Strategic portfolio management

Applying a capabilities lens to manage the E&P portfolio

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About the authors

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Executive summary

With oil prices stuck at low levels for the foreseeable future, exploration and production (E&P) companies must increase their productivity. Some E&P companies have already shown they can do this, driving up their production even as their capital spending has declined. Others have had a harder time, a fact reflected in their falling production numbers.

As E&P companies adjust to the new price environment, they could benefit from strategic portfolio management. Strategic portfolio management is a framework in which analytical tools and a set of clearly defined ongoing meetings are used to identify which assets, programs, and wells E&P companies should invest in. It encourages companies to make all of their decisions using a capabilities lens. At a time of severe capital constraints, strategic portfolio management keeps E&P companies on track by doubling as a control mechanism and a significant booster of performance.

Low prices require a new approach

Oil prices have declined by nearly 60 percent since the summer of 2014 — a crash caused by a supply–demand imbalance that has often exceeded a million barrels a day. Oil prices got a reprieve of sorts early in 2016, recovering from their lows in the mid-US$20s. But the fundamentals of the market suggest that oil prices will probably stay low for years.

Unconventional exploration and production (E&P) companies have responded to the lower prices by drastically reducing their capital spending plans and exiting or divesting noncore assets. As of mid-2016, the capital spending plans of medium to large E&P companies had declined by 65 percent from their November 2014 peak. North American rig activity was down by 79 percent over the same period.

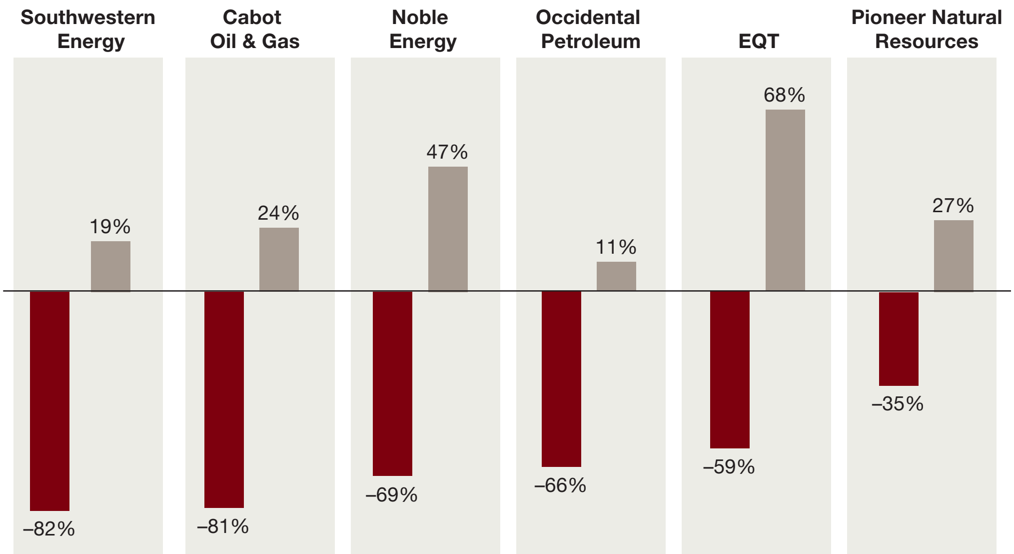
The lower prices have led to a focus on capital deployment, and productivity in the E&P industry as a whole has started to improve. But the productivity gains haven't been achieved by every company. Some companies have done a better job of adapting to the low capital environment than others, as shown in *Exhibit 1, next page,* which compares 13 companies with significant North American exposure that appear in the database of research firm Global Data.

A discipline that every E&P company should be looking at during this time of low oil prices is strategic portfolio management, which ensures that all critical decisions tie back to the company's overarching corporate strategy and differentiating capabilities (*see Exhibit 2, page 7*). Strategic portfolio management helps E&P companies address four common problems. The first is a misalignment between strategy and everyday capital allocation. Many E&P companies excel at allocating capital at the well level. But the capabilities they invest in often aren't aligned with their corporate strategies, and don't fit either the basins where they operate or their management models.

