Unconventional wisdom

How leading exploration and production companies can drive superior performance in unconventional resources

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In pursuit of value creation

Unconventional resources are transforming the North American oil and gas industry, and substantially reshaping the global sector.

Over the past decade, oil production from unconventional sources increased from 10 percent to almost 50 percent of total oil production in the United States. Similarly, unconventional gas production increased from 10 percent to over 60 percent of total output in 2017. Light tight oil and shale gas have increasingly become the primary and sometimes sole focus of many independents, as well as of a substantial portion of international oil company (IOC) portfolios. Consider the significant projected share of capital expenditure in shale projects by publicly traded energy companies over the next 15 years. *(See Figure 1)*

Percent company CapEx in shale

(2016 - 2030)

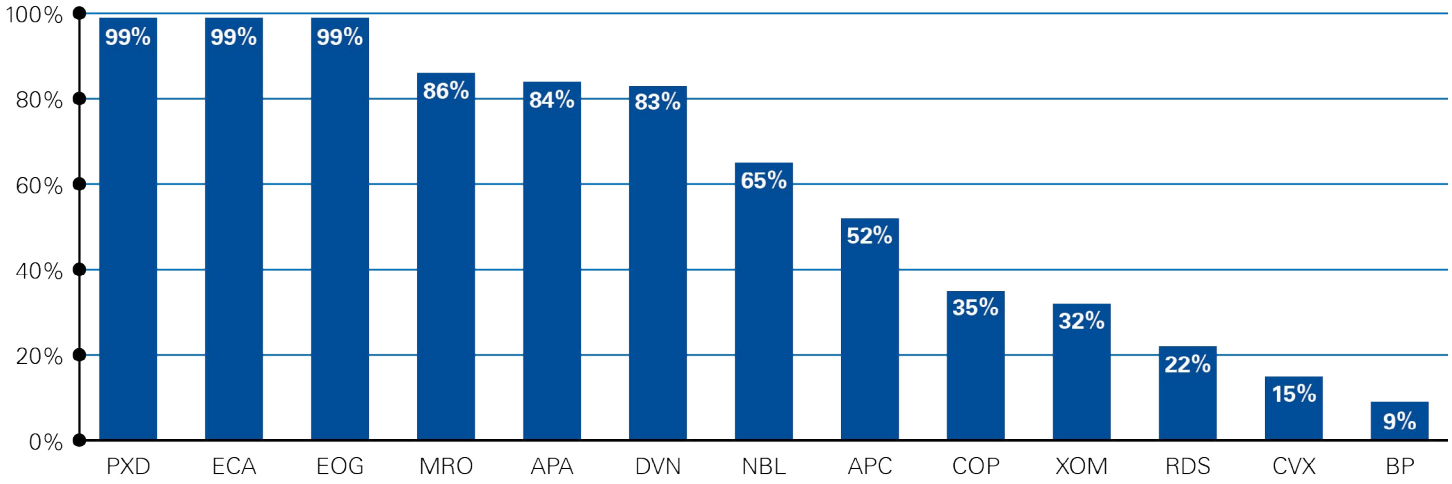


Figure one *Sources: IHS Vantage; KPMG Analysis*
Notes: (1) CAPEX is estimated net investment in new shale projects as a percentage of total Upstream spend

And yet, most industry participants are failing to achieve healthy returns on their investments in unconventional assets.

Better performance is critical in light of the current lower-for-longer price environment and more volatile commodity outlook, in addition to rising service costs and the increased transparency of comparative information across players. However, secure, sustainable and profitable growth in unconventionals has remained elusive, leaving investors to question when—if ever—the industry will demonstrate the ability to provide healthy cash flow returns.

Shale-focused exploration and production companies (E&Ps) have struggled over the past five years to generate the cash return levels required to maintain or extend asset bases. Figure 2 highlights the shortfall between quarterly operating cash flow and capital expenditures for the largest 44 publicly traded U.S. onshore-focused E&Ps. It is worth noting that counter to some prevailing beliefs, the industry was struggling to generate positive free cash flow well before commodity prices started crashing at the end of 2014.

