Supply Chain Management

Achieving Strategic Fit and Scope

Outline

- Competitive and supply chain strategies
- Achieving strategic fit
- Expanding strategic scope

What is Supply Chain Management?

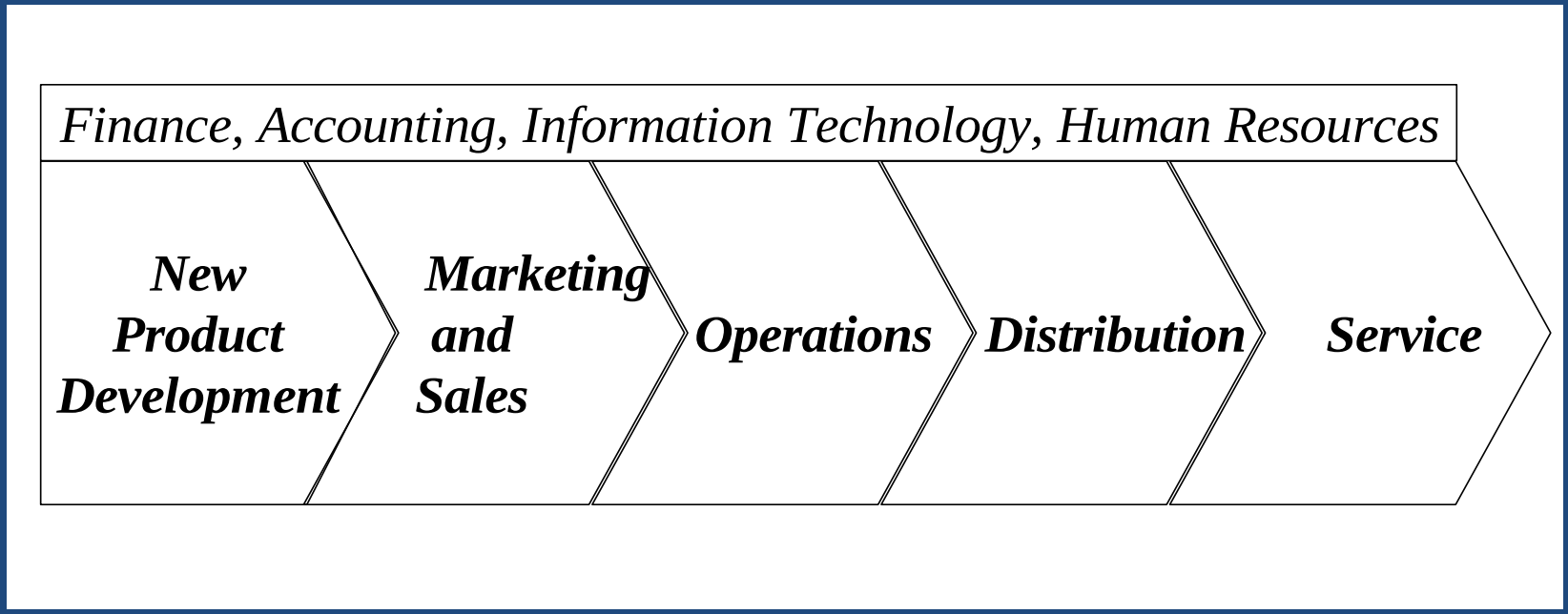
- Managing supply chain flows and assets, *to maximize*
  supply chain surplus

- What is *supply chain surplus*?

Competitive and Supply Chain Strategies

- Competitive strategy: defines the set of customer needs a firm seeks to satisfy through its products and services
- Product development strategy: specifies the portfolio of new products that the company will try to develop
- Marketing and sales strategy: specifies how the market will be segmented and product positioned, priced, and promoted
- Supply chain strategy:
  - determines the nature of material procurement, transportation of materials, manufacture of product or creation of service, distribution of product
  - Consistency and support between supply chain strategy, competitive strategy, and other functional strategies is important

The Value Chain: Linking Supply Chain and Business Strategy



Achieving Strategic Fit

- Introduction
- How is strategic fit achieved?
- Other issues affecting strategic fit

Achieving Strategic Fit

- Strategic fit:
  - Consistency between customer priorities of competitive strategy and supply chain capabilities specified by the supply chain strategy
  - Competitive and supply chain strategies have the same goals
- A company may fail because of a lack of strategic fit or because its processes and resources do not provide the capabilities to execute the desired strategy
- Example of strategic fit -- Dell

How is Strategic Fit Achieved?

- Step 1: Understanding the customer and supply chain uncertainty
- Step 2: Understanding the supply chain
- Step 3: Achieving strategic fit

Step 1: Understanding the Customer and Supply Chain Uncertainty

- Identify the needs of the customer segment being served
- Quantity of product needed in each lot
- Response time customers will tolerate
- Variety of products needed
- Service level required
- Price of the product
- Desired rate of innovation in the product

Step 1: Understanding the Customer and Supply Chain Uncertainty

- Overall attribute of customer demand
- Demand uncertainty: uncertainty of customer demand for a product
- Implied demand uncertainty: resulting uncertainty for the supply chain given the portion of the demand the supply chain must handle and attributes the customer desires

Step 1: Understanding the Customer and Supply Chain Uncertainty

- Implied demand uncertainty also related to customer needs and product attributes
- Table 2.1
- Figure 2.2
- Table 2.2
- First step to strategic fit is to understand customers by mapping their demand on the implied uncertainty spectrum

Achieving Strategic Fit

- Understanding the Customer
  - Lot size
  - Response time
  - Service level
  - Product variety
  - Price
  - Innovation

Implied Demand Uncertainty

Impact of Customer Needs on Implied Demand Uncertainty (Table 2.1)

Customer Need	Causes implied demand uncertainty to increase because …
Range of quantity increases	Wider range of quantity implies greater variance in demand
Lead time decreases	Less time to react to orders
Variety of products required increases	Demand per product becomes more disaggregated
Number of channels increases	Total customer demand is now disaggregated over more channels
Rate of innovation increases	New products tend to have more uncertain demand
Required service level increases	Firm now has to handle unusual surges in demand

Levels of Implied Demand Uncertainty

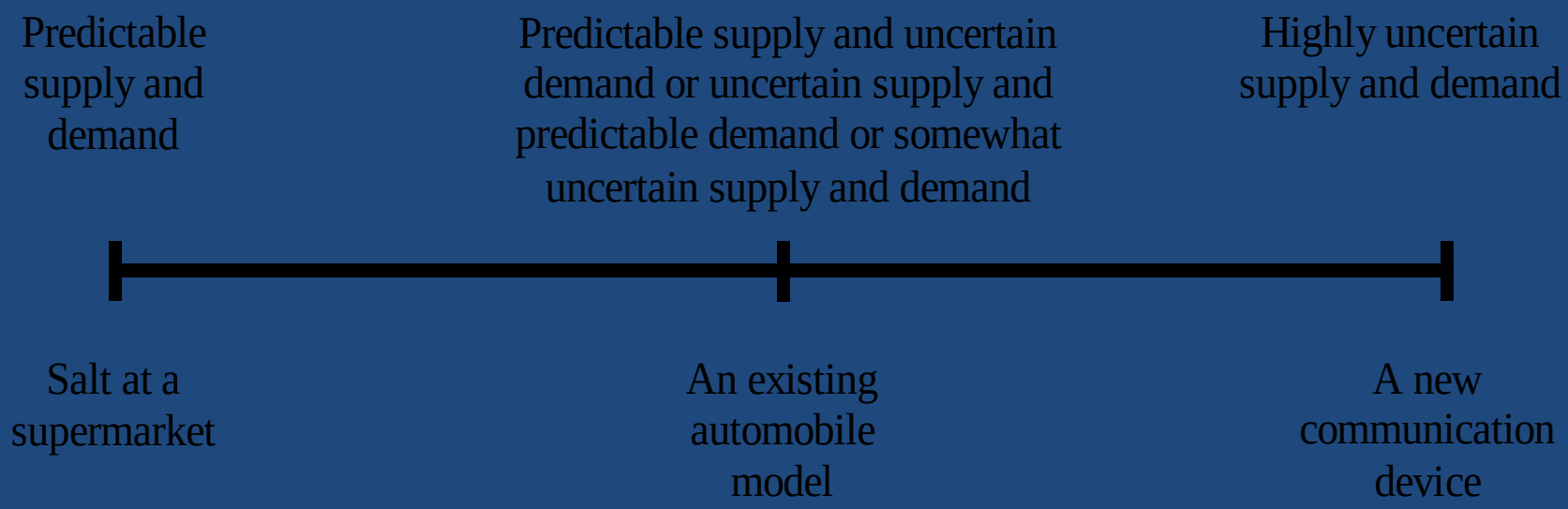


Figure 2.2: The Implied Uncertainty (Demand and Supply)

Correlation Between Implied Demand Uncertainty and Other Attributes (Table 2.2)

Attribute	Low Implied Uncertainty	High Implied Uncertainty
Product margin	Low	High
Avg. forecast error	10%	40%-100%
Avg. stockout rate	1%-2%	10%-40%
Avg. forced season-end markdown	0%	10%-25%

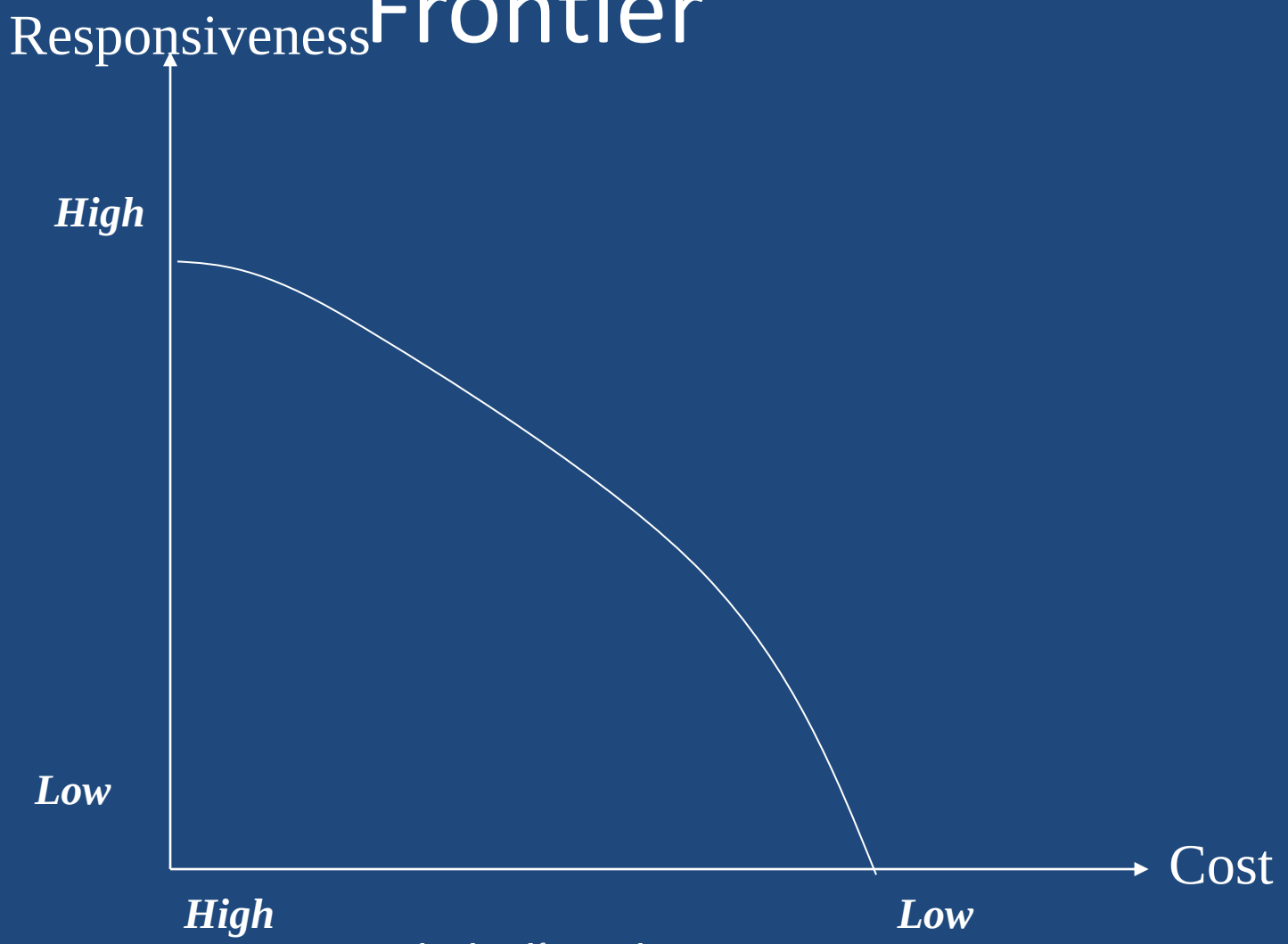
Step 2: Understanding the Supply Chain

- How does the firm best meet demand?
- Dimension describing the supply chain is supply chain responsiveness
- Supply chain responsiveness -- ability to
  - respond to wide ranges of quantities demanded
  - meet short lead times
  - handle a large variety of products
  - build highly innovative products
  - meet a very high service level

Step 2: Understanding the Supply Chain

- There is a cost to achieving responsiveness
- Supply chain efficiency: cost of making and delivering the product to the customer
- Increasing responsiveness results in higher costs that lower efficiency
- Figure 2.3: cost-responsiveness efficient frontier
- Figure 2.4: supply chain responsiveness spectrum
- Second step to achieving strategic fit is to map

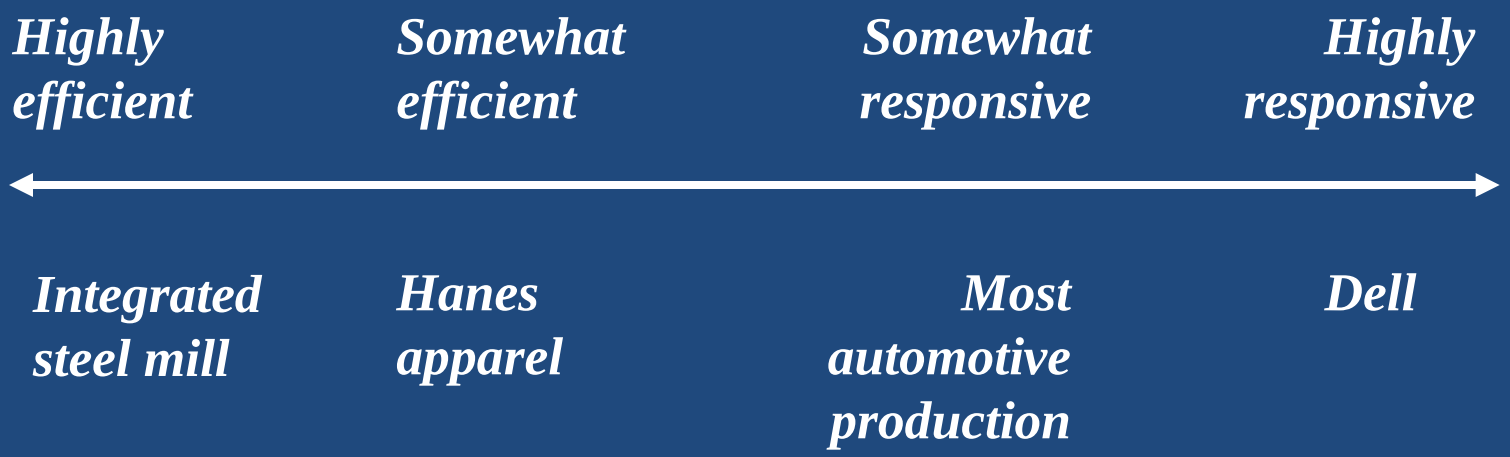
Understanding the Supply Chain: Cost-Responsiveness Efficient Frontier



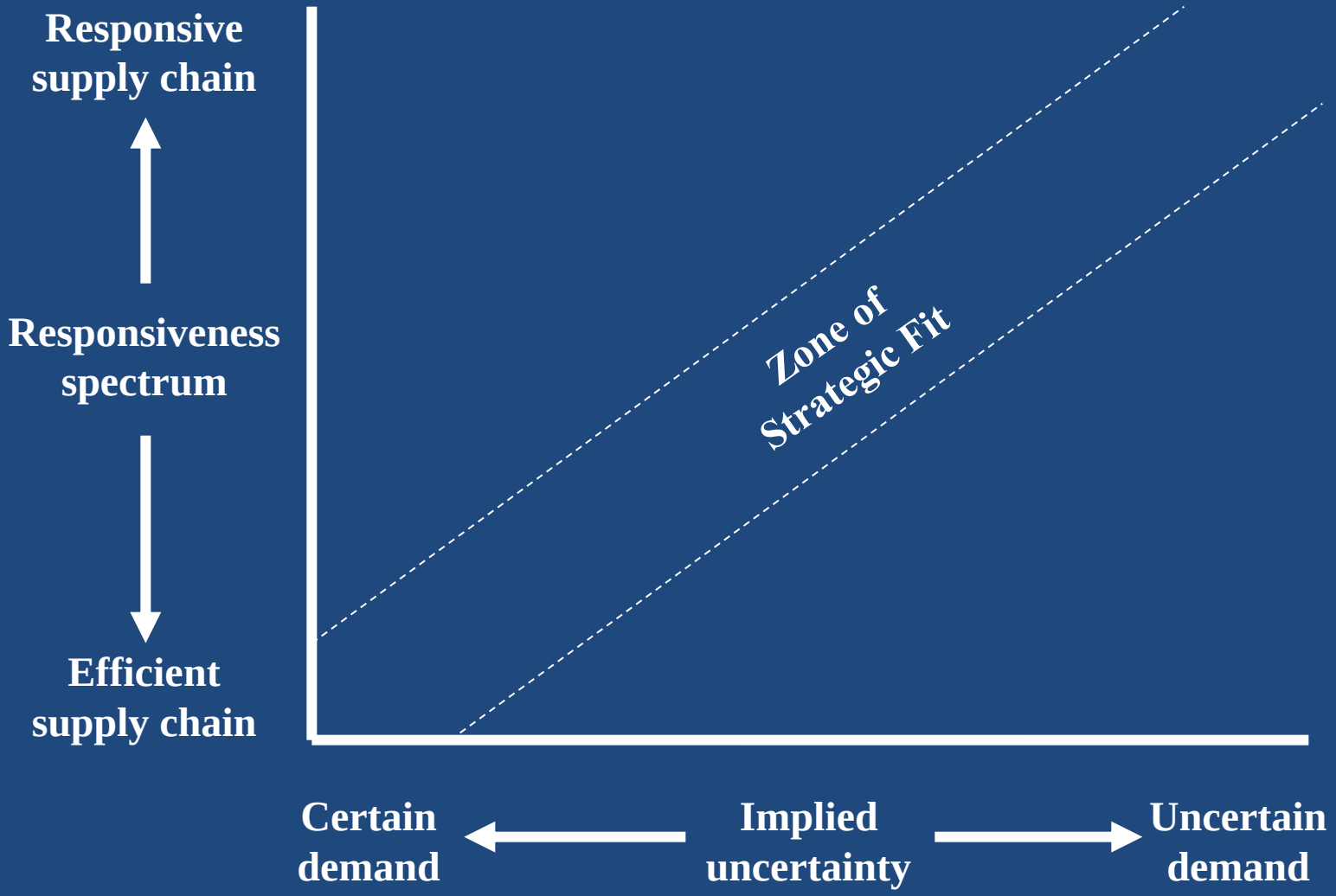
Step 3: Achieving Strategic Fit

- Step is to ensure that what the supply chain does well is consistent with target customer's needs
- Fig. 2.5: Uncertainty/Responsiveness map
- Fig. 2.6: Zone of strategic fit
- Examples: Dell, Barilla

Responsiveness Spectrum (Figure 2.4)



Achieving Strategic Fit Shown on the Uncertainty/Responsiveness Map (Fig. 2.5)



Step 3: Achieving Strategic Fit

- All functions in the value chain must support the competitive strategy to achieve strategic fit – Fig. 2.7
- Two extremes: Efficient supply chains (Barilla) and responsive supply chains (Dell) – Table 2.3
- Two key points
  - there is *no* right supply chain strategy independent of competitive strategy
  - there *is* a right supply chain strategy for a given competitive strategy

Comparison of Efficient and Responsive Supply Chains (Table 2.4)

	Efficient	**Responsive**
Primary goal	Lowest cost	Quick response
Product design strategy	Min product cost	Modularity to allow postponement
Pricing strategy	Lower margins	Higher margins
Mfg strategy	High utilization	Capacity flexibility
Inventory strategy	Minimize inventory	Buffer inventory
Lead time strategy	Reduce but not at expense of greater cost	Aggressively reduce even if costs are significant
Supplier selection strategy	Cost and low quality	Speed, flexibility, quality
Transportation strategy	Greater reliance on low cost modes	Greater reliance on responsive (fast) modes

Other Issues Affecting Strategic Fit

- Multiple products and customer segments
- Product life cycle
- Competitive changes over time

Multiple Products and Customer Segments

- Firms sell different products to different customer segments (with different implied demand uncertainty)
- The supply chain has to be able to balance efficiency and responsiveness given its portfolio of products and customer segments
- Two approaches:
  - Different supply chains
  - Tailor supply chain to best meet the needs of each product's demand

Product Life Cycle

- The demand characteristics of a product and the needs of a customer segment change as a product goes through its life cycle
- Supply chain strategy must evolve throughout the life cycle
- Early: uncertain demand, high margins (time is important), product availability is most important, cost is secondary
- Late: predictable demand, lower margins, price is important

Product Life Cycle

- Examples: pharmaceutical firms, Intel
- As the product goes through the life cycle, the supply chain changes from one emphasizing responsiveness to one emphasizing efficiency

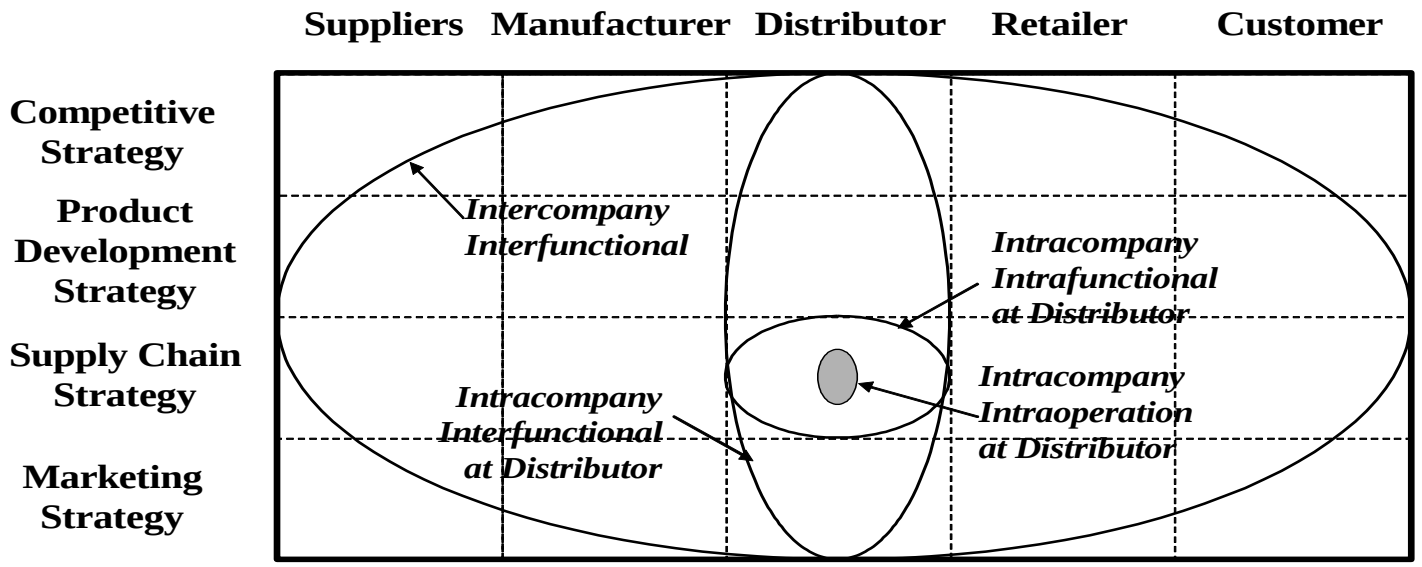
Competitive Changes Over Time

- Competitive pressures can change over time
- More competitors may result in an increased emphasis on variety at a reasonable price
- The Internet makes it easier to offer a wide variety of products
- The supply chain must change to meet these changing competitive conditions

Expanding Strategic Scope

- Scope of strategic fit
  - The functions and stages within a supply chain that devise an integrated strategy with a shared objective
  - One extreme: each function at each stage develops its own strategy
  - Other extreme: all functions in all stages devise a strategy jointly
- Five categories:
  - Intracompany intraoperation scope
  - Intracompany intrafunctional scope
  - Intracompany interfunctional scope
  - Intercompany interfunctional scope
  - Flexible interfunctional scope

Different Scopes of Strategic Fit Across a Supply Chain



Summary of Learning Objectives

- Why is achieving strategic fit critical to a company's overall success?
- How does a company achieve strategic fit between its supply chain strategy and its competitive strategy?
- What is the importance of expanding the scope of strategic fit across the supply chain?

