

MANAGING THE BARREL

THE ROLE OF SUPPORT FUNCTIONS IN UPSTREAM VALUE CREATION

By Paul Goydan and Henning Streubel

SUPPORT FUNCTIONS IN THE oil and gas industry are under increasing pressure to be more flexible (in order to meet changes in internal customer demand) and to be more competitive (across all price and margin environments). “High prices hide a lot of sins” is an old oil business adage. When margins are high, companies tend to expand their support functions, and the focus of these functions becomes meeting customer demand, not cost-effectiveness. When prices drop or margins tighten, optimizing support functions becomes critical. This is especially the case today in North American upstream natural gas where the boom in unconventional resources is pushing prices below five dollars per million British thermal units (MMBtu).

Based on BCG’s experience, support functions—such as supply chain (logistics, warehousing, procurement, and materials management); technology (technical computing, field digitization); health, environment, and safety (HES); human resources; and finance—can constitute anywhere between 10 and 45 percent of operating ex-

pense per barrel of oil equivalent (BOE) and can contribute to escalating capital costs. Optimizing these functions can readily add one to two dollars per BOE to earnings and dramatically increase the effectiveness with which these support functions serve internal customers.

A high-price environment can drive up overall activity levels—putting a strain on people, contractors, and supply chains. (See, for example, “A Brighter Future for Sunset Assets: Unlocking the Value of Mature Oil and Gas Fields,” BCG article, June 2012.) With less focus on efficiency and effectiveness, significant value can be left on the table, and costs can be pushed beyond sustainable levels. In addition, in this environment, it is challenging for the providers of support functions (“support groups”) to productively engage with their internal customers—such as operations, capital projects, and field development teams—in order to solve business problems. Similarly, the emergence of lower-margin unconventional oil and gas plays—in which earnings per BOE may be one-half to one-third of

those in a typical deepwater development—makes it imperative that support groups work seamlessly with their internal customers to refocus on reducing costs in order to maintain competitive returns.

Thus across the oil and gas industry, support groups must move from high-cost, high-service order takers to cost-effective solution providers and engaged business partners. Creating a more balanced and productive relationship will also require internal customers to take a more flexible position when they think about how rights and responsibilities are divided between core operations and support functions. These insights, which we discuss below, along with our benchmarking data, are based on BCG’s experience assessing support functions around the world.

A Time to Mature—and Contribute to Value Creation

Support functions contribute meaningfully to costs. In recent years, support function costs have been increasing at near double-digit rates, resulting in higher costs per barrel. There are four key drivers of this increase:

- Growth in staff size in order to support expanding operations, as well as a

tendency for support functions to be the area in which pressures for hiring local workers are met.

- An upswing in vendor rates, as external service markets become tight.
- A global boom in demand for commodities and skilled labor.
- Growth in business complexity that comes with expansion of capital projects (in both scale and scope), proliferation of external and internal compliance issues, and location of operations in hard-to-access places with difficult operating environments.

Rapidly rising costs negatively affect the profitability of a business unit, project, or company and introduce significant uncertainty into new and existing resource-development projects. In today’s ultracompetitive environment, it is necessary for all participants—internal customers and support groups—to be aligned, engaged, and at the table to drive value. (See Exhibit 1.)

Immature support functions often lack transparency, relevant business understanding, functional excellence, and proactive engagement with internal customers. Conse-

EXHIBIT 1 | To Drive Value, Upstream Support Functions Must Excel in Efficiency

Area	Potential efficiency gains	Typical initiatives
Supply chain	10 to 30 percent	<ul style="list-style-type: none"> • Improve logistics staging • Optimize routes and management of demand
Logistics and materials management	5 to 15 percent (operations) 10 to 25 percent (goods and services)	<ul style="list-style-type: none"> • Lean out warehouse operations • Enhance inventory management
Security and asset protection	5 to 30 percent	<ul style="list-style-type: none"> • Increase use of technology (versus people) • Implement strategic sourcing and service procurement
IT	10 to 25 percent	<ul style="list-style-type: none"> • Implement stringent demand management • Introduce self-service and remote support
HES	5 to 10 percent	<ul style="list-style-type: none"> • Improve cross training • Increase use of shared services for select functions
Local content development	5 to 10 percent (operations) 10 to 15 percent (local goods and services)	<ul style="list-style-type: none"> • Develop partnerships with suppliers • Implement industry forecasting and planning
Joint venture and partner relationships	5 to 10 percent	<ul style="list-style-type: none"> • Increase automation
Finance	5 to 15 percent	<ul style="list-style-type: none"> • Increase use of shared services • Implement process optimization / lean
Human resources	5 to 15 percent	<ul style="list-style-type: none"> • Introduce self-service and automation • Increase outsourcing
Other ...	5 to 25 percent	<ul style="list-style-type: none"> • Improve procurement and bidding • ...