The inability to generate sufficient internal cash flow has forced industry participants to seek outside sources of funding for continued capital investment.

The same 44 publically traded U.S. E&Ps raised $111.3 billion through significant new debt, asset sales, and equity issuances over the same five-year period, looking to offset the multi-billion difference between the cost of developing these unconventional wells and the cash flow that has come in. *(See Figure 3)*

While the companies making these investments are undoubtedly doing so with a favorable outlook of the full cycle returns and belief of improving cash flow profile, it begs the question, how much longer will investors be willing to freely fund these cash flow-negative growth agendas?

Sources and uses of cash for U.S. onshore-focused E&Ps[1]

(2012 – 2016)

CAPEX vs. Operating cash flow ($B)

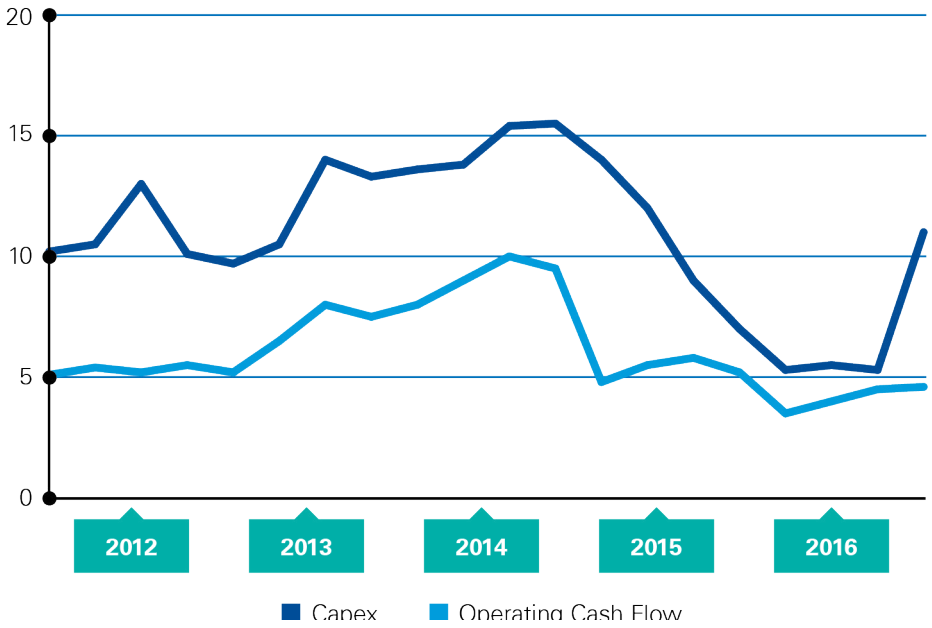


Figure two *Sources: U.S. Energy Information Administration, based on Evaluate Energy*
Notes: (1) Data consists of 44 publicly traded, U.S. onshore-focused E&Ps

