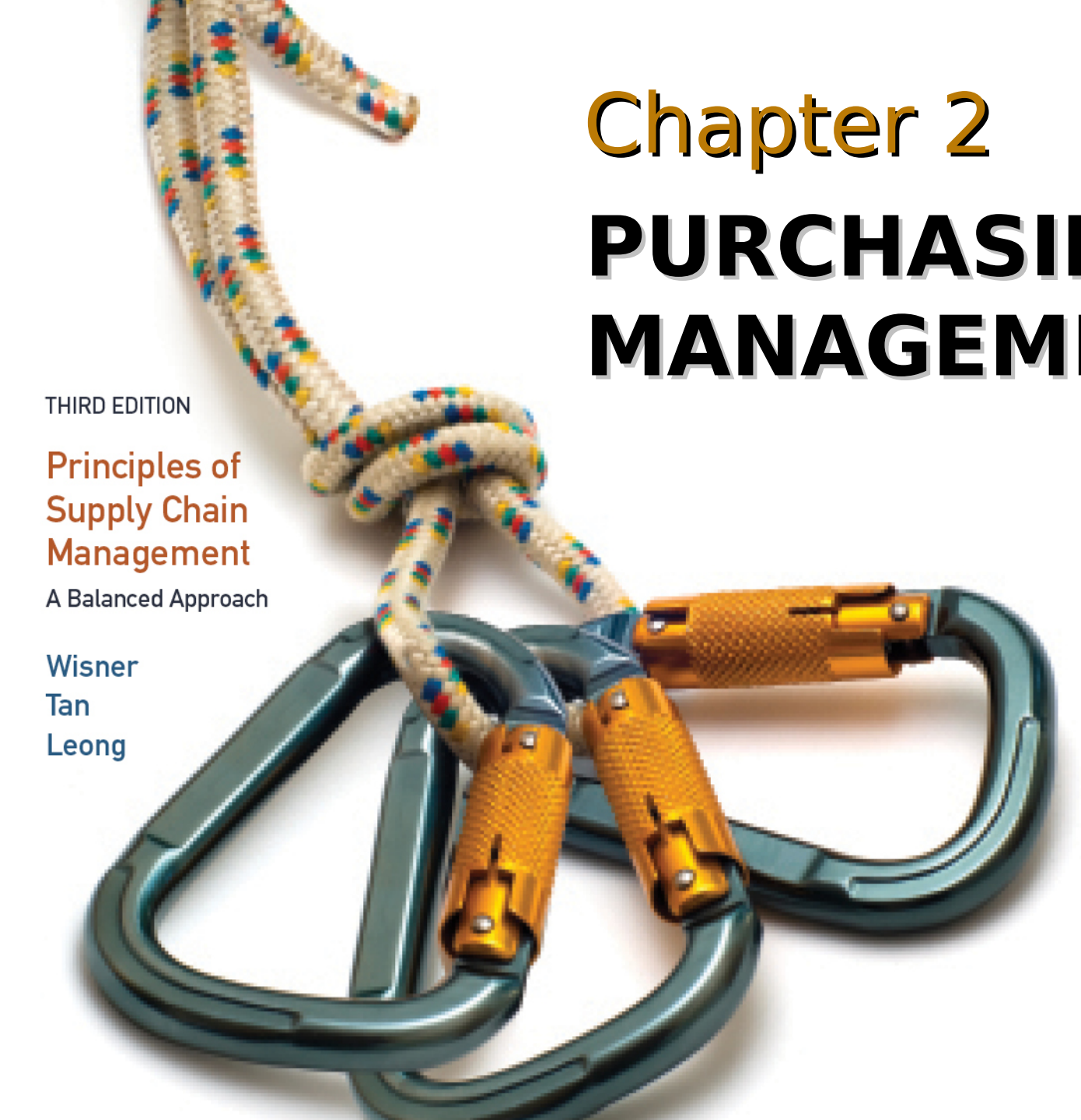
Chapter 2

PURCHASING MANAGEMENT



THIRD EDITION

Principles of Supply Chain Management

A Balanced Approach

Wisner
Tan
Leong

LEARNING OBJECTIVES

You should be able to:

- Understand the role of supply management and its strategic impact on an organization's competitive advantage
- Have a basic knowledge of the manual purchasing process, e-procurement, public procurement, and green purchasing
- Understand and know how to handle small value purchase orders
- Understand sourcing decisions and the factors impacting supplier selection