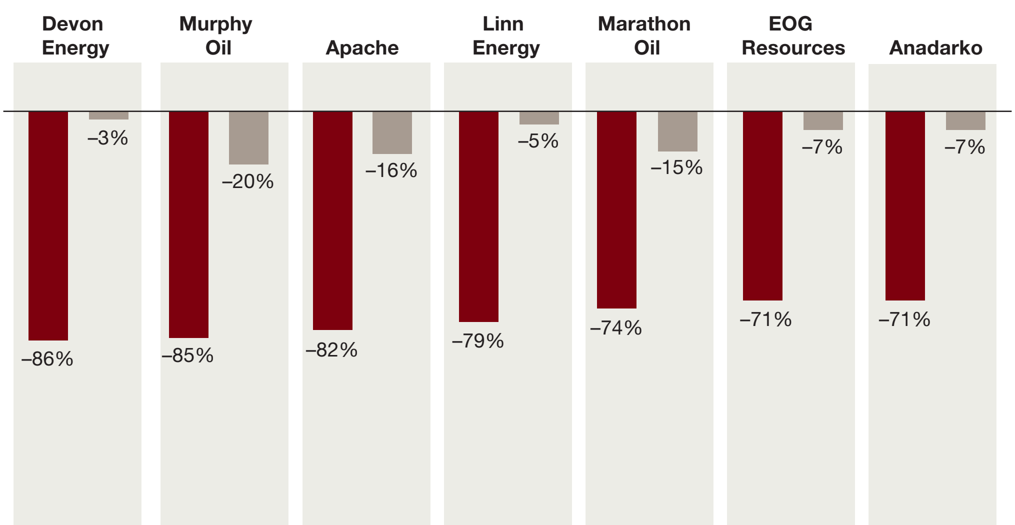
A second problem in the E&P industry is an inability to quickly adapt to market changes, which often results from vague decision rights and faulty capital reallocation processes. A third problem is a lack of

Exhibit 1
Deploying capital

Companies whose production has increased



Companies whose production has fallen



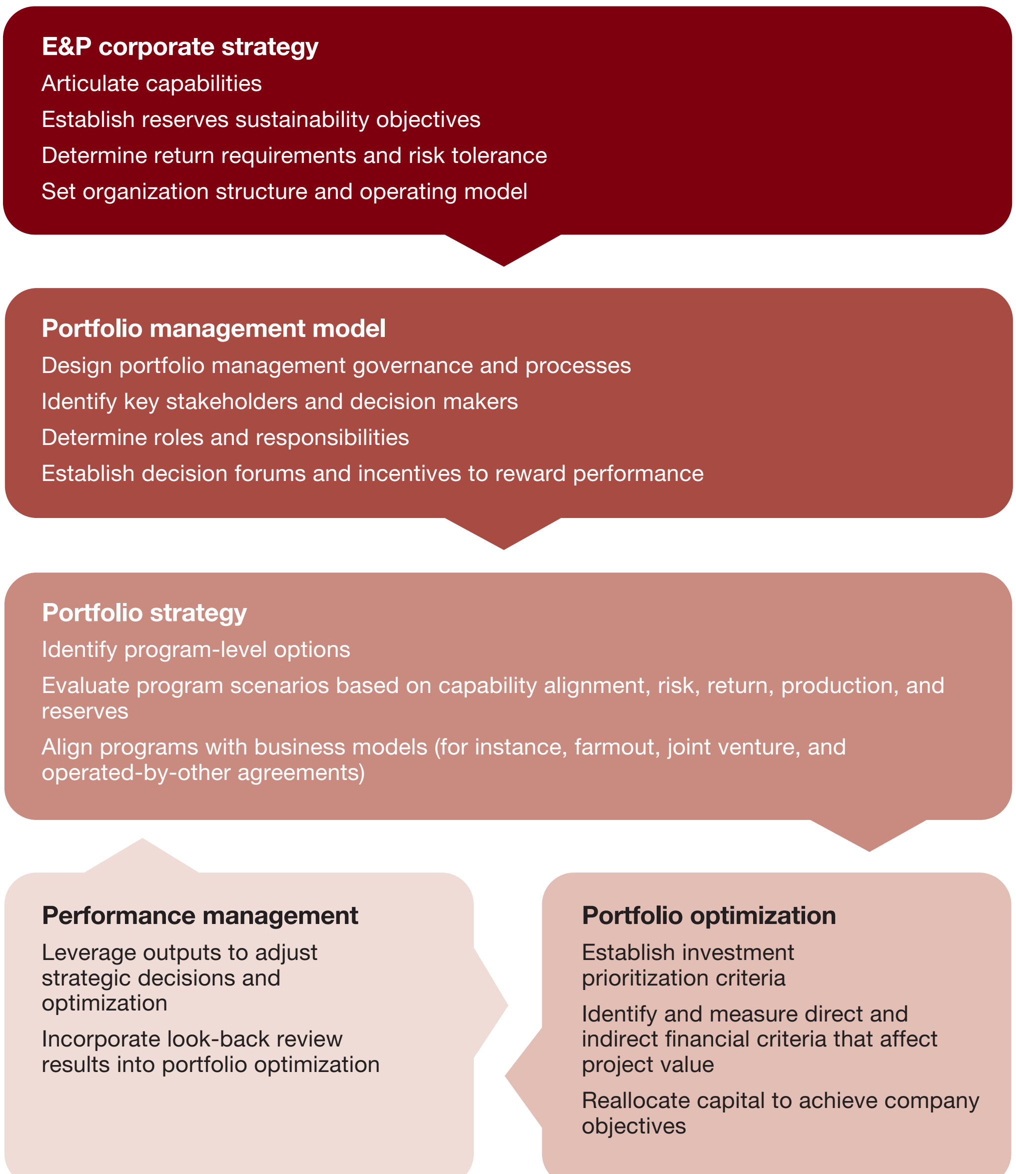
Decline in capital spend (2016 guidance vs. 2014) Weighted average –70%

