Natural supply chains

A new strategy for utilities
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Supply chain expenditures make up about 60 percent of capital and operating costs for typical utilities. Many utilities have executed successful “strategic sourcing” programs and conducted a number of other initiatives, such as materials and services or inventory reduction, to reduce costs and improve service to the business. However, cost pressures continue to mount, along with new obstacles to earnings, and many business units still perceive the supply chain function as a procurement and sourcing service and not as a strategic business partner that can help drive full value from third-party expenditures.

One reason for this perception is that few companies explicitly recognize that there are multiple supply chains that must be aligned to the different types of business activities within the utility, rather than just to the business units. This approach, which we call natural supply chains, holds that some supply chains are naturally positioned across business units and are made up of business activities that have inherent similarities based on their specific requirements. For example, major projects or routine maintenance programs would each have a supply chain to support its activities, no matter where in the organization they are — and that supply chain would differ greatly from one directed at small construction efforts or at emergency outages.

After a utility’s natural supply chains are identified, the end-to-end supply chain model can be tailored to meet the distinct needs of each. An appropriate set of capabilities — roles, processes, and tools — is matched with the requirements of each natural supply chain to provide a fit-for-purpose solution that maximizes value. With this approach, total value performance across all important measures, including supplier reliability, supplier risk management, project completion, and costs, can be improved so significantly that incremental savings of more than 15 percent are possible, well beyond the savings from strategic sourcing programs.
Key highlights

- Current market conditions have compressed utility margins, electricity prices are at historic lows, and tightness in the supply markets has driven up pricing. Looking forward, the industry is shifting and a unique combination of environmental initiatives, new technologies, deregulation, and economic constraints is in play. As a result, utility supply chain management organizations are expected to step up and deliver greater value that companies can take to their bottom line at a time when forces are lined up against doing so.

- Natural supply chains, composed of business activities that have similar characteristics, cut across business units and different lines of business.

- Successful supply chain organizations have been able to deliver additional value by tailoring their capabilities to meet the unique needs of the distinct natural supply chains inherent within the organization. To be effective, capabilities for each natural supply chain must follow a fit-for-purpose model across multiple dimensions — roles, processes, and tools.

- By aligning the supply chain organization to natural supply chains, and scaling capabilities to meet their specific needs, companies can gain a new flexibility in their supply chains with additional cost and value benefits that routinely translate into organizational bottom-line improvements of more than 15 percent, or double the savings from strategic sourcing alone.
A challenging environment

Supply chain expenditures are recognized by most utilities as a major cash cost, responsible for as much as 60 percent of capital and operating cash flowing to third-party suppliers and contractors. To mitigate these outlays, most utilities have established “strategic sourcing” programs, in which spending categories are run through a multistep process that results in renegotiated contracts. These efforts have certainly produced some savings for utilities — as much as 8 percent of the expenditures on external suppliers and contractors (excluding fuel and purchased power).

But although any gains are welcome, strategic sourcing is not sufficiently robust in today’s increasingly onerous business environment; its returns are generally disappointingly incremental. Utility earnings face challenging regulatory regimes, and demand has fallen since the onset of the economic slowdown. Stock prices have declined as well, and all of this has hampered access to cost-effective capital. At the same time, underlying inflationary pressures — particularly in emerging nations — are pushing up costs for commodities such as steel and other construction-related materials.

Given these obstacles to growth, reductions in total costs must be far greater and more sustainable than those that most utilities have been able to generate. And because supply chains command a large portion of utility budgets, they are squarely in the crosshairs again as a prime candidate for cost cutting, although many utilities give this notion only lip service: All too often, they simply ask supply chain managers to put their strategic sourcing programs into overdrive, demanding that they deliver more value without elevating their role in the organization or enhancing their resources.
**Introducing natural supply chains**

By adopting this approach, utilities are missing out on a real opportunity to cut costs, streamline operations, and reconfigure their organizations for 21st-century demands — an opportunity offered by a concept that we call natural supply chains. With natural supply chains, integrated utility companies are broken down into a limited set of different but similar groups of business activities — major projects, routine maintenance, and small capital programs, to name a few. Supply chains are then structured around these groups of business activities, rather than around business units — such as nuclear, fossil, or transmission — as they generally are now. With this reorganization, natural supply chains leverage and scale certain common elements across the enterprise and provide special services to those aspects of the utility’s business activities that have unique requirements.

The key to success for this strategy is establishing the right structure for each supply chain to ensure the best balance between standardization and customization. The ultimate aim is to stretch across the enterprise the appropriate supply chain capabilities — roles, processes, and tools — to deliver cost and value advantages, while customizing other aspects of the supply chain to exploit specific needs and potential in individual segments of the portfolio.

