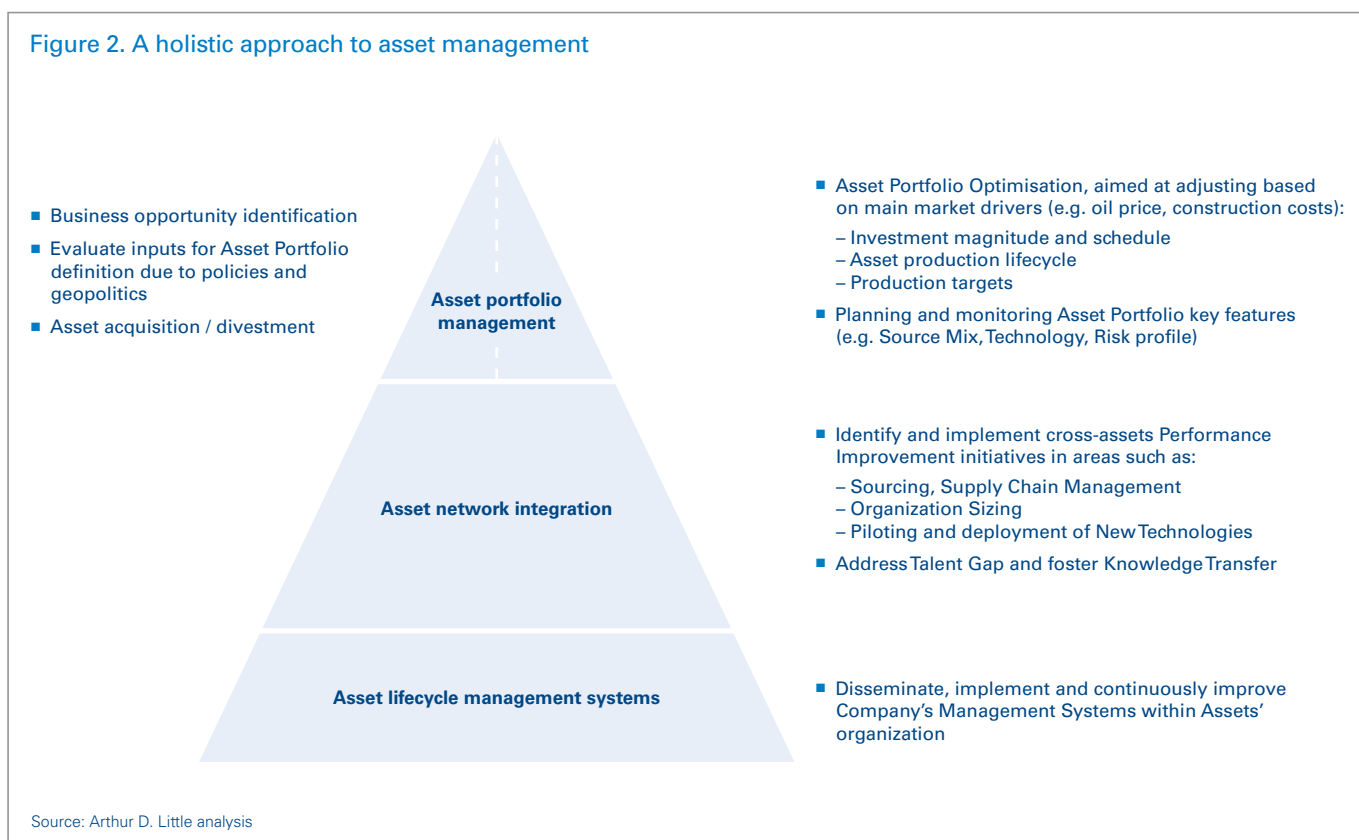
In the future, these shortcomings will limit IOCs even more, as they seek to address questions like:

- How can we balance the reserves replacement that's required of us with our need to preserve adequate returns on the overall asset portfolio?
- How can we ensure disciplined capital employment, prioritizing investment/divestment decisions properly?
- How can we achieve a quick and flexible response from asset operations to accommodate market changes?
- How should we foster awareness of the opportunities and threats that each asset is exposed to?

