A model for an optimal procurement strategy

Kraljic's matrix can better ensure a steady supply at favorable costs

By Steve Greene

Are companies that produce goods using an optimal strategy to best purchase their production stock and raw materials given today's global supply chains, their recent disruptions, political turbulence and rapid technology development?

Using a simple matrix to classify company purchases into four categories is the first of four steps in a model that buying companies follow to benefit fully from an optimal procurement strategy. The model helps to both minimize supply risks and reduce costs. Reducing the cost of goods sold is most often substantially more profitable than increasing sales.

Peter Kraljic introduced both the Portfolio Purchasing Model and its Product Purchasing Classification Matrix in his article "Purchasing Must Become Supply Management" in the September 1983 issue of *Harvard Business Review* magazine. He provided examples of specific business cases that highlighted the importance of strategy in the procurement process.

Peter Kraljic

Kraljic's model provides a simple but effective framework to collect marketing and corporate data, forecast supply sce-

narios, identify available purchasing options and develop individual supply strategies for important purchased items.

Cross-functional staff teams, including industrial and systems engineers of the buyer company, should provide insight, conduct analysis and contribute research findings to both ensure favorable conditions of short-term supply and eliminate long-term need of scarce and costly purchased items.

Using the Kraljic model and matrix provides procurement leaders three key benefits:

- Helps buyers act strategically on each purchased item instead of making short-term deals.
- Shows where buyers can focus on having the most purchasing power and making the most profit.
- Improves collaboration with internal company functions and supply chain partners.

The model's four steps in order are purchase classification, market analysis, strategic positioning and action planning (see Figure 1).

Once purchased items are classified, purchasing strategies can be planned and executed. These strategies are especially needed when markets undergo considerable economic, environmental and technology changes.

Step 1: Product purchasing classification matrix

In the purchase classification step, procurement leaders perform spend analysis to classify purchased items into the product purchasing classification matrix. The matrix is composed of four different purchase item categories based on the item's level of strategic significance. Spend analysis is the evaluation of purchasing data to gain a better understanding of procurement patterns. Its purpose is to identify savings opportunities, make better procurement decisions, increase operating efficiency and gain leverage in negotiations.

A purchased item's significance depends on the two factors of profit impact and supply risk that construct Kraljic's matrix. Once purchased items are classified, purchasing strategies can be planned and executed. These strategies are especially needed when markets undergo considerable economic, environmental and technology changes (see Figure 2 on Page 36).

Profit impact is a set of internal factors whose level helps determine profit margins or the sale price of finished product. This factor's level answers, "How critical is this purchased item to the operations of the business?" Profit impact looks at material costs, purchase volumes, percentage of total purchase cost, total cost of ownership, profitability, business growth, product differentiation, lead time tolerance and im-

Seven steps of the portfolio purchasing model

1. Prepare a well-defined and aligned purchase item portfolio analysis.
2. Determine the criteria involved for both profit impact and supply risk.
3. Determine the detail level of the portfolio analysis.
4. Fill in the matrix in a resolute and analytical manner.
5. Cross-functionally both analyze and discuss the derived results.
6. Determine an optimal purchasing strategy and improvement actions.
7. Implement and monitor the specific procurement action plans.

FIGURE 1

Kraljic Model steps

Each step plays an important role, all the way to action planning.