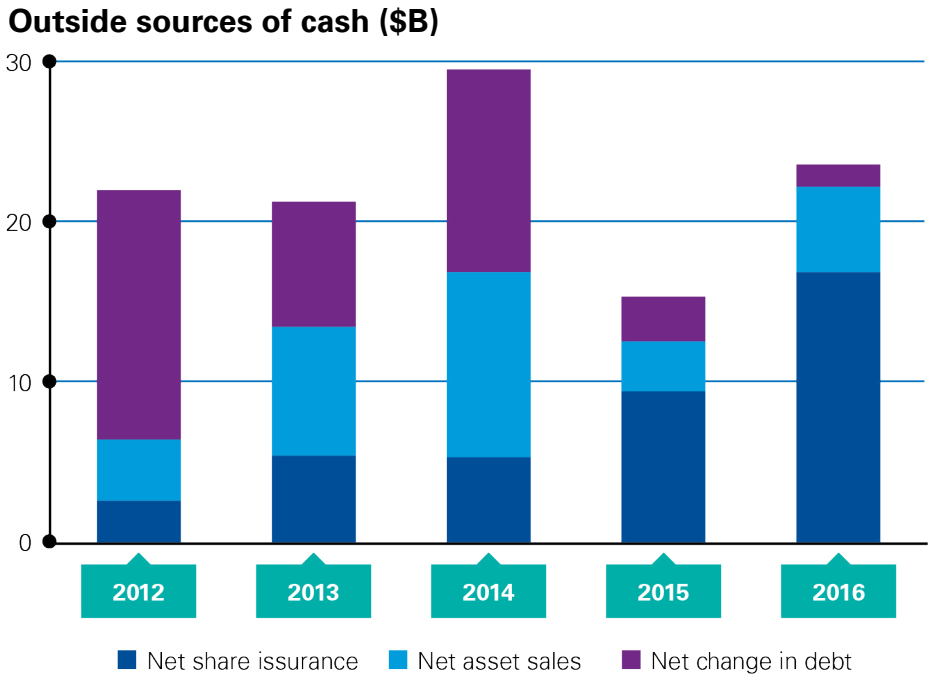


Figure three *Sources: U.S. Energy Information Administration, based on Evaluate Energy*
Notes: (1) Data consists of 44 publicly traded, U.S. onshore-focused E&Ps

A further look at the capital efficiency of leading unconventional-focused E&Ps highlights that the industry is failing to deliver acceptable returns.

Capital efficiency of independent E&Ps[1] ROCE
(2012-2016)