Such issues are not exclusively the concern of the Boardroom. Asset and field managers also need to be engaged in responding to them as part of the overall enterprise. Having managers simply performing tasks at asset or field level is not a luxury high-performance oil companies can afford in the future.

*“Asset and field managers also need to be engaged in responding to them as part of the overall enterprise.”*

# A ‘Big Picture’ Approach



We believe the IOCs that will be most successful in addressing these issues will be those that adopt a more holistic vision of asset management.

Such a vision can be represented in the style of a pyramid, encompassing three layers:

- Asset portfolio management.
- Asset network integration.
- Asset lifecycle management systems.

Each layer focuses on specific business goals. Moving from one layer to the next allows a smooth progression, or cascade, from an overall portfolio perspective to the more traditional individual asset perspective.

For IOCs, the main benefit of embracing a holistic approach to managing the asset portfolio is that it provides powerful tools to support consistent and integrated decision-making at each level of the portfolio.

*“We believe the IOCs that will be most successful in addressing these issues will be those that adopt a more holistic vision of asset management.”*

**Asset Portfolio Management** – At the overall asset portfolio level, it enables continuous control of the drivers that affect the current and future value of the portfolio – e.g. source mix, exposure to risk, operational complexity. Embedding asset portfolio management in an IOC provides a key lever to enhance performance. But it requires a dedicated process, with accountabilities cutting across the boundaries of the IOC’s organisational structure and allowing for bottom-up planning from field level. It leads to improved management of the whole asset portfolio – through more effectively capturing market opportunities, putting on hold or pushing producing according to specific market conditions, and divesting in a more timely and cost-effective way from unattractive areas.

*“Embedding asset portfolio management in an IOC provides a key lever to enhance performance. But it requires a dedicated process, with accountabilities cutting across the boundaries of the IOC’s organisational structure and allowing for bottom-up planning from field level.”*

**Asset Network Integration** – In clusters of assets, major benefits in terms of efficiency and cost saving come from a holistic approach. These can be pursued through asset portfolio segmentation, identifying clusters that should be managed in an integrated way. Clustering recognises the fact that not all segments have the same potential to generate synergies; and that dedicated improvement efforts achieve more than unfocused ones. It also recognises that the future of IOCs is not predicated simply on their financial efficiency: shortages and rationing of critical resources (e.g. experienced personnel, reliable service providers, key equipment) will remain a serious threat to sustained growth. Asset Network Integration addresses these issues by introducing a set of cross-asset practises to increase the rate of availability and turnover of material and immaterial capital in the most critical areas of the asset portfolio.



# Actioning APM

Putting Asset Portfolio Management into practise means moving the whole organization from an asset-based ‘silo’ view to a portfolio perspective. This is not an easy step. It requires a new approach to align corporate strategy with asset level decisions. And it calls for new working tools and practices to make this happen.