Supply Chain Management (3rd Edition)

Chapter 4
Designing the Distribution Network in a Supply Chain

Outline

- The Role of Distribution in the Supply Chain
- Factors Influencing Distribution Network Design
- Design Options for a Distribution Network
- E-Business and the Distribution Network
- Distribution Networks in Practice
- Summary of Learning Objectives

The Role of Distribution in the Supply Chain

- ***Distribution***: the steps taken to move and store a product from the supplier stage to the customer stage in a supply chain
- Distribution directly affects cost and the customer experience and therefore drives profitability
- Choice of distribution network can achieve supply chain objectives from low cost to high responsiveness
- Examples: Wal-Mart, Dell, Proctor & Gamble,

Factors Influencing Distribution Network Design

- Distribution network performance evaluated along two dimensions at the highest level:
  - Customer needs that are met
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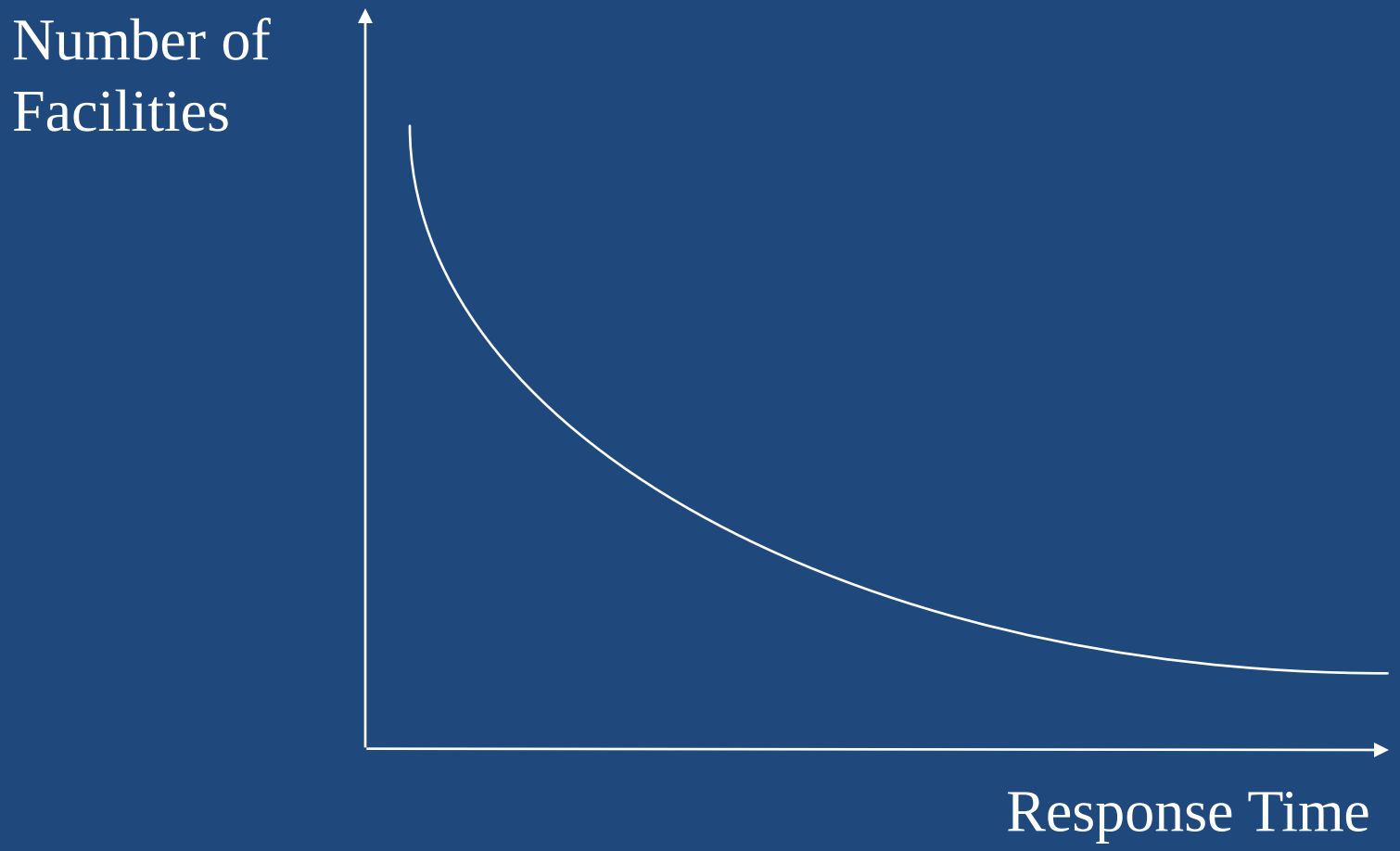
- Distribution network design options must therefore be compared according to their impact on customer service and the cost to provide this level of service

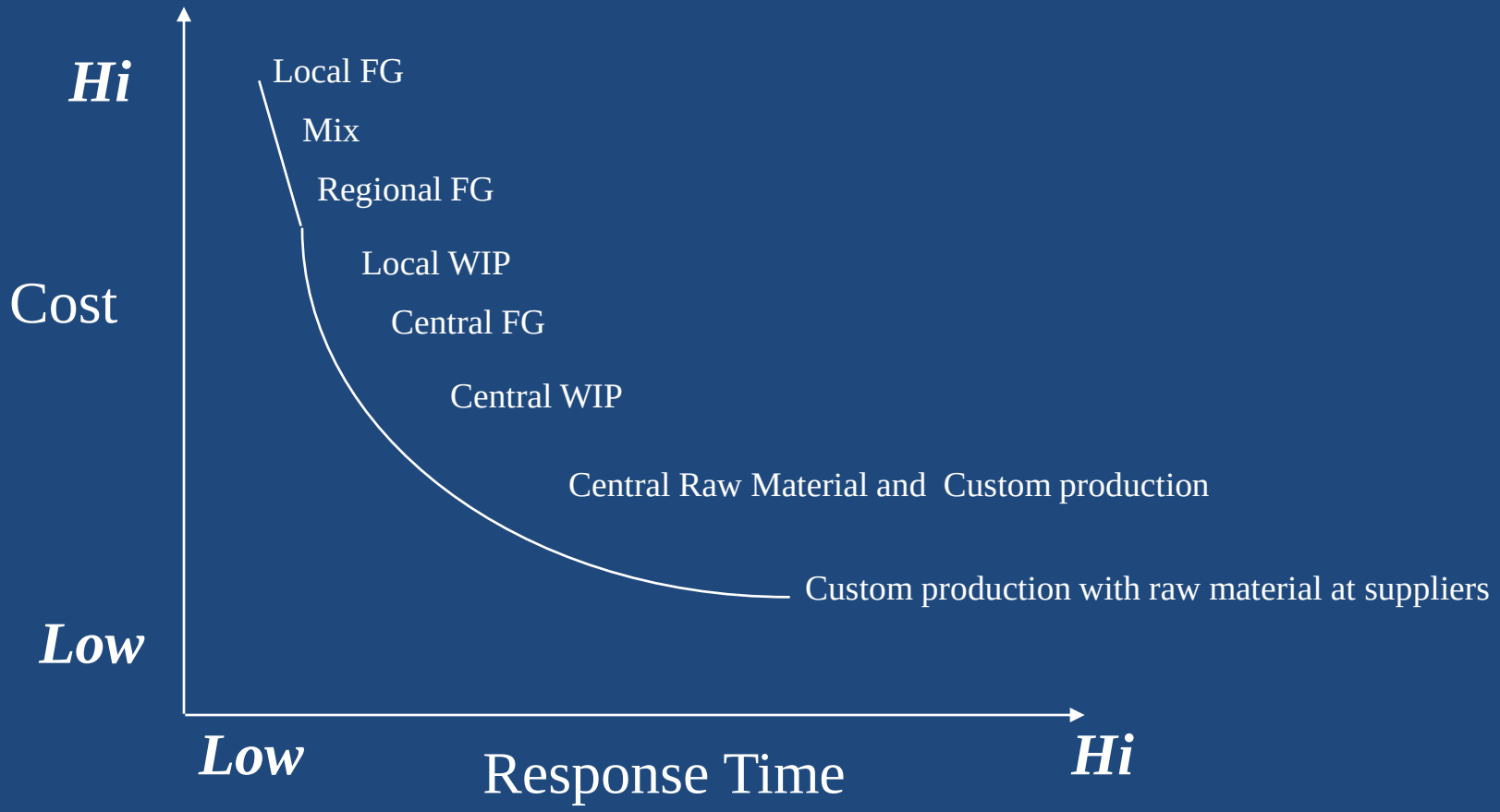
Factors Influencing Distribution Network Design

- Elements of customer service influenced by network structure:
  - Response time
  - Product variety
  - Product availability
  - Customer experience
  - Order visibility
  - Returnability
- Supply chain costs affected by network structure:
  - Inventories
  - Transportation
  - Facilities and handling
  - Information

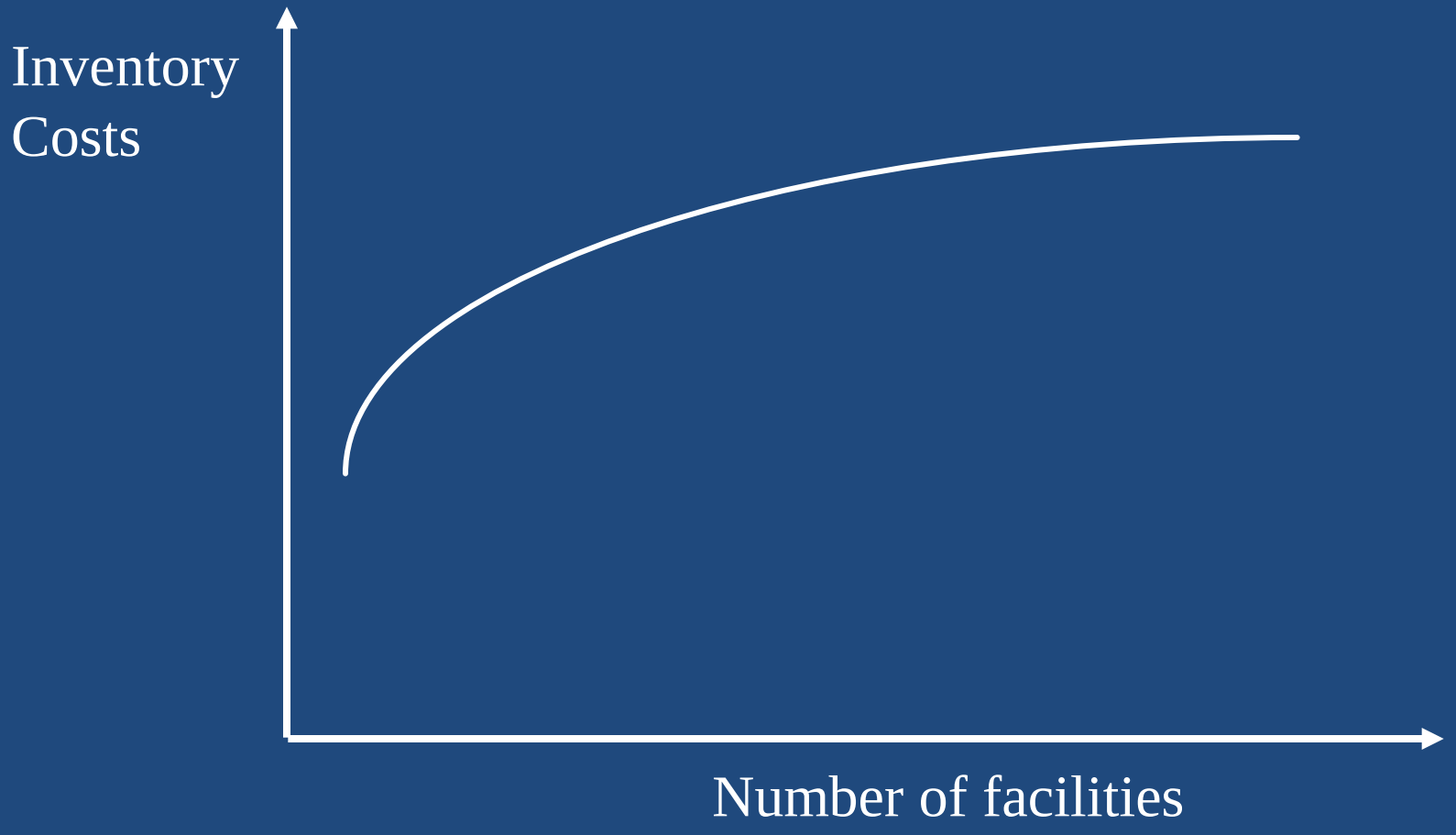
Service and Number of Facilities (Fig. 4.1)



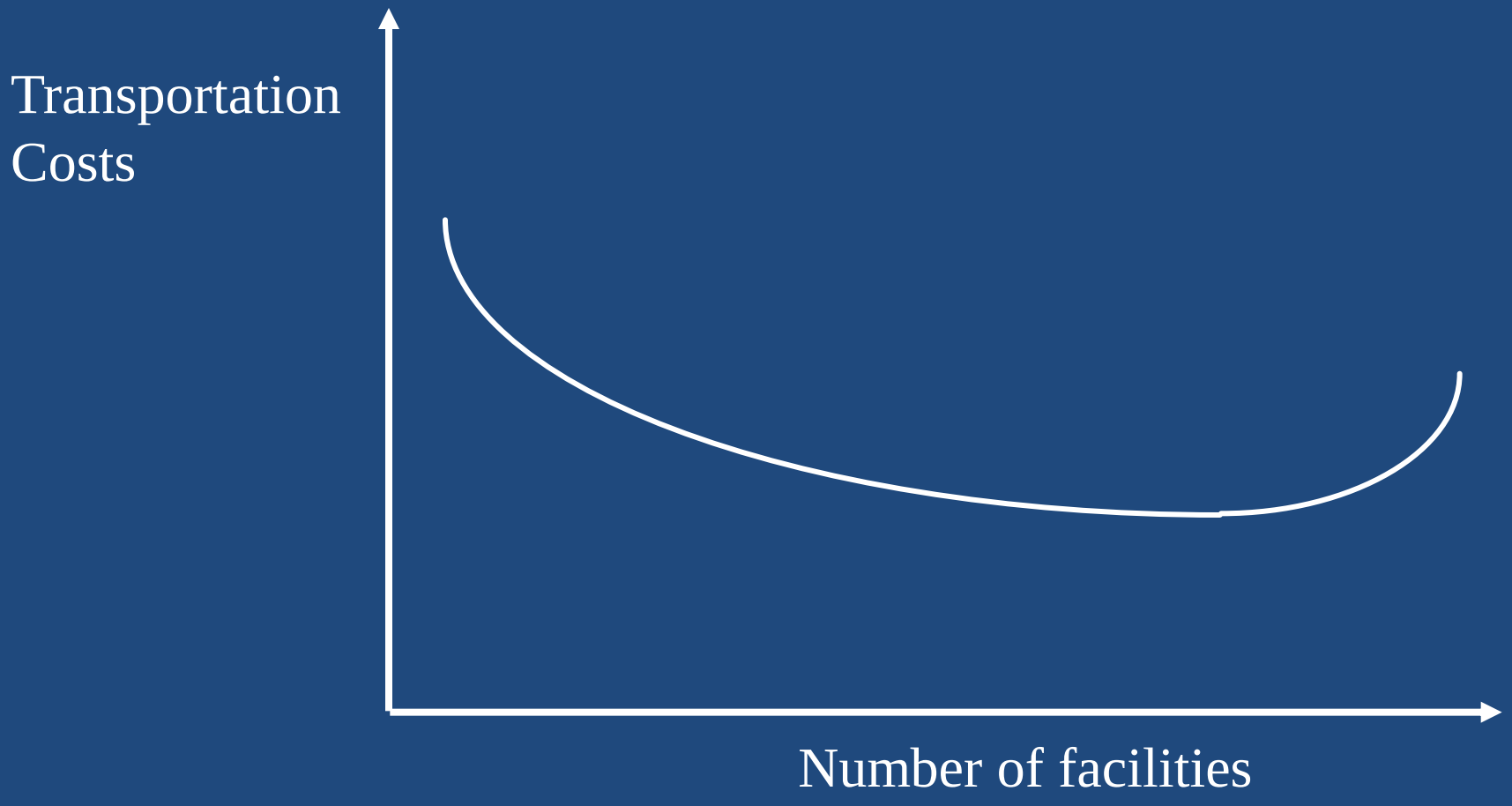
The Cost-Response Time Frontier



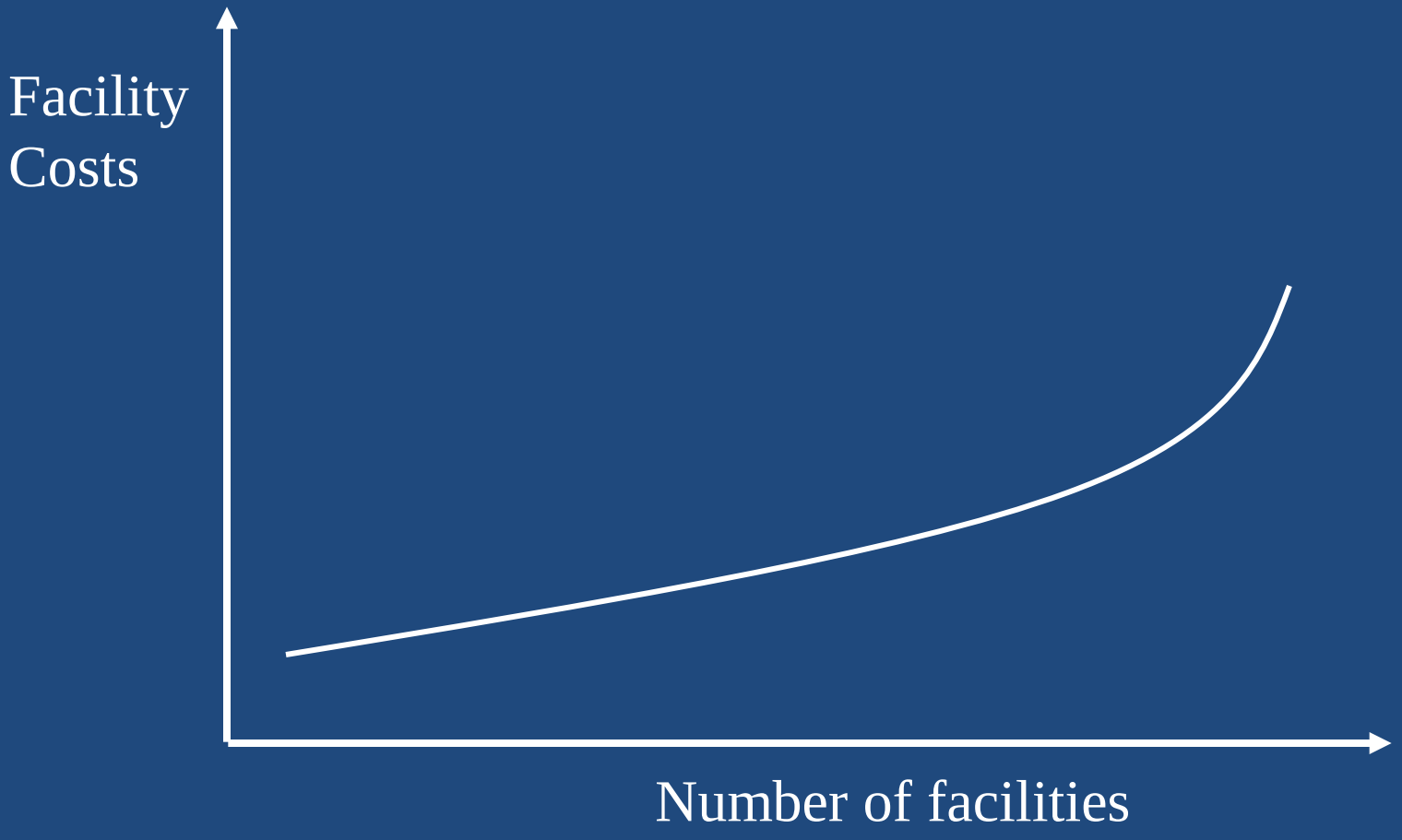
Inventory Costs and Number of Facilities (Fig. 4.2)



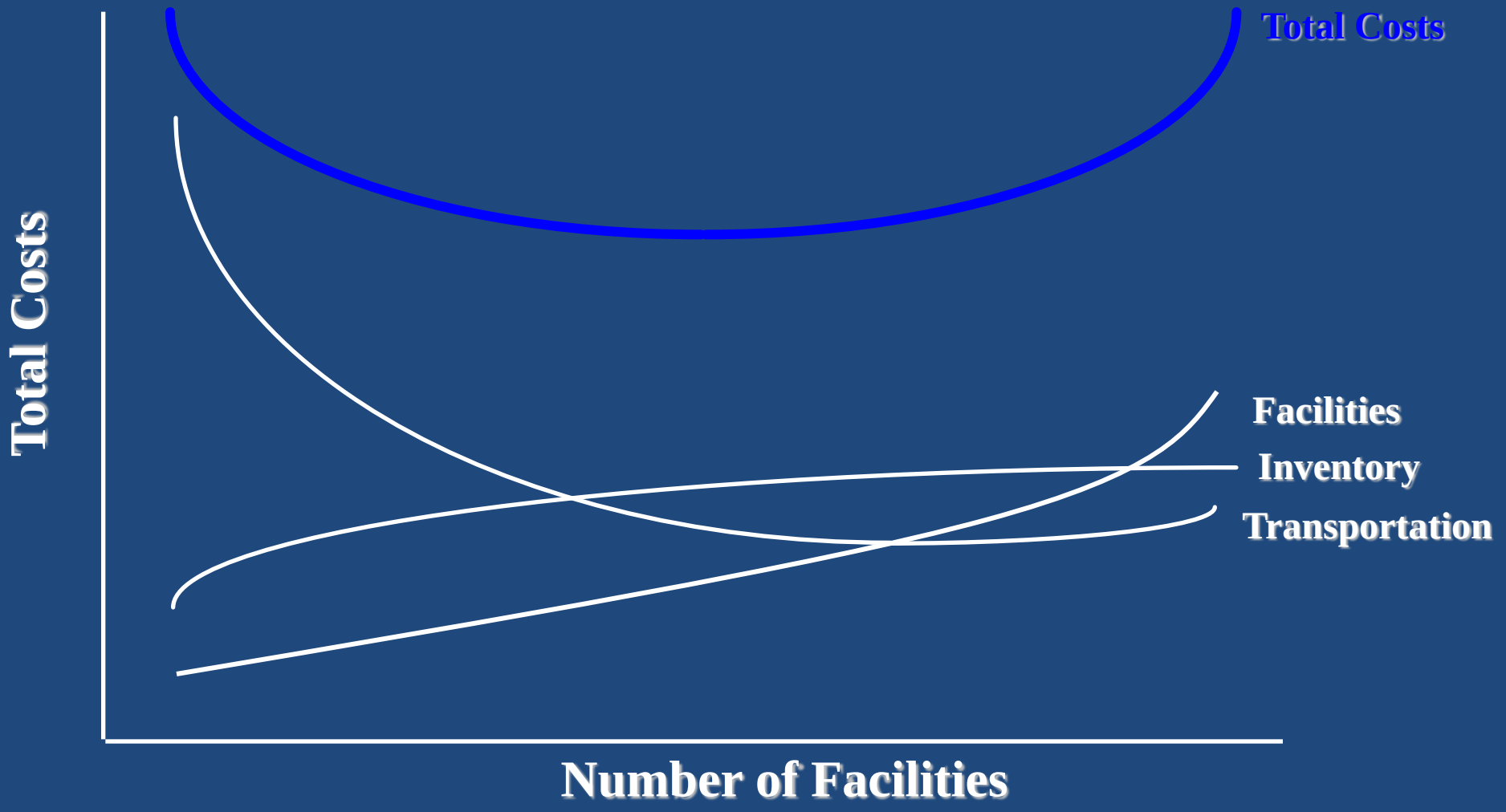
Transportation Costs and Number of Facilities (Fig. 4.3)