LEARNING OBJECTIVES

(Continued)

You should be able to:

- Understand the pros and cons of single sourcing versus multiple sourcing
- Understand the pros and cons of single versus multiple sourcing
- Describe opportunities and challenges of global sourcing and its impacts on supply management
- Understand and compute total cost of ownership

CHAPTER OUTLINE

- Introduction
- A Brief History of Purchasing Terms
- The Role of Supply Management in an Organization
- The Purchasing Process
- Sourcing Decisions – The Make or Buy Decision
- Roles of Supply Base
- Supplier Selection
- How Many Suppliers to Use
- Purchasing Organization
- International Purchasing/Global Sourcing
- Procurement for Government/Non-Profits Agencies

A Brief History of Purchasing Terms

Purchasing – Obtaining merchandise, capital equipment; raw materials, services, or maintenance, repair, and operating (MRO) supplies in exchange for money or its equivalent

Merchants – Wholesalers and retailers who purchase for resale

Industrial Buyers – Purchase raw materials for conversion, services, capital equipment, & MRO supplies

A Brief History of Purchasing Terms (Continued)

Purchasing - key business function for acquiring materials, services, & equipment

Contracting - term often used for the acquisition of services

Supply Management - a newer term that encompasses all acquisition activities

- Institute of Supply management defined supply management as the "*Identification, acquisition, access, positioning, and management of resources an organization needs or potentially needs in the attainment of its strategic objectives*."

The Role of Supply Management in an Organization

The primary goals of purchasing are:

- Ensure uninterrupted flows of raw materials at the lowest total cost,
- Improve quality of the finished goods produced, and
- Optimize customer satisfaction.

Purchasing contributes to these objectives by:

- Actively seeking better materials and reliable suppliers,
- Work closely with and exploiting the expertise of strategic suppliers to improve quality and materials
- Involving suppliers and purchasing personnel in new product design and development efforts.

The Role of Supply Management in an Organization

The Financial Significance of Supply Management

Profit-Leverage Effect

A decrease in purchasing expenditures directly increases profits before taxes (assuming no decrease in quality or purchasing total cost)

Return on Assets (ROA) Effect

A high ROA indicates managerial prowess in generating profits with lower spending (caveat- ROA ratios vary from one industry to another)

Inventory Turnover Effect

Increased inventory turnovers indicate optimal utilization of space and inventory levels, increased sales, avoidance of inventory obsolesce

The Purchasing Process – *Manual Purchasing* (older system)

Step 1- Material Requisition/Purchase Requisition –

Stating product, quantity, and delivery date. May originate as a **planned order release** from the MRP system. **Traveling requisition** used for recurring orders.

Step 2- The Request for Quotation (RFQ) –

Buyer identifies suppliers & issues a request for quotation (RFQ) for routine items or a **Request for Proposal (RFP)** for more demanding products. **Supplier Development** is used to develop supplier capabilities.

Step 3- The Purchase Order (PO) –

Is the buyer's offer & becomes a binding contract when accepted by supplier. When initiated by the supplier on their own terms, the document is a **sales order**. The **Uniform Commercial Code (UCC)** governs transactions in the U.S., except Louisiana.