Change in production (Q2 2016 guidance vs Q2 2014) Weighted average 0%

Note: Capital guidance reflects top of range provided by companies. Includes company merger, disposition, and acquisition activity.

Source: GlobalData benchmarking; S&P Capital IQ; SEC filings; E&P investor communications; Strategy& analysis

Exhibit 2
Strategic portfolio management components



Source: Strategy& analysis

visibility into well expenses — E&P companies typically distribute costs at a field or basin level, which restricts their ability to act on costs. And the fourth problem is isolated performance management, which has to do with an E&P company's tendency to evaluate assets inconsistently, using different standards for different business units depending on their operations and structure.

E&P corporate strategy

The first step to effectively manage the E&P portfolio is to articulate a clear overall strategy. This is the long-term approach that the company will take to maintain and enhance its enterprise value. "Long term" in this case means three to 10 years, though the strategy should be looked at annually and adjusted in response to external and internal developments.

Broadly speaking, there are three strategies (or ways to play) that E&P companies can follow. They can be Explorers, taking early-stage risks. They can be Developers, establishing the initial cash flow from proven reserves. Or they can be Exploiters/Harvesters, using optimization and other techniques to extend the life of wells whose production has declined. In practice, E&P companies rarely limit themselves to one of these ways to play; usually they do a combination of them. Often, though, the companies' strategies are weighted more toward one way to play than the others.

The factors that determine which strategy an E&P company is best positioned to succeed with, and how it should pursue that strategy, include the following.

The company's differentiating capabilities. Few companies can do it all — explore in both onshore and ultra-deepwater settings, work across the range of hydrocarbon types, and excel in every part of the life cycle (from exploration to appraisal to development). Most companies are better off doing a self-assessment of their capabilities — that is, of their differentiating knowledge, skills, processes, tools, and systems — and using the results to fine-tune their strategies. For instance, an E&P company that has strong capabilities in the area of project delivery — leveraging lean manufacturing principles to manage well inventory, and working with suppliers to deliver projects that meet agreed-on cost, schedule, and quality goals — would have considerable strength as a Developer. A company with strong capabilities in recovery (perhaps through its use of advanced production optimization techniques such as recompletion, gas injection, and pressure pumping control) would want to concentrate on being an Exploiter/Harvester. And a company with particularly strong geological, geophysical, and reservoir characterization skills would want to operate in large part as an Explorer.