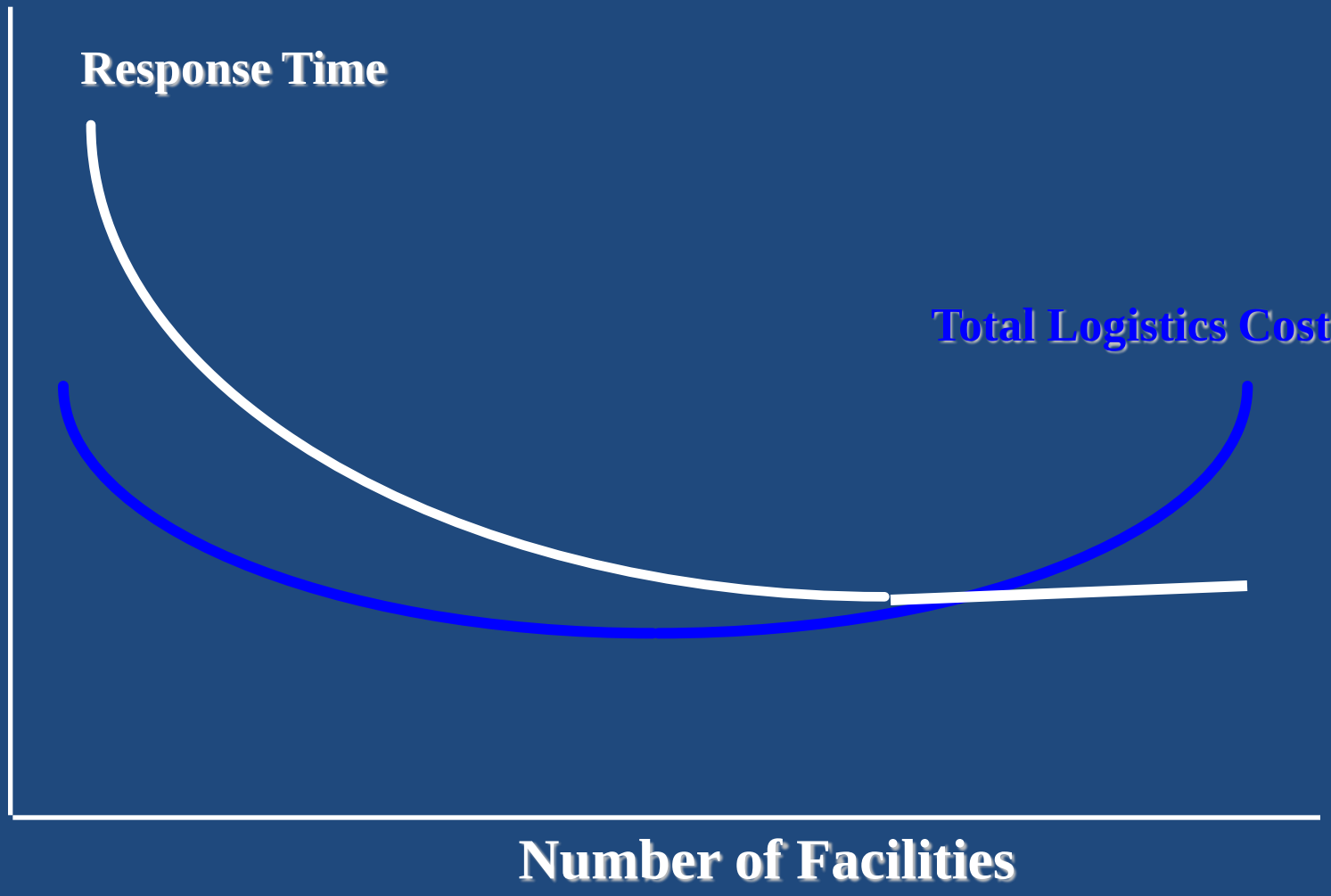
Facility Costs and Number of Facilities (Fig. 4.4)



Total Costs Related to Number of Facilities



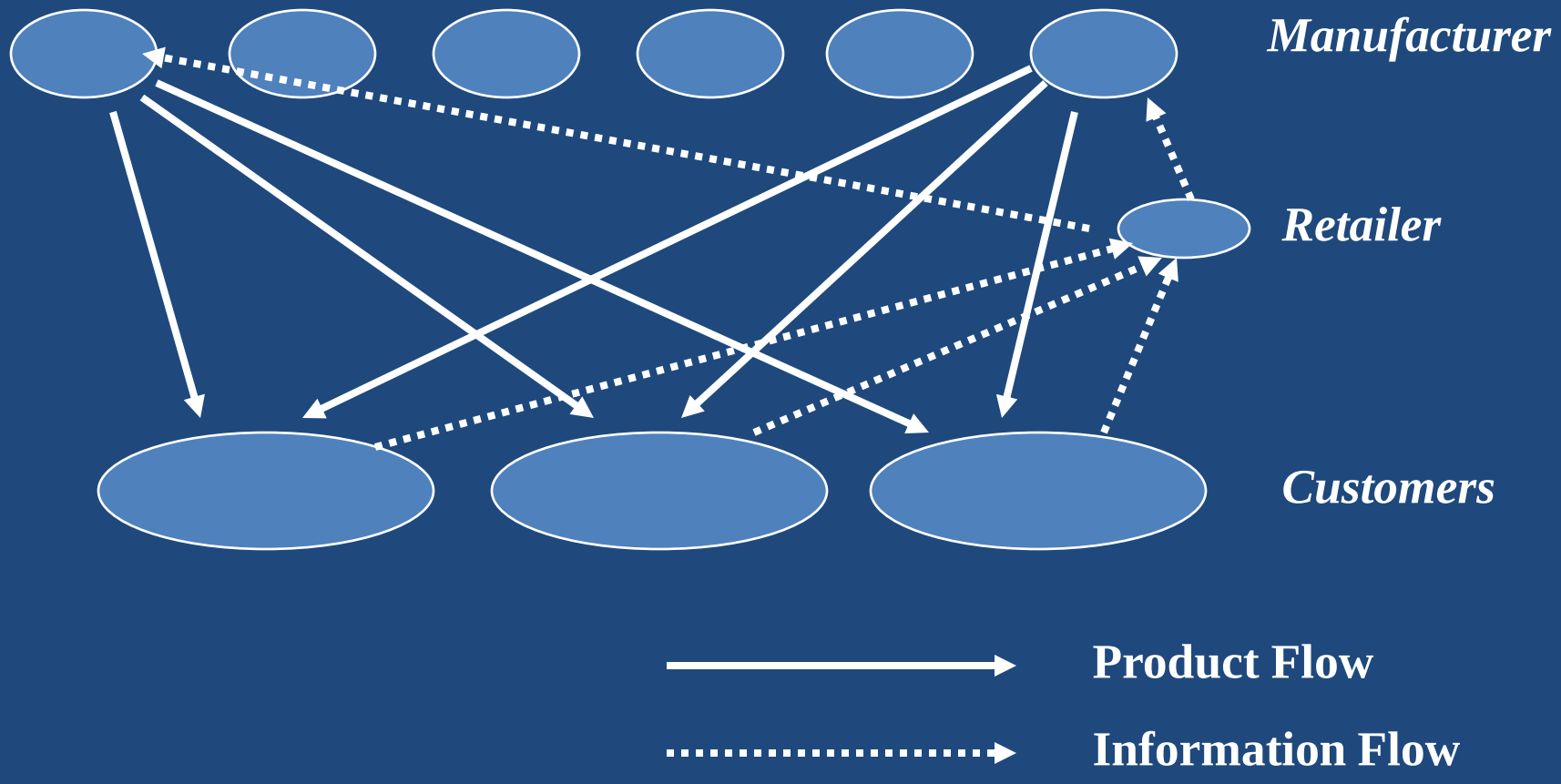
Variation in Logistics Costs and Response Time with Number of Facilities (Fig. 4.5)



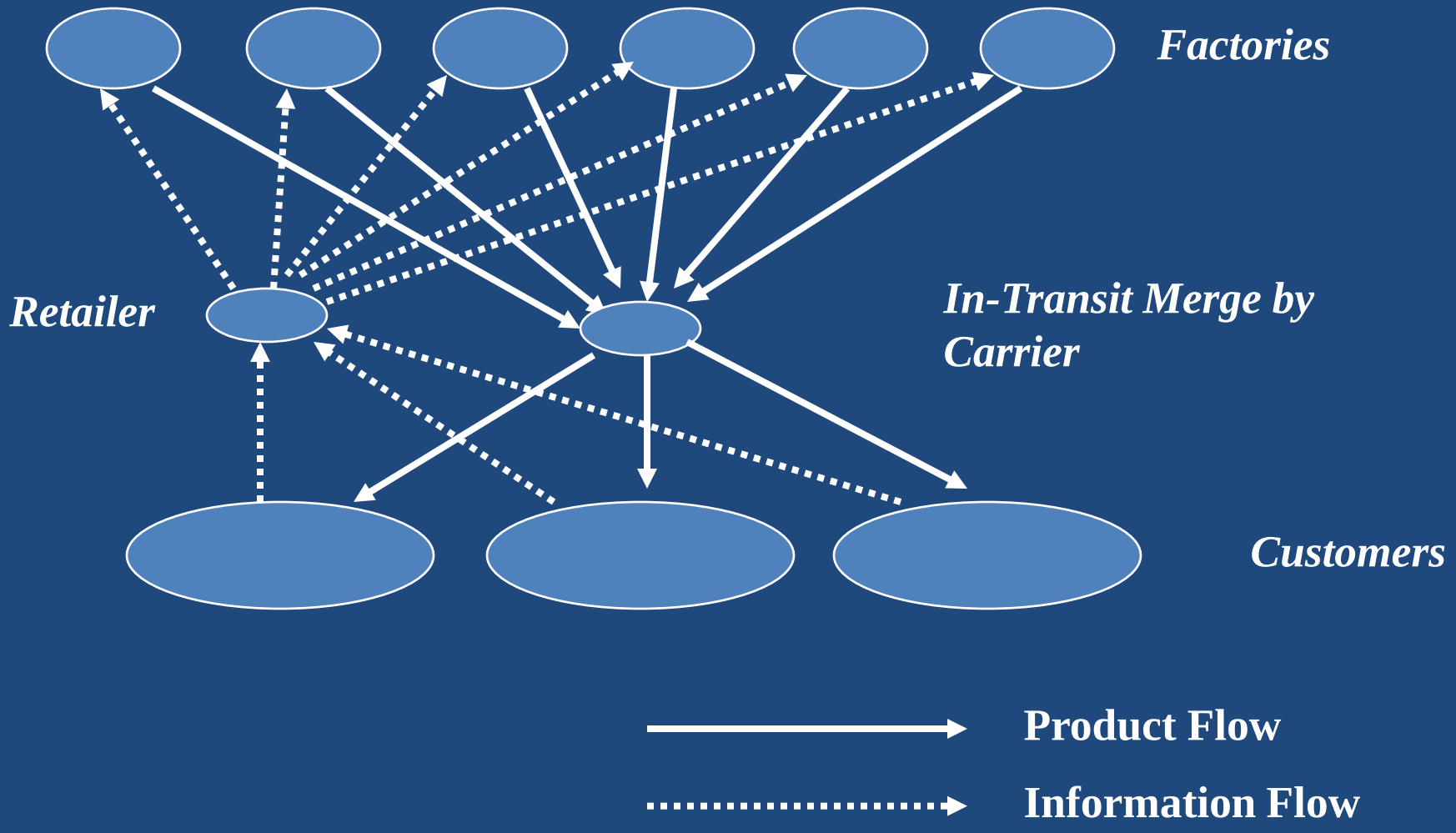
Design Options for a Distribution Network

- Manufacturer Storage with Direct Shipping
- Manufacturer Storage with Direct Shipping and In-Transit Merge
- Distributor Storage with Carrier Delivery
- Distributor Storage with Last Mile Delivery
- Manufacturer or Distributor Storage with Consumer Pickup
- Retail Storage with Consumer Pickup
- Selecting a Distribution Network Design

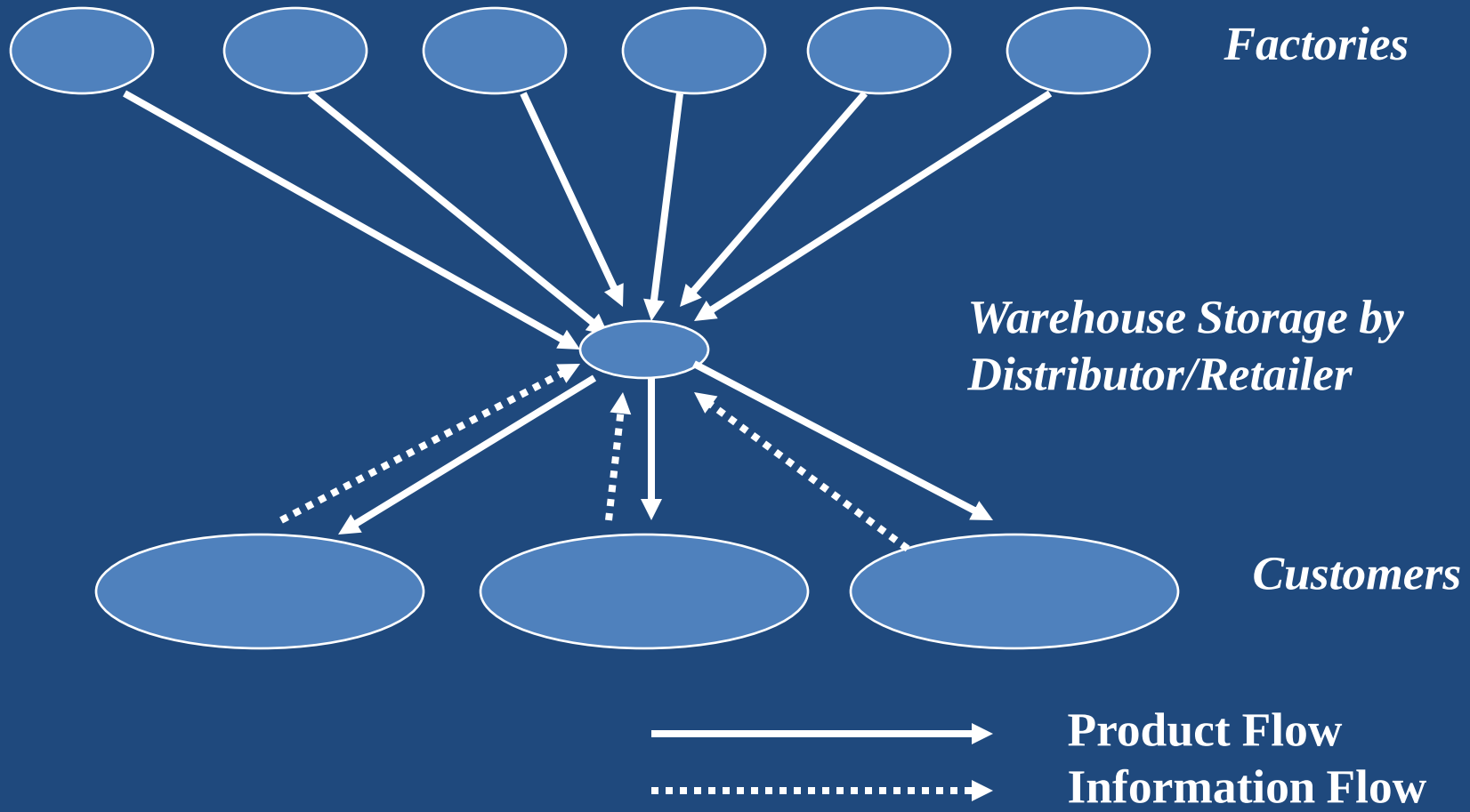
Manufacturer Storage with Direct Shipping (Fig. 4.6)



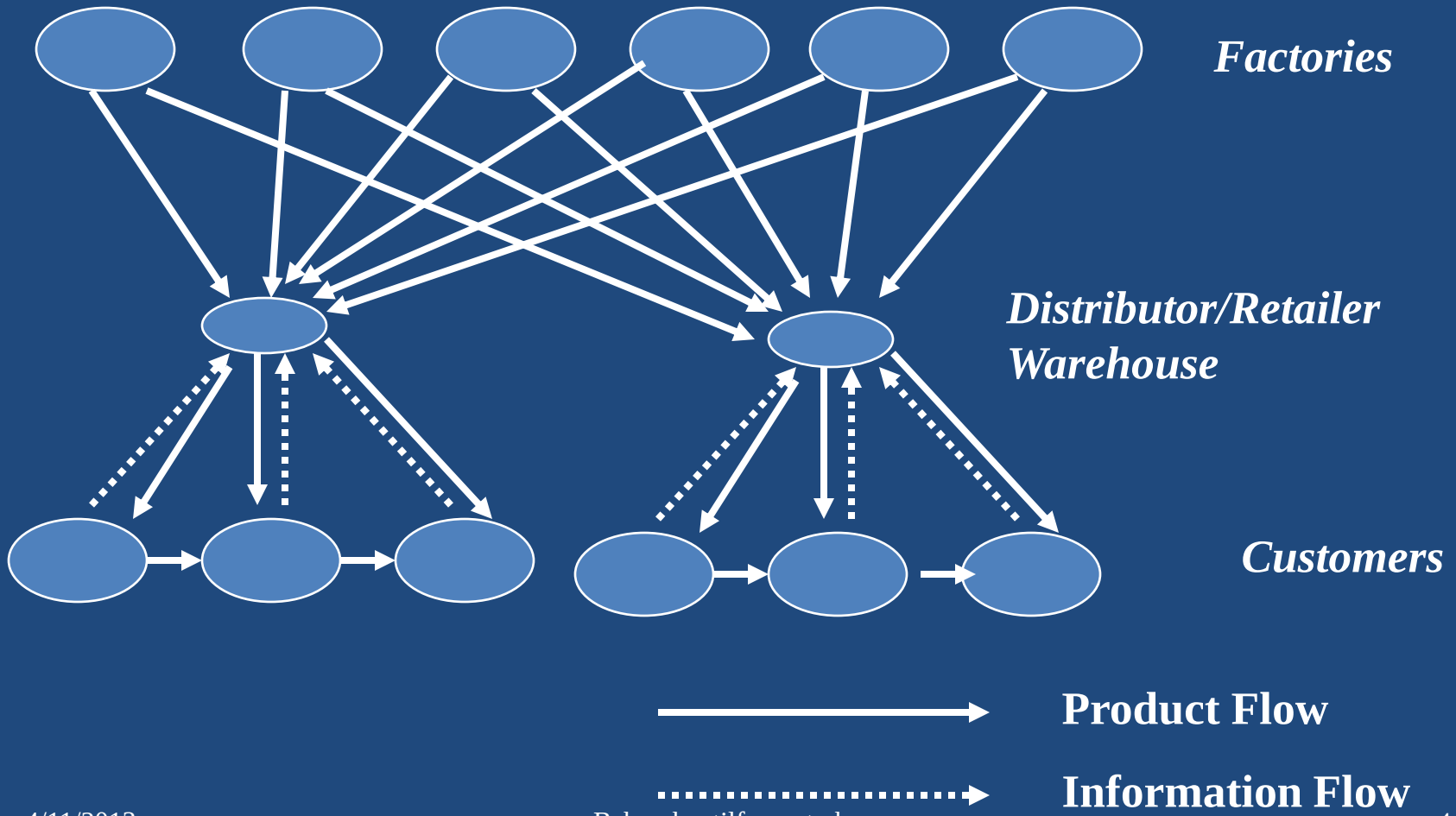
In-Transit Merge Network (Fig. 4.7)



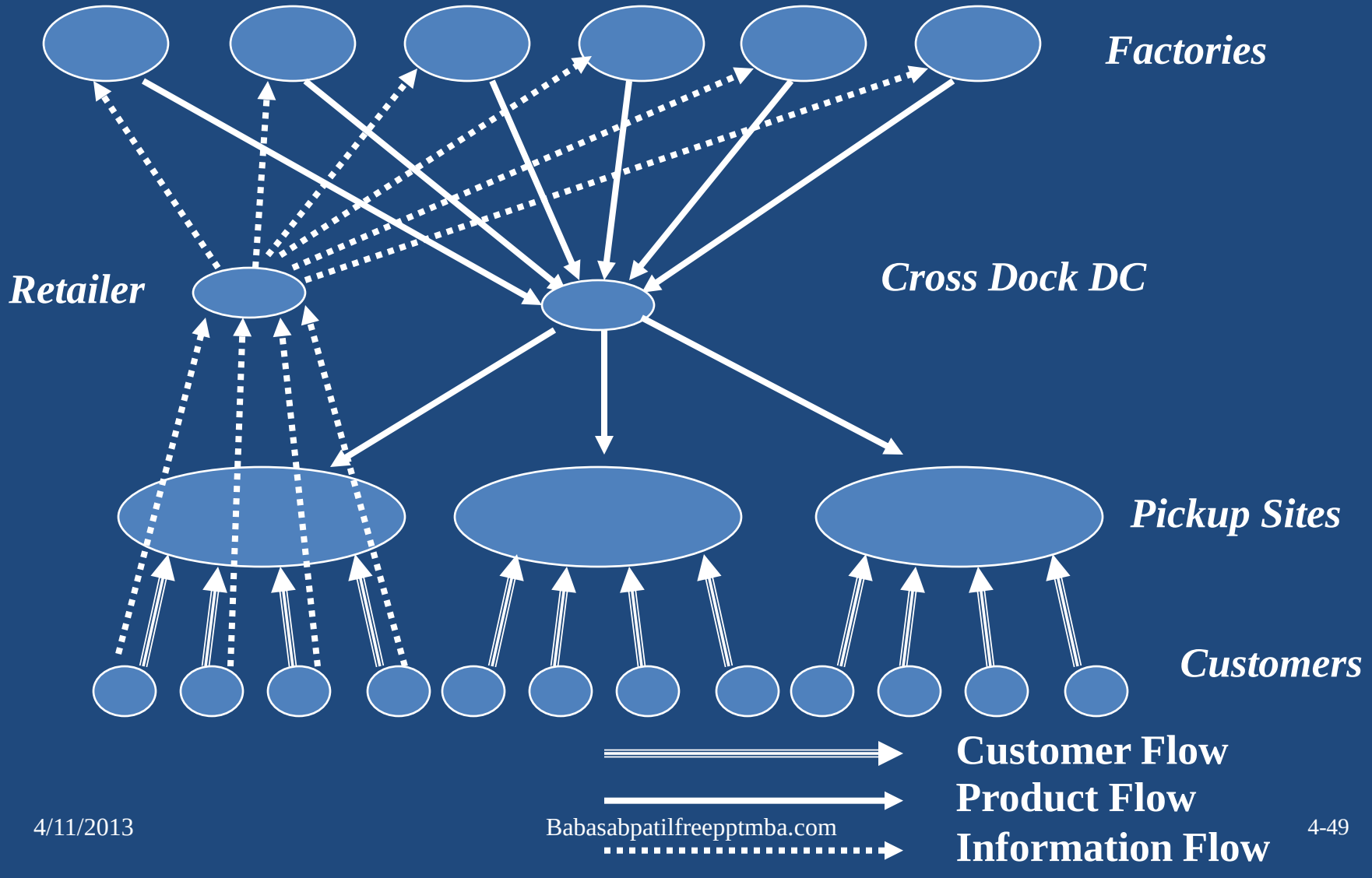
Distributor Storage with Carrier Delivery (Fig. 4.8)



Distributor Storage with Last Mile Delivery (Fig. 4.9)



Manufacturer or Distributor Storage with Customer Pickup (Fig. 4.10)



Comparative Performance of Delivery Network Designs (Table 4.7)

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Response Time	1	4	4	3	2	4
Product Variety	4	1	1	2	3	1
Product Availability	4	1	1	2	3	1
Customer Experience	5	4	3	2	1	5
Order Visibility	1	5	4	3	2	6
Returnability	1	5	5	4	3	2
Inventory	4	1	1	2	3	1
Transportation	1	4	3	2	5	1
Facility & Handling	6	1	2	3	4	5
Information	1	4	4	3	2	5

Linking Product Characteristics and Customer Preferences to Network Design

	Retail Storage with Customer Pickup	Manufacturer Storage with Direct Shipping	Manufacturer Storage with In-Transit Merge	Distributor Storage with Package Carrier Delivery	Distributor storage with last mile delivery	Manufacturer storage with pickup
High demand product	+2	-2	-1	0	+1	-1
Medium demand product	+1	-1	0	+1	0	0
Low demand product	-1	+1	0	+1	-1	+1
Very low demand product	-2	+2	+1	0	-2	+1
Many product sources	+1	-1	-1	+2	+1	0
High product value	-1	+2	+1	+1	0	-2
Quick desired response	+2	-2	-2	-1	+1	-2
High product variety	-1	+2	0	+1	0	+2
Low customer effort	-2	+1	+2	+2	+2	-1

E-Business and the Distribution Network

- Impact of E-Business on Customer Service
- Impact of E-Business on Cost
- Using E-Business: Dell, Amazon, Peapod, Grainger

Distribution Networks in Practice

- The ownership structure of the distribution network can have as big as an impact as the type of distribution network
- The choice of a distribution network has very long-term consequences
- Consider whether an exclusive distribution strategy is advantageous
- Product, price, commoditization, and criticality have an impact on the type of distribution system preferred by customers

Summary of Learning Objectives

- What are the key factors to be considered when designing the distribution network?
- What are the strengths and weaknesses of various distribution options?
- What roles do distributors play in the supply chain?