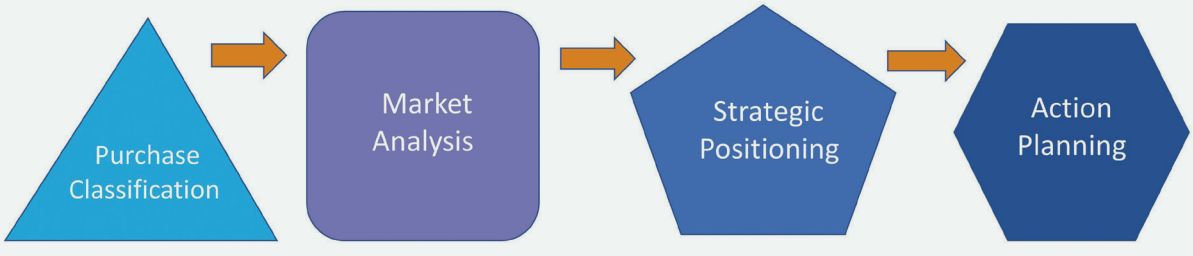
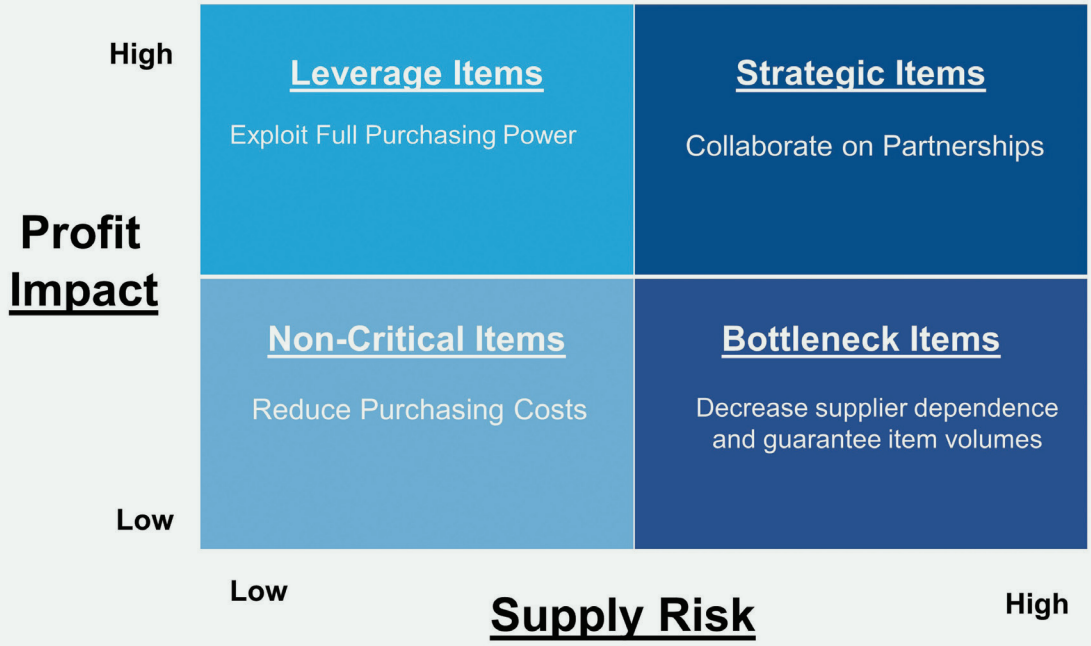


FIGURE 2

Purchasing matrix

Kraljic's four product purchasing categories.



pact on product quality.

Supply risk is a set of external factors that reflect the level of supply chain complexity. This factor's level answers, "How difficult is it to create competition among suppliers?" Supply risk looks at item scarcity, competitive demand, shortage risks, monopoly levels, barriers to market entry, pace of technology, material substitution, make-or-buy analysis and logistics costs. It also relates to government instability, natural disasters and supplier disruptions.

As seen in Figure 2, the matrix's four purchase categories are based on the low and high levels of the profit impact and supply risk factors. These four categories include noncritical, leveraged, bottleneck and strategic. Each purchase has its own strategy that requires a different procurement approach. Each category has a level of needed actions that is in direct proportion to an item's importance.

Kraljic recommended procurement strategies for each of the four categories. He also noted the need to regularly update the classification matrix as shifts in supply or demand patterns can change an item's category.

Noncritical items – reduce purchasing costs (low profit impact/low supply risk). These "generic" items are not usually used in goods production but are peripherals such as office supplies and maintenance, repair and operations (MRO) items. Purchase processing costs are often higher than an item's value. The procurement strategy is to reduce the buying costs and buy these abundant items from the lowest price supplier with the least logistics expense. A buyer company controls prices by optimizing its full purchasing power, standardizing items, substituting products or suppliers, placing high-volume orders and automating purchasing processes.

Leverage items – exploit purchasing power (high profit impact/low supply risk). These "commodity" items are commonly the largest category of purchasing. These abundant and standardized items are used in production and easily sourced. A buyer company has both a sizable margin of purchasing power and attractive cost savings opportunities. The procurement strategy is to concentrate purchases with lowest-cost sourcing. Respective procurement actions are to increase competition of suppliers, use target pricing, substitute products and suppliers, and engage in frequent negotiations. Volume purchasing provides economies of scale in both price and logistics.