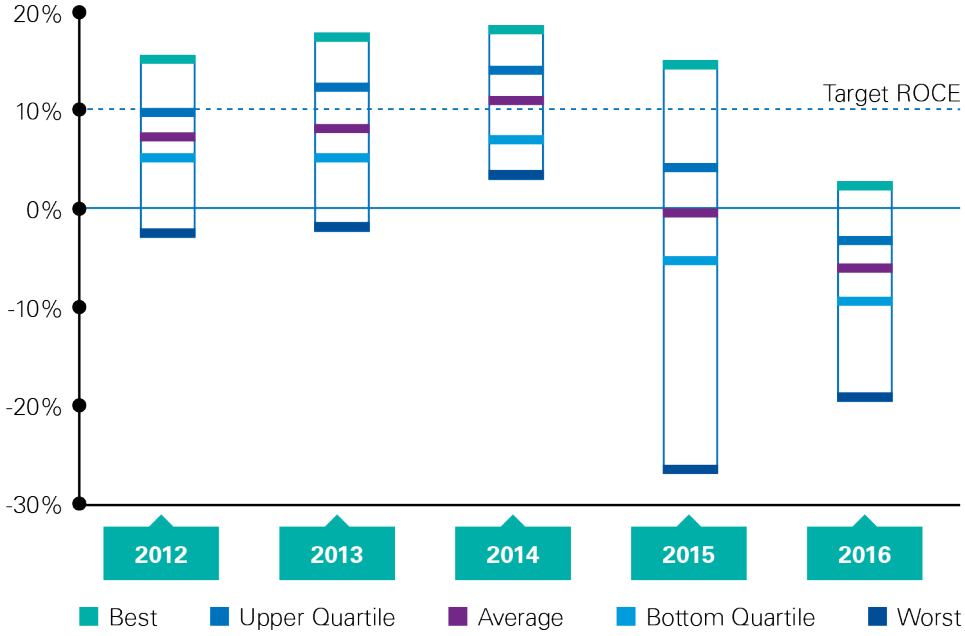
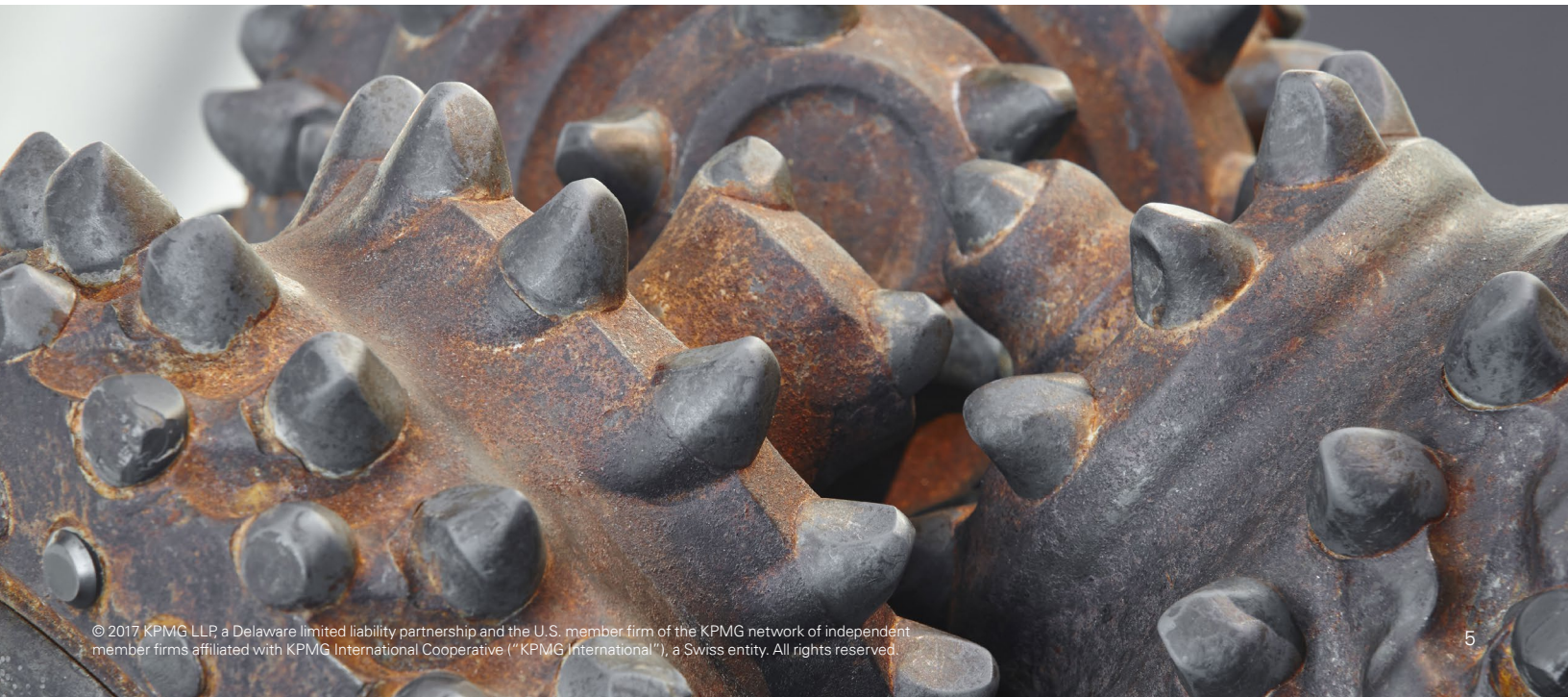


Figure four *Note (1): Analysis conducted on 17 of the largest independent shale producers*
Source: CAP IQ

The industry's ability to meet a 10 percent return on capital employed (ROCE), a common benchmark for investors, has declined in recent years. In 2016, seventeen of the largest independent E&P shale producers didn't meet the target at all.

The capital efficiency trend also highlights a wide differential between the best and lowest performers. While some of this performance variance is undoubtedly due to different acreage quality, companies employing more agile management approaches are able to make better decisions, and thus direct capital to achieve higher returns.

Achieving such agility, however, first requires appreciating the typical E&P company challenges to doing so.



The biggest pain point: capital allocation

The requirements for successfully managing an unconventional business are quite different than for a conventional asset.

Unlike conventional projects where the path from exploration to production is typically locked down, unconventionals allow a significant degree of optionality. Companies can ramp production up (and down) quickly, shift resources across basins, and learn and respond to changing prices as well as new commercial and technical information.