For example, some projects, such as a new transmission facility, are not appreciably different from other major construction efforts in other business units, and they require similar supply chain functions or capabilities to support enhanced project management in a technically driven environment. These capabilities are best leveraged and shared across traditional business unit boundaries to take advantage of internal best practices and reduce both costs and large-project risk. Similarly, routine power plant maintenance is a well-planned, repetitious effort, chiefly requiring that skilled providers meet predetermined schedules and requirements. A single supply chain — built around reliability, expertise, and low levels of expenditures — can support these maintenance programs anywhere in the utility.
On the other hand, vegetation management is much less predictable and requires substantial flexibility. Given the irregular nature of terrain and environmental conditions, vegetation management planning must include the capacity to meet seasonal and emergency demands. Although common materials and services may be used in a variety of vegetation management efforts, how they are applied will differ. As a result, natural supply chains targeted at these jobs will need to be customized and adaptable to the specifications of each task.

Natural supply chains generate value primarily in two ways: by exerting more influence up front in the business scoping and planning process, working with business units to shape requirements and drive supplier performance improvement; and by proactively managing contractor and supplier value delivery after the contract is awarded (see Exhibit 1, next page). In other words, rather than supply chains playing a somewhat haphazard role in forging and supervising supplier relationships — mainly because they are scattered and siloed throughout the organization — natural supply chains can actually lead the implementation of coherent company-wide strategies for both routine and customized procurement activities.

In our experience, utilities that integrate their supply chains with critical business activities in this way can enjoy meaningful savings, more than double those from strategic sourcing alone.
**Exhibit 1**

Natural supply chains generate real value in demand management and supplier performance management

- Integrated planning
- Collaborative specification/scope development
- Category optimization focus

- Strong procurement function
  - Event-driven sourcing activities

- Proactive engagement of suppliers
  - Sustainable value driven by supplier performance
  - Integration of suppliers into value chain

**End-to-end spend category management**

**Demand management**

- "Best value" focus (beyond price)
- Procurement leverages supply base for solution options
- Fit-for-purpose processes

**Strategic sourcing**

- "Best price" focus
  - Limited materials management integration
  - Preliminary category management activities

**Supplier performance management**

- "Cost management" focus:
  - Supplier productivity
  - Capacity utilization
  - Supplier innovation
  - Supplier integration
  - Post-award contract management

**Value**

- Traditional focus

Source: Strategy&
How to implement natural supply chains

Natural supply chains offer a unique perspective of an organization, a targeted view of a utility’s core business requirements around which a set of capabilities that directly address these needs can be developed. This fit-for-purpose, reverse-engineering approach to supply chain development is less expensive and more productive than the more scattershot option chosen by many companies to strive for supply chain excellence by trying to be “world class” or “top quartile” in all dimensions. In fact, that’s virtually impossible to do; after all, there are about 40 different dimensions of supply chain capabilities — warehousing, sourcing, category and inventory management, demand forecasting, and logistics, just for starters. Trying to institute best practices in each of these areas would be prohibitively costly and actually result in suboptimal performance in some business lines. For example, Walmart’s logistics program certainly qualifies as best practice, but it would be totally inappropriate — overkill, really — for a transformer maintenance and replacement project.

In our view, companies that tailor their supply chain organization to meet the needs of their unique natural supply chains can create a 5 to 10 percent performance advantage over those that ignore this approach. There are three elements involved in developing a tailored model built around natural supply chains:

1. Identify the company’s natural supply chains

A typical utility could have several business units. By identifying the business activities across these units and determining which have inherent similarities based on their supply chain needs, management can determine the precise level of supply chain capabilities required for each natural supply chain at the best total cost. In essence, it’s a market-back approach: If I were running this business activity as a stand-alone outfit, what would be the most advantageous form that my end-to-end supply chain could take to maximize profitability?

Most companies neglect their natural supply chains and instead settle on providing too much or too little capability for business activities,
hurting overall performance either way. In other words, while trying to be efficient by having a common, standard supply chain model, management actually introduces a layer of inefficiency and spreads it across the company’s entire set of operations.

For example, the contracting capabilities needed to support emergency outage maintenance services are anything but routine; each outage could require a different assessment of the problem and a different solution to fix it. By contrast, maintenance, repair, and operations (MRO) materials procurement is a relatively straightforward procedure and could be repeated across numerous circumstances. But typically a single supply chain model handles both. In fact, supply chains supporting overall power generation business units are usually established to better address the unknown possibilities — the emergency outages — and are therefore far more robust and expensive than they need to be for everyday activities like MRO. Similarly, the logistics and inventory supply chains for routine, high-use items like pole line hardware and safety glasses are not appropriate for low-volume, higher-value spares for major assets such as power plants and substations.