Sources: BCG shared services framework; BCG project experience.

quently, they become a source of cost escalation, and they are unable to drive business value. With its proven track record across Fortune 500 companies, BCG's classic toolkit for measuring effectiveness and efficiency provides a powerful lens for assessing the upstream oil and gas business. Accurately evaluating the maturity of support functions and identifying areas for efficiency improvement—through, for example, process optimization, organization realignment, improved governance, deeper engagement with internal customers, and building the right workforce (that is, talent and capability)—are critical to driving sustainable business value and minimizing cost.

Immature Support Functions: Identifying the Red Flags

There are a number of warning signs—in addition to growing costs and poor service quality—that can indicate when support functions are immature. These red flags also highlight opportunities to go beyond narrow performance metrics in order to deliver comprehensive value to the upstream oil and gas business. At the same time, it is important to keep in mind that a support function that is not operating efficiently is a symptom. The root cause is often a narrower issue—such as employees who lack sufficient skills and are not provided the necessary guidance and training.

The five major symptoms to watch out for in immature support functions are described below.

Internal Customer Involvement with “How” Services Are Delivered. Rather than focus on “results,” internal customers can mistakenly concentrate their attention on “means.” These customers often don't trust support groups to deliver. For example, instead of giving attention to the success rate of the delivery of materials ordered, operations managers on offshore oil platforms may spend time double-checking orders and even investigating the capabilities of individual platform-supply vessels in order to ensure they get the parts and supplies they need when they need them. This activity diverts valuable technical workforce and manage-

ment time to support operations and increases costs as each internal customer micromanages its product. Time studies have shown that the technical workforce and management in inefficient organizations can conservatively waste 3 to 7 percent of their time (for a total of one to three weeks a year) on low-value-added procurement activities, whereas an efficient organization will spend only 1 to 2 percent of its time on such activities. Multiplied across a range of activities, this inefficiency can add up.

Shadow Support Functions. Particularly when oil prices are high, internal customers' use of support functions may expand disproportionately. For example, instead of leveraging central warehouse facilities, an internal customer group may choose to rent its own warehouses. BCG once uncovered a shadow warehouse that was used to store decade-old engine spares (spare parts) at a cost of more than \$1 million a year.

The practice of using shadow support functions can create tension between support groups and internal customers and can blur accountability for cost and service delivery. It can also contribute to loss of scale, which can drive up costs exponentially. In addition, without clearly defined roles and responsibilities, the support function workforce may lose motivation, as is often reflected in support functions' poor rankings in internal-customer surveys. We have also found that even in high-performing organizations, the technical workforce may spend 4 to 5 percent of its time on shadow activities—which in a large company can amount to paying for 50 to 100 full-time equivalent technical employees.

A Disproportionate Focus on Costs. Focusing on the wrong metric or a single metric at the expense of broader efficiency and effectiveness goals can lead to bad outcomes. Internal customers often pressure support groups to focus solely on short-term costs, while a better approach might be an investment that will minimize long-term costs. For example, a marine service group was so focused on lowering costs that it didn't see the net benefits of purchasing dynamic positioning vessels

that would have enabled it to do offshore maintenance in rougher seas and deeper water. Because the group did not invest in the new vessels, it was unable, in some important instances, to complete its maintenance work. The result: a major pipe shutdown, which was far costlier than buying new vessels. Thus support groups and internal customers need to work together so as to adopt a long-term perspective that can lead to sustainable value.

Inefficient Utilization of Resources. Inefficient utilization of resources is another sign of immature support functions. For example, in one instance, lack of coordination in scheduling and “siloe” management of helicopters by internal customers resulted in low (only 30 to 50 percent) utilization of these assets. Low asset utilization translates into higher operating costs. Often internal customers argue that the additional costs do not matter in light of the great perceived value of successful service delivery and the risk of failure (for example, missed deliveries) in the field. Thus, they demand a bigger and bigger safety cushion. However, this argument is a fallacy that destroys value. Effective support groups actually reduce the risk of failure by focusing on business metrics rather than “service at any cost.”

