

Performance-Based Procurement: New Strategies for Effective Sourcing

WHITE PAPER

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MANUFACTURING INSIGHTS OPINION

Most of the emphasis for software investment to support procurement has been aimed at the simpler categories of indirect items or standard components. However, half the value of the total procurement base of most manufacturers involves the acquisition of specialized components and systems used in the products they sell. This segment of spending requires adjustment to organizational approaches, thoughtful change management, and software applications that have product information at their core.

The need for broad innovation, the risk inherent in increasingly fragmented supply chains, and the need for full life-cycle visibility to product information have shined a new light on the procurement function. It has also exposed the inadequacies of the available software tools.

The new business realities dictate a new approach: performance-based procurement (PBP). Organizations must rethink how they are organized to support PBP, change how they evaluate suppliers, and take advantage of the existing information in their product life-cycle management (PLM) software portfolio to implement the approach.

SITUATION OVERVIEW

Key Trends Drive Change in Supply Management

As the traditional form of the vertically integrated industrial firm has transformed into a more agile brand owner, the role of the procurement organization has also moved from executing purchases to managing supply. Three key trends make a complete overhaul inevitable:

Trend 1 — The Innovation Imperative

A. G. Lafley, CEO of Procter & Gamble, has set a corporate objective of at least half of the innovation applied at the company come from outside the organization by 2010 — the portion was at 10% in 2000 and has already grown to 35%. The focus on innovation cuts across all industries — more than half the value of several automobile models comes from outside the OEM, and Boeing is looking to have major parts of the 787 airframe produced outside the company.

The need for new approaches to innovation has shed a new light on the procurement function. The days of engineering throwing designs and specifications over the wall and purchasing trying to minimize cost with a contentious "three bids and a cloud of dust" approach are long gone. Companies must harvest the innovation capabilities of its suppliers through collaborative design processes.

Trend 2 — Mitigating Supply Risk

Supply networks continue to become increasingly elongated. High tech and retail have been dealing with these issues for some time in order to take advantage of favorable labor markets in emerging economies. Now other manufacturing segments including aerospace, automotive, packaged goods, and chemicals have invested heavily in producing and sourcing products in these regions. In conflict with this trend has been a significant adoption of lean manufacturing principles, which dictate that the receipt of goods from suppliers is postponed to coincide as directly as possible with actual customer demand.

These trends have sought to drive product costs down, but have left many supply networks too brittle and vulnerable to unexpected disruptions. This situation, in turn, has shed a new light on understanding risk management as part of selecting and working with suppliers. Managing the sourcing process must include a deep understanding of the suppliers' capabilities and the establishment of operating contingencies as part of the overall supplier mix.

Trend 3 — Full Life-Cycle Management

Measuring the effectiveness of a design has moved beyond just time-to-market and development costs. Product life-cycle management is as much a strategy as it is a software category. Understanding the costs and causes of adverse quality as production ramps up, warranty costs once a product is in the field, and disposal costs at end of life are prominent operating objectives across manufacturing.

While suppliers represent a larger portion of a product value in most industries, their accountability for full life-cycle costs has not increased accordingly. Procurement organizations are formulating processes to extend the common supplier scorecarding, usually focused on price, delivery, and initial quality, to include full life-cycle responsibility. Companies realize that influencing suppliers to be liable for some of these costs is more valuable to the overall success of a product than unit price reductions.

Current Approaches to Procurement Automation

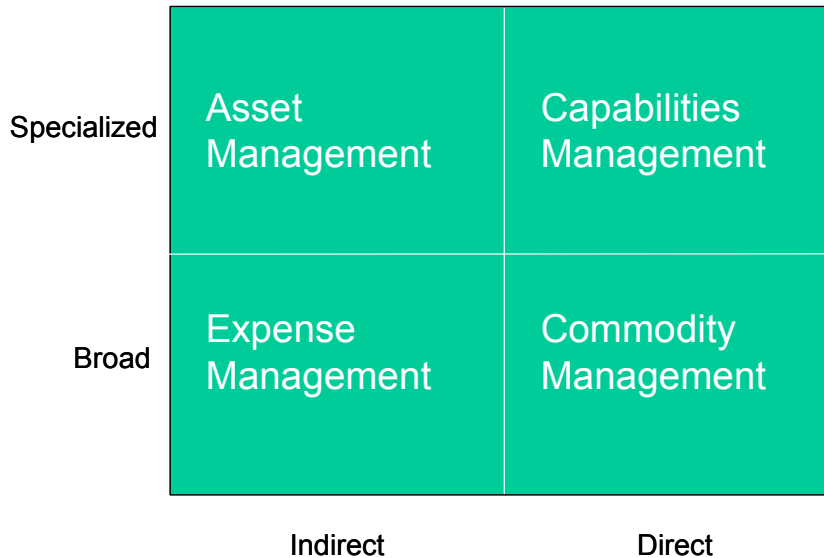
Part of the ebusiness craze of the late 1990's involved the automation of the procurement process. "eProcurement" vendors enjoyed inflated market valuations and substantial media hype. However, these vendors really did little more than automate the requisition process, organize catalogs, and interact with the sell-side applications of suppliers. Most of the purchasing involved indirect materials, specifically simple catalog items such as stationery supplies.