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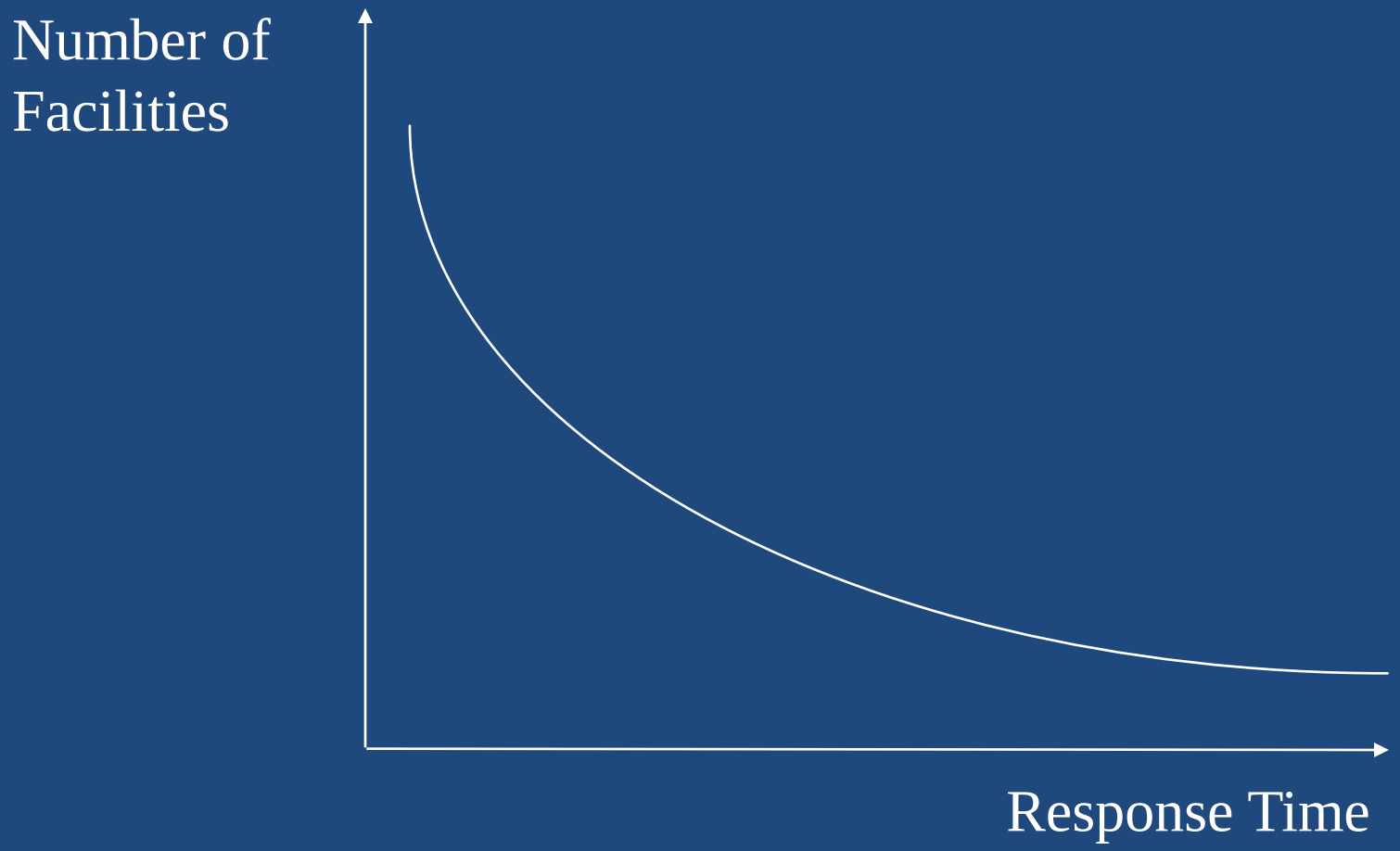

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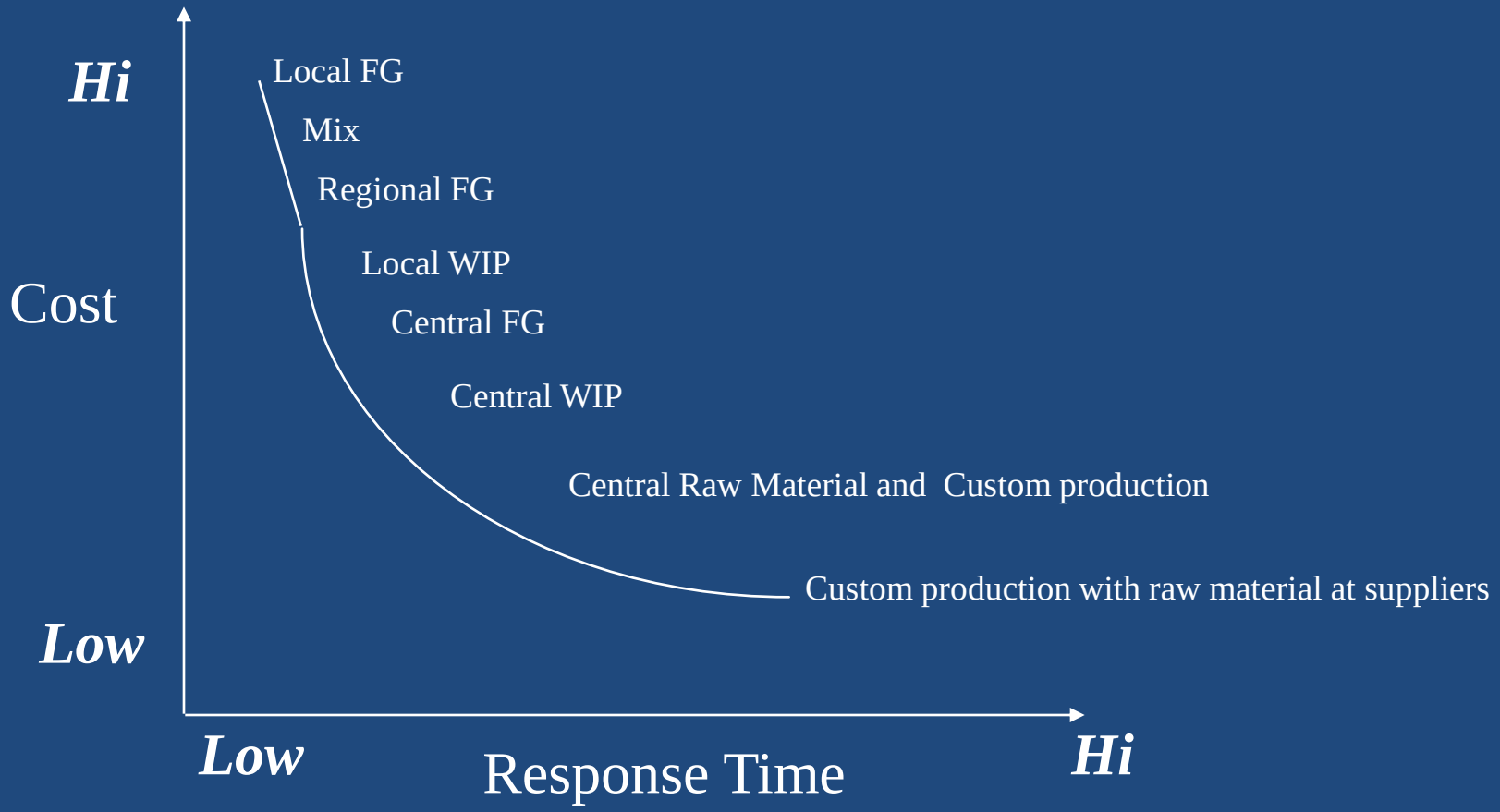

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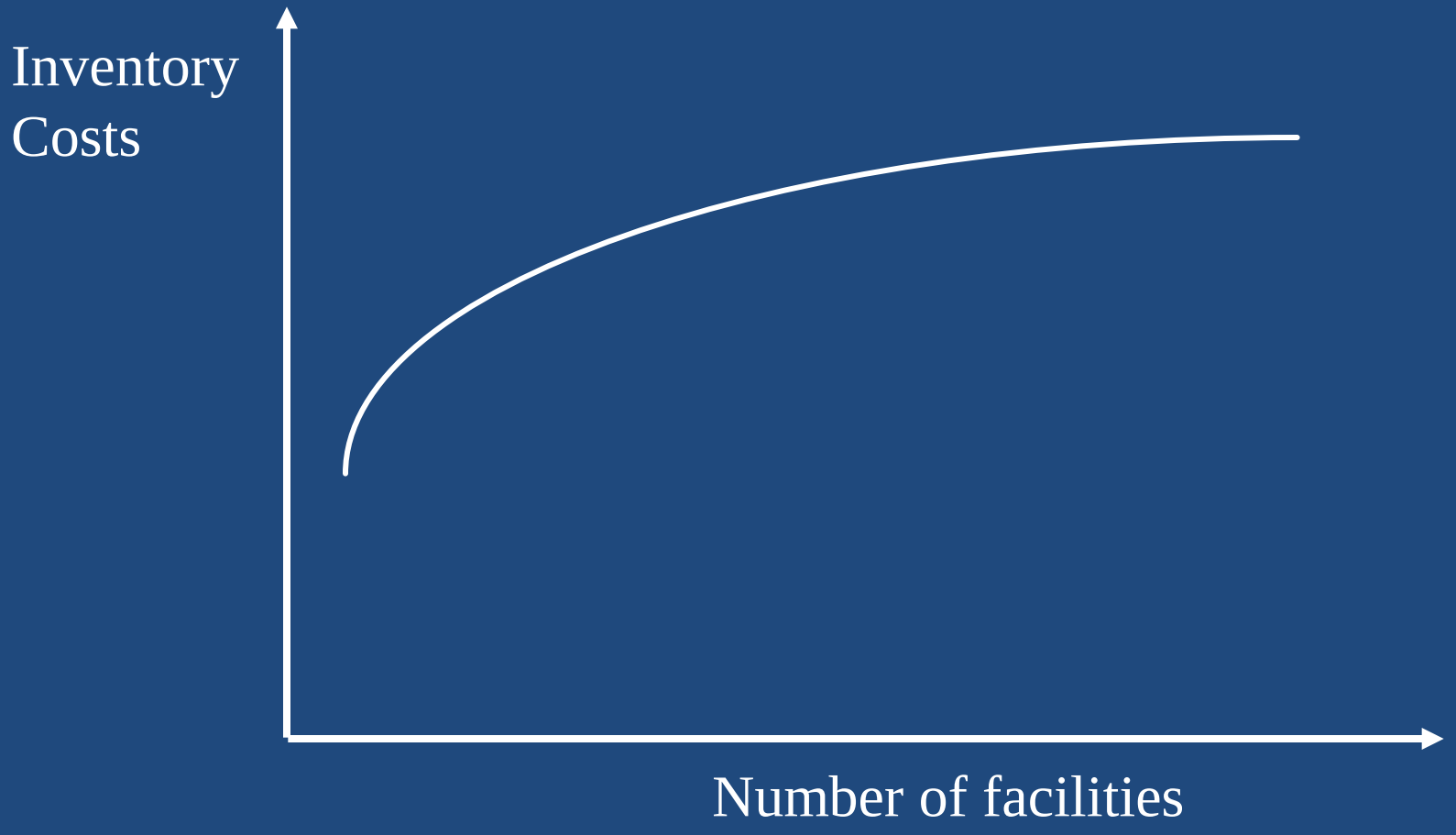

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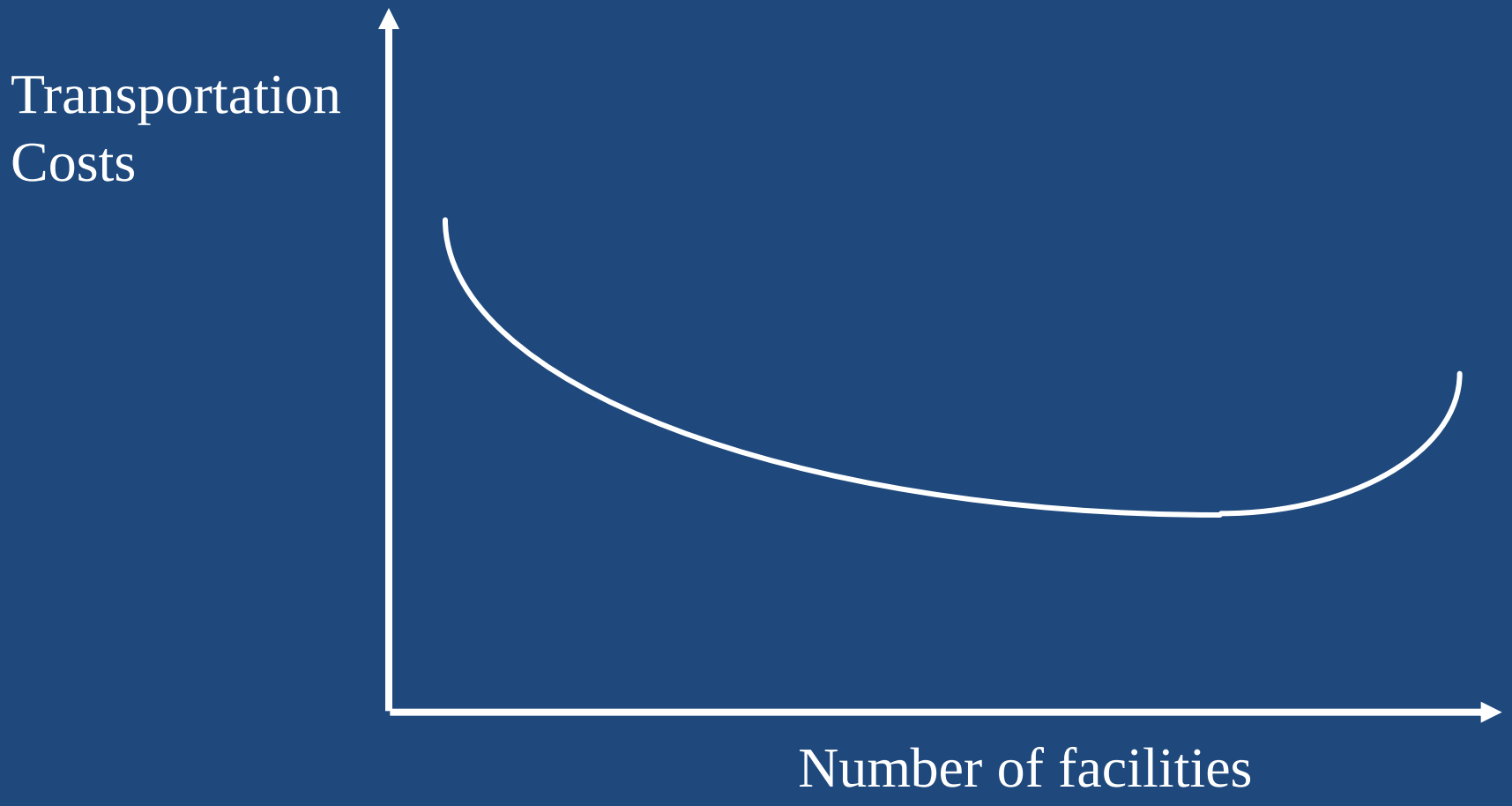
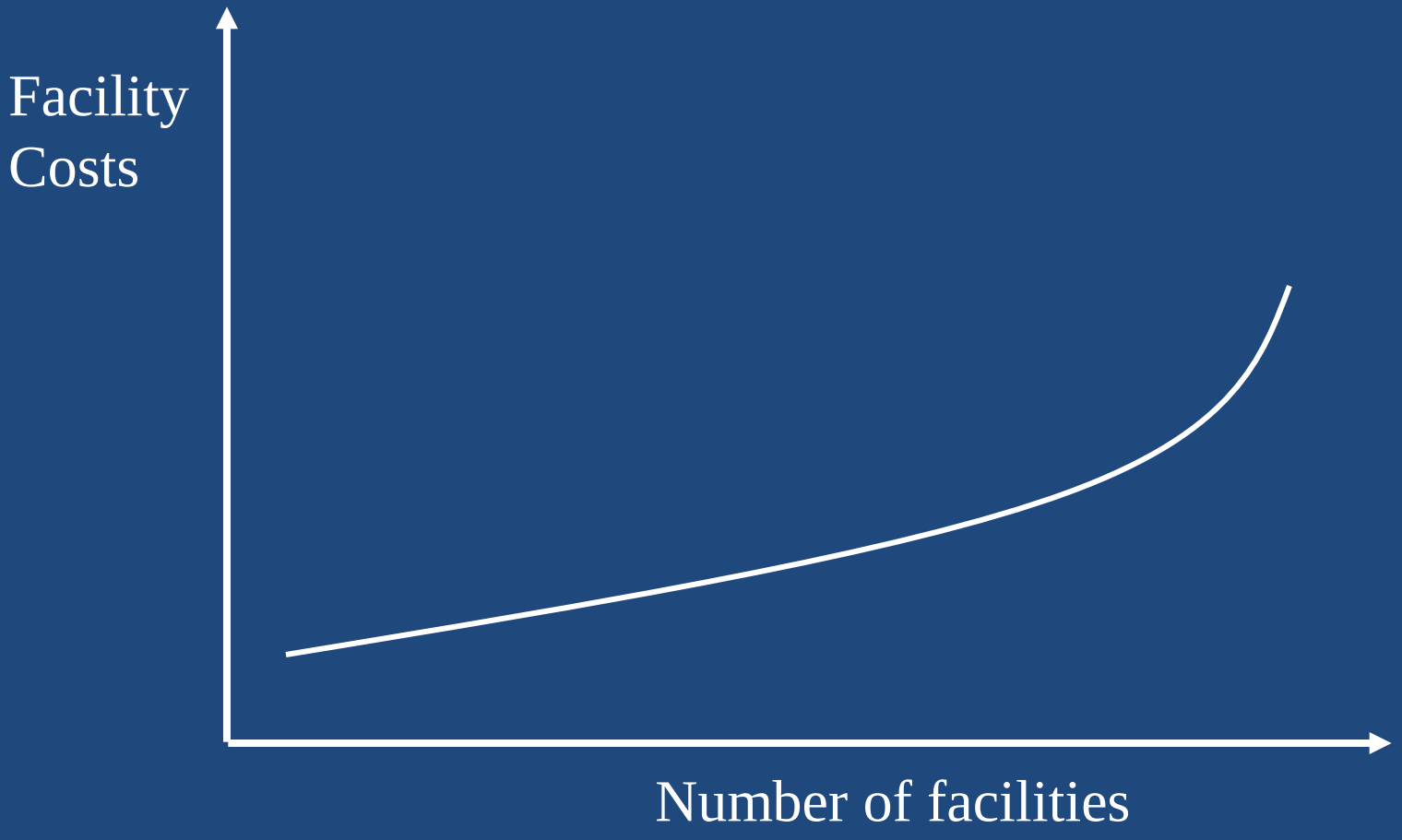


Facility Costs and Number of Facilities (Fig. 4.4)



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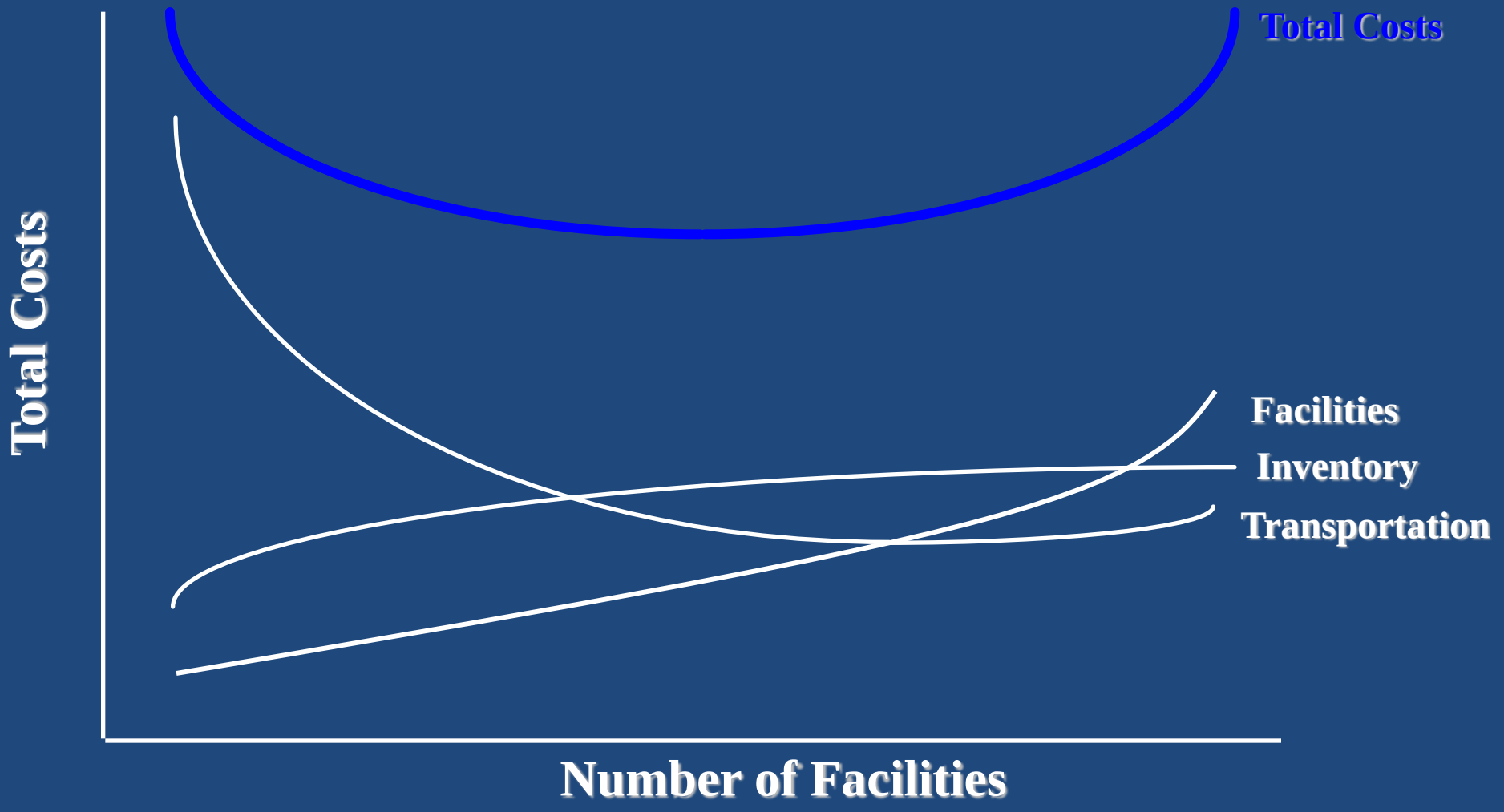