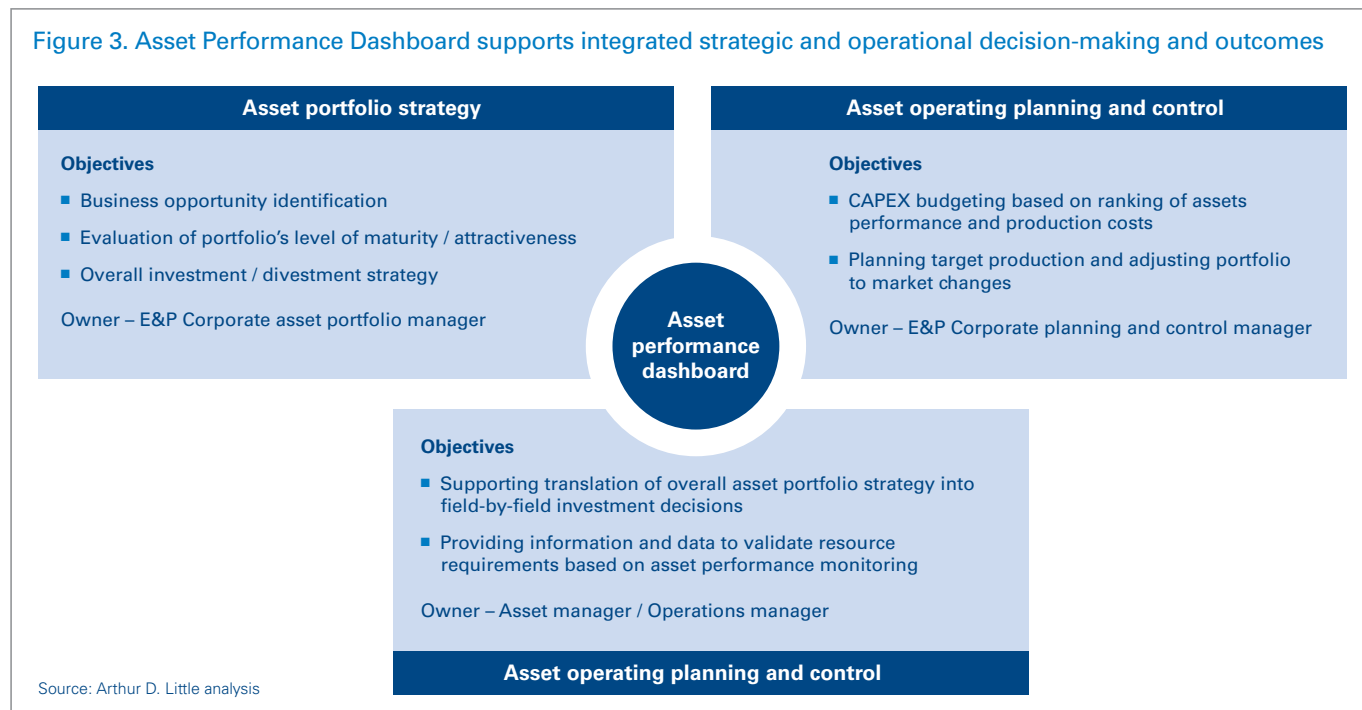
The Asset Performance Dashboard, developed by Arthur D. Little, bridges the gap between portfolio and asset perspectives by allowing asset managers to develop strategy and make business decisions – within the context of the overall portfolio management.

The Dashboard is essentially a shared information platform, which allows continuous monitoring of the asset portfolio in five crucial areas:

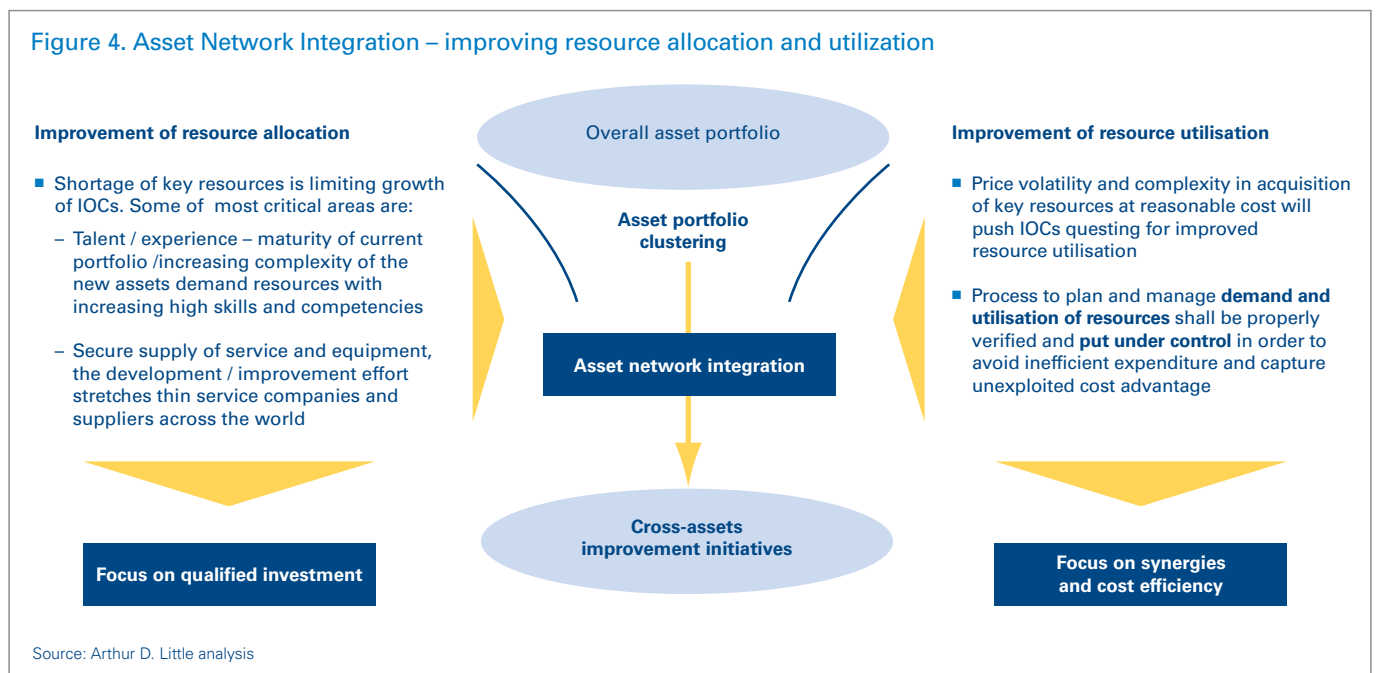
- field portfolio analysis
- portfolio performance measurement
- capex budgeting
- resource allocation
- response to market changes

