The Role of Sourcing in a Supply Chain

- Sourcing is the set of business processes required to purchase goods and services.
- The terms “sourcing” and “procurement” are often viewed synonymously.
- Sourcing processes include:
  - Supplier scoring and assessment
  - Supplier selection and contract negotiation
  - Design collaboration
  - Procurement
  - Sourcing planning and analysis

Benefits of Effective Sourcing Decisions

- Better economies of scale can be achieved if orders are aggregated.
- More efficient procurement transactions can significantly reduce the overall cost of purchasing.
- Design collaboration can result in products that are easier to manufacture and distribute, resulting in lower overall costs.
- Good procurement processes can facilitate coordination with suppliers.
- Appropriate supplier contracts can allow for the sharing of risk.
- Firms can achieve a lower purchase price by increasing competition through the use of auctions.
Supplier Scoring and Assessment

- Supplier performance should be compared on the basis of the supplier's impact on total cost.
- There are several other factors besides purchase price that influence total cost.

Supplier Assessment Factors

Supplier performance should be compared on the basis of the supplier’s impact on total cost.

- Replenishment Lead Time
- On-Time Performance
- Supply Flexibility
- Delivery Frequency / Minimum Lot Size
- Supply Quality
- Inbound Transportation Cost
- Pricing Terms
- Information Coordination Capability
- Design Collaboration Capability
- Exchange Rates, Taxes, Duties
- Supplier Viability

Supplier Selection and Evaluation

- Supplier selection can be performed through competitive bids, reverse auctions, and direct negotiations.
- Supplier evaluation is based on total cost of using a supplier.

Supplier Selection through Auctions

- Supplier selection can be performed through competitive bids or reverse auctions (internet-based e-sourcing).

- Auctions:
  - Sealed-bid first-price auctions
  - English auctions
  - Dutch auctions
  - Second-price (Vickery) auctions

Ariba e-sourcing auctions
Contracts and Supply Chain Performance

- Contracts for Product Availability and Supply Chain Profits (making the supplier share some of the buyer’s demand uncertainty)
  - Buyback Contracts
  - Revenue-Sharing Contracts
  - Quantity Flexibility Contracts
- Contracts to Coordinate Supply Chain Costs
- Contracts to Increase Agent Effort
- Contracts to Induce Performance Improvement

Basic Principles of Negotiation

- The difference between the values of the buyer and seller is the bargaining surplus
- The goal of each negotiating party is to capture as much of the bargaining surplus as possible
  - Have a clear idea of your own value and as good an estimate of the third party’s value as possible
  - Look for a fair outcome based on equally or equitably dividing the bargaining surplus

Create a WIN – WIN situation

Negotiation team

- Operations Manager, with the authority to cut a deal, sign a contract or write a letter of understanding.
- Financial Analyst, trained business case analyst who can follow through with detail later.
- Engineer, with experience in the operations you are seeking to establish who also ideally has some business management training.
- Lawyer, as an adviser as contract terms can be confusing at best to the rest of the team
- Procurement Specialist, trained in international part and product sourcing if this is an essential component of the endeavor.
- Marketing Specialist, trained in international marketing and perhaps some business research background.
- Professional Negotiator, who is essential if the team has little or no experience, and optional if you have a strong experienced team.
- Other skill sets as needed for the specific project.

Contracts, Risk Sharing, and Supply Chain Performance

- How will the contract affect the firm’s profits and total supply chain profits?
- Will the incentives in the contract introduce any information distortion?
- How will the contract influence supplier performance along key performance measures?
Contracts for Product Availability and Supply Chain Profits:

**Quantity Flexibility Contracts**

- Allows the buyer to modify the order (within limits) as demand visibility increases closer to the point of sale
- Better matching of supply and demand
- Increased overall supply chain profits if the supplier has flexible capacity
- Lower levels of information distortion than either buyback contracts or revenue sharing contracts

**Revenue Sharing Contracts**

- The buyer pays a minimal amount for each unit purchased from the supplier but shares a fraction of the revenue for each unit sold
- Decreases the cost per unit charged to the retailer, which effectively decreases the cost of overstocking
- Can result in supply chain information distortion excess (excess inventory in the supply chain and a greater mismatch of supply and demand)

**Buyback Contracts**

- Allows a retailer to return unsold inventory up to a specified amount at an agreed upon price
- Increases the optimal order quantity for the retailer, resulting in higher product availability and higher profits for both the retailer and the supplier
- Most effective for products with low variable cost, such as music, software, books, magazines, and newspapers
- Downside is that buyback contract results in surplus inventory that must be disposed of, which increases supply chain costs
- Can also increase information distortion through the supply chain because the supply chain reacts to retail orders, not actual customer demand

**Contracts to Coordinate Supply Chain Costs**

- Differences in costs at the buyer and supplier can lead to decisions that increase total supply chain costs
- Example: Replenishment order size placed by the buyer. The buyer’s EOQ does not take into account the supplier’s costs.
- A quantity discount contract may encourage the buyer to purchase a larger quantity (which would be lower costs for the supplier), which would result in lower total supply chain costs
- Quantity discounts lead to information distortion because of order batching
Contracts to Increase Agent Effort

- There are many instances in a supply chain where an agent acts on the behalf of a principal and the agent’s actions affect the reward for the principal.
- Example: A car dealer who sells the cars of a manufacturer, as well as those of other manufacturers.
- Examples of contracts to increase agent effort include two-part tariffs and threshold contracts.
- Threshold contracts increase information distortion, however.