A second wave followed shortly thereafter that began to attack direct material through applications that were labeled either strategic sourcing or trading exchanges. These applications tended to concentrate on things like supplier rationalization, aggregate purchase analysis, and the automation of the bid process through reverse auctions. The rationalization and aggregation tended to be one-time analytic exercises, and the auction capability was best suited to commodity type items. As this wave of products became established, the enterprise resource planning (ERP) vendors joined the fray, and the market began referring to the collection of tools as supplier relationship management.

Using the direct/indirect and simple/complex nature of the products and services a company buys can be prescriptive in designing an effective approach to procurement. Categorizing the sourcing approach also allows us to separate the software tools we need to enable those approaches as shown in Figure 1.

FIGURE 1

Approaches to Sourcing



Source: Manufacturing Insights, 2006

Expense Management

This category involves the acquisition of products and services related to corporate overhead, such as office supplies, corporate travel, and other sundry items. The software capability has grown out of the early eprocurement products, and those vendors deserve a lot of credit for being pioneers in developing advanced mechanisms for organizing product taxonomies and even Web services type development around the ability to "punch out" from a purchase requisition to a supplier's sell-side Web site and bring product information back in.

Software applications are relatively mature and the market is well served by the handful of remaining best-of-breed vendors and the ERP vendors who either acquired or built their own functionality. Expense management as a percentage of the total corporate procurement value (which is more than just total spend, it also includes life-cycle cost considerations) is estimated to be around 10% for most manufacturing firms. Use of software tools to support this category can drive 20–30% improvements or 2–3% of the total.

Asset Management

Indirect procurement can be divided into what is bought for the "carpet" and the "cement." The carpet includes items discussed previously under expense management, while the cement refers to products needed to support manufacturing like tools, spare parts, or

repair services. These items are more complex than the expense management categories and require a linkage back to the assets or manufacturing processes they support.

Specialized indirect items proved to be a challenge for the general-purpose procurement systems, but several catalog Web sites sprung up to support the activity. Also, software vendors in the enterprise asset management (EAM) category saw it as a natural fit, and several made automating procurement the emphasis of their product development. ERP vendors have invested significant dollars in their own EAM functionality, including connecting to their purchasing modules. For a typical manufacturing company, this category represents approximately 20% of total purchase value, but improvements driven by software investment have been modest at 5–10% (1–2% of the total value).

Commodity Management

A significant portion of the purchasing activity is for direct materials, those that are used in the products a manufacturing company sells. The more straightforward items are those that have broad applicability across a number of end products. Two subclasses make up this category: base materials (e.g., chemicals, pulp/paper, metals) and catalog-based components (e.g., electronic components, motors, connectors, fasteners).

Commodity management has been the emphasis for the specialized strategic sourcing vendors who are good at rationalizing vendor and product data to identify areas of opportunity for savings. Transactional elements such as RFX processing have been largely co-opted by the SRM modules of the ERP vendors. This category represents about 20% of the total purchase value, and software-driven improvements have saved up to 20% (4% of the total).

Capabilities Management

The more specialized direct material involves components that a company buys that are designed for use in a specific product or product line. This includes everything from machined castings to application-specific integrated circuits to product packaging. Material suppliers supporting this activity don't sell from a catalog of standard products, they sell capabilities — their equipment, quality certifications, and lead times.

The commodity-based strategic sourcing analysis and RFX processing that supports commodity management are woefully inadequate for this category of purchasing. The best hope for leadership in this area comes from PLM vendors who engage the suppliers early in the design process. This category typically represents half of the total procured value, and savings of between 10–15% are possible, but this category

can't be managed to cost-savings alone — it needs a new approach that we refer to as performance-based procurement.