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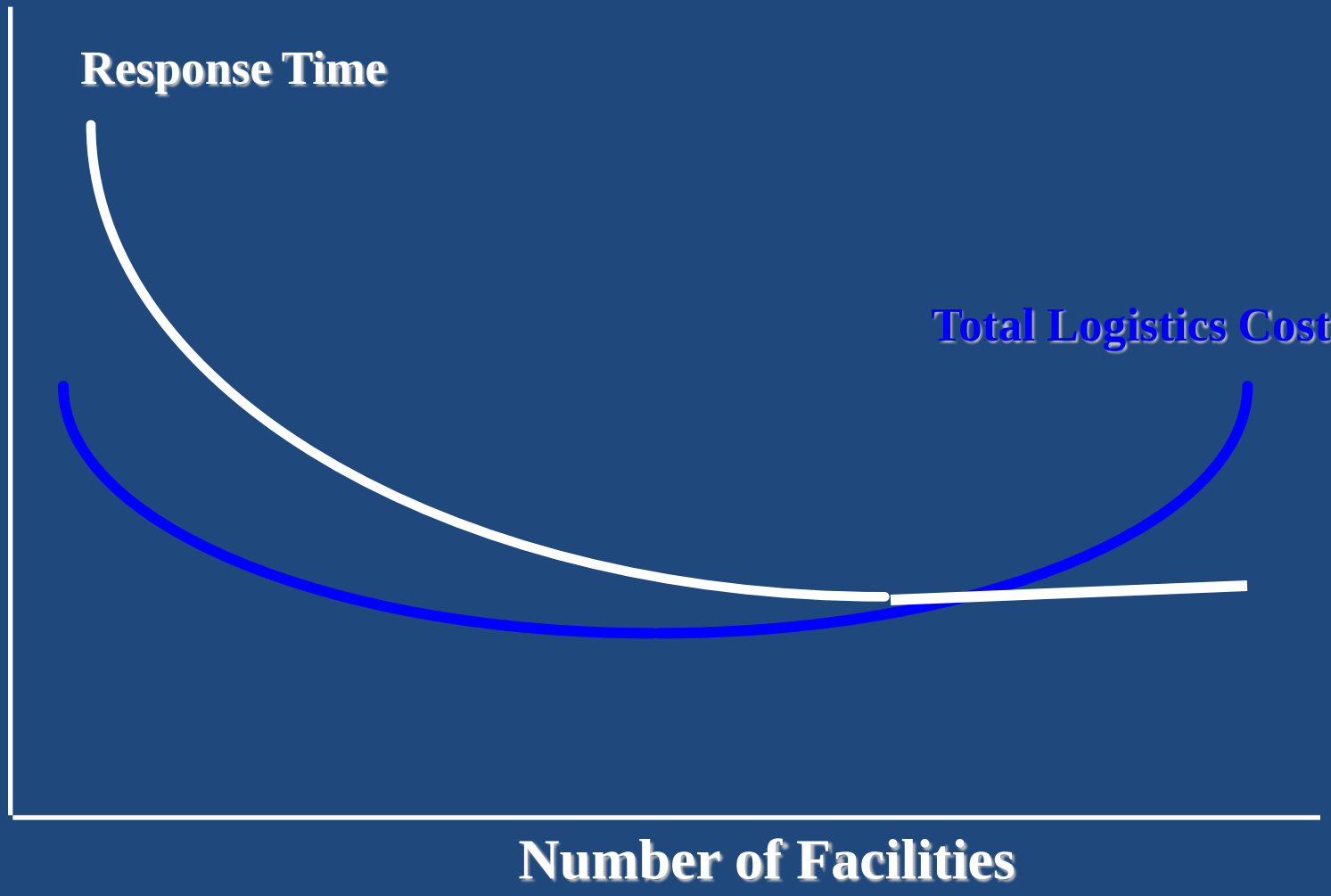

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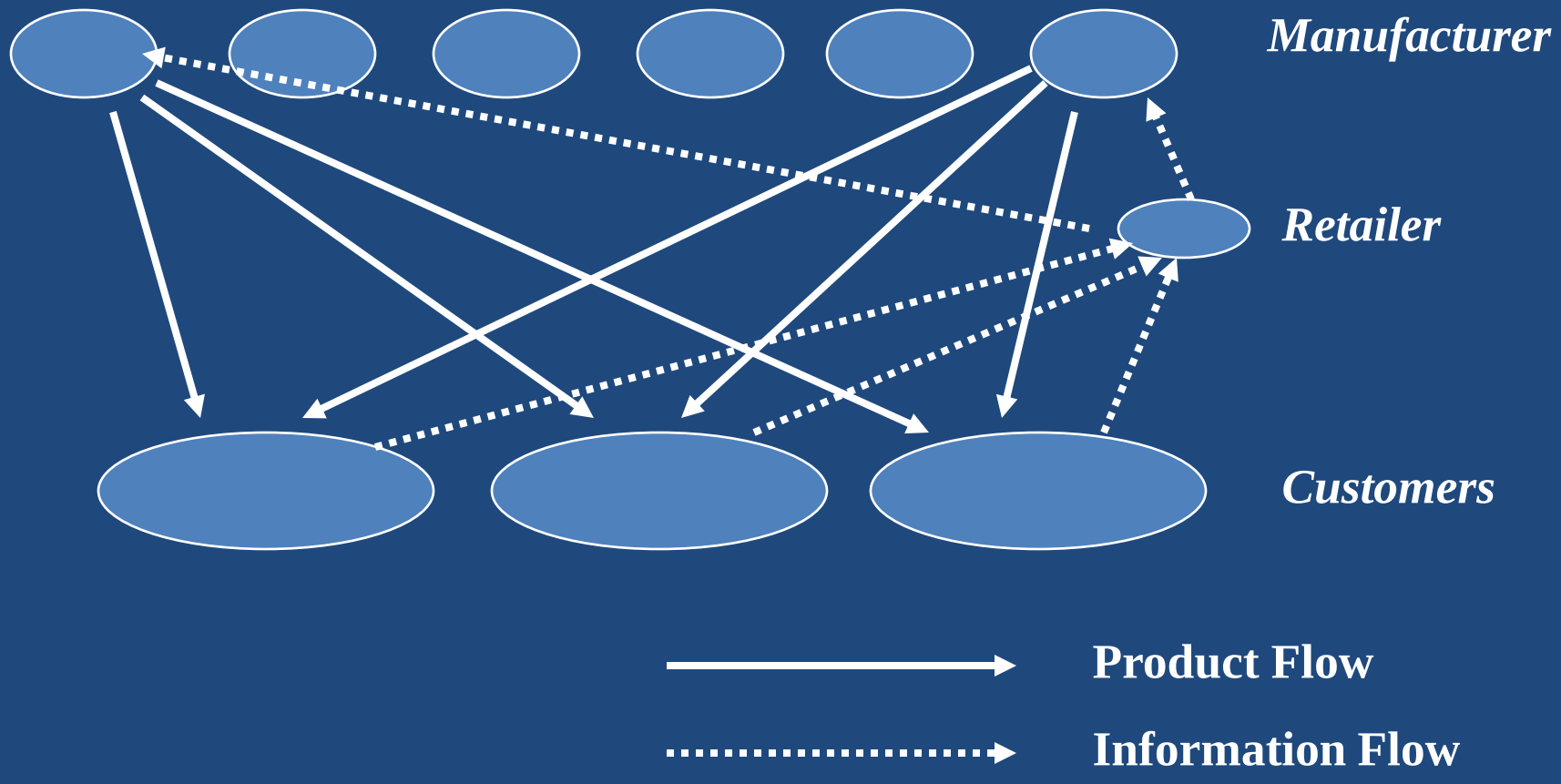

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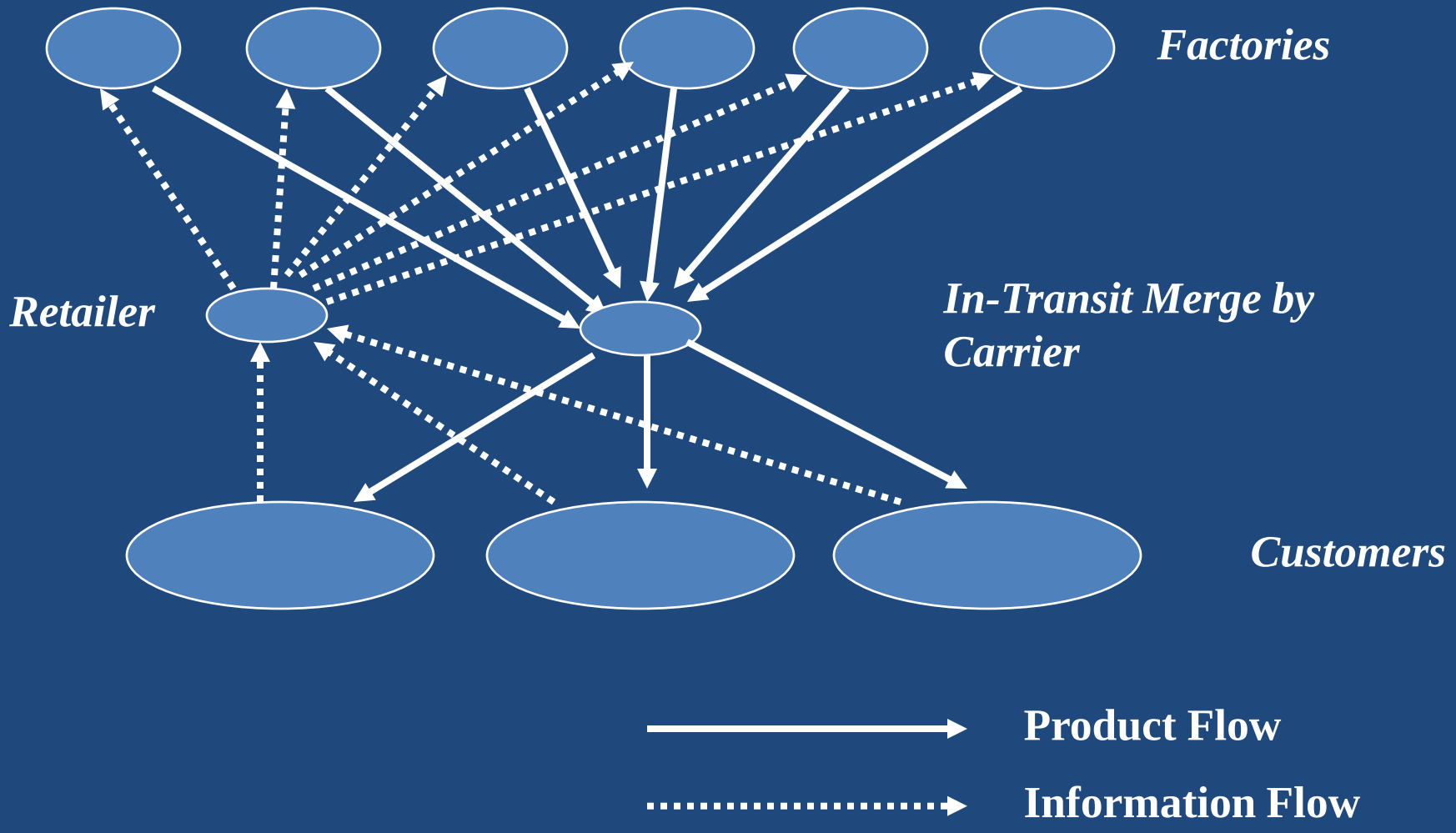
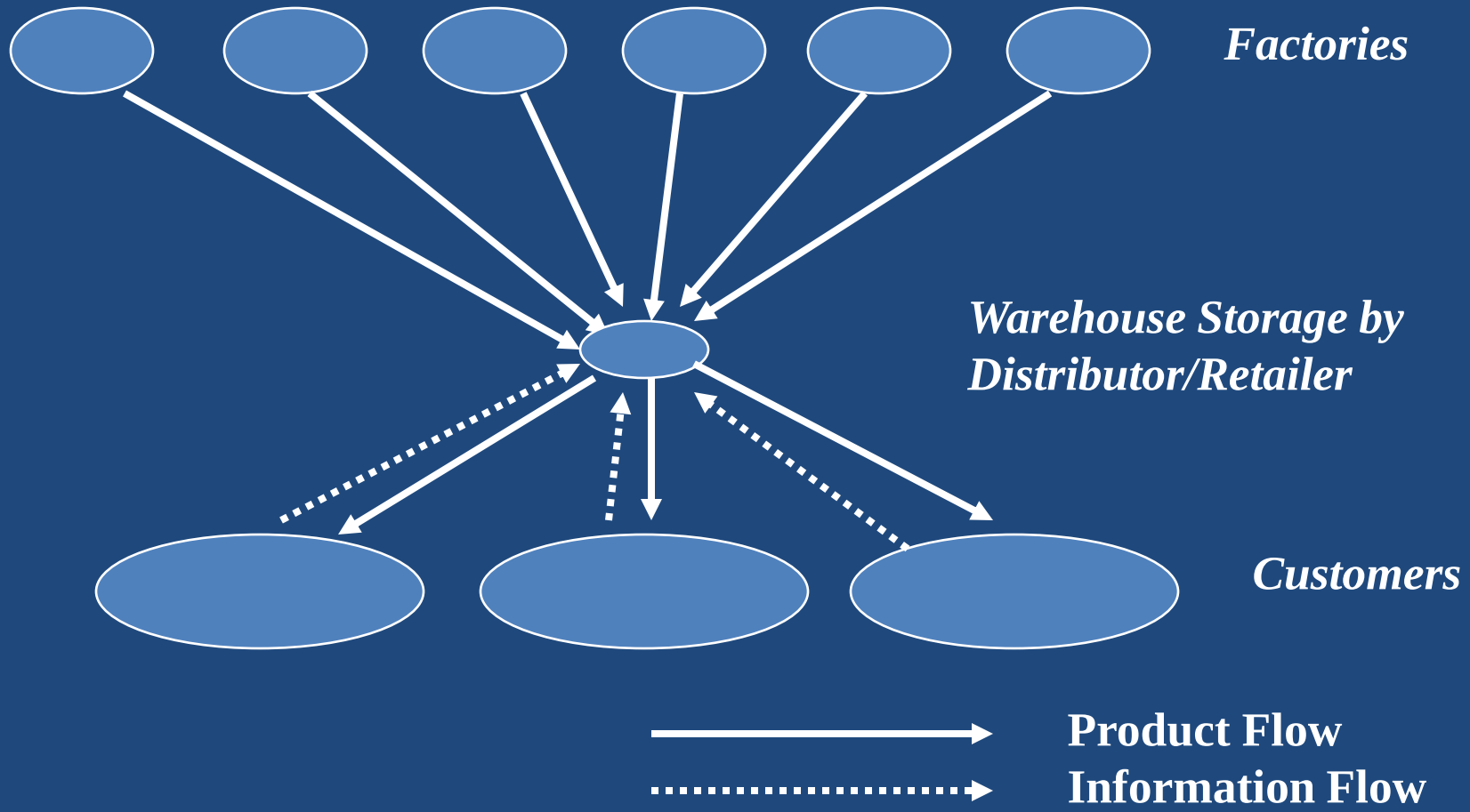


Distributor Storage with Carrier Delivery (Fig. 4.8)



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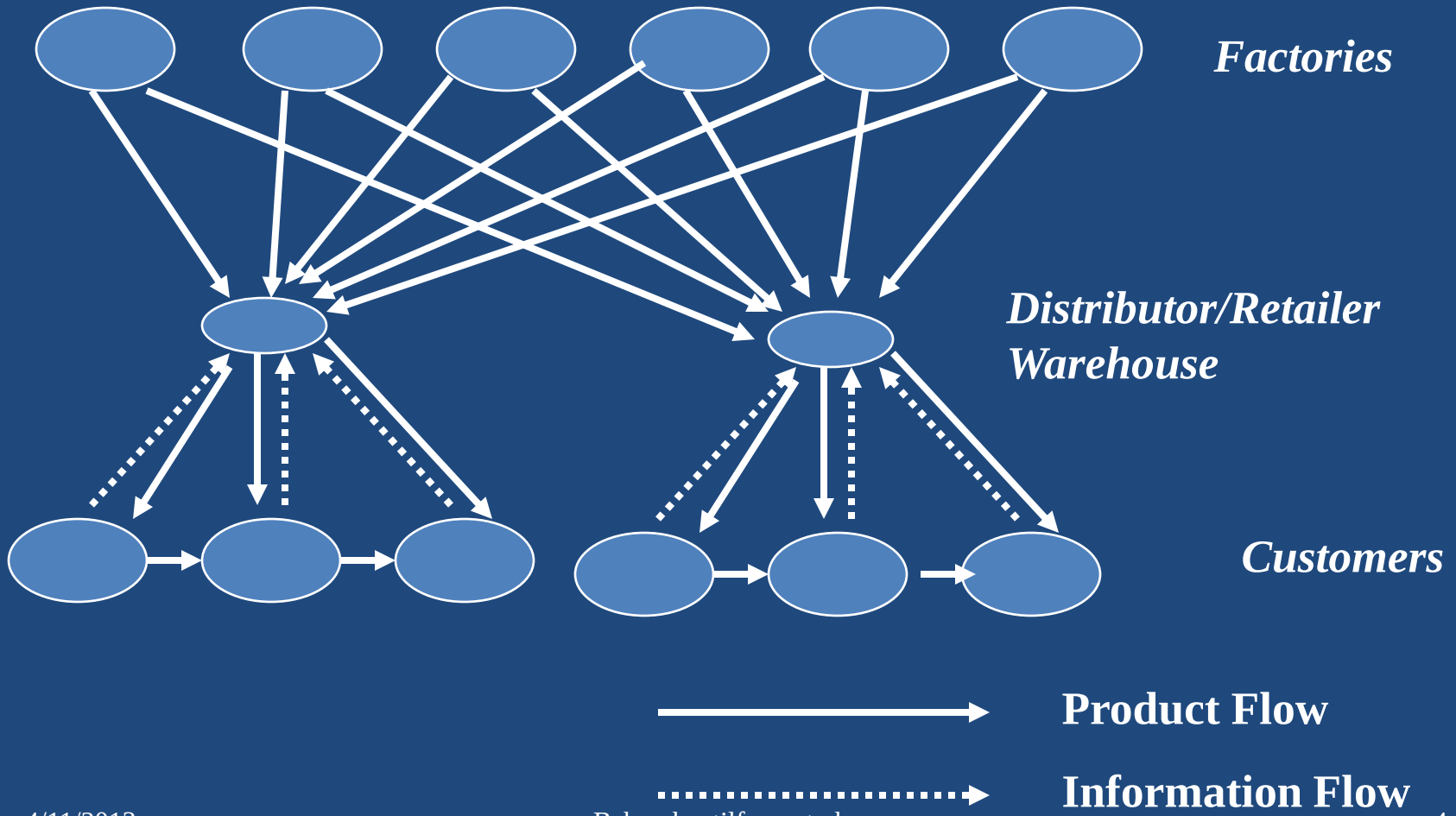
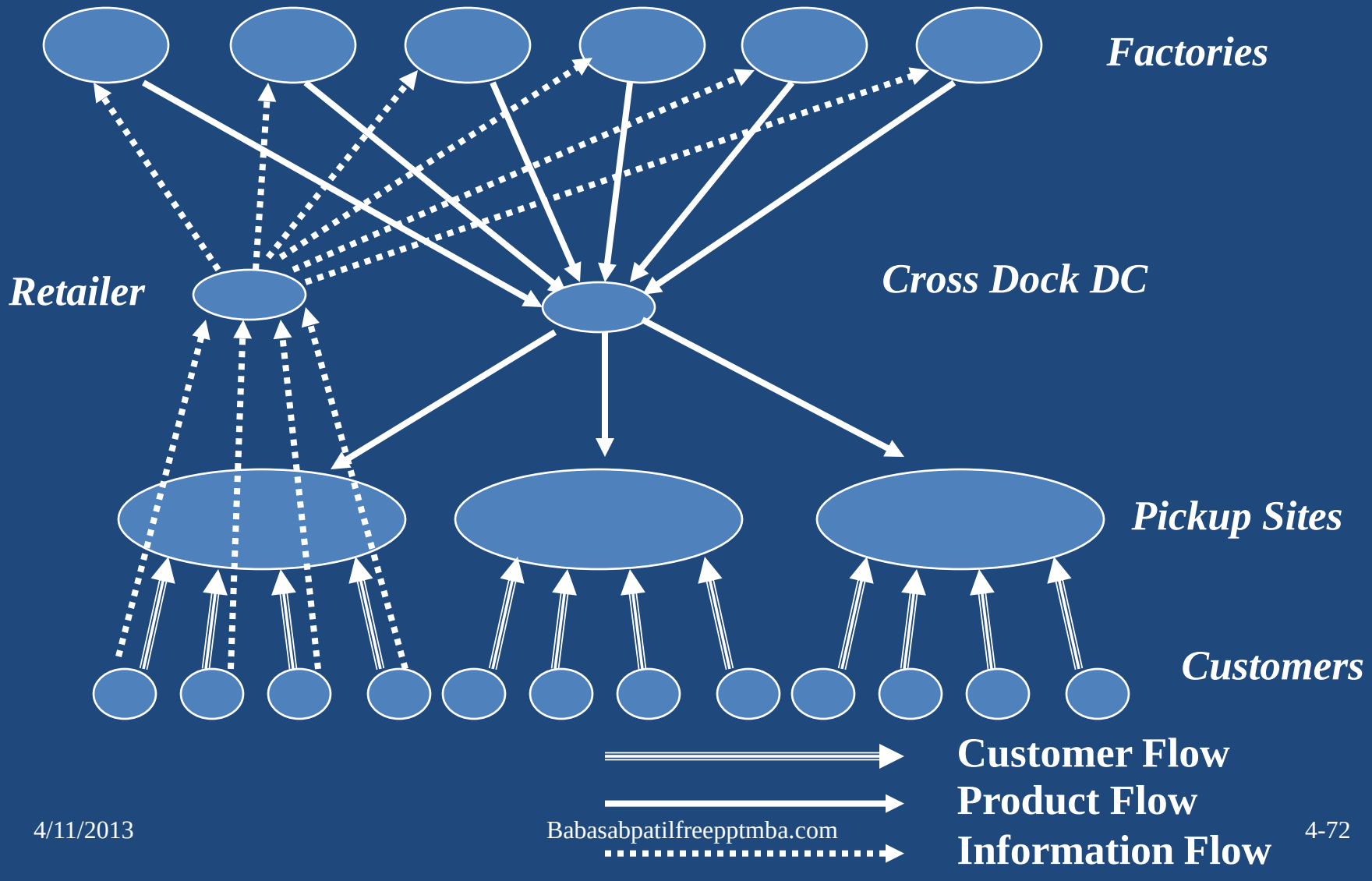


Manufacturer or Distributor Storage with Customer Pickup (Fig. 4.10)



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High demand product	+2	-2	-1	0	+1	-1
Medium demand product	+1	-1	0	+1	0	0
Low demand product	-1	+1	0	+1	-1	+1
Very low demand product	-2	+2	+1	0	-2	+1
Many product sources	+1	-1	-1	+2	+1	0
High product value	-1	+2	+1	+1	0	-2
Quick desired response	+2	-2	-2	-1	+1	-2
High product variety	-1	+2	0	+1	0	+2
Low customer effort	-2	+1	+2	+2	+2	-1

E-Business and the Distribution Network

- Impact of E-Business on Customer Service
- Impact of E-Business on Cost
- Using E-Business: Dell, Amazon, Peapod, Grainger

Distribution Networks in Practice

- The ownership structure of the distribution network can have as big as an impact as the type of distribution network
- The choice of a distribution network has very long-term consequences
- Consider whether an exclusive distribution strategy is advantageous
- Product, price, commoditization, and criticality have an impact on the type of distribution system preferred by customers

Summary of Learning Objectives

- What are the key factors to be considered when designing the distribution network?
- What are the strengths and weaknesses of various distribution options?
- What roles do distributors play in the supply chain?