Contracts to Induce Performance Improvement

- A buyer may want performance improvement from a supplier who otherwise would have little incentive to do so.
- A shared savings contract provides the supplier with a fraction of the savings that result from the performance improvement.
- Particularly effective where the benefit from improvement accrues primarily to the buyer, but where the effort for the improvement comes primarily from the supplier.

Design Collaboration

- 50-70 percent of spending at a manufacturer is through procurement.
- 80 percent of the cost of a purchased part is fixed in the design phase.
- Design collaboration with suppliers can result in reduced cost, improved quality, and decreased time to market.
- Important to employ design for logistics, design for manufacturability.
- Manufacturers must become effective design coordinators throughout the supply chain.

The Procurement Process

- The process in which the supplier sends product in response to orders placed by the buyer.
- Goal is to enable orders to be placed and delivered on schedule at the lowest possible overall cost.
- Two main categories of purchased goods:
  - Direct materials: components used to make finished goods
  - Indirect materials: goods used to support the operations of a firm.
- Focus for direct materials should be on improving coordination and visibility with supplier.
- Focus for indirect materials should be on decreasing the transaction cost for each order.
- Procurement for both should consolidate orders where possible to take advantage of economies of scale and quantity discounts.
TABLE 14-7 Differences Between Direct and Indirect Materials

<table>
<thead>
<tr>
<th>Direct Materials</th>
<th>Indirect Materials</th>
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</thead>
<tbody>
<tr>
<td>Use</td>
<td>Production</td>
</tr>
<tr>
<td>Accounting</td>
<td>Cost of goods sold</td>
</tr>
<tr>
<td>Impact on production</td>
<td>Any delay will delay production</td>
</tr>
<tr>
<td>Processing cost relative to value of transaction</td>
<td>Low</td>
</tr>
<tr>
<td>Number of transactions</td>
<td>Low</td>
</tr>
</tbody>
</table>

Sourcing Planning and Analysis

- A firm should periodically analyze its procurement spending and supplier performance and use this analysis as an input for future sourcing decisions.

- Procurement spending should be analyzed by part and supplier to ensure appropriate economies of scale.

- Supplier performance analysis should be used to build a portfolio of suppliers with complementary strengths:
  - Cheaper but lower performing suppliers should be used to supply base demand.
  - Higher performing but more expensive suppliers should be used to buffer against variation in demand and supply from the other source.

Table 13.3 Advantages and disadvantages of single- and multi-sourcing

<table>
<thead>
<tr>
<th></th>
<th>Single-sourcing</th>
<th>Multi-sourcing</th>
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<tbody>
<tr>
<td><strong>Advantages</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potentially better quality</td>
<td>- Because more SQA possibilities</td>
<td>- Purchaser can drive price down by competitive tendering</td>
</tr>
<tr>
<td>Strong relationships which are more durable</td>
<td>- Can switch sources in case of supply failure</td>
<td>- Wide sources of knowledge and expertise to tap</td>
</tr>
<tr>
<td>Greater dependency encourages more commitment and effort</td>
<td>- Better communication</td>
<td></td>
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<tr>
<td>Easier to cooperate on new product/service development</td>
<td>- More scale economies</td>
<td></td>
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<tr>
<td>More scale economies</td>
<td>- Higher confidentiality</td>
<td></td>
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<tr>
<td><strong>Disadvantages</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More vulnerable to disruption if a failure to supply occurs</td>
<td>- Difficulty to encourage commitment by supplier</td>
<td></td>
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<tr>
<td>Individual supplier more affected by volume fluctuations</td>
<td>- Less easy to develop effective SQA</td>
<td></td>
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<tr>
<td>Supplier might exert upward pressure on prices if no alternative supplier is available</td>
<td>- More effort needed to communicate</td>
<td></td>
</tr>
<tr>
<td>Multi-source suppliers less likely to invest in new processes</td>
<td>- More difficult to obtain scale economies</td>
<td></td>
</tr>
</tbody>
</table>
Global Procurement

Refers to buying components and inputs anywhere in the world

Challenges in establishing a successful global sourcing strategy include understanding hidden costs as supply bases are expanded

Examples of hidden costs:
- Increased costs of dealing with suppliers outside the domestic market
- Duty and tariff changes that occur over supply agreement life
- Increased inventory-related costs associated with global supply chains
- Rising levels of logistics cost volatility (e.g. ocean freight rates)

Quality Issues in Procurement

Quality – conformance to mutually agreed-upon requirements

Important to match quality levels of buyers and sellers in the supply chain

Vendors are expected to have quality programs/practices
- ISO 9000
- Six Sigma
- Lean Six Sigma
- PPAP (Production Part Approval Process)
- FMEA (Failure Mode and Effect Analysis)

Socially Responsible Procurement

Socially responsible procurement refers to “procurement activities that meet the ethical and discretionary responsibilities expected by society.”

Source: Craig R. Carter and Marianne M. Jennings, Journal of Business Logistics

Socially Responsible Procurement

Areas of ethical concern in procurement:
- Gift giving and receiving
- Bribes and kickbacks
- Misuse of information
- Improper methods of knowledge acquisition
- Lying or misrepresentation of the truth
- Product quality (lack of)
- Misuse of company assets
- Conflicts of interest