This flexibility presents both an opportunity and a challenge. Most E&P companies are simply not built to move quickly, make and revisit capital and resource allocation decisions frequently, and forecast and report accurately without significant process and tool work-arounds, resulting in stress on the organization.

Most oil and gas companies have deep-seated management practices developed over many decades to effectively manage complex mega projects.

These heritage management practices, which involve optimizing a smaller number of higher-risk decisions, do not meet the needs of the new, more dynamic unconventional asset class requiring a higher number of smaller-scope and risk decisions.

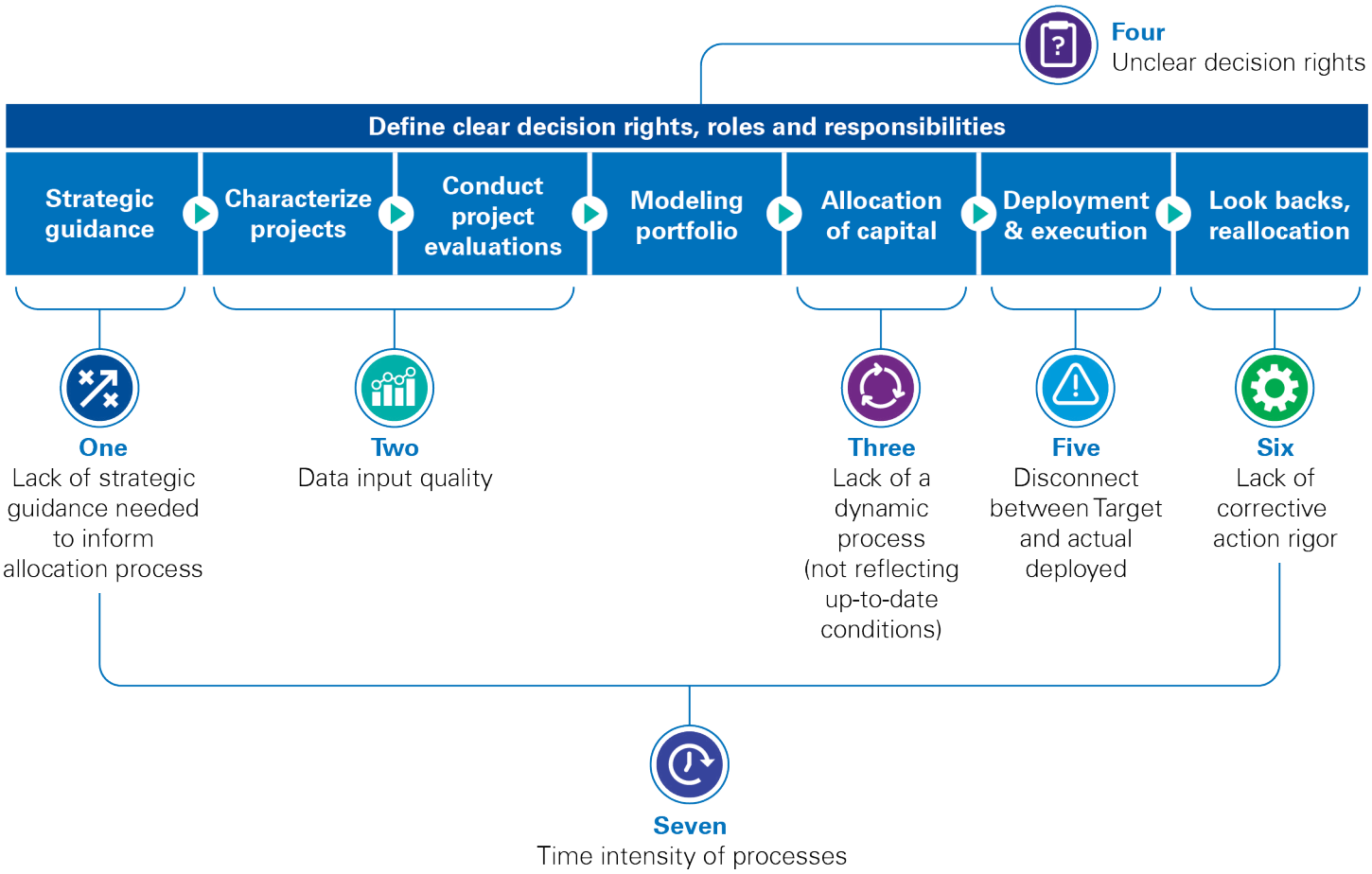
Further, the tools and processes to plan, measure impact and course correct capital are inadequate. The issue becomes even more complicated for companies trying to manage both traditional and unconventional assets, and how best to use available processes to make optimal investment trade-off decisions.