Supply Chain Management (3rd Edition)

Chapter 17
Coordination in the Supply Chain

Objectives

- Describe supply chain coordination, the bullwhip effect, and their impact on performance
- Identify causes of the bullwhip effect and obstacles to coordination in the supply chain
- Discuss managerial levers that help achieve coordination in the supply chain
- Describe actions that facilitate the building of strategic partnerships and trust within the supply chain

Outline

- Lack of Supply Chain Coordination and the Bullwhip Effect
- Effect of Lack of Coordination on Performance
- Obstacles to Coordination in the Supply Chain
- Managerial Levers to Achieve Coordination
- Building Strategic Partnerships and Trust Within
  a Supply Chain
- Achieving Coordination in Practice

Lack of SC Coordination and the Bullwhip Effect

- Supply chain coordination – all stages in the supply chain take actions together (usually results in greater total supply chain profits)
- SC coordination requires that each stage take into account the effects of its actions on the other stages
- Lack of coordination results when:
  - Objectives of different stages conflict or
  - Information moving between stages is distorted

Bullwhip Effect

- Fluctuations in orders increase as they move up the supply chain from retailers to wholesalers to manufacturers to suppliers
- Distorts demand information within the supply chain, where different stages have very different estimates of what demand looks like
- Results in a loss of supply chain coordination
- Examples: Proctor & Gamble (Pampers); HP (printers); Barilla (pasta)

The Effect of Lack of Coordination on Performance

- Manufacturing cost (increases)
- Inventory cost (increases)
- Replenishment lead time (increases)
- Transportation cost (increases)
- Labor cost for shipping and receiving (increases)
- Level of product availability (decreases)
- Relationships across the supply chain (worsens)
- Profitability (decreases)
- The bullwhip effect reduces supply chain

Obstacles to Coordination in a Supply Chain

- Incentive Obstacles
- Information Processing Obstacles
- Operational Obstacles
- Pricing Obstacles
- Behavioral Obstacles

Incentive Obstacles

- When incentives offered to different stages or participants in a supply chain lead to actions that increase variability and reduce total supply chain profits – misalignment of total supply chain objectives and individual objectives
- Local optimization within functions or stages of a supply chain
- Sales force incentives

Information Processing Obstacles

- When demand information is distorted as it moves between different stages of the supply chain, leading to increased variability in orders within the supply chain
- Forecasting based on orders, not customer demand
  - Forecasting demand based on orders magnifies demand fluctuations moving up the supply chain from retailer to manufacturer
- Lack of information sharing

Operational Obstacles

- Actions taken in the course of placing and filling orders that lead to an increase in variability
- Ordering in large lots (much larger than dictated by demand)
- Large replenishment lead times
- Rationing and shortage gaming (common in the computer industry because of periodic cycles of component shortages and surpluses)

Pricing Obstacles

- When pricing policies for a product lead to an increase in variability of orders placed
- Lot-size based quantity decisions
- Price fluctuations (resulting in forward buying) –

Behavioral Obstacles

- Problems in learning, often related to communication in the supply chain and how the supply chain is structured
- Each stage of the supply chain views its actions locally and is unable to see the impact of its actions on other stages
- Different stages react to the current local situation rather than trying to identify the root causes
- Based on local analysis, different stages blame each other for the fluctuations, with successive stages becoming enemies rather than partners
- No stage learns from its actions over time because the most significant consequences of the actions of any one stage occur elsewhere, resulting in a vicious cycle of actions and blame
- Lack of trust results in opportunism, duplication of effort, and lack of information sharing

Managerial Levers to Achieve Coordination

- Aligning Goals and Incentives
- Improving Information Accuracy
- Improving Operational Performance
- Designing Pricing Strategies to Stabilize Orders
- Building Strategic Partnerships and Trust

Aligning Goals and Incentives

- Align incentives so that each participant has an incentive to do the things that will maximize total supply chain profits
- Align incentives across functions
- Pricing for coordination
- Alter sales force incentives from sell-in (to the retailer) to sell-through (by the retailer)

Improving Information Accuracy

- Sharing point of sale data
- Collaborative forecasting and planning
- Single stage control of replenishment
  - Continuous replenishment programs (CRP)
  - Vendor managed inventory (VMI)

Improving Operational Performance

- Reducing replenishment lead time
  - Reduces uncertainty in demand
  - EDI is useful
- Reducing lot sizes
  - Computer-assisted ordering, B2B exchanges
  - Shipping in LTL sizes by combining shipments
  - Technology and other methods to simplify receiving
  - Changing customer ordering behavior
- Rationing based on past sales and sharing information to limit gaming
- "Turn-and-earn"

Designing Pricing Strategies to Stabilize Orders

- Encouraging retailers to order in smaller lots and reduce forward buying
- Moving from lot size-based to volume-based quantity discounts (consider total purchases over a specified time period)
- Stabilizing pricing
  - Eliminate promotions (everyday low pricing, EDLP)
  - Limit quantity purchased during a promotion
  - Tie promotion payments to sell-through rather than amount purchased
- Building strategic partnerships and trust – easier

Building Strategic Partnerships and Trust in a Supply Chain

- Designing a Relationship with Cooperation and Trust
- Managing Supply Chain Relationships for Cooperation and Trust

Building Strategic Partnerships and Trust in a Supply Chain

- Trust-based relationship
  - Dependability
  - Leap of faith
- Cooperation and trust work because:
  - Alignment of incentives and goals
  - Actions to achieve coordination are easier to implement
  - Supply chain productivity improves by reducing duplication or allocation of effort to appropriate stage
  - Greater information sharing results

Trust in the Supply Chain

- Historically, supply chain relationships are based on power or trust
- Disadvantages of power-based relationship:
  - Results in one stage maximizing profits, often at the expense of other stages
  - Can hurt a company when balance of power changes
  - Less powerful stages have sought ways to

Building Trust into a Supply Chain Relationship

- Deterrence-based view
  - Use formal contracts
  - Parties behave in trusting manner out of self-interest
- Process-based view
  - Trust and cooperation are built up over time as a result of a series of interactions
  - Positive interactions strengthen the belief in cooperation of other party
- Neither view holds exclusively in all

Building Trust into a Supply Chain Relationship

- Initially more reliance on deterrence-based view, then evolves to a process-based view
- Co-identification: ideal goal
- Two phases to a supply chain relationship
  - Design phase
  - Management phase

Designing a Relationship with Cooperation and Trust

- Assessing the value of the relationship and its contributions
- Identifying operational roles and decision rights for each party
- Creating effective contracts
- Designing effective conflict resolution mechanisms

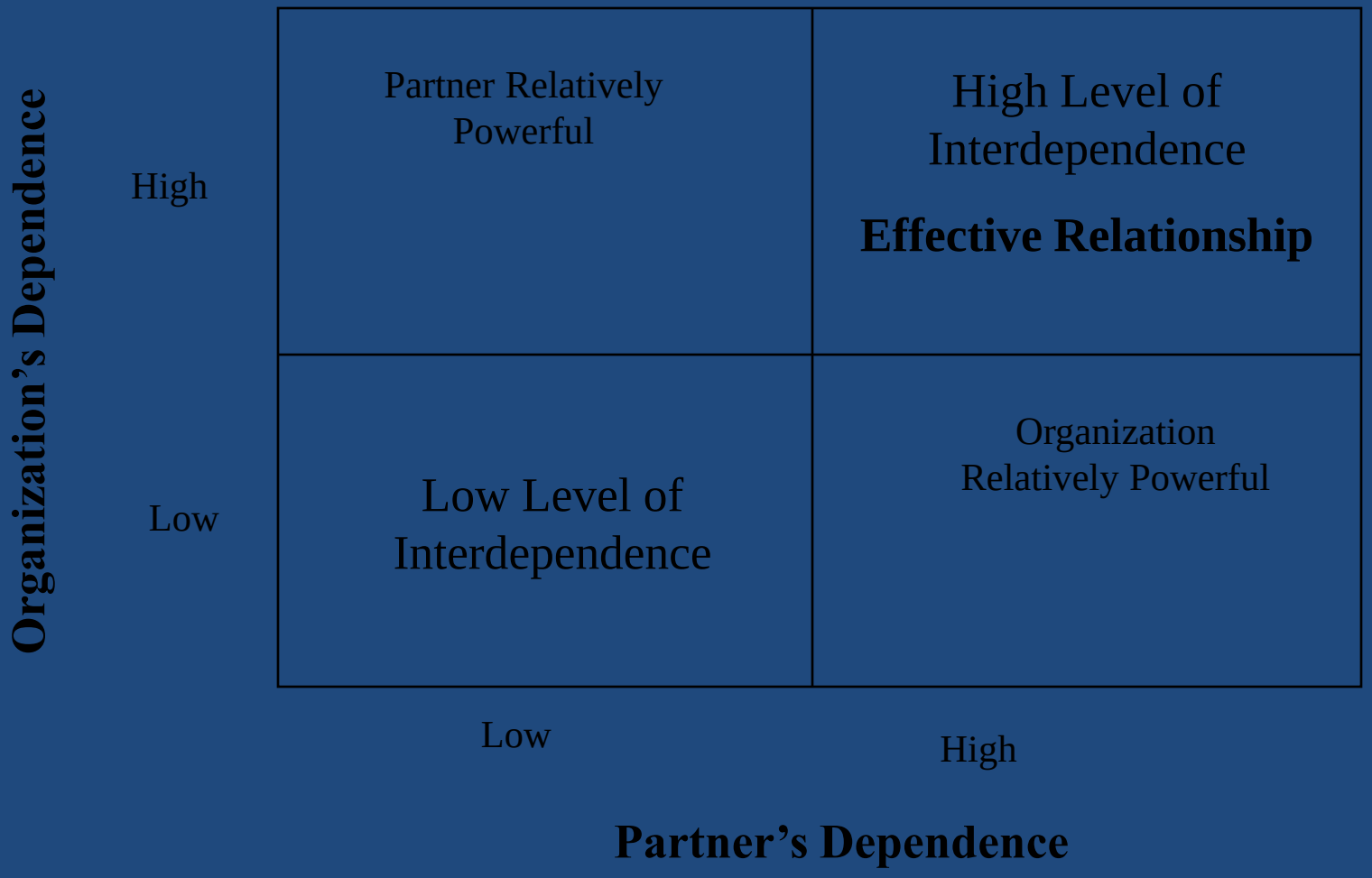
Assessing the Value of the Relationship and its Contributions

- Identify the mutual benefit provided
- Identify the criteria used to evaluate the relationship (equity is important)
- Important to share benefits equitably
- Clarify contribution of each party and the benefits each party will receive

Identifying Operational Roles and Decision Rights for Each Party

- Recognize interdependence between parties
  - Sequential interdependence: activities of one partner precede the other
  - Reciprocal interdependence: the parties come together, exchange information and inputs in both directions
- Sequential interdependence is the traditional supply chain form
- Reciprocal interdependence is more difficult but can result in more benefits

Effects of Interdependence on Supply Chain Relationships (Figure 17.4)



Creating Effective Contracts

- Create contracts that encourage negotiation when unplanned contingencies arise
- It is impossible to define and plan for every possible occurrence
- Informal relationships and agreements can fill in the “gaps” in contracts
- Informal arrangements may eventually be formalized in later contracts

Designing Effective Conflict Resolution Mechanisms

- Initial formal specification of rules and guidelines for procedures and transactions
- Regular, frequent meetings to promote communication
- Courts or other intermediaries

Managing Supply Chain Relationships for Cooperation and Trust

- Effective management of a relationship is important for its success
- Top management is often involved in the design but not management of a relationship
- Process of alliance evolution
- Perceptions of reduced benefits or opportunistic actions can significantly impair a supply chain partnership

Achieving Coordination in Practice

- Quantify the bullwhip effect
- Get top management commitment for coordination
- Devote resources to coordination
- Focus on communication with other stages
- Try to achieve coordination in the entire supply chain network
- Use technology to improve connectivity in the supply chain
- Share the benefits of coordination equitably

Summary of Learning Objectives

- What are supply chain coordination and the bullwhip effect, and what are their effects on supply chain performance?
- What are the causes of the bullwhip effect, and what are obstacles to coordination in the supply chain?
- What are the managerial levers that help achieve coordination in the supply chain?
- What are actions that facilitate the building of strategic partnerships and trust in the supply chain?

Logistics

- **In recent years, Logistics has received increased management attention.**

- **Corporations are using logistics as a competitive weapon to meet the challenges of global competition and turbulent business environment.**

Logistics

- The science of planning and carrying out the movement and maintenance of forces – deals with
  - Design and development, acquisition, storage, movement, distribution, maintenance, evacuation and disposition of materials
  - Movement, evacuation and hospitalization of personnel.
  - Acquisition or construction, maintenance, operation, disposition of facilities,
  - Acquisition or furnishing of services

- Act as a supportive system which reflects the practical art of moving armies and materials engaged in combat to achieve the desires results

Logistics

- In the Industrial and commercial world. Logistics has a acquired wider meaning

- It covers activities for the material flow from the source to the processing facilities, and subsequent distribution of finished goods from there to the ultimate users.

Logistics Management

The Council of Logistics Management defines Logistics Management as:

The process of planning, implementing and controlling the efficient, cost – effective flow and storage of raw materials, in-process inventory, finished goods and related information from point of origin to point of consumption for the purpose of conforming to customer requirements

Flows in a Logistics System

- **Flow of Materials**
- **Merchandise flow**
- **Money flow**
- **Information flow**

Logistics Management

- Logistics Management is an integrating function which coordinates and optimizes all logistics as well as integrates logistics activities with other functions including marketing, sales, manufacturing, finance and IT

- It Includes the design and administration of system to control the flow of materials, work-in-process and finished inventory to support business unit strategy

- **Inbound Logistics**
- **Internal Logistics**
- **Outbound Logistics**

Inbound Logistics

- Sourcing and vendor selection for supply of raw materials and manufacturing parts
- Inbound transportation and procurement planning
- Raw materials warehousing including consolidation warehousing
- Management of Inventory
- Information system for effective support strategic alliances with the supplies and transporters

Internal Logistics

- Capacity Planning Operational planning Production planning
- Materials Requirement planning
- Shop floor control
- Management of in-process inventory
- Supporting material handling facilities planning and their deployment etc

Out bound Logistics

- Outbound logistics system is concerned with the flow of finished products from factory warehouse to the customers through a distribution network comprising:
  - **The wholesalers**
  - **Distributors**
  - **Retailers**
  - **Regional warehouses**
  - **Transporters**
  - **The inventory at all levels**
  - **Sales order processing**
  - **Sales return processing**
  - **Accounts receivable realization and**
  - **Counter flow of information from the customers to the factory**

Logistics v/s Logistics management

- Logistics is the process of strategically managing the procurement, Movement and storage of materials, parts and finished inventory (and the related information) through the organization and its marketing channels in such a way that current future profitability are maximized through the cost – effective fulfillment of order.

Logistics Management

- Logistics Management refers to designing, developing, producing and operating an integrated system which is responds to customer expectations by making available the required quantity of required quality products as and when required to offer best customer service at the least costs

Logistics Management

- For Service Industry
  - Defined as the process of coordinating non martial activities necessary to the fulfillment of the service in a cost and customer service effective manner

- It is an internal integration of interrelated managerial function to ensure a smooth flow of raw materials from the point of inception to the first product point, semi-finished goods within production process and finished goods from the last point the point of consumption

Major features of Logistics Management

- Smooth flow of all types of goods such as raw materials, work-in-process and finished goods
- Meeting customer expectations about product and related information requirements
- Real time flow of information about products' demand and availability
- Delivery of quality product in required quantity without excessive safety stock
- Best possible customer service at the least possible cost
- Integration of various managerial functions for optimization of resources
- Movement and storage of goods in appropriate quantity
- Enhancement of productivity and profitability

Integrated Logistics Management

- Defined as the process of anticipating customer needs and wants acquiring the capital, material, people. Technologies and information necessary to meet those needs and wants, optimizing the goods-or services, producing network to fulfill customer requirements; and utilizing the network request in a timely way

Integrated Logistics Management

- Integrated Logistics is viewed as a method to create a sustainable competitive advantage over the company's competition
- Logistics strategy must be integrated with corporate strategy because corporate strategy sets the basic requirement to the Logistics system of a strategy

Integrated Logistics Management

- **The logics process is becoming more demanding and complex, so is the business environment in which the logistics has to operate**
- **Highlights seven critical factors including that are contributing to the complexity of logistics system operations**
    - **Escalating customer demand**
    - **Cycle time reduction**
    - **Globalization**
    - **Restructuring**
    - **Supply Chain Partnerships**
    - **Productivity pressures and**
    - **Environmental awareness**

Strategic Logistics Planning

- Strategic logistics planning is essentially concerned with the deployment and management of logistics resources to meet the desired cost effective service performance of the system

- This may involve, number and location of warehouses, mode and carrier selection, Inventory positioning, inventory planning, sub contracting of services, sourcing, equipment and facilities planning, order management and Infromation systems planning etc

Main objectives of logistics planning are:

- **Cost reduction:** - This strategy is directed towards minimizing the variable costs associated with the movement and storage. The best strategy is to evaluate the alternative courses of action and select the optimum one keeping profit maximization as the prime goal in mind.

- **Capital reduction: -** This strategy is directed towards minimizing the level of investment in the logistics system.

- **Service improvements: -** This strategy recognizes that the revenue is a function of the logistics service provided and develops an effective service strategy that is different from the one provided by competitors.

  - Logistics has significant impact on these important corporate performance objectives

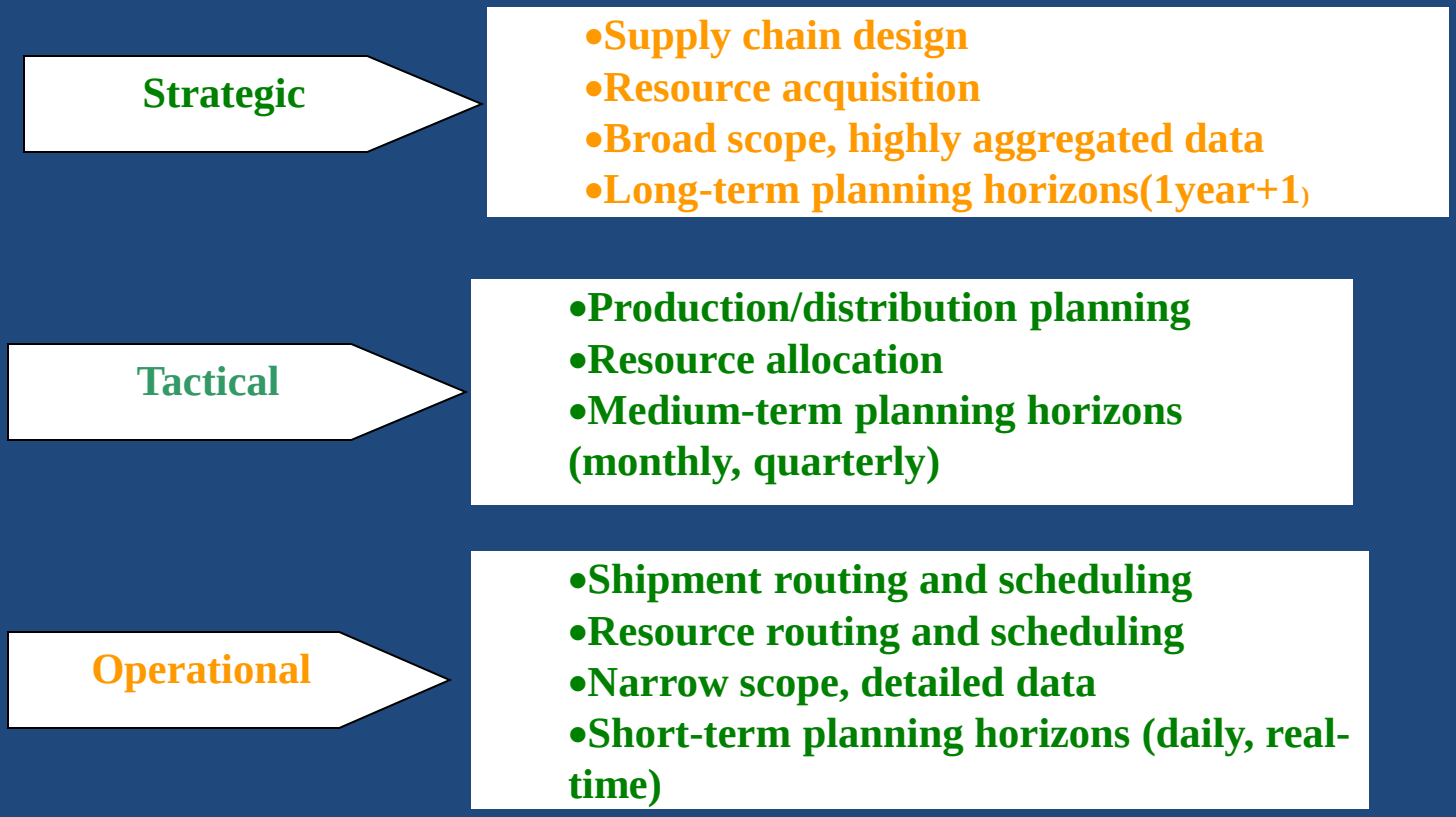
Logistics planning includes

- Supply Chain Planning
- Shipment Planning
- Transport System Planning
- Vehicle Routing and Scheduling
- Warehousing

Logistics Management Decisions

The level of investment and the periods over which the benefits from an investment in logistics system is realized

- Strategic logistics decisions
- Tactical logistics decision
- Operational logistics decisions


Strategic
•Supply chain design
•Resource acquisition
•Broad scope, highly aggregated data
•Long-term planning horizons(1year+1)
Tactical
•Production/distribution planning
•Resource allocation
•Medium-term planning horizons (monthly, quarterly)
Operational
•Shipment routing and scheduling
•Resource routing and scheduling
•Narrow scope, detailed data
•Short-term planning horizons (daily, real-time)

Logistics in the Firm: *The Micro Dimension*

- Logistics Interfaces with Operations/Manufacturing
- Logistics Interfaces with Marketing
- Logistics Interfaces with Other Areas

Logistics in the Firm: *Logistics Interfaces with Operations Manufacturing*

- Length of production runs
  - Balance economies of long production runs against increased costs of high inventories.
- Seasonal demand
  - Acceptance of seasonal inventory to balance lead production times.

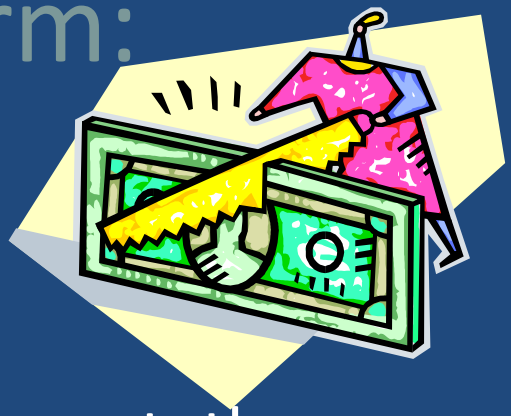
Logistics in the Firm: *Logistics Interfaces with Operations/Manufacturing*

- Supply-side interfaces
  - Stocking adequate supplies to ensure uninterrupted production now a logistics function.
- Protective packaging
  - Principal purpose is to protect the product from damage.
- Foreign & third party alternatives
  - Some logistics functions are being outsourced.