The company's goal for reserves and production sustainability. Although the focus has shifted from reserves to production as oil prices have declined, companies still have volume and reserves replacement goals. A good corporate strategy will articulate the product and reserves replacement objective, enabling the company to determine the level of short-term production needed to meet longer-term plans.

The company's risk tolerance and its goal for return on capital. The return on capital that E&P companies see themselves as needing can be used to guide the projects they fund, the areas of business development they go into, and their moves in the area of mergers, dispositions, and acquisitions. The Explorer, Developer, and Exploiter/Harvester strategies have different success factors and hurdle rates associated with them.

Portfolio management model

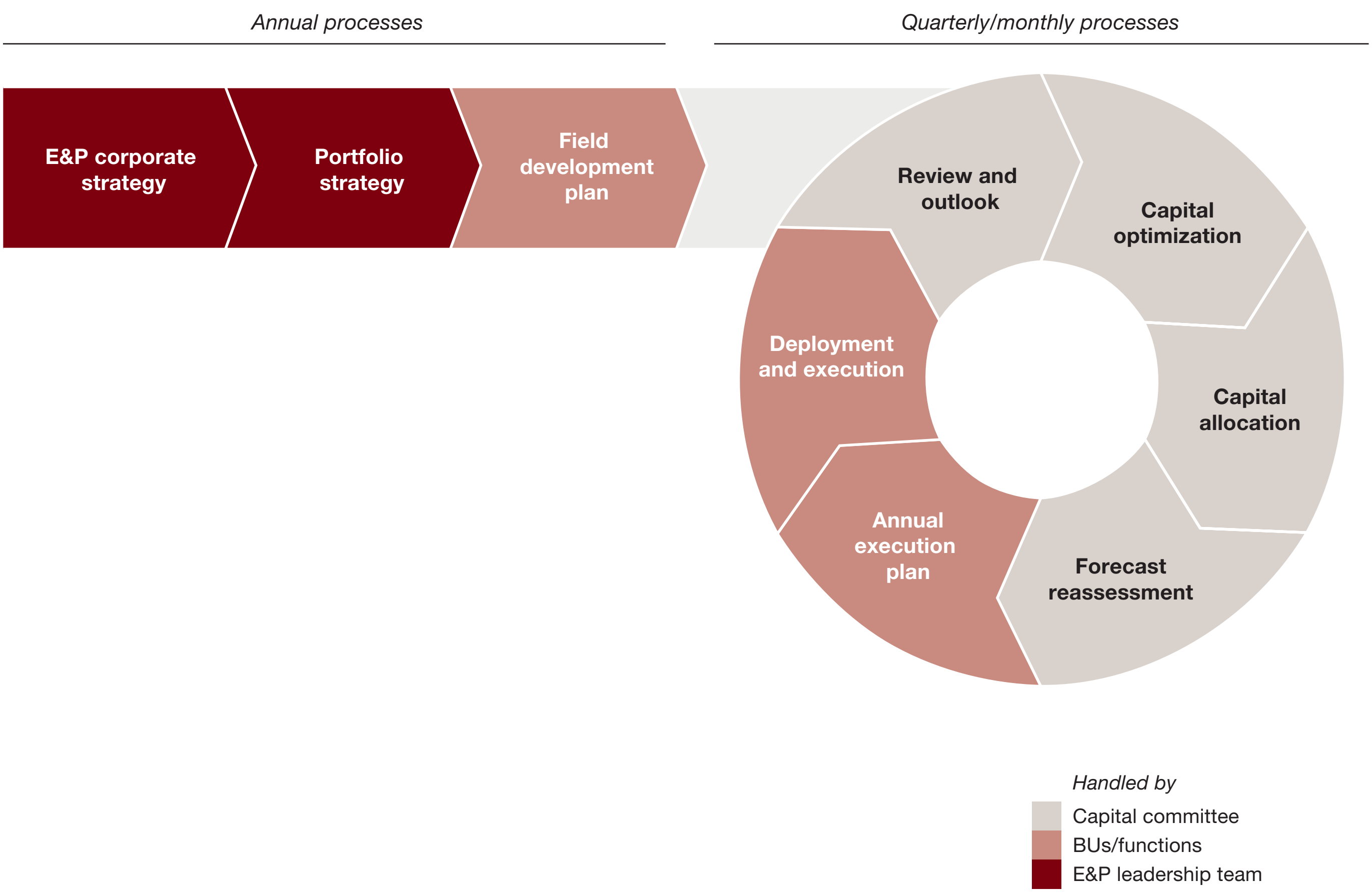
How can E&P companies be sure they are making the right decisions and moving toward improved productivity? The best way is by implementing a portfolio management model. This is an interconnected set of meetings, workshops, and decision forums that happen at predefined times, usually in a preset order, with a carefully selected set of management or executive participants (*see Exhibit 3, next page*).