It gives the key owners of asset management decisions the input they need to integrate industrial and financial results together with risks and returns, for better overall performance.

Figure 3. Asset Performance Dashboard supports integrated strategic and operational decision-making and outcomes



# ‘Launch Pads’ for ANI Implementation



Implementing Asset Network Integration is about defining a set of asset networks with two key parameters in mind: resource allocation, and resource utilization. The twin goals are to optimize the allocation of scarce available resources on qualified investment; and to squeeze synergies and cost-efficiency from operations. The focus should be on the asset networks with the most improvement potential.

In our experience, a road map of the most fertile ‘launch pads’ for Asset Network Integration in an IOC will cover:

- human resources
- purchasing
- intellectual capital
- technologies

**Human resources** actions will include defining network-wide criteria for rightsizing asset personnel, and streamlining resource allocation using a tool that manages the trade-off between sizing requirements and actual resource availability. For these purposes, networks can be categorized according to asset lifecycle phase and technical complexity.

**Purchasing** should apply an integrated supply chain management model which fosters the bundling of purchasing volumes at asset network level. In this case, networks can be identified according to their proximity to supply markets, and their time horizon for supplies (based on asset lifecycle phase and production rate).

Because of the complexity and spread of typical IOC operations, **intellectual capital** will be at its most fruitful when knowledge transfer is going on between personnel in a network of assets with common topics and operational challenges.

An asset network perspective can also lead to a more effective **technology deployment** process. Having identified networks according to asset technological complexity, location and geography, the appropriate technology strategy and deployment targets network-wide can be defined, with a centralized monitoring system, leading to improved management of deployment programmes.

# Conclusion

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IOCs need practical measures to deal with the increasingly complex challenges of delivering reserves replacement with acceptable profits.

Traditional asset based organization and asset lifecycle management systems are not sufficient for the road ahead.

IOCs should consider moving towards a more integrated and cross-asset view. This will enable them to retain a clear focus on asset performance, while – at the same time – drawing as much benefit as possible from cross-asset synergies (especially with regard to human resources, purchasing, intellectual capital and technologies).

For these purposes, IOCs will benefit from an improved Asset Performance Dashboard, integrating industrial and financial performance with risk and return, together with the definition and management of asset networks that secure synergies across specific asset segments. These tools will help to provide the necessary integration and performance control and improvement to weather the industry rollercoaster ride that may be ahead.

# Contacts

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### **Perdido Spar**

Shell Oil Perdido Spar at the Balder in the Gulf of Mexico, USA.

### **Arthur D. Little**

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