Logistics in the Firm: *The Micro Dimension*

- Logistics Interfaces with Marketing: The Marketing Mix – Four Ps
  - Price
  - Product
  - Promotion
  - Place

Logistics in the Firm:
Price



- Carrier pricing
  - Generally, since the larger the shipment, the cheaper the transportation rate, shipment sizes should be tailored to the carrier's vehicle capacity where possible.
- Matching schedules
  - Quantity discounts should be tied to carrier quantity discounts.
- Volume relationships
  - Volumes sold will affect inventory requirements.

Logistics in the Firm: *Product*

- Consumer packaging
  - Generally, since the size, shape, weight and other physical characteristics of the product impact on its storage, transportation and handling, the logistics managers should be included in any decisions regarding these product traits.
  - A minor correction in any of the above could conceivably cost (or save) millions of dollars in logistical costs.
  - Logistics costs are not necessarily paramount, but they need to be considered in the decision making process.

Logistics in the Firm: *Place*

- Wholesalers
  - Generally, since wholesalers are combining purchases for multiple retailers, the shipment sizes tend to be larger and the number of transactions that have to be processed are fewer, with the result that logistics costs are smaller.
- Retailers
  - With the exception of very large retailers who act more like wholesalers, smaller sales are the norm. These generally cost more for transportation and order processing.

Logistics in the Firm: *Promotion*

- Push versus pull
  - The most important factor is that the logistics division is aware of any changes in demand patterns so that it can plan for any consequences.
  - Pull strategies tend to be more erratic.
  - Push strategies tend to more predictable.
- Channel competition
  - The more popular a product, the easier it is to persuade channel members to promote your product.

Logistics Interfaces with Other Areas

- Manufacturing and marketing are probably the two most important internal, functional interfaces with logistics.
- Other important interfaces now include finance and accounting.
  - Logistics can have a major impact on return on assets and return on investment.
  - Logistics costs reported by cost systems measure supply chain trade-offs and performance.

Logistics Activities

- Transportation
- Storage
- Packaging
- Materials handling
- Order fulfillment
- Forecasting
- Production planning
- Purchasing
- Customer service
- Site location
- Other activities

Approaches to Analyzing Logistics Systems: *Materials Management v. Physical Distribution*

- Frequently the movement and storage of raw materials is far different from the movement and storage of finished goods.
- Four different classifications of logistics systems
  - Balanced system - e.g., consumer products
  - Heavy inbound - e.g., aircraft, construction
  - Heavy outbound - e.g., chemicals
  - Reverse systems - e.g., returnable products

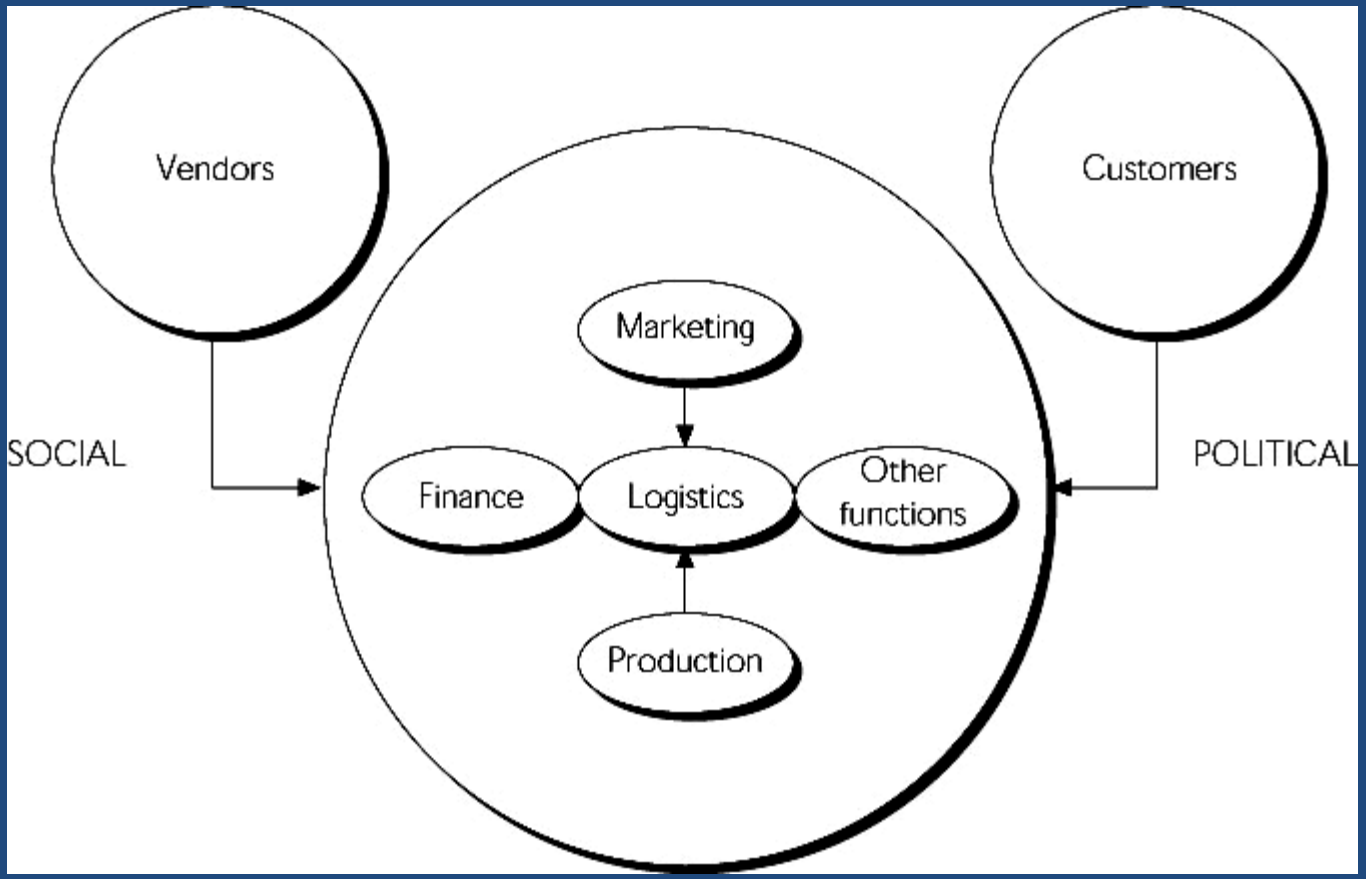
Logistics and Systems Analysis

- Cost Perspective
  - Keep in mind that the most efficient systems are not always comprised of each system component operating at its lowest possible cost.
  - The critical concern is to have the entire system operating at its lowest total cost.

Logistics and Systems Analysis

- Level of Optimality
  - There are often constraints working which result in sub-optimal outcomes.
  - Additionally, logistics systems must work in harmony with marketing, finance, production, etc.--- this may also result in sub-optimal logistics performance.
  - See Figure 2-10 on next slide.

Figure 2-10 *Levels of Optimality in Economic Environments*



Techniques of Logistics System Analysis: *Short-Run/Static Analysis*

- Comprised a matrix-like table which presents each of the logistics and other relevant costs for two or more alternative logistics systems.
- The major downside to the model is that it presents a solution which is not necessarily the correct one at all possible volume levels.

Techniques of Logistics System Analysis: *Long-Run/Dynamic Analysis*

- Comprised a graph of the fixed and variable costs of at least two alternative logistics systems.
- The graph may have at least one indifference point, but may have multiple points of indifference.

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Chapter 18
Pricing & Revenue mgmt

Objectives

- Outline
  - The Role of Revenue Management in the Supply Chain
  - Revenue Management for Multiple Customer Segments
  - Revenue Management for Perishable Assets
  - Revenue Management for Seasonable Demand
  - Revenue Management for Bulk and Spot Customers
  - Using Revenue Management in Practice
  - Summary of Learning Objectives

The Role of Revenue Management in the Supply Chain

- Revenue management is the use of pricing to increase the profit generated from a limited supply of supply chain assets
- Supply assets exist in two forms: capacity and inventory
- Revenue management may also be defined as the use of differential pricing based on customer segment, time of use, and product or capacity availability to increase supply chain profits

- Most common example is probably in airline

Conditions Under Which Revenue Management Has the Greatest Effect

- The value of the product varies in different market segments (Example: airline seats)
- The product is highly perishable or product waste occurs (Example: fashion and seasonal apparel)
- Demand has seasonal and other peaks (Example: products ordered at Amazon.com)
- The product is sold both in bulk and on the spot market (Example: owner of warehouse who can decide whether to lease the entire warehouse through long-term contracts or save a portion of the warehouse for use in the spot market)

Revenue Management for Multiple Customer Segments

- If a supplier serves multiple customer segments with a fixed asset, the supplier can improve revenues by setting different prices for each segment
- Prices must be set with barriers such that the segment willing to pay more is not able to pay the lower price
- The amount of the asset reserved for the higher price segment is such that the expected marginal revenue from the higher priced segment equals the price of the lower price segment

Revenue Management for Multiple Customer Segments

- p L = the price charged to the lower price segment
- p H = the price charged to the higher price segment
- D H = mean demand for the higher price segment
- σ H = standard deviation of demand for the higher price segment
- C H = capacity reserved for the higher price segment
- R H (C H) = expected marginal revenue from reserving more capacity
- = Probability(demand from higher price segment > C H) x p H
- R H (C H) = p L
- Probability(demand from higher price segment > C H) = p L / p H

- H)σ H) = NORMINV(1- p L /p H , D H , σC H = F -1 (1- p L /p H , D H ,

Example 15.2: ToFrom Trucking

- Revenue from segment A = p A = $3.50 per cubic ft
- Revenue from segment B = p B = $3.50 per cubic ft
- Mean demand for segment A = D A = 3,000 cubic ft
- A = 1,000 cubic ftσStd dev of segment A demand =
- A)σC A = NORMINV(1- p B /p A , D A ,
- = NORMINV(1- (2.00/3.50), 3000, 1000)
- = 2,820 cubic ft
- If pA increases to $5.00 per cubic foot, then
- A)σC A = NORMINV(1- p B /p A , D A ,
- = NORMINV(1- (2.00/5.00), 3000, 1000)
- = 3,253 cubic ft

Revenue Management for Perishable Assets

- Any asset that loses value over time is perishable
- Examples: high-tech products such as computers and cell phones, high fashion apparel, underutilized capacity, fruits and vegetables
- Two basic approaches:
  - Vary price over time to maximize expected revenue

Overbook sales of the asset to account for cancellations

Revenue Management for Perishable Assets

- Overbooking or overselling of a supply chain asset is valuable if order cancellations occur and the asset is perishable
- The level of overbooking is based on the trade-off between the cost of wasting the asset if too many cancellations lead to unused assets and the cost of arranging a backup if too few cancellations lead to committed orders being larger than the available capacity

Revenue Management for Perishable Assets

- p = price at which each unit of the asset is sold
- c = cost of using or producing each unit of the asset
- b = cost per unit at which a backup can be used in the case of asset shortage
- C w = p – c = marginal cost of wasted capacity
- C s = b – c = marginal cost of a capacity shortage
- O* = optimal overbooking level
- s* = Probability cancellations < O*) = C w / (C w + C s)

Revenue Management for Perishable Assets

- c andμIf the distribution of cancellations is known to be normal with mean c thenσstandard deviation
- c)σ c , μ c) = NORMINV(s*, σ c , μO* = F -1 (s*,
- If the distribution of cancellations is known only as a function of the (L+O) and stdμbooking level (capacity L + overbooking O) to have a mean of (L+O), the optimal overbooking level is the solution to theσdeviation of following equation:
- (L+O))σ L+O), (μO = F -1 (s*,
- (L+O))σ L+O), (μ= NORMINV(s*,

Example 15.5

- Cost of wasted capacity = C w = $10 per dress
- Cost of capacity shortage = C s = $5 per dress
- s* = C w / (C w + C s) = 10/(10+5) = 0.667
- c = 400σ c = 800; μ
- c)σ c , μO* = NORMINV(s*,
- = NORMINV(0.667,800,400) = 973
- If the mean is 15% of the booking level and the coefficient of variation is 0.5, then the optimal overbooking level is the solution of the following equation:
- O = NORMINV(0.667,0.15(5000+O),0.075(5000+O))
- Using Excel Solver, O* = 1,115

Revenue Management for Seasonal Demand

- Seasonal peaks of demand are common in many supply chains
- Examples: Most retailers achieve a large portion of total annual demand in December (Amazon.com)
- Off-peak discounting can shift demand from peak to non-peak periods
- Charge higher price during peak periods and a lower price during off-peak periods

Revenue Management for Bulk and Spot Customers

- Most consumers of production, warehousing, and transportation assets in a supply chain face the problem of constructing a portfolio of long-term bulk contracts and short-term spot market contracts
- The basic decision is the size of the bulk contract
- The fundamental trade-off is between wasting a portion of the low-cost bulk contract and paying more for the asset on the spot market
- Given that both the spot market price and the purchaser's need for the asset are uncertain, a decision tree approach as discussed in Chapter 6 should be used to evaluate the amount of long-term bulk contract to sign

Revenue Management for Bulk and Spot Customers

- For the simple case where the spot market price is known but demand is uncertain, a formula can be used
- c B = bulk rate
- c S = spot market price
- Q* = optimal amount of the asset to be purchased in bulk
- p* = probability that the demand for the asset does not exceed Q*
- Marginal cost of purchasing another unit in bulk is c B . The expected marginal cost of not purchasing another unit in bulk and then purchasing it in the spot market is (1-p*)c S .

Revenue Management for Bulk and Spot Customers

- If the optimal amount of the asset is purchased in bulk, the marginal cost of the bulk purchase should equal the expected marginal cost of the spot market purchase, or c B = (1-p*)c S
- Solving for p* yields p* = (c S – c B) / c S
- , the optimal amount Q*σ and std deviation μIf demand is normal with mean to be purchased in bulk is

)σ , μ) = NORMINV(p*, σ , μQ* = F -1 (p*,

Example 15.6

- Bulk contract cost = c B = $10,000 per million units
- Spot market cost = c S = $12,500 per million units
- = 10 million unitsμ
- = 4 million unitsσ
- p* = (c S – c B) / c S = (12,500 – 10,000) / 12,500 = 0.2
-) = NORMINV(0.2,10,4) = 6.63σ , μQ* = NORMINV(p*,
- The manufacturer should sign a long-term bulk contract for 6.63 million units per month and purchase any transportation capacity beyond that on

Using Revenue Management in Practice

- Evaluate your market carefully
- Quantify the benefits of revenue management
- Implement a forecasting process
- Apply optimization to obtain the revenue management decision
- Involve both sales and operations
- Understand and inform the customer
- Integrate supply planning with revenue management

Summary of Learning Objectives

- What is the role of revenue management in a supply chain?
- Under what conditions are revenue management tactics effective?
- What are the trade-offs that must be considered when making revenue management decisions?

Supply Chain Management (3rd Edition)

Chapter 3
Supply Chain Drivers and Obstacles

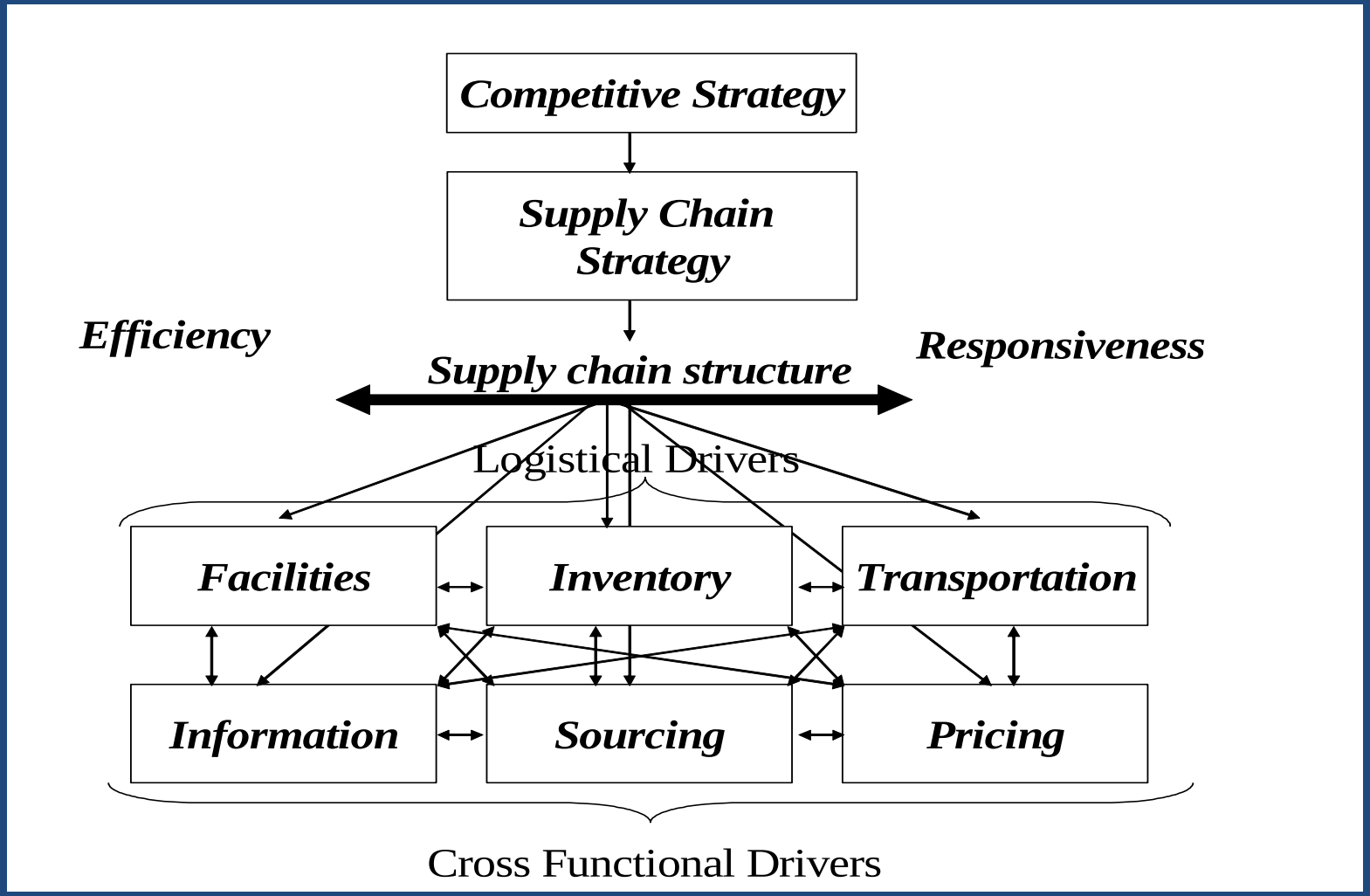
Outline

- Drivers of supply chain performance
- A framework for structuring drivers
- Facilities
- Inventory
- Transportation
- Information
- Sourcing
- Pricing
- Obstacles to achieving fit

Drivers of Supply Chain Performance

- Facilities
  - places where inventory is stored, assembled, or fabricated
  - production sites and storage sites
- Inventory
  - raw materials, WIP, finished goods within a supply chain
  - inventory policies
- Transportation
  - moving inventory from point to point in a supply chain
  - combinations of transportation modes and routes
- Information
  - data and analysis regarding inventory, transportation, facilities throughout the supply chain
  - potentially the biggest driver of supply chain performance
- Sourcing
  - functions a firm performs and functions that are outsourced
- Pricing
  - Price associated with goods and services provided by a firm to the supply chain

A Framework for Structuring Drivers



Facilities

- Role in the supply chain
  - the “where” of the supply chain
  - manufacturing or storage (warehouses)
- Role in the competitive strategy
  - economies of scale (efficiency priority)
  - larger number of smaller facilities (responsiveness priority)
- Example 3.1: Toyota and Honda
- Components of facilities decisions

Components of Facilities Decisions

- Location
  - centralization (efficiency) vs. decentralization (responsiveness)
  - other factors to consider (e.g., proximity to customers)
- Capacity (flexibility versus efficiency)
- Manufacturing methodology (product focused versus process focused)
- Warehousing methodology (SKU storage, job lot storage, cross-docking)

Inventory

- Role in the supply chain
- Role in the competitive strategy
- Components of inventory decisions

Inventory: Role in the Supply Chain

- Inventory exists because of a mismatch between supply and demand
- Source of cost and influence on responsiveness
- Impact on
  - material flow time: time elapsed between when material enters the supply chain to when it exits the supply chain
  - throughput
    - rate at which sales to end consumers occur
    - I = RT (Little's Law)
    - I = inventory; R = throughput; T = flow time

Inventory: Role in Competitive Strategy

- If responsiveness is a strategic competitive priority, a firm can locate larger amounts of inventory closer to customers
- If cost is more important, inventory can be reduced to make the firm more efficient
- Trade-off
- Example 3.2 – Nordstrom

Components of Inventory Decisions

- Cycle inventory
  - Average amount of inventory used to satisfy demand between shipments
  - Depends on lot size
- Safety inventory
  - inventory held in case demand exceeds expectations
  - costs of carrying too much inventory versus cost of losing sales
- Seasonal inventory
  - inventory built up to counter predictable variability in demand
  - cost of carrying additional inventory versus cost of flexible production
- Overall trade-off: Responsiveness versus efficiency
  - more inventory: greater responsiveness but greater cost
  - less inventory: lower cost but lower responsiveness

Transportation

- Role in the supply chain
- Role in the competitive strategy
- Components of transportation decisions

Transportation: Role in the Supply Chain

- Moves the product between stages in the supply chain
- Impact on responsiveness and efficiency
- Faster transportation allows greater responsiveness but lower efficiency
- Also affects inventory and facilities

Transportation: Role in the Competitive Strategy

- If responsiveness is a strategic competitive priority, then faster transportation modes can provide greater responsiveness to customers who are willing to pay for it
- Can also use slower transportation modes for customers whose priority is price (cost)
- Can also consider both inventory and transportation to find the right balance
- Example 3.3: Laura Ashley

Components of Transportation Decisions

- Mode of transportation:
  - air, truck, rail, ship, pipeline, electronic transportation
  - vary in cost, speed, size of shipment, flexibility
- Route and network selection
  - route: path along which a product is shipped
  - network: collection of locations and routes
- In-house or outsource
- Overall trade-off: Responsiveness versus efficiency

Information

- Role in the supply chain
- Role in the competitive strategy
- Components of information decisions

Information: Role in the Supply Chain

- The connection between the various stages in the supply chain – allows coordination between stages
- Crucial to daily operation of each stage in a supply chain – e.g., production scheduling, inventory levels

Information: Role in the Competitive Strategy

- Allows supply chain to become more efficient and more responsive at the same time (reduces the need for a trade-off)
- Information technology
- What information is most valuable?
- Example 3.4: Andersen Windows
- Example 3.5: Dell

Components of Information Decisions

- Push (MRP) versus pull (demand information transmitted quickly throughout the supply chain)
- Coordination and information sharing
- Forecasting and aggregate planning
- Enabling technologies
  - EDI
  - Internet
  - ERP systems
  - Supply Chain Management software

Sourcing

- Role in the supply chain
- Role in the competitive strategy
- Components of sourcing decisions

Sourcing: Role in the Supply Chain

- Set of business processes required to purchase goods and services in a supply chain
- Supplier selection, single vs. multiple suppliers, contract negotiation

Sourcing: Role in the Competitive Strategy

- Sourcing decisions are crucial because they affect the level of efficiency and responsiveness in a supply chain
- In-house vs. outsource decisions- improving efficiency and responsiveness
- Example 3.6: Cisco

Components of Sourcing Decisions

- In-house versus outsource decisions
- Supplier evaluation and selection
- Procurement process
- Overall trade-off: Increase the supply chain profits

Pricing

- Role in the supply chain
- Role in the competitive strategy
- Components of pricing decisions

Pricing: Role in the Supply Chain

- Pricing determines the amount to charge customers in a supply chain
- Pricing strategies can be used to match demand and supply

Sourcing: Role in the Competitive Strategy

- Firms can utilize optimal pricing strategies to improve efficiency and responsiveness
- Low price and low product availability; vary prices by response times
- Example 3.7: Amazon

Components of Pricing Decisions

- Pricing and economies of scale
- Everyday low pricing versus high-low pricing
- Fixed price versus menu pricing
- Overall trade-off: Increase the firm profits

Obstacles to Achieving Strategic Fit

- Increasing variety of products
- Decreasing product life cycles
- Increasingly demanding customers
- Fragmentation of supply chain ownership
- Globalization
- Difficulty executing new strategies

Summary

- What are the major drivers of supply chain performance?
- What is the role of each driver in creating strategic fit between supply chain strategy and competitive strategy (or between implied demand uncertainty and supply chain responsiveness)?
- What are the major obstacles to achieving strategic fit?
- In the remainder of the course, we will learn

Supply Chain Management

Introduction

What Is a Supply Chain?