Processes with Significant Rework and Multiple Handoffs. When support processes assume the need for significant rework and call for multiple handoffs, flashing warning lights should go off to suggest basic accountability problems. For example, high rates of equipment returned to the warehouse—which can be caused by weak ordering processes, poor catalog design, and inexperienced clerks—create additional activity, more opportunity for inventory to be damaged, and the potential need to increase staffing. Other negative impacts might include more HES incidents resulting from mistakes that lead to accidents, expensive rework, and missed deadlines. The direct costs of all of these impacts can typically range from \$5 million to well over \$100 million, with a loss of market value in the range of 5 to 25 times these direct costs.

The Road to Excellence: Targeting the Right Service Dimensions

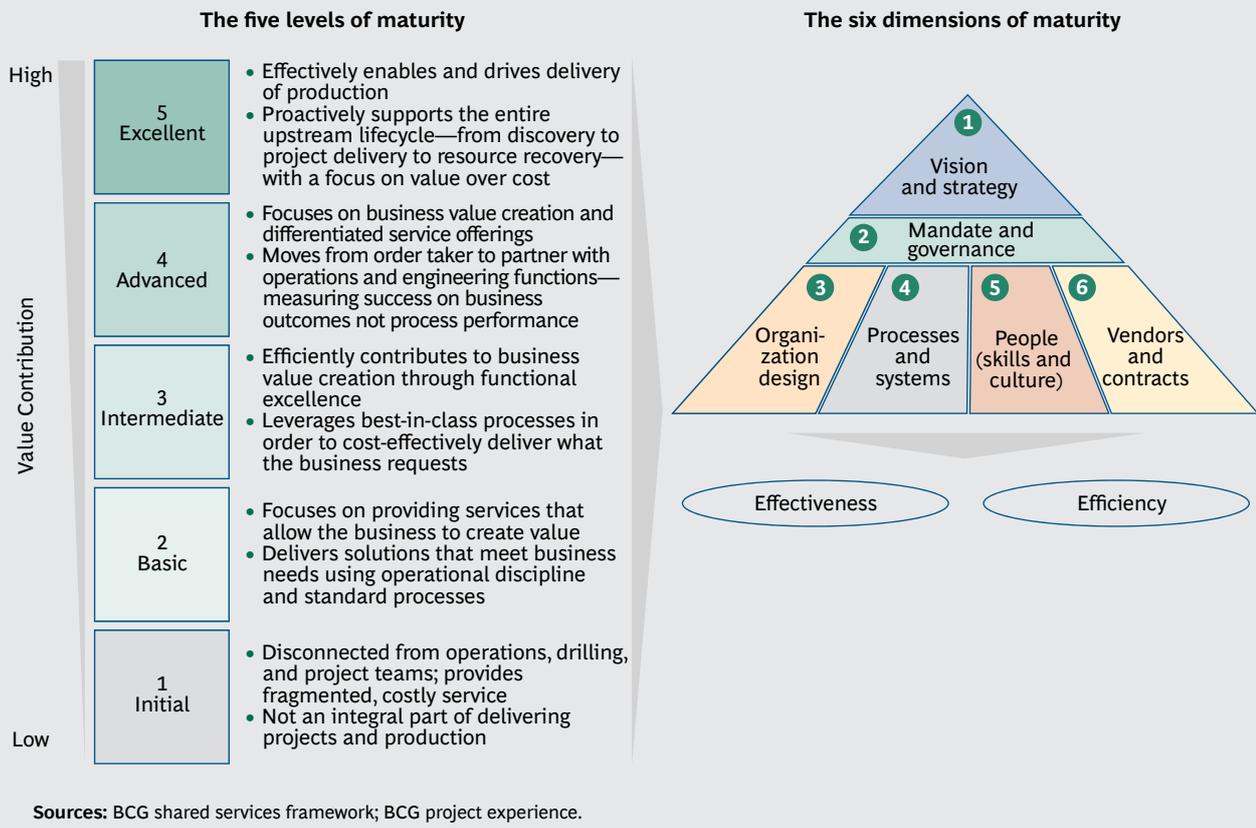
The greater the maturity of support functions, the more value they provide. We distinguish among five levels of maturity. (See Exhibit 2.) The classification runs the gamut from the *initial* (or lowest) level, in which service provision is fragmented, costly, and disconnected from upstream value creation, to the *excellent* (or highest) level, in which business value creation is effectively enabled and proactively aligned with upstream goals (such as the optimization of production and of reservoir management).