When executed correctly, a portfolio management model aligns enterprise strategy, portfolio strategy, business planning, and forecasting. It puts the onus on business units to achieve agreed-on targets. Meanwhile, a senior committee remains in charge of corporate and portfolio strategy decisions. This clear division of responsibilities keeps capital decisions aligned with operational data.

Another important part of the portfolio management model is the use of retrospective and prospective data through look-back review and outlook sessions. These forums are efforts to analyze deviations from initial cost plans, schedules, and production volumes. E&P companies certainly do look-backs, but most of them don't systematically adjust capital allocation decisions and apply what they learn in one operating unit across the enterprise. Incentives tied to look-back findings (with the findings triggering financial bonuses for good performance) can lead to more effective use of this important control mechanism.

Another discipline that should be part of the management model is portfolio optimization, which allows for capital resources to be reallocated dynamically in response to external conditions.

Exhibit 3
E&P management model



Source: Strategy& analysis

Portfolio strategy

What assets should you have in the first place? To what extent do your existing assets match your capabilities? And is your portfolio progressing as you want it to?

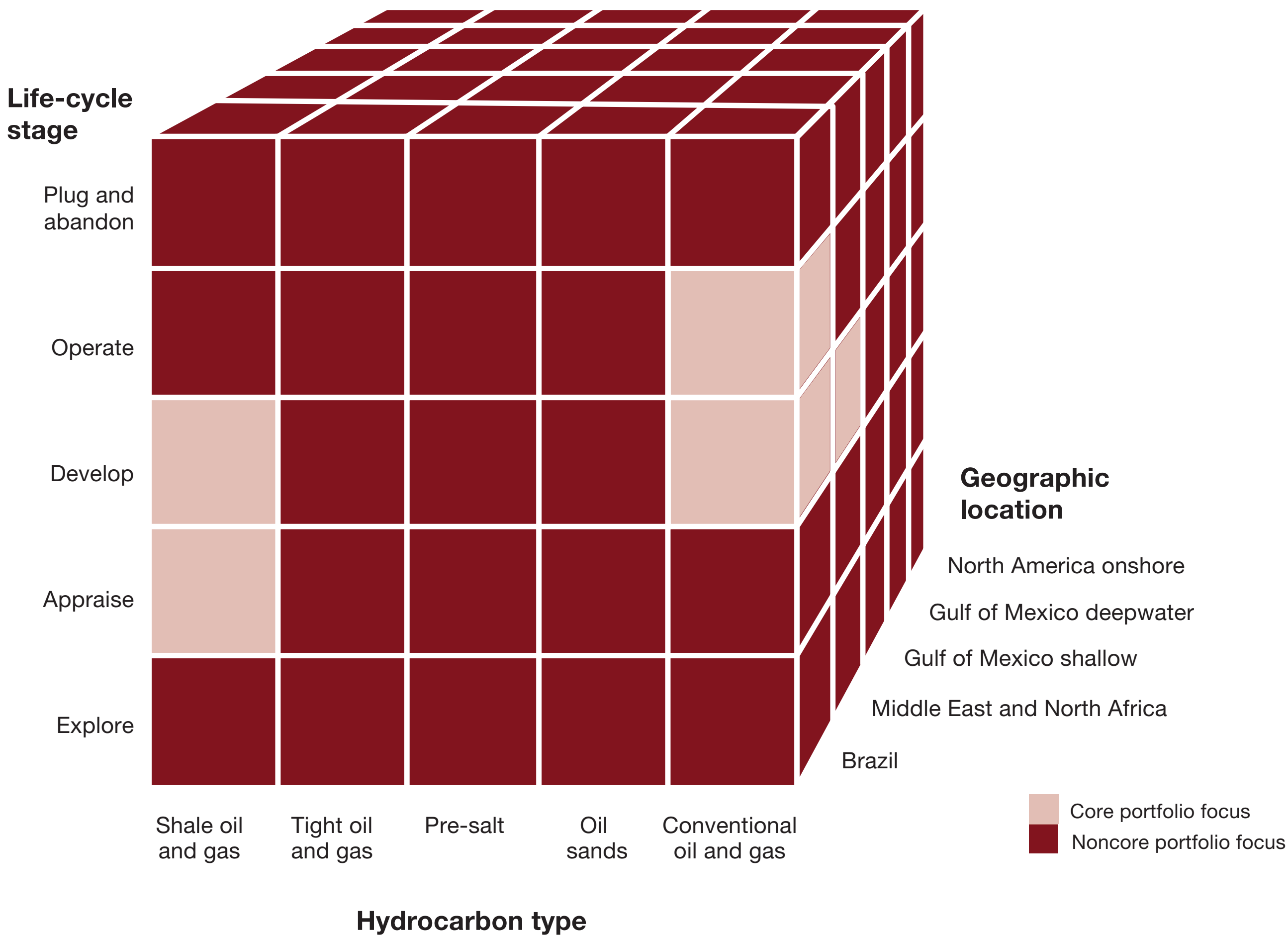
Portfolio strategy is about ensuring that the assets a company holds make sense given the company's capabilities and how it has defined its future. When Occidental Petroleum exited the Bakken shale formation in North Dakota in late 2015 through an asset sale, it was a strategic portfolio decision — namely, that the Bakken no longer made sense in the company's portfolio. Occidental wanted to concentrate on its holdings in the Permian Basin, which has grown to 120,000 barrels of oil equivalent per day and where Occidental can make a profit even with oil prices below $50 a barrel.