In general, the natural supply chains at utilities can be broken down this way (see Exhibit 2, next page):

**Projects:** Episodic and discrete one-time activities, such as transmission and distribution facility construction and associated engineering design and technical consulting services, installation of nuclear generators, and IT hardware/software implementation. Generally, corporate supply chain management (SCM) plays the role of project integrator, overseeing sourcing and the search for new suppliers; this is a mistake because the actual needs of the supply chain for each project may be locally driven.

**Programmatic activities:** High degree of similarity each time the work is performed, though some alteration in scope and specifications is often required. Load management, nuclear inspection, fleet maintenance, and professional services fit in this category. These activities require corporate SCM professionals who understand the uniqueness of each business segment and can manage the complex supplier relationships.

**Routine activities:** Planned and repeatable events with consistent scope and very few variations in the way they are performed, such as regular maintenance, metering, MRO supplies, and telecom expenses. These activities should be served by a low-cost, efficient SCM process, in which supply chain managers establish up-front category strategies for
### Exhibit 2
Four types of natural supply chains for utilities

<table>
<thead>
<tr>
<th>Natural supply chain</th>
<th>Attributes</th>
<th>Activity examples</th>
<th>Selected supply chain implications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Projects</strong></td>
<td>Discrete one-time activities</td>
<td>Repowering</td>
<td>Contracting and supplier management approaches tend to vary widely</td>
</tr>
<tr>
<td></td>
<td>High levels of technical planning are required</td>
<td>New generation</td>
<td>Supplier development and monitoring of market dynamics</td>
</tr>
<tr>
<td></td>
<td>Often high-cost, driven by high complexity</td>
<td>Transmission lines</td>
<td>Painstaking coordination needed to mobilize suppliers to meet specific project requirements</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Step-up substations</td>
<td></td>
</tr>
<tr>
<td><strong>Programmatic</strong></td>
<td>Activities are homogeneous, but scope and specifications are variable</td>
<td>Small overhead/underground construction projects</td>
<td>High level of supplier relationship management</td>
</tr>
<tr>
<td>activities</td>
<td>Activities can be planned, though not necessarily with stable schedules</td>
<td>Generation maintenance</td>
<td>Management of scope for supplier activities to ensure optimal productivity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vegetation management</td>
<td></td>
</tr>
<tr>
<td><strong>Routine</strong></td>
<td>Planned and repeatable activities with well-defined scope and specifications</td>
<td>Predictable/planned maintenance</td>
<td>Unutilization of materials and services</td>
</tr>
<tr>
<td>activities</td>
<td>Consistency in execution required to ensure that requirements are met</td>
<td>Pole inspection</td>
<td>Sourcing focus is on price per unit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Meter sets</td>
<td>Supplier performance measured primarily around delivery</td>
</tr>
<tr>
<td><strong>Emergent/reactive</strong></td>
<td>Unpredictable activities that make planning difficult due to inconsistent rate of occurrence</td>
<td>Unplanned service disruptions</td>
<td>Response time is typically more critical than price</td>
</tr>
<tr>
<td></td>
<td>Often time-critical due to impact on operations</td>
<td>Natural disasters</td>
<td>High level of supplier readiness because of critical timeliness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Facility damage</td>
<td>Streamlined contracting process to facilitate rapid supplier response</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IT system interruptions</td>
<td></td>
</tr>
</tbody>
</table>

Source: Strategy& analysis
ordering routine materials — safety equipment, for example — and implement the processes and tools to make them easy to execute.

Emergent/reactive: Unpredictable events, such as damage caused by natural disasters and other unplanned production interruptions. Supply chain managers must be prepared to move quickly to tap into supplier emergency readiness, while acknowledging that response time is more critical than price.

2. Enhance and deploy internal capabilities around natural supply chains

Utilities have developed levels of functional supply chain management expertise around sourcing, contracting, procurement, and logistics. However, even when a category management model is in place, these functions are usually in silos and not aligned around the organization’s natural supply chains. Realigning and enhancing these capabilities are absolutely essential for building natural supply chains. Without appropriate planning — that is, without organizational coordination through natural supply chains — managing the performance, productivity, and value creation potential of contractors is difficult, as is internal performance improvement.

Most companies attack these individual value gaps at some point by suddenly focusing on the problem in a single business unit, while a new problem of similar importance may be developing somewhere else. Indeed, the only way to fundamentally root out these inefficiencies is to analyze each of the natural supply chains relative to the business lines that they support. When the work of the supply chain managers is integrated with that of the operational leaders, the knowledge and transparency gaps that produce cost and schedule overruns can be closed throughout, say, all of the major projects in the organization and not just in a single project or a few in the same area. Moreover, as much as building better capabilities is critical, eliminating the services that aren’t valued by a business line is just as important — and just as possible with a natural supply chain analysis.