New technology alone isn't the answer.

While many E&P companies have deployed updated planning tools and software to address these issues, they still haven't achieved the improvements anticipated, and even worse, a broader set of challenges emerged when they tried to plug these new tools into existing operating models.

For example, one of our clients adopted a very advanced portfolio modeling tool to try to enhance their ability to model and allocate capital to drive higher ROI. But instead of seeing improved capital results, performance actually deteriorated. After diagnosing the situation, broader, more systemic issues came to light, including data quality problems, a disconnect between target spend and where capital was actually deployed, and a very burdensome and lengthy overall planning process.

Typical capital management issues



While most players are addressing these issues ad hoc, an integrated approach is critical for maximum, differentiated performance.

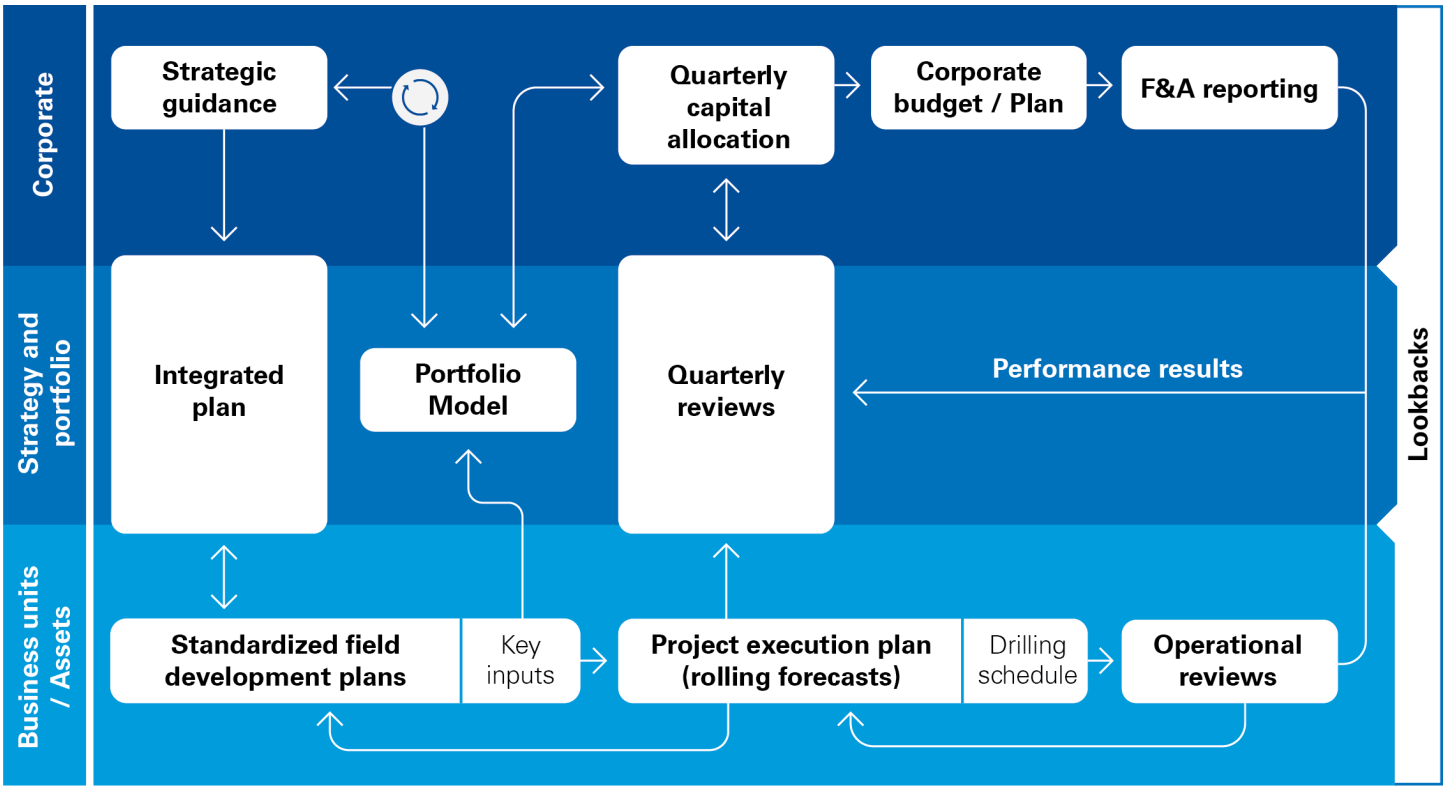
Introducing the integrated planning process model