The Purchasing Process – *Manual Purchasing*

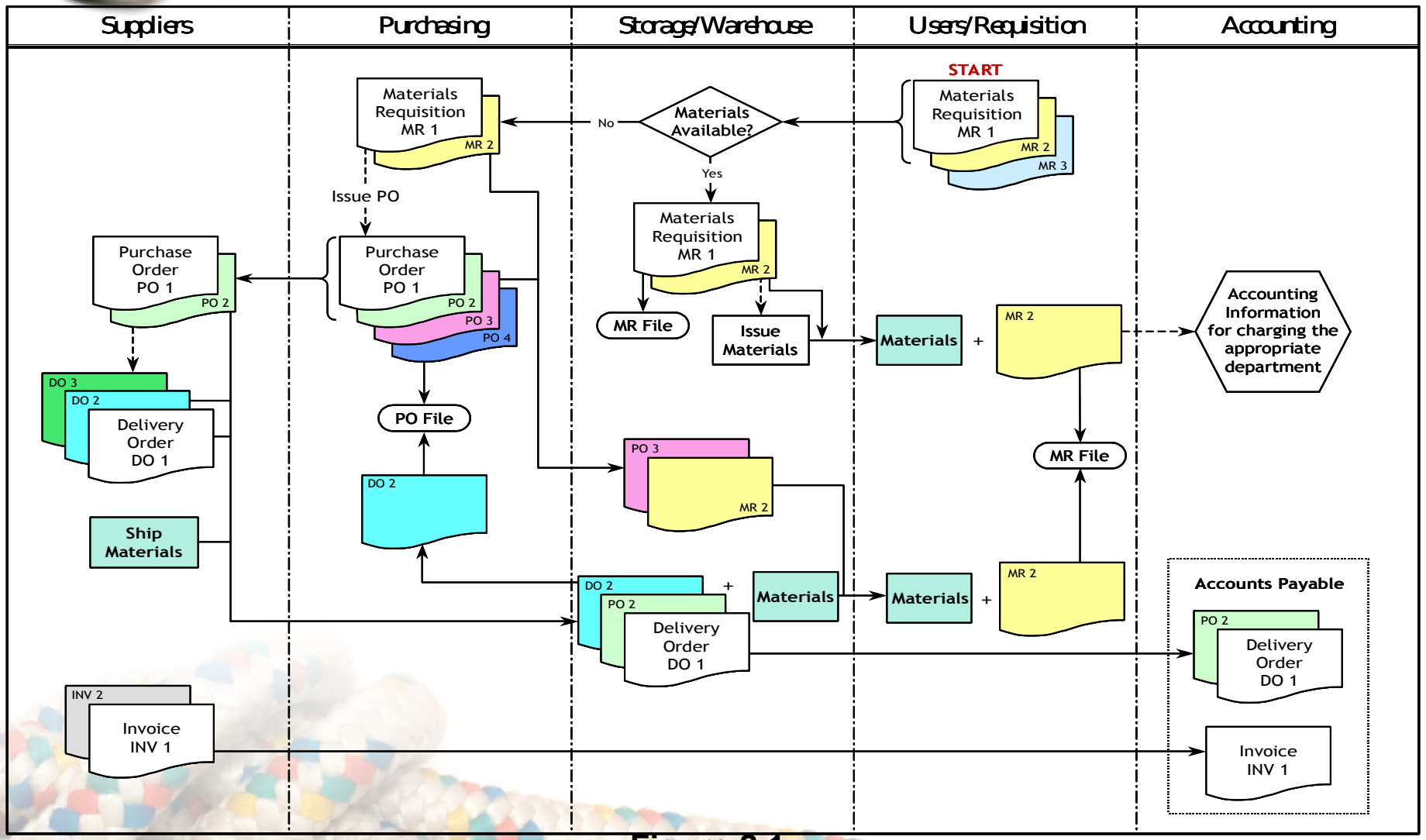


Figure 2.1

The Purchasing Process – *Manual Purchasing* *(Continued)*

BabiHutan Inc.
523 Las Vegas Blvd
Las Vegas, NV89154
Tel: 702-123-4567

Purchase Requisition

RX #: 6334554

Requestor: _____ Department: _____

Phone #: _____ Account #: _____ Date: _____

Suggested Vendor: _____

No.	Description	Price	Quantity

Special instructions: _____

_____

Approval Authority: _____ Date: _____

Distribution: White-Purchasing/Yellow-Purchasing (return to requestor)/Pink-Department

Figure 2.2

The Purchasing Process – *Manual Purchasing (Continued)*

BabiHutan [illegible]
523 LasVegas Blvd
Las Vegas, NV89154

Purchase Order

PO#: 885729
Date: _____

Vendor:	Required Delivery Date: _____ Payment Terms: _____ FOB Terms: _____ Price Agreement No.: _____
Ship To:	Include PO # in all packages, invoice, shipping papers & correspondence. Mail original and one copy of invoice attached to second copy of Purchase Order for payment.

No.	Description	Unit Price	Quantity	Total Price
		Total $ of Order		

Buyer: _____ Phone: _____ Fax: _____
Buyer Signature: _____ Requisition No.: _____

SEE REVERSE FOR TERMS & CONDITIONS

Distribution: White-Vendor/Yellow-Vendor(return with invoice)/Pink & Blue-Purchasing/Green-Fixed Assets

Figure 2.3

The Purchasing Process – *e-Procurement*

Step 1- Material user inputs a materials requisition – Relevant information such as quantity and date needed.