As a utility reconfigures its supply chains to match business requirements, internal process improvements that are needed to support the business lines will become more obvious. In many cases, operational inefficiencies develop from the separation of business units from the procurement function. But when natural supply chains have been identified, these silos can be eliminated and cooperation and coordination among the departments are possible. Among the most critical internal capabilities in a utility are those that usually can be improved the most by ensuring that natural supply chains are up to the task of supporting business activities: project management, demand
planning, supplier management, contracting and sourcing, and inventory management.

Because the lack of natural supply chains often limits procurement's exposure to the operations of a business unit, project materials will typically be purchased on a relatively random basis — either when the procurement staff thinks they will be needed based on historical demand, though it can't accurately predict future conditions, or when the business unit requests them, although often without a clear view of precisely how much is required. Not surprisingly, this approach almost never aligns to the precise needs of the business unit, and project managers tend to protect themselves by ordering many materials locally. They overbuy to avoid getting blamed for schedule slippage that occurs because procurement didn't order adequate amounts or failed to make sure that materials would be delivered on time. As we discovered at a utility recently, the result could be cost overruns of more than 20 percent due solely to poor project management and planning.

3. Work with business partners and suppliers to align better with natural supply chains

Most prominently, improved supplier management through natural supply chains can play a role in the use of services — overhead and underground construction, power plant shutdowns/maintenance, and technical consulting, to name a few. However, at many utilities, incumbent contractors generally do not create significant value beyond complying with rates negotiated in a sourcing event. This is because most utilities take the wrong tack with their suppliers. They focus purely on costs and, when they have leverage, demand deep cost cuts, but they offer little in return. In response, suppliers look for ways to protect margin, take opportunities to claw back concessions when demand rises, or work with the field managers directly to up-sell or spec a solution that is outside the corporate agreement, ignoring headquarters. Obviously, intended savings don't materialize.

The natural supply chains strategy offers a path away from this deadlock. After a company has cleaned up its internal act by developing the right capabilities tailored to its business lines, it is perfectly reasonable for it to work with suppliers to develop fair return agreements and service levels. This conversation doesn’t always turn out as companies hope, at least initially. Suppliers often simply don't believe that their customers have actually changed. They instead see this as a bait and switch: They’ll cut their prices, and then the utility will go back to its old behavior, leaving the supplier at a disadvantage. But with natural supply chains, efficiency gains are actually sustainable. And though it may take a while for suppliers to be persuaded, natural supply chains help them make more money because they can utilize

Cost overruns of more than 20 percent can be due solely to poor project management and planning.
their assets and working capital with more certainty and consistency, knowing what their customers’ needs will be.

Viewed broadly, there are three types of new supplier relationships that can emerge from a natural supply chains strategy: differentiated service offerings that reflect the distinctions in the natural supply chain; closer levels of integration between customer and supplier; and flexible contract agreements and incentives. Most important, in each of these aspects of dealing with suppliers, one-size-fits-all relationships are no longer acceptable.

For example, for routine overhead maintenance programs, a utility would work with suppliers to make sure that these relatively homogeneous efforts are run almost like a well-oiled factory: Materials, bucket trucks, and linemen are on-site as needed, maintenance is completed efficiently, costs are low, and downtime is minimal. Of course, that can happen only if the utility company’s project management and planning capabilities are sufficiently deft to implement such an efficient effort.

By contrast, a new transmission site will require a different relationship with the supplier. In this case, the company and the supplier would work jointly on engineering design, material and equipment requirements, and resource utilization, with additional design changes depending on the factors at the site. Together they would create a plan to complete the project in a timely and cost-effective manner. Though the two cases are quite different, they have in common distinctive service offerings and greater collaboration.

Through the application of natural supply chains, SCM can plan for a base level of demand for similar activities across the company. With the supplier agreeing to meet this demand at an agreed-on cost structure for a defined period of time, natural flexibility is built into the supply base. Through this arrangement, the company enjoys the benefits of predictable pricing and the ability to deploy the supplier’s resources when and where they are needed during the year. In return, the supplier is able to count on a steady stream of business over the same period.
When it comes to supply chains, one size clearly does not fit all. Instead, natural supply chains, which involve essentially customizing end-to-end approaches around similar business activities rather than adopting a standardized model, are a more organic and optimizing approach. Supply chain costs are reduced, non-value-added activity is diminished, and because companies are more in touch with their customer and supplier bases as well as the requirements of the business lines to operate at peak efficiency, risks are managed and controlled. The differences among requirements are addressed with natural supply chains in a way that maximizes gains and limits the downside. And in the utility industry, that in itself would be a distinction that makes a real difference.
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