In order to determine a support group’s ability to drive value, its maturity needs to be assessed across six dimensions. We describe below the attributes of a truly excellent support group in each of these dimensions.

Vision and Strategy. A support group classified as excellent is recognized as a key enabler of strategy and a driver of business value. It has a clear vision that keeps it focused on such goals as growing reserves, delivering capital projects on time, increasing field uptime, and executing other value drivers of its customers. Rather than serving as a reactive “order taker,” it perceives itself and operates like a business partner with a broad functional scope. At the excellent level, a support group is an engaged and aligned strategic partner.

Mandate and Governance. A support group ranked as excellent has gained the respect of top management. Its leaders engage with operations, drilling, and reservoir management, and they participate on business leadership teams. The support group also has frequent and constructive engagement with internal customers, nonoperating partners (for example, another company participating on a project), governments, and other stakeholders. The group’s key performance indicators (KPIs) are linked to business value, the management of individual and group performance, and both service delivery and efficiency. For example, a logistics group will look at the same statistics on nonproductive time as the drilling and

EXHIBIT 2 | A Support Function's Maturity Determines How Well It Drives Value



completions group and identify whether supply chain was a root cause.

Organization Design. At the excellent level, a support group has a flat organization that enables rapid decision making. There are clear lines of responsibility between a support group and its business-unit customer, and the group focuses on the management of shadow resources. At this level, support functions are viewed as end-to-end processes for complete lifecycle management. For example, logistics and IT staff are not an afterthought that follows front-end engineering design but are embedded with project teams from conception through delivery.

Processes and Systems. Within a support function that is considered excellent, there is comprehensive integration and harmonization of processes, systems, and data. The function also has optimal internal processes and state-of-the-art IT systems with backup and emergency plans. These processes and systems enable the function

to ask its internal customers forward-looking questions: Can drilling engineers see near-real-time well costs? Is the supply chain providing the data necessary to track goods and manage spares that are critical to the functioning of field equipment?

People (Skills and Culture). A support function that is considered excellent includes high-caliber and respected leaders who are “at eye level” with business managers. It uses proven metrics in order to attract, motivate, and retain employees. And the clarity of its mission fosters a strong service culture within the function. In addition to hiring employees with the right skills, the function has a program in place to continuously develop and maintain its employees’ relevant skill sets. Thus, not only frontline engineers, but also employees engaged in support functions, have training and career development options.

Vendors and Contracts. In a support group that is considered excellent, normal practices include outsourcing noncore activities

when possible and focusing on vendor qualification and contract design in order to control costs (defined as total cost of ownership), quality, and risks. For example, a support group will clearly outline business success metrics in a contract in an effort to help vendors drive value for internal customers. Contracts are not simply rebid when they expire; the support group seeks to identify value-increasing changes in services and actively searches the market for new providers. The group focuses on continuously improving expertise in bidding, negotiating, and managing complex multibillion-dollar engineering, procurement, and construction contracts. Another indicator of a support group's high maturity is its close and frequent cooperation with the local content group.

A support function that has reached the excellent level relies on professional processes for vendor selection and management. For example, it has a robust request-for-proposal process, clear KPIs, detailed service-level agreements, and a proven framework for how to productively work together. In addition, its internal customers trust the support group to effectively monitor its own performance and fulfill its contract.

How to Transform Support Functions: Levers and Pitfalls

Based on BCG's experience, there are three levers that can be employed to increase the maturity of support functions—a critical step toward achieving world-class effectiveness and efficiency. However, making significant change happen in support functions always involves risk—especially in the areas of vendor performance, workforce and union resistance, operational integrity, and the need to transform the culture of internal customers (which, in most cases, is the biggest hurdle because it requires considerable involvement by management at all levels). If these risks are properly and promptly identified, however, they can be mitigated with good planning and robust project management.

Redesign the organization and clarify accountabilities. Flattening the organiza-

tion hierarchy, clarifying the KPIs, and bringing together similar functional groups and shadow organizations drive functional excellence and increase both the speed of decision making and the flexibility to adapt to changing environments and circumstances. A typical upstream organization of 3,000 to 5,000 people should be no more than four to five layers from the CEO. Without active review of their structure, many organizations of this size routinely evolve to six to eight layers of management.