Step 2- Materials requisition submitted to buyer – At purchasing department (hardcopy or electronically).

Step 3- Buyer assigns qualified suppliers to bid – Product description, closing date, & conditions are given.

Step 4- Buyer reviews closed bids & selects a supplier

The Purchasing Process - e-Procurement

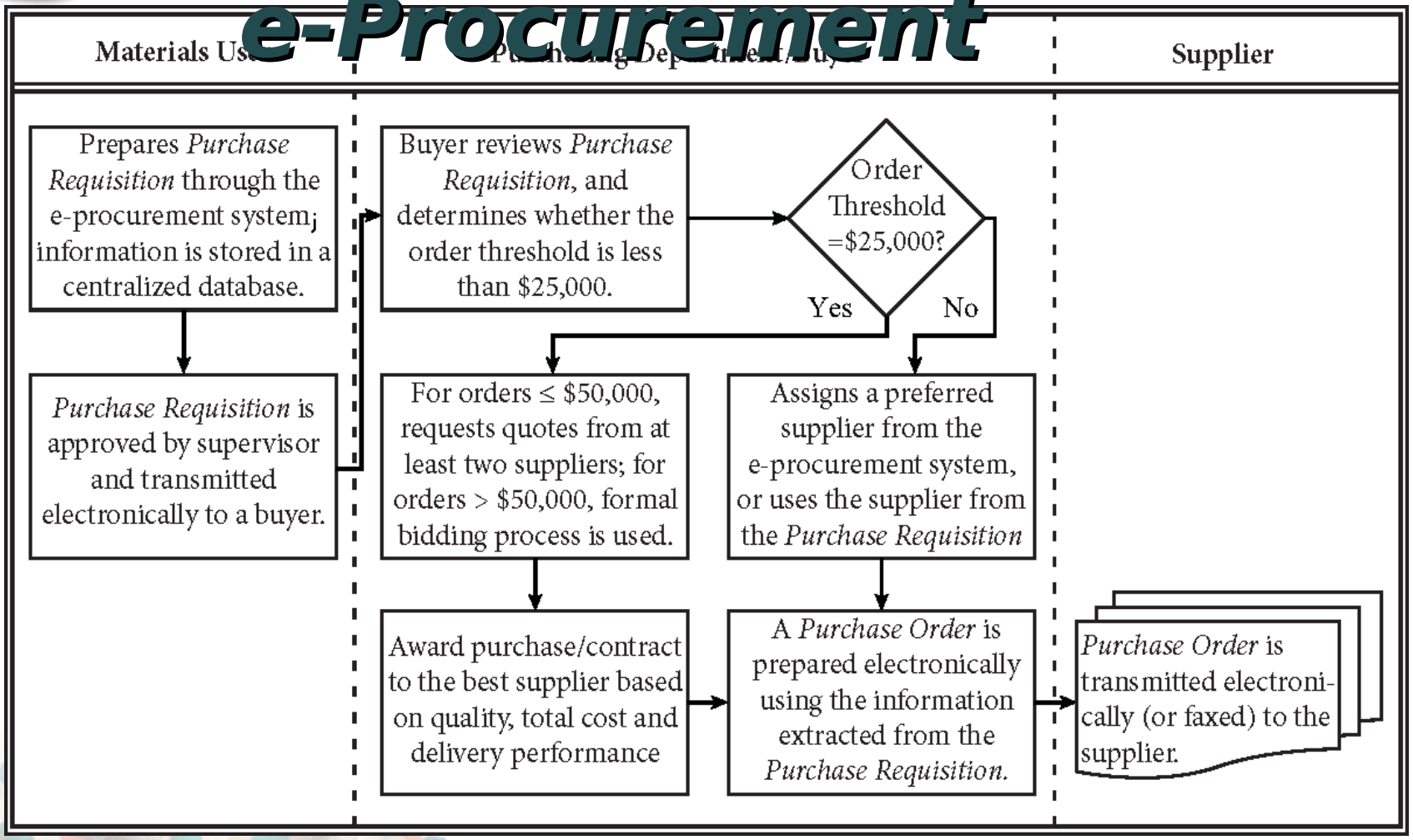


Figure 2.4

The Purchasing Process – e-Procurement

Advantages of the *e-Procurement System* (Continued)