Geographic location, hydrocarbon type, life-cycle stage — these are the common elements of a portfolio "cube" that defines a company's desired positions (*see Exhibit 4, next page*). The options should also be looked at for the contribution they might make to the company's cash flow, production, and reserve levels.

Together, these inputs enable informed capital decisions that are aligned to a company's near- and long-term strategies. Management can then make informed decisions about where the company should grow (that is, drill additional wells), increase efficiency (output per dollar invested), or divest (sell noncore assets). All things being equal, if the assets are a clear fit with the company's differentiating capabilities the company will operate the assets itself. Where there is less capability alignment, the company might opt to work through farmouts, joint ventures, or nonoperator agreements.

Strategy& has worked with multiple E&P companies to make investment and operating decisions at the program or basin level. It usually makes sense to review portfolio strategy annually in order to keep it aligned with corporate strategy and external factors.

Exhibit 4
Portfolio strategy dimensions (illustrative)



Source: Strategy& analysis

Portfolio optimization

If portfolio strategy speaks to the pieces a company should have at a macro level, portfolio optimization is about what to do with those pieces.

For instance, an E&P company that has decided that a big part of its future lies in operating shale oil wells in North America after they have passed their peak levels of production (a macro-level decision) still has to make hundreds of decisions at the individual well or well-type level. Maybe there's a threat of new regulation in a U.S. state that could disrupt production at certain wells. Or maybe there have been organizational or leadership changes at an otherwise promising business unit, and the unit needs time to straighten itself out. Developments like these can become inputs in capital allocation decisions.