An organization should be lean, with as few layers as possible, in order to improve managerial responsibility, increase visibility into operations, and empower middle managers. In one instance, BCG encountered a warehouse operations group that was seven layers below top management in a business unit. This left the supervisors, who were far removed from internal customers, responsible for making critical decisions on operations. Managers were so disconnected from production that they could not detect errors in the critical spares inventory system—a situation that inadvertently drove up compressor downtime because critical spares were unavailable.

To improve alignment between internal customers and support groups—and thus increase performance—organizations need to clarify and tie accountabilities and KPIs to scorecards that are aligned with their business strategy and profit and loss drivers. These scorecards need to measure performance both in terms of service delivery and efficiency.

In one case, an environmental group became so focused on permit accuracy, as opposed to speed and efficiency, that it was routinely more than 90 days late on securing approvals—and, as a consequence, it missed project deadlines. Shifting the focus of KPIs to on-time delivery and accurate estimates of delivery times reduced permit-related delays to near zero.

In another instance, an operations group took over major decisions on access to, and the security of, its physical site, which resulted in multiple service contracts and the

use of different security technologies across the organization's facilities. The outcome: higher costs. While the security team's management held accountability, which is important to drive improvement, it felt it had no ability to make changes because operations had taken ownership of key decisions; accountabilities had become blurred.

Change engagement with internal customers in order to drive process efficiency. It is important for internal customers and support groups to agree on needs and service levels ahead of time and for support groups to realize that different internal customers may require different levels of service that are "fit for purpose." This lever is becoming increasingly important as the share of low-margin assets (such as unconventional gas or mature fields with declining production rates) grows.

Among the steps that support groups should take to improve efficiency are to redesign processes in order to deliver expected service levels; manage shared assets (for example, vessels) centrally across each geographic area in order to drive utilization; design scorecards that align with internal customers' actions to drive down costs in support functions; and make costs transparent and linked to behaviors in the field.

Another important step is to bring together similar support groups and shadow organizations in order to gain the advantages of scale and coordination necessary to drive functional excellence.

An illustrative example of the downside of not doing so is a case in which an organization with multiple capital-project and procurement teams enabled each team to purchase its own process-control equipment based on the technical requirements for its project at hand. The teams did not consult with IT or the operations groups that would eventually inherit the equipment. Because the organization did not leverage group sourcing, it lost purchasing synergies of 10 to 15 percent, and the size of the organization's IT group mushroomed because it needed to manage equipment

from multiple manufacturers and retain spares for each type of equipment. Bringing together capital-project and procurement teams, operations, and IT at the start of a project could have reduced the total cost of ownership for process-control equipment by approximately 25 percent. (See *Capital Procurement: The Cornerstone of Successful Projects*, BCG Focus, October 2012.) In addition, such coordination could have allowed field operators and IT technicians to be cross-trained and staffed across fields—thereby reducing headcount and increasing system uptime (by decreasing mean time to repair).

Outsource noncore functions and turn vendors into partners. Organizations should identify all noncore functions and aggressively outsource them. They should also focus employees on the efficient implementation of core processes and on managing relationships with vendors so as to improve vendors' performance and make them partners in driving value.

Beyond outsourcing "classic" IT and office space management (for example, janitors), organizations should reduce costs and improve service delivery by, first, reviewing all of the work of their support functions and, second, focusing only on tasks that drive significant value and are core to the organization. In one instance, an organization was able to free up 80 to 90 full-time equivalents in manpower by outsourcing all of its inventory management and stock keeping to a third party. The result: an improvement in service, a reduction in stock-outs of critical spares by more than 40 percent, and a decrease in inventory holding costs.

The Journey to Excellence

There is tremendous upside to optimizing support functions. In particular, transforming support functions to the level of maturity considered excellent is likely to deliver five long-lasting benefits to a typical upstream oil and gas organization:

- A 10 to 25 percent reduction in the cost of service delivery and a one- to two-dollar decrease per BOE in expenditures.

- A leaner, more focused organization that is positioned to enhance value creation.
- A more strategically aligned, motivated, and engaged workforce.
- The freeing up of internal customers so that they can focus on operations and doing their jobs.
- Support functions that can proactively identify real solutions to internal customers' business problems.

MAKING THE TRANSFORMATION happen requires pulling three levers: redesigning the organization and clarifying accountabilities, changing engagement with internal customers in order to drive process efficiency, and outsourcing noncore functions and turning vendors into partners. The transition will be an uphill journey that requires cultural as well as process changes. But it will lead to a more cost-effective and productive organization that is empowered to drive value and excellence—both in up and down business cycles.

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