- Time savings
- Cost savings
- Accuracy
- Real time
- Mobility
- Trackability
- Management
- Benefits to the suppliers

Small Value Purchase Orders

Processing costs for small value purchases are minimized through:

- Procurement Credit Card/Corporate Purchasing Card (P-card)
- Blanket or Open-End Purchase Orders
- Blank Check Purchase Orders
- Stockless Buying or System Contracting
- Petty Cash
- Standardization & Simplification of Materials & Components
- Accumulating Small Orders to Create a Large Order
- Using a Fixed Order Interval

Sourcing Decisions – *The Make or Buy Decision*

Outsourcing

Buying materials and components from suppliers instead of making them in-house. The trend has moved toward outsourcing.

Backward vertical integration –

Refers to acquiring sources of supply

Forward vertical integration –

Refers to acquiring customer's operations.

The Make or Buy decision is a <u>strategic</u> decision

Sourcing Decisions – *The Make or Buy Decision (continued)*

Reasons for Buying or Outsourcing

- **Cost advantage** –
  - Especially for components that are non-vital to the organization's operations, suppliers may have **economies of scale**
- **Insufficient capacity** –
  - A firm may be at or near capacity and **subcontracting** from a supplier may make better sense
- **Lack of expertise** –
  - Firm may not have the necessary technology and expertise
- **Quality** –
  - Suppliers have better technology, process, skilled labor, and the advantage of economy of scale

Sourcing Decisions – *The Make or Buy Decision* *(Continued)*

Reasons for Making

- Protect proprietary technology
- No competent supplier
- Better quality control
- Use existing idle capacity
- Control of lead-time transportation, and warehousing cost
- Lower cost

Roles of Supply Base

Supply Base - list of suppliers that a firm uses to acquire its materials, services, supplies, and equipment

- Firms emphasize long-term strategic supplier alliances consolidating volume into ***one or fewer*** suppliers, resulting in a **smaller supply base**

Preferred suppliers provide:

- Product and process technology and espertise to support buyer's operations, particularly new product development and value analysis
- Information on latest trends in materials, processes, or designs
- Information on the supply market
- Capacity for meeting unexpected demand
- Cost efficiency due to economies of scale

Supplier Selection

The process of selecting suppliers, is complex and should be based on multiple criteria:

- Product and process technologies
- Willingness to share technologies & information
  - **Early supplier involvement (ESI)**
  - **Concurrent engineering (CE)**
- Quality
- Service
- Cost
  - **Total cost of ownership or acquisition**
- Reliability
- Order system & cycle time
- Capacity
- Communication capability
- Location