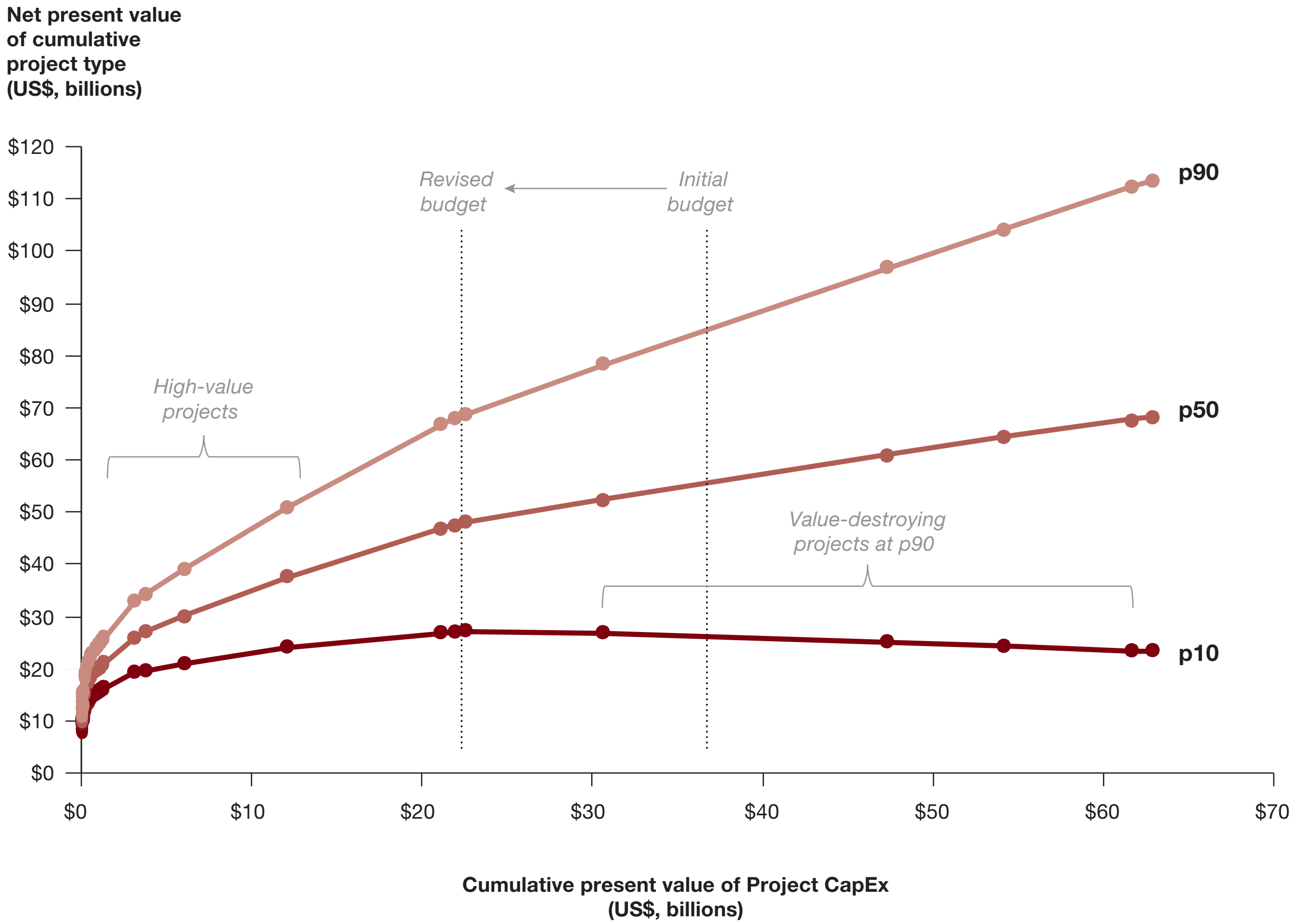
Behind portfolio optimization is the idea that, in a world of finite capital, E&P projects must constantly compete for funding. An effective portfolio optimization process — whether done on a monthly or quarterly basis — pushes capital toward the projects that have the best chance of increasing enterprise value.