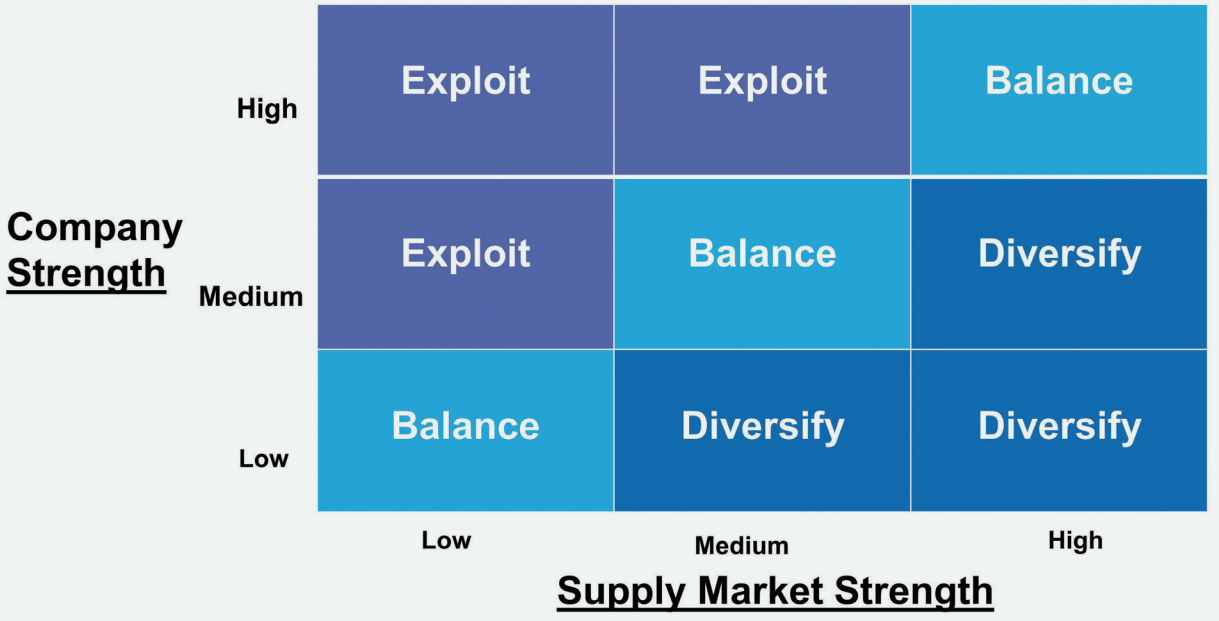
Bottleneck items – ensure volume continuity (low profit impact/high supply risk). Although these "distinctive" items have a low profit impact, they suffer from supply risks such as a small number of suppliers, unreliable delivery or few good substitutes. These purchased items can have fluctuating demand and potential shortage risks. Industrial and systems engineers on cross-functional teams of the buyer company should conduct value analysis to ensure short-term supply and eliminate long-term need. The procurement strategies are to both reduce supplier dependence and guarantee stock volumes by overordering, managing supplier relations and setting up supplier backups.

These bottleneck items could be made or bought depending on a company's core competencies and current market

FIGURE 3

Purchasing portfolio matrix

Model helps procurement leaders identify areas of opportunity or vulnerability, assess risks and develop strategy.



economics. If items are bought, purchasers should use strategic sourcing to qualify and retain a few dependable suppliers to maintain a favorable steady price and decrease shortage risks.

Strategic items – collaborate on partnerships (high profit impact/high supply risk). A buyer company's operations depend on these "critical" items as the finished product will not function and/or be differentiated without them. These materials are scarce, suppliers are few and available substitutes are limited. Procurement leaders should use strategic procurement steps to qualify suppliers for collaboration on engineering, quality and production specifications. The procurement strategies are to strengthen supplier partnerships, complete joint process improvements, plan for contingencies and frequently analyze markets and risks. Focus needs to be on the strategic item's total cost of ownership rather than just making deals on its transaction price.