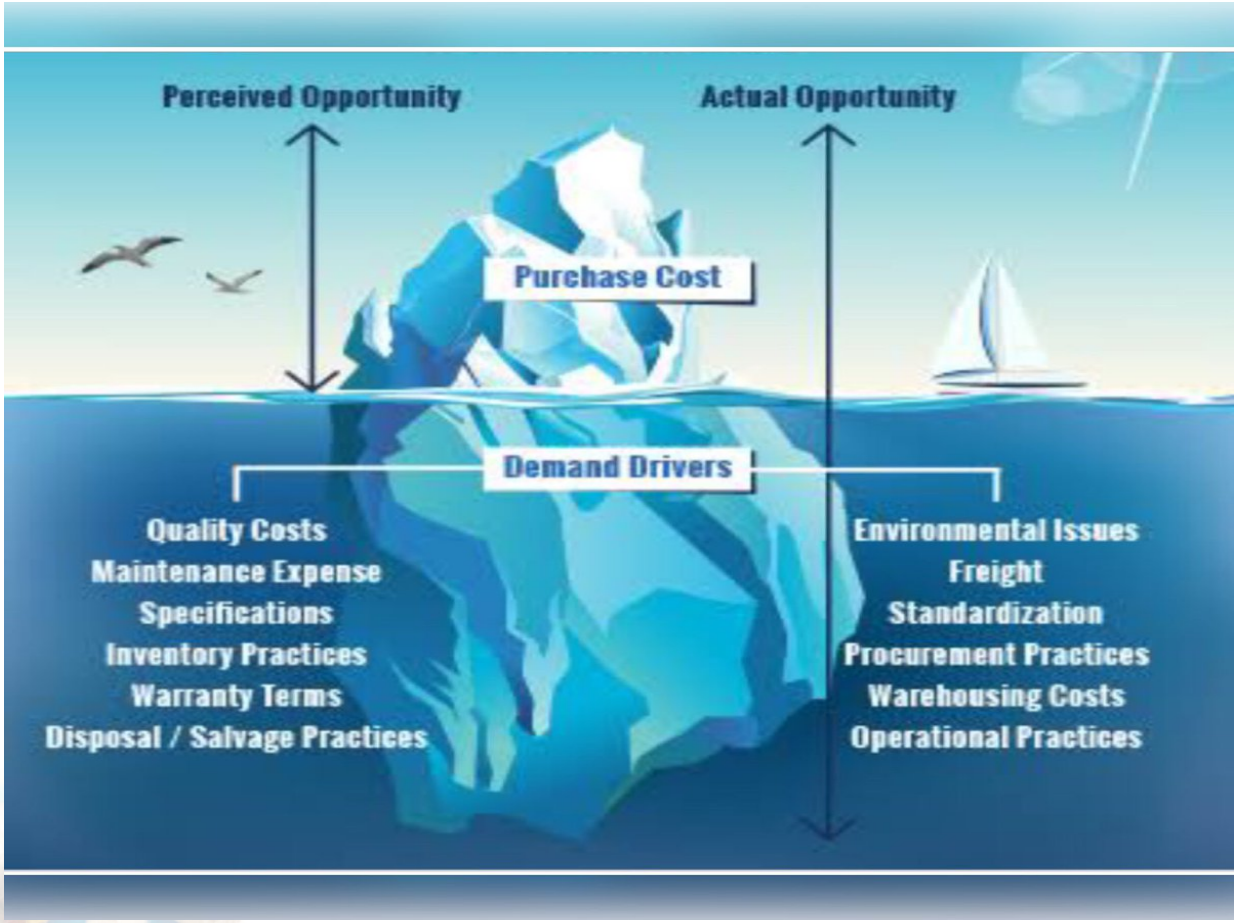
Analogy-TCO


Success is an iceberg
SUCCESS!
WHAT PEOPLE SEE
WHAT PEOPLE DON'T SEE
Persistence
Failure
FAIL
Sacrifice
THINGS I HAVE TO GIVE UP
1.
2.
3.
Disappointment
Dedication
GOAL
Hard work
Good habits

Analogy-TCO


Amount paid to suppliers
Purchase Price
Demand Drivers
Specifications
Procurement Practices
Inventory Practices
Internal Processes
Internal Policies & Procedures
Operational Practices
Total acquisition cost

Analogy-TCO


Perceived Opportunity
Actual Opportunity
Purchase Cost
Demand Drivers
Quality Costs
Maintenance Expense
Specifications
Inventory Practices
Warranty Terms
Disposal / Salvage Practices
Environmental Issues
Freight
Standardization
Procurement Practices
Warehousing Costs
Operational Practices

Total Cost of Ownership

Total cost of ownership is a philosophy for really understanding all supply chain related costs of doing business with a particular supplier for a particular good or service (Lisa Ellam, May 1999)

TCO Components

- Acquisition costs
  - Purchase price
  - Planning costs
  - Quality costs
  - Taxes
  - Financing costs
- Ownership costs
  - Downtime costs
  - Risk costs
  - Cycle time costs
  - Conversion costs
  - Non-value added costs
  - Supply chain costs
- Post-ownership costs
  - Environmental costs
  - Warranty costs
  - Product liability costs
  - Customer dissatisfaction costs

Example-TCO

Kuantan ATV, Inc., assembles five different models of all-terrain vehicles (ATVs) from various ready-made components to serve the Las Vegas, Nevada, market. The company uses the same engine for all its ATVs.

The purchasing manager, Ms. Jane Kim, needs to choose a supplier for engines for the coming year. Due to the size of the warehouse and other administrative restrictions, she must order the engines in lot sizes of 1,000 each.

The unique characteristics of the standardized engine require special tooling to be used during the manufacturing process. Kuantan ATV agrees to reimburse the supplier for the tooling. This is a critical purchase, since late delivery of engines would disrupt production and cause 50 percent lost sales and 50 percent back orders of the ATVs.