In portfolio optimization, the economic inputs are both direct and indirect. Direct inputs use information like expected daily production volume and oil prices to calculate cash flow. Indirect inputs take judgments about external and internal risks and option value, and translate them into economic impact. Take the example above about the outlook for oil production in a state considering tighter regulation. The probability of the new regulation passing, and the economic impact of the project delays that would result, can be translated into a numerical input. In another situation — for instance, where a set of unconventional assets has a superior record of safety and reliability — an assessment of the risks could make a project or well look more attractive.

The value of doing these calculations is captured in *Exhibit 5, next page,* which plots three present value curves — from the most optimistic (p90) to the most conservative (p10) — against available capital. Even if the amount of available capital is revised downward (represented by the

Exhibit 5

Capital allocation risked funding curves (illustrative)



Source: Strategy& analysis

shift of the dotted vertical line to the left), it's easy to see which projects still make economic sense. (The projects are represented by the dots on each of the lines.)

Portfolio optimization analytics are not intended to determine exact capital allocation decisions. Instead, they provide an economic context for considering other factors and scenarios. For example, maybe a lease giving the company the right to drill is expiring, making it suboptimal to keep drilling an otherwise highly productive group of wells. Or maybe there is a contingent investment, such as the construction of a multi-well pad, without which the wells would not be as profitable. Cash flow requirements are another common factor that can influence an E&P company's investment decisions. It is not usually one thing; multiple criteria form the basis of a robust discussion about where the company should put its capital over the next month or quarter.

Performance management

Performance management refers to an E&P company's efforts to assess the performance of its portfolio and of individual wells that have been funded. These assets need to be monitored and their results used as inputs in the company's capital allocation decisions. The performance criteria should be directly linked to the portfolio strategy and the optimization objectives, and have the following attributes:

- Be based on observable project results
- Be numerically measurable and consistent across operating units
- Be assignable to a person or group accountable for their delivery

Performance review and outlook meetings serve a couple of purposes. One is to identify any deviation from a production or operating goal and determine a course of corrective action. Among other things, this means figuring out a recovery plan — what a well or business unit must do differently in order to achieve a desired level of performance. Review and outlook meetings should be forward-looking, not backward-looking. At E&P companies that do performance management effectively, review and outlook meetings precede portfolio strategy and optimization meetings, allowing companies to do a better job of allocating their capital. Only necessary meetings get scheduled, and only participants who are essential are invited (*see Exhibit 6, next page*). As a result, the meetings are less apt to be dog and pony shows and more likely to focus on lessons learned and remedial tactics and strategies.

Exhibit 6
Performance management

Objective of meeting	Capital committee	COO	SVP	BU VPs	Functional VPs	Directors and managers
	Who attends					
Executive status review (weekly) Review progress of corporate programs and assign remedial actions as needed		●	●			
E&P status review (weekly) Review performance of operations and key programs (e.g., rig lines, facilities) and assign remedial actions as necessary			●	●	●	
E&P performance review (monthly) Benchmark peers on performance, project cost and schedule, and operating cost; assign responsibility for corrective actions as needed			●	●	●	
BU review and outlook (quarterly) Review quarterly business performance vs. plan, identify opportunities and threats, and assign responsibility for course corrective actions as an input to portfolio optimization			●	●	●	●
Portfolio optimization (quarterly) Reallocate capital based on asset performance, investment readiness, and market analysis	●	●	●			
Corporate and portfolio strategy review (annual) Review 12-to-24-month strategy and plans in light of market fundamentals and modify as necessary. Use results to directly determine performance incentives and role promotions/demotions	●	●	●	●		

Source: Strategy& analysis

Conclusion

In an industry as capital-dependent as oil exploration and production, there is a tremendous advantage in an approach that ensures a company gets the most from its invested capital. Strategic portfolio management is such an approach, helping companies avoid overinvesting in bad assets and underinvesting in good ones. Depending on an E&P company's maturity, strategic portfolio management could increase the company's production by 10 to 20 percent while reducing capital/development costs by as much as 10 percent. Its potential impact on companies' earnings and production is significant.

The discipline needed for strategic portfolio management might not be necessary in a world of $100-per-barrel oil. But those days are gone, and they're not coming back anytime soon.

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