Procurement leaders and industrial engineers could consider making the item in-house. Or they can consider buying out an important supplier which is called backward integration.

Procurement leaders can support supply decisions of strategic items with a variety of analytical techniques, including market analysis, risk analysis, computer simulation, optimization models and price forecasting.

Step 2: Market condition analysis

After classifying the purchased items, procurement leaders must consider the important purchased items in light of the

Matrix and model limitations

Every department of the buying company will eventually need to come together to complete the four steps of Kraljic's Portfolio Purchasing Model. The company needs to make concrete changes to establish effective relations, provide adequate systems support and meet new staffing and skills requirements.

As helpful and understandable as Kraljic's Product Purchasing Classification Matrix is, it has two limitations. First, both axes of the matrix are vague in definition. It is not entirely clear which factors fully constitute product impact or supply risk. Second, and a step further, procurement leaders need to determine a precise value that separates the low-level and the high-level for both factors.

Kraljic's four-step model will work if both the buyer's and supplier's powers and perspectives are fully known. But buyers often do not do enough research on the strategic supplier's selling power and related perspective. A simple understanding of the supplier perspective can be seen by a combination of the amount of business activity and the supplier's size. For example, spending $25,000 per year at the local coffee house will make a buying company much more influential to the supplier than buying 10 times that amount on an online retail site.

FIGURE 4

Action planning

More specific actions under each of Kraljic's three strategic positioning thrusts.

Procurement Category	Exploit Thrust	Balance Thrust	Diversify Thrust
Volume	Spread	Keep or shift carefully	Centralize
Price	Push for reduction	Negotiate opportunistically	Keep low profile
Contract Coverage	Buy spot	Balance contract or spot	Ensure supply through contracts
New Suppliers	Stay in touch	Selected vendors	Search vigorously
Inventories	Keep low	Use stock as buffer	Bolster stocks
Own Production	Reduce or don't enter	Decide collectively	Build up or enter
Substitution	Stay in touch	Pursue good chances	Search actively
Value Engineering	Enforce supplier	Selective preforming	Start own program
Logistics	Minimize costs	Optimized selectively	Secure enough stocks

current market condition. To do this, they determine their purchasing power, which is defined as the balance of power between their company and its individual suppliers.

More specifically, for analyzing supplier power, the procurement leaders review both the relative strength of existing vendors and the supply market. The leaders also assess the important items by both quality and quantity. Then they analyze their own production needs and supply lines to gauge their ability to get the purchased terms desired.

Procurement leaders can determine company purchasing power with up to some 20 criteria. Two criteria are the market share held by the buying company compared to its competitors and the size of the total market for the purchased item in relation to the supplier's capacity.

Procurement leaders can use Porter's Five Forces analysis to determine their company's purchasing power. This identifies five forces that both compose the competitive business environment and influence company profitability: competitive rivalry, buyer power, supplier power, threat of substitution and threat of new entry.

Step 3: Strategic positioning – purchasing portfolio matrix

After procurement leaders gauge their company's purchasing power, purchased items in the strategic item category – and if also preferred, items in the leverage and bottleneck categories, are again classified in a matrix by two factors: the company's purchasing strength and supply market strength. This classification constructs Kraljic's purchasing portfolio matrix (see Figure 3 on Page 37).

By positioning important items in this matrix, procurement leaders can then identify areas of opportunity or vulnerability, assess supply risks and derive general strategic thrusts for these items. This positioning matrix can also determine and implement counterstrategies (an approach called reverse marketing) if suppliers change their prices, quantities or policies.

As Figure 3 shows, Kraljic noted three strategic thrusts for procurement: exploit, balance and diversify. These three thrusts provide a general direction to secure long-term purchases while taking advantage of short-term pricing opportunities.

Exploit strategic thrust – be reasonably aggressive. Dominant buyer companies use their high purchasing power to secure favorable prices, desired volume and preferential treatment from less-strong suppliers. Procurement leaders use the buying power to reduce both purchase prices and supply risks of these important items.

Diversify strategic thrust – go on the defensive. The supplier's selling power is strong and a buying company plays a secondary role. Procurement leaders need to diversify their supply base by increasing supply options by looking for item substitutes or new suppliers.