Jane has obtained quotes from two reliable suppliers but needs to know which supplier is more cost-effective. She has the following information:

Requirements (annual forecast)	12,000 units
Weight per engine	22 pounds
Order processing cost	$125/order
Inventory carrying rate	20 % per year
Cost of working capital	10 % per year
Profit margin	18 %
Price of finished ATV	$4,500
Back-order cost	$15 per unit

Two qualified suppliers have submitted the following quotations:

UNIT PRICE	SUPPLIER 1	SUPPLIER 2
1 to 999 units/order	$510.00	$505.00
1,000 to 2999 units/order	$500.00	$498.00
3,000 + units/order	$490.00	$488.00
Tooling Cost	$22,000	$20,000
Terms	2/10, net 30	1/10, net 30
Distance	125 miles	100 miles
Supplier Quality Rating (defects)	2%	3%
Supplier Delivery Rating (late delivery)	1%	2%

Jane also obtained the following freight rates from her carrier:

Truckload (TL $\geq$ 40,000 lbs):	$0.80 per ton-mile
Less-than-truckload (LTL):	$1.20 per ton-mile

Note: per ton-mile = 2,000 lbs per mile

How Many Suppliers to Use

Single-source - a risky proposition. Current trends favor fewer sources.

Reasons Favoring a Single Supplier

- To establish a good relationship
- Less quality variability
- Lower cost
- Transportation economies
- Proprietary product or process
- Volume too small to split

Reasons Favoring Multiple Suppliers

- Need capacity
- Spread risk of supply interruption
- Create competition
- Information
- Dealing with special kinds of business

Purchasing – *Centralized vs. Decentralized*

Purchasing Organization is dependent on many factors, such as market conditions & types of materials required

- ***Centralized Purchasing*** - purchasing department located at the firm's corporate office makes all the purchasing decisions
- ***Decentralized Purchasing*** - individual, local purchasing departments, such as plant level, make their own purchasing decisions

Purchasing – Centralized vs. Decentralized

Advantages of *Centralization*

- Concentrated volume-
- Leveraging purchase volume
- Avoid duplication
- Specialization
- Lower transportation costs
- No competition within units
- Common supply base

Advantages of *Decentralization* (continued)

- Closer knowledge of requirements
- Local sourcing
- Less bureaucracy

A ***hybrid purchasing organization***

- **Decentralized-centralized** (large multiunit org)- decentralized corporate and centralized at business unit
- **Centralized-decentralized** (large org w/centralized control) centralized large national contracts at corporate level and decentralized items specific to business unit

International Purchasing/Global Sourcing

Reasons for Global Sourcing –

Opportunity to improve quality, cost, and delivery performance

Potential Challenges –

Requires additional skills and knowledge to deal with international suppliers, logistics, communication, political environment, and other issues

Practice Questions

You are given the following information:

COSTS MAKE OPTION BUY OPTION

- Fixed Cost (M)= $125,000 & Fixed Cost (B) = $5,000
- Variable Cost (M) = $15 & Variable Cost (B) = $17

a. Find the break-even quantity and the total cost at the break-even point.

b. If the requirement is 150,000 units, is it more cost-effective for the firm to buy or

make the components? What is the cost savings for choosing the cheaper option?

Practice Questions

Given the following information, use total cost analysis to determine which supplier

is more cost-effective. Late delivery of raw material results in 60 percent lost sales

and 40 percent ba

Order lot size	1,000
Requirements (annual forecast)	120,000 units
Weight per engine	22 pounds
Order processing cost	$125/order
Inventory carrying rate	20% per year
Cost of working capital	10% per year
Profit margin	15%
Price of finished goods	$4,500
Back order cost	$15 per unit

Truckload (TL ≥ 40,000 lbs): $0.85 per ton-mile

Less-than-truckload (LTL): $1.10 per ton-mile

Note: per ton-mile = 2,000 lbs per mile

ORDER SIZE	SUPPLIER 1	SUPPLIER 2
1 to 999 units/order	$50.00 per unit	$49.50 per unit
1000 to 2,999 units/order	$49.00 per unit	$48.50 per unit
3,000 + units/order	$48.00 per unit	$48.00 per unit
Tooling cost	$12,000	$10,000
Terms	2/10, net 30	1/10, net 30
Distance	125 miles	100 miles
Supplier Quality Rating	2%	2%
Supplier Delivery Rating	1%	2%