To achieve healthy returns in unconventionals, E&Ps need to fundamentally address all key management processes.

Though capital allocation is certainly at the heart of the unconventional performance challenge, there are a number of interrelated management processes that drive either critical inputs, or translate decisions to action. To truly achieve the agility that is required to drive performance, E&Ps will need to take a systemic approach to improving all management practices.

Holistically, this approach results in replacing the traditional annual planning cycle with a more dynamic approach: the integrated planning process model.

Integrated planning process model



The model regears all planning processes—from strategy and asset planning, to capital allocation, budgeting and business performance management—to be more dynamic for unconventionals, and then syncs them together in one streamlined, connected and reinforcing system. Assets and corporate planning activities become fully aligned, often connecting through a central strategy and portfolio team. Further, the processes utilize common data inputs and are optimally sequenced to eliminate redundancies.

An integrated planning process model fosters more frequent and better decision-making through the following:

High-level scenario modeling without requiring significant asset involvement

Increased inclusion of standardized inputs and competitor data for setting targets

Optimization of different planning activities at the appropriate intervals (e.g., monthly, quarterly, annually)

A "line of sight" into asset performance, with a focus on value metrics

More standardized data and increased accessibility of data across the organization

More rigor around conducting program lookbacks and reappraisals

While adopting the integrated planning model and fixing the associated processes is a significant first step in the right direction, participants will need to also address the other non-process elements of their operating model to ensure a sustainable, reinforcing solution.

Aligning the operating model for an unconventional business

To achieve a sustainable, step change improvement, companies must align the operating model around the new processes.

Organizations must address other operating model elements to experience the better performance promised by redesigned processes. When they ignore these additional elements (the focus and agenda for key management forums, individual and team roles, organization structure, information flows and systems, metrics and incentives, etc.), process breakdowns occur, leading to process and tool work-arounds, and organizations struggle to make timely and accurate decisions and take corrective actions.

In contrast, a more dynamic operating model includes a separation of short- and long-term planning roles, focusing the "center" on strategy and the asset teams on execution. It also includes a performance management system customized to the unconventional business, supported by strong market intelligence capability enabled by the extensive amount of information and data available in the segment. Finally, a successful operating model enables the right level of collaboration across the organization, and balance between asset teams and functions.