TABLE 1

Procurement Categories with Estimated Share of Value and Improvement Potential

Category	% of Total Value	Improvement Potential	Approach
Expense management — Common indirect items	5–15%	20–30%	Common corporate catalog with automated requisitioning. Goal is to reduce costs.
Asset management — Support of factory operations and machine maintenance	15–25%	5–10%	Corporate catalog tied to maintenance management. Goal is to reduce costs and assure service levels.
Commodity/component management — Standards items used in products offered for sale	15–25%	10–20%	Corporate catalog tied to material management. Goal is to reduce costs and assure service levels. Added requirement of managing product information for regulatory reporting.
Capabilities management — Items designed specifically for end-item products that usually have a large impact on how that product performs.	40–60%	10–15%	All of the above capabilities, but with a unique emphasis on meeting design goals of end-item products, supporting manufacturability, and minimizing warranty costs.

Source: Manufacturing Insights, 2006

FUTURE OUTLOOK

Performance-Based Procurement (PBP) Defined

Performance-based procurement supports the design, acquisition, replacement, and retirement of components that are specific to an end product or product family. The approach rationalizes supplier capabilities and seeks to optimize performance across a full set of performance characteristics including the satisfaction of design objectives, quality, availability, traceability, and cost.

Key Elements of Performance-Based Procurement

PBP seeks to optimize a set of component characteristics and, as such, requires a different approach than that of traditional procurement. PBP will dictate that companies rethink organizational structure, processes, collaboration, and decision making.

Organization

Most companies put a large emphasis on a purchasing organization's ability to reduce costs by any means possible. This emphasis is inadequate to manage the half of the procurement value that is represented by specialized direct material. Procurement personnel must be assigned specifically to these suppliers and should be linked closely with the engineering organization.

Processes

The approach of identifying, qualifying, and inviting to bid takes on a richer context in PBP. Specialized components are sourced based on capability not item number and, as such, the process becomes more of identifying, qualifying, and inviting to design. Selection is driven more by full life-cycle impact than it is by unit cost, and must begin earlier in the product development cycle.

Collaboration

In PBP the nature of the relationship with the supplier community takes a much different tone than traditional purchasing. These suppliers must become design partners to achieve performance objectives and, as such, must be exposed to and trusted with a larger amount of information including expectations of overall sales volumes over the life of a product. In many cases, joint business plans may also be drafted.

Decision Making

At a strategic level, it is likely that PBP organization will want to buy supplier capabilities at an aggregate level (e.g., a cumulative number of hours on a certain class of machine). This capacity purchase will mitigate the risk of demand variability and allow the company to shift priorities with the supplier. Internal mechanisms for making timely tactical decisions will have to be developed.

Technology Required

Purchasing capabilities and evaluating a broad scope of performance measures are not strengths of either the procurement specialists or the ERP vendors. Software to support PBP must have three key characteristics:

- **Baseline capability information.** Procurement analysis cannot be based on aggregating commodity classifications from industry taxonomies because they don't get at the capabilities needed to produce a given component. Capability information is more likely to be contained in model-driven product information, particularly in the meta information attached to engineering drawings.
- **Advanced supplier collaboration.** If a technology vendor's idea of supplier collaboration is the downloading of RFPs and the posting of responses, then its product will fall short in supporting PBP. The collaboration platform must include a common information model and the ability to iterate various approaches.
- **Full life-cycle evaluation.** Because PBP dictates that success be evaluated across a number of dimensions over the long-running life cycle of a product, traditional supplier scorecarding is inadequate. Applications must be able to capture data all the way back to component genealogy (e.g., a lot/heat number for the steel used in a machined component) and track all the way through to disposal.

ESSENTIAL GUIDANCE

Companies have concentrated their procurement efforts on the easy-to-capture savings from standard products. There is a much larger overall opportunity in attacking the high-value specialized components that are purchased, which requires a PBP approach. We recommend the following steps to implementing:

- Create a capabilities purchasing organization. Select personnel with strong relationship skills and assign them to design teams. These buyer/designers must be able to understand the objectives of the product being produced and how to make trade-offs among the specialized suppliers to achieve business objectives. The buyer/designer should be augmented by capability specialist (e.g., ASIC) buyer/planners who can monitor aggregated capacity available and make priority decisions with the suppliers.

- Build supplier evaluation models that include delivery, cost, quality, and information integrity as key factors. Set up long-range evaluation models that go from first article test to final disposition. Associate supplier preference with this multidimensional evaluation model.
- Look to your PLM software provider first to support the automation of a PBP approach. It is likely that this vendor has access to key information, strong collaboration functionality, and mechanisms for taking product performance views along the full life cycle. If you are just evaluating or re-evaluating your PLM tools, be sure to include the ability to support PBP in your efforts.

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