Balance strategic thrust – be well balanced. A buyer company uses a balanced strategy between the two thrusts of exploit and diversify. If a procurement leader takes on too much of a defensive role, these purchased items may be too expensive. Taking too much of an aggressive role could harm supplier relations.

Since the balance of purchasing power changes frequently,

procurement leaders managing many purchased items will often find themselves in fluctuating strategic thrusts simultaneously. It is important for the leaders to often determine their purchasing power relative to its various supplier's selling powers. A buyer's insistence on rock-bottom prices in times of today's market discontinuity could soon provoke detrimental supplier counteractions.

Step 4: Action planning

After Kraljic's general strategic thrust is determined, procurement leaders should continually develop and implement more specific action plans for each thrust. They then have an updated and systematic set of documented strategies that specify the timing of and criteria for future action for the important purchased items. Each general thrust now has procurement implications that can include volume, price, supplier selection, material substitution and inventory policy. These implications are seen in the rows of Figure 4.

For this strategic action planning, procurement leaders should complete the following four tasks.

- Explore a range of supply scenarios in which leaders lay out their options for securing long-term supply and exploiting short-term opportunities.
- Clearly define respective risks, costs, returns and other strategic implications.
- Select and develop a preferred procurement option with objectives, steps, responsibilities and contingency measures.
- Present the preferred option in detail for executive approval.

For action planning under the exploit thrust, procurement leaders should spread volume over several suppliers, exploit price advantages, increase spot purchases and optimize inventory levels.

Action planning under the diversify thrust depends on time length. Under a short-term period to ensure an adequate supply, procurement leaders may have to offer inducements such as offering to pay higher prices, increasing upfront purchase volume and/or paying invoices faster. Leaders could consolidate their supply position by concentrating fragmented purchased item volumes with a single supplier.

For action planning under the diversify thrust for a long-term period, procurement leaders should analyze their use of alternative suppliers or materials, thereby potentially reducing the dependence on a single supply source. Leaders may have to increase spending on market research or supplier relations. They could consider increasing investments in R&D, improve the agility in their production capacities and/or buy out the supplier company.

Kraljic's Portfolio Purchasing Model's four steps serve as an analytical tool to improve procurement strategies in today's world of global supply disruptions, political turbulence and competitive markets. With a more concrete vision of how outcomes in purchase item categories impact the overall business, procurement leaders can develop and implement well-researched and strategic plans to engage important suppliers.

An attitude of "just get the best deal possible" will make the buying company vulnerable to competitive pressure. By using Kraljic's model, this company can benefit by using strategic action planning to improve partner relationships and business operations. Industrial and systems engineers can provide insight and data to help determine a procurement strategy. This optimal strategy anticipates both internal strategic organizational needs and external market dynamics to improve supply security and lower procurement costs. ❖

Steve Greene is a program manager at Greenville Technical College in Greenville, South Carolina. He has written previous articles on supply chain management for ISE*, various LinkedIn groups and the Association of Supply Chain Management (ASCM). Topics have included advanced planning and scheduling systems (May 2022* ISE*), integrated business planning (December 2021* ISE*) and inventory optimization (August 2021* ISE *and ASCM chapter presentations), ERP selection, product development and sales and operations planning. Contact him via LinkedIn at linkedin.com/in/stevegreene-supplychains-operations.*

Supplier segmentation matrix

While the Kraljic matrix is most used to determine a strategy for purchased items, it is also applicable as a base for a supplier segmentation matrix. Using a similar four category matrix, this supplier matrix both positions suppliers on their strategic significance and determines the related relationship strategy.

Supplier segmentation analysis helps to answer two critical questions: "How dependent is your business operation on a particular supplier?" and "How costly or difficult is it to switch suppliers?" This supplier matrix is very useful for both sourcing negotiations and supply base rationalization with important suppliers.

A valuable approach to evaluate suppliers is by using both supplier spend analysis and risk analysis. Supplier-spend analysis both reviews the strategic importance of all suppliers and determines which suppliers a buying company will spend time and resources on. Supplier risk analysis is the review of the buyer's exposure to supplier performance failures such as late deliveries, service failures, warranty problems and quality defects. These two supplier analyses determine the value of increasing collaboration, the amount of goods inspection and the level of preventive actions to take.