Future state operating model

Governance
New process model requires increased clarity of decision rights due to shared information, increased collaboration, as well as segmented organizational roles

Metrics and incentives
A common view of value drivers and performance objectives; cascading metrics through the organization fostering "line of sight" and stewardship; competitive comparisons

Management processes
A defined, integrated, dynamic and well understood process model; quarterly cycle, which allows more frequent plan updates with more forward-looking information

Roles and structure
Well-defined roles in a streamlined, fit-for-purpose structure that is aligned with new process model; elimination of duplication of work tasks; clear accountabilities

Information flow and tools
System architecture tailored to accommodate unconventional requirements; standardized and accessible information; common tools with less manual work-arounds; robust management of change

Behaviors and culture
Adherence to agreed-upon behavioral norms and standards reflecting heightened speed and quality of decisions; increased collaboration and transparency across organization

Summary

The unconventional resources asset class is unsustainable as long as capital investment to pursue new sources far outweighs cash flow returns.

The traditional E&P operating model is not designed to respond to or take advantage of the optionality inherent in unconventionals, but it can be adjusted.

A key step is introducing a more dynamic integrated planning process along with a larger operating model shift. As a result, organizations are better able to manage the optionality and short cycles of the unconventional asset class, course correct more quickly, and have the flexibility to respond to market, technology and price changes.

The E&Ps that shift to the new model more quickly than their peers will reap the rewards of differentiated performance, and investors will take note.

Case studies

KPMG Strategy has helped both independents and larger IOCs with redesigning their management models to be tailored for unconventionals. While the target destination is similar, both are coming from different, albeit equally challenged, starting points. Here's how KPMG supported two companies on their transformational journeys:

1 An independent E&P introduces integrated planning for better execution

Independent E&Ps have historically managed through "local" planning activities and a decentralized structure, leveraging speed and agility to achieve value. However, this approach lacks the sophistication and enterprise-wide view necessary to optimize the entire portfolio in order to achieve an advantage in unconventionals.

Executives from one unconventionals-focused E&P wanted to enhance how they managed their business to drive differentiated performance. Like many upstream companies that suffered during commodity price downturn, this company was looking to improve across all key performance metrics: financial, capital and operational.

KPMG conducted a foundational assessment of the company's full suite of planning activities, including strategic, corporate, asset and performance management.

"After fixing your portfolio and balance sheet, it's all about execution," the CEO said, "and today, superb planning is what drives superb execution."

We found that the company had several issues across all planning processes, such as inconsistent data quality, technology misuse, weak accountability measures, suboptimal communications, cultural challenges, and more.

KPMG helped the E&P develop a custom integrated planning model that incorporated both their unconventional and conventional major projects, and then helped launch a detailed design and implementation program to move the company toward the new model.

With the new model in place, the E&P can now make apples-to-apples comparisons of project opportunities across assets and seamlessly sync its strategy, capital and execution plans. The company also is more agile to respond to the changing environment and can leverage key meetings to review its performance and course correct.

2 A global IOC sheds complexity to compete with unconventional-focused independents

IOCs have developed very refined and mature management and functional processes, and evolved them over the years to support mega projects and conventional plays. Yet these same processes, successful in their historic context, are not dynamic or efficient enough to drive the unconventional business.

That was the discovery for one mega major which had historically been highly successful in delivering first-of-their-kind mega oil and gas projects. However, the significant bureaucracy, support service cost burdens, risk protocols, and other issues inherent in larger global major oil and gas companies made it difficult to profitably compete with more nimble unconventional resource-focused independents.

"The game is still about capital, but the rules have changed," said a company executive vice president. "We need to develop dynamic plans that compete with conventional projects, while retaining optionality."

KPMG helped the company develop a blue sky vision of a leading integrated management process by leveraging our in-depth transformational experience creating and customizing unconventional management systems for a cross-section of clients. We also helped establish a game plan to simplify and transform the company's processes, tools and organization.

As a result, the company addressed some of the complexity challenges, such as by standing up a central planning team to better focus the business unit on achieving profitable returns, alleviating the assets from overly bureaucratic administrative burdens, and eliminating unnecessary protocols.

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Andy is the service line leader of KPMG Energy, Natural Resources, and Chemicals strategy group with over 35 years of energy experience. Andy has extensive experience leading transformational programs - including multiple programs catalyzed by drivers such as client portfolio and investment shifts toward unconventional assets, or unconventional business performance shortfalls.

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