Flow of products and services from:

- Raw materials manufacturers
- Intermediate products manufacturers
- End product manufacturers
- Wholesalers and distributors and
- Retailers

- Connected by transportation and storage activities
- Integrated through information, planning, and integration activities
- Cost and service levels

Definitions

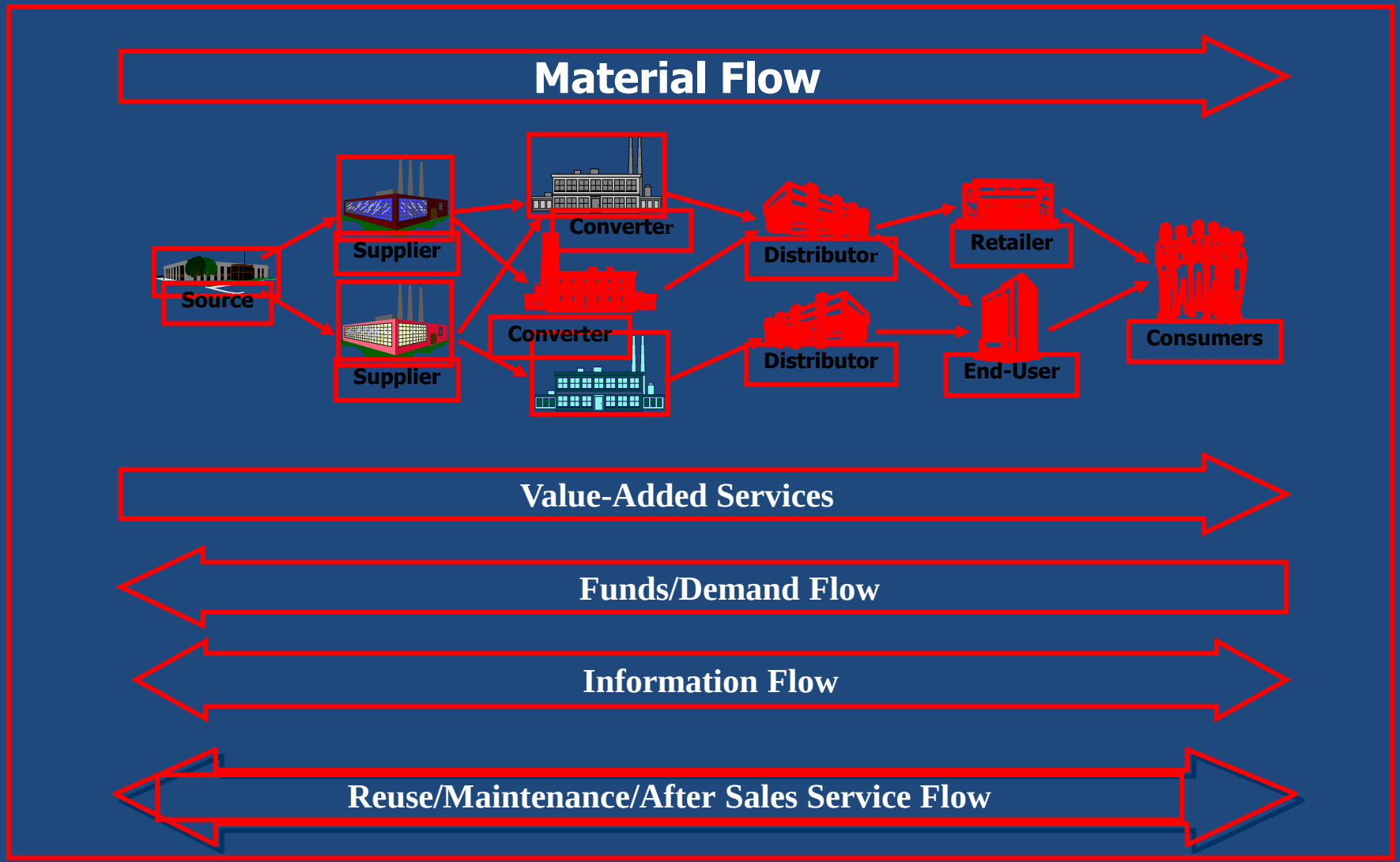
The design and management of seamless, value-added process across organizational boundaries to meet the real needs of the end customer

Institute for Supply Management

Managing supply and demand, sourcing raw materials and parts, manufacturing and assembly, warehousing and inventory tracking, order entry and order management, distribution across all channels, and delivery to the customer

The Supply Chain Council

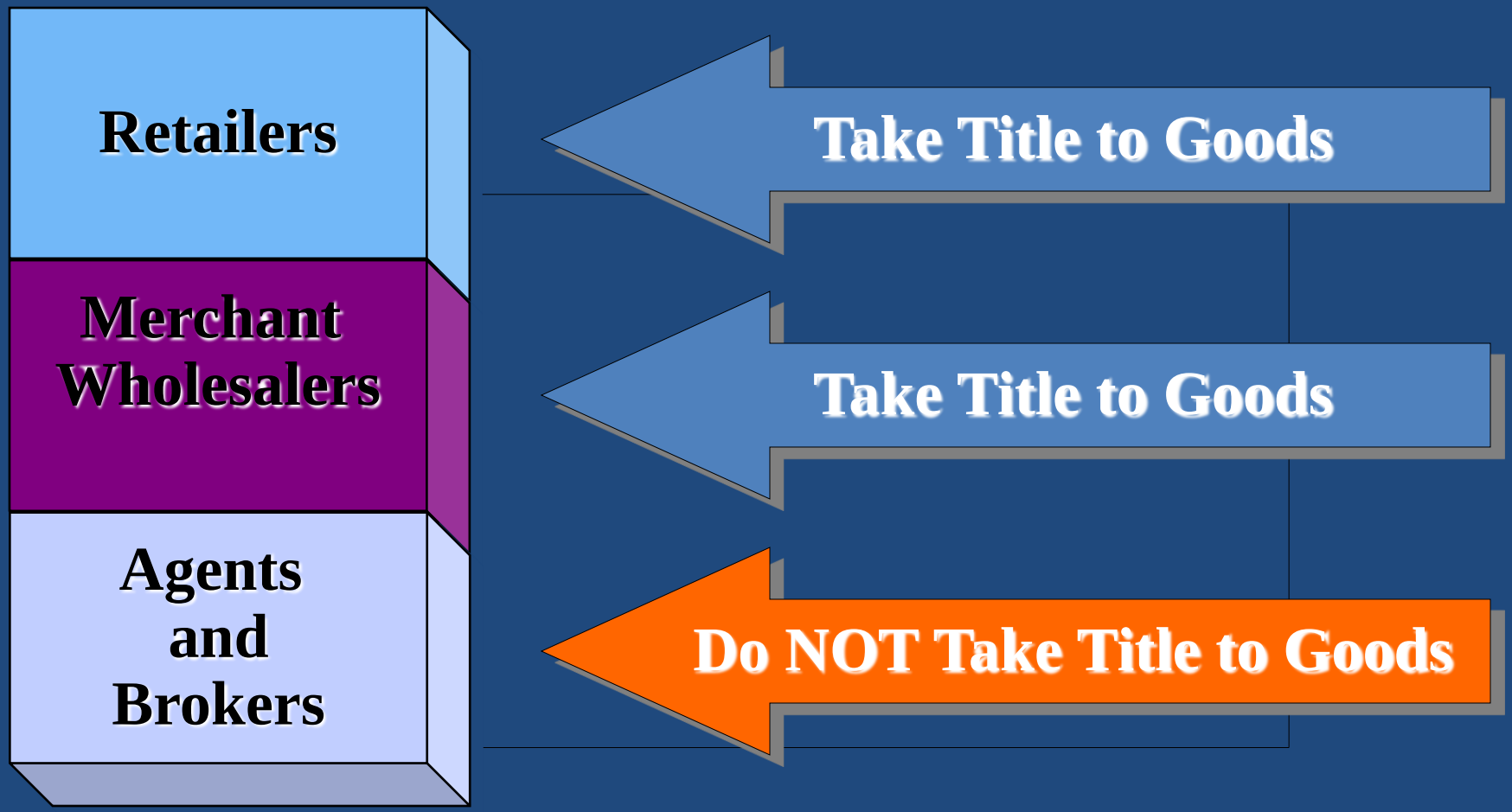
SCM Definition



Channel Intermediaries

Retailer	**A channel intermediary that sells mainly to customers.**
Merchant Wholesaler	**An institution that buys goods from manufacturers, takes title to goods, stores them, and resells and ships them.**
Agents and Brokers	**holesaling intermediaries who facilitate the sale of a product by representing channel member.**

Channel Intermediaries



The SCM Network

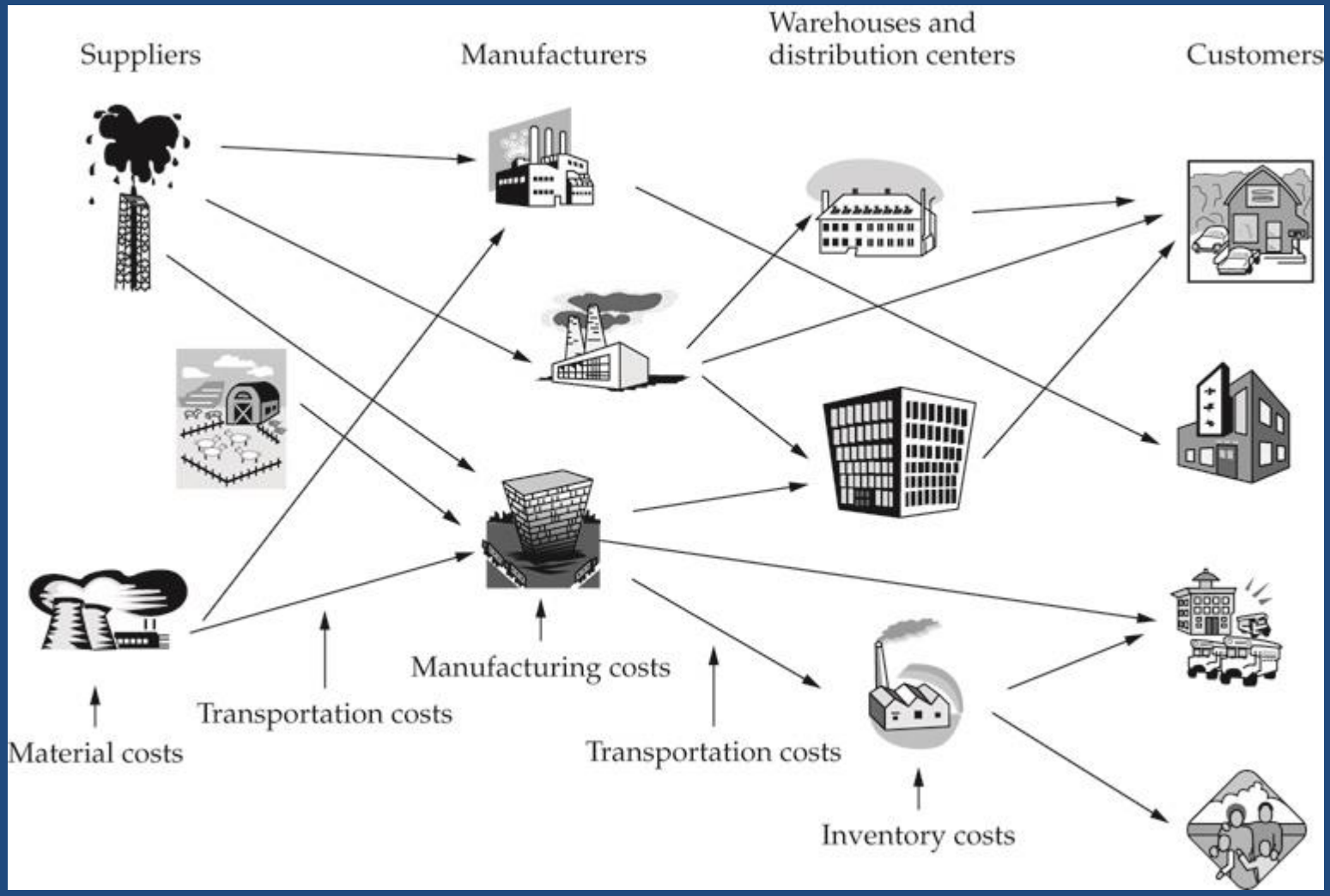


FIGURE 1.1: **The logistics network**

Objective of a supply chain

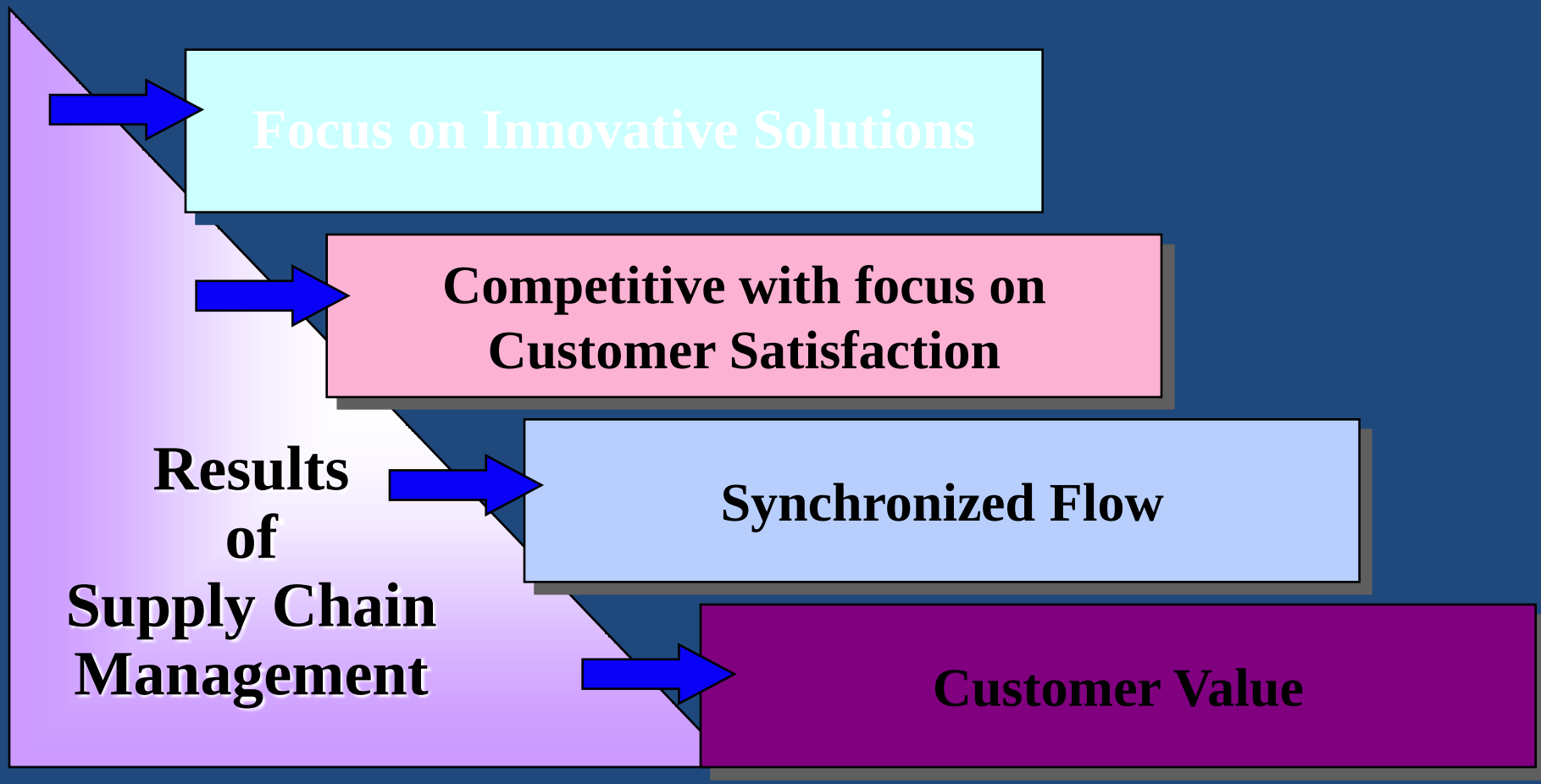
- *Maximize the value of supply chain (difference between the worth of the final product to the customer and the cost of the supply chain in filling the customer's request)*

- *Increase the supply chain profitability (supply chain surplus)*

The Importance of Supply Chain Management

- Dealing with uncertain environments
- Shorter product life cycles of high-technology products
  - Less opportunity to accumulate historical data on customer demand
  - Wide choice of competing products makes it difficult to predict demand
- The growth of technologies such as the Internet enable greater collaboration between supply chain trading partners
  - If you don't do it, your competitor will
- Availability of SCM technologies on the market
  - Firms have access to multiple products (e.g., SAP, Baan, Oracle, JD Edwards) with which to integrate *internal* processes

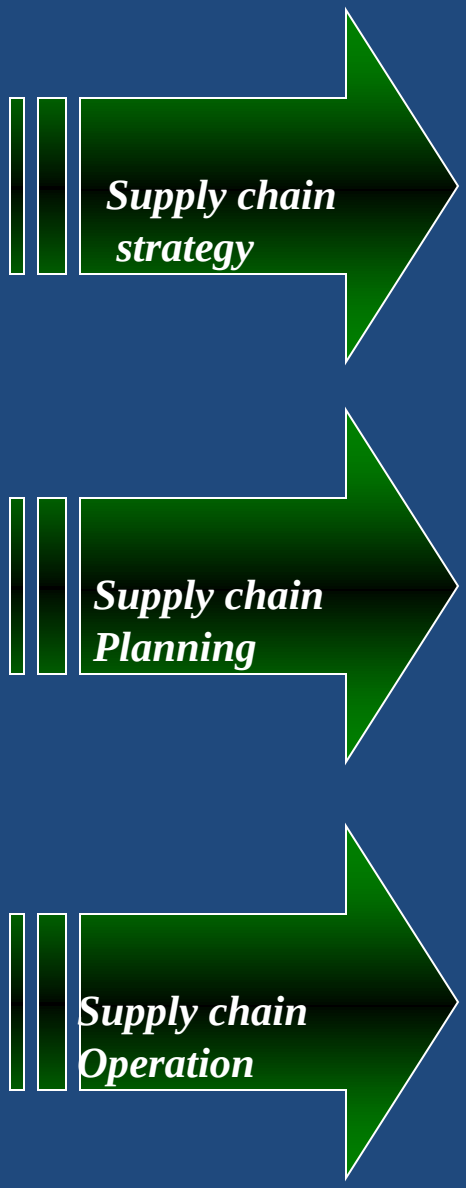
Supply Chain Management



Supply chain includes

- *Material flows / Product flows*
- *Information flows*
- *Financial flows*

Decision Phases in Supply chain



- Supply Chain Design
- Resource Acquisition
- Long Term Planning (1 Year ++)

- Production/ Distribution Planning
- Resource Allocation
- Medium Term Planning (Qtrly,Monthly)

- Shipment Scheduling
- Resource Scheduling
- Short Term Planning (Weekly,Daily)

Process view of a supply chain

1. ***Cycle view*** of a supply chain process

- Broken down into 4 Process Cycles viz..

CUSTOMER ORDER CYCLE

REPLENISHMENT CYCLE

MANUFACTURING CYCLE

PROCUREMENT CYCLE

- Each cycle consists of 6 sub processes

1 Supplier stage markets product

2 Buyer stage places the order

3 Supply stage receives the order

4 Supplier stage supplies the order

5 Buyer stage receives supply

6 Buyer returns reverse to supplies to supplier or third party

- Useful in considering operational decisions

2. Push pull view of Supply chain management

- Divided into 2 categories

1. *Push Process initiated in anticipation of customer orders*

2. *Pull process initiated by customer order*

- Push/pull view of SCM is useful when considering strategic decisions relating to supply design

Supply chain Macro processes in a firm

Supplier relationship management	**Internal SCM**	**Customer relationship management**
• Source • Negotiate • Buy • Design collaboration • Supply collaboration	• Strategic planning • Demand planning • Supply planning • Fulfillment • Field service	• Market • Price • Sell • Call center • Order management

The Processes

- **Customer Relationship Management** - provides the structure for how relationships with customers are developed & maintained, including the PSAs between the firm & its customers.
- **Customer Service Management** - provides the firm's face to the customer, including management of the PSAs, and provides a single source of customer information.
- **Demand Management** – provides the structure for balancing the customers' requirements with supply chain capabilities.
- **Order Fulfillment** – includes all activities necessary to define customer requirements, design the logistics network, and fill customer orders.
- **Manufacturing Flow Management** - includes all activities necessary to move products through the plants & to obtain & manage manufacturing flexibility in the supply chain.
- **Supplier Relationship Management** - provides the structure for how relationships with suppliers are developed & maintained, including the PSAs between the firm & its suppliers.
- **Product Development and Commercialization** – provides the structure for developing and bringing to market new products jointly with customers and suppliers.
- **Returns Management** – includes all activities related to returns, reverse logistics, gate keeping, & avoidance.

Key Issues in Supply Chain Mgt.

Network Planning –

- recognize the capacity of each warehouse to determine production requirements and inventory levels at the vendor's facility for each product
- develop transportation flows between these facilities to the warehouses
- minimize total production, inventory, and transportation costs satisfy service level requirements?

Key Issues in Supply Chain Mgt.

Inventory Control –

- Where is inventory held, (supplier, warehouse, retailer)
- how much, and why?
- Is inventory held due to uncertainty in production, distribution or customer demand?
- Is there anything that can be done to reduce uncertainty thereby reducing inventory?

Key Issues in Supply Chain Mgt.

Distribution Strategies –

- Relationships between suppliers and warehouse operators that specify delivery lead times, appointment processes, and hours for receiving.
- How can this relationship optimize supply chain efficiency?

Key Issues in Supply Chain Mgt.

Supply Chain Integration and Strategic Partnering –

- information sharing and operational planning are keys to successfully integrated supply chain.
- But what info. will be shared?
- How will it be used?
- What level of integration is needed?
- What partnerships can be implemented?

Key Issues in Supply Chain Mgt.

- **Product Design** –
- Effective design, in particular an unified case code number, plays several critical roles in supply chain efficiency.
- Not having an unified case code number creates, complicated production, increases inventory holdings at the vendors facility, delays delivery to the warehouse and if received incorrectly delays delivery to the stores.
- What role does supply chain management play in implementation of product design to simplify production requirements and reduce lead-time for inventory replenishment?

Key Issues in Supply Chain Mgt.

Customer Value –

- Measure of a company's performance to its customer, based upon the entire range of products, services, and intangibles that constitute the company's offerings.
- Effective supply chain mgt. is critical if **OUR** objective is to fulfill the ultimate consumer needs and provide value.

Key Issues in Supply Chain Mgt.

Information Technology and Decision-Support Systems –

- much of the current interest in supply chain mgt. is motivated by the opportunities that appeared due to the abundance of data and the savings that can be achieved by sophisticated analysis of these data.
- But what data should be transferred? Which are significant ? How should data be analyzed and used? Impact of the Internet? What infrastructure is required internally and between partners?

Supply-Chain Management

Important activities include determining

1. Transportation vendors

2. Credit and cash transfers

3. Suppliers

4. Distributors and banks

5. Accounts payable and receivable

6. Warehousing and inventory

7. Order fulfillment

8. Sharing customer, forecasting, production information

The Strategic Importance of the Supply Chain

- *Supply-chain management is the integration of the activities that procure materials and services, transform them into intermediate goods and the final product, and deliver them to customers*

- *Competition is no longer between companies; it is between its supply chains*

Supply Chain Goals

Efficient supply chain management must result in tangible business improvements. It is characterized by a sharp focus on

- *Revenue growth*
- *Better asset utilization*
- *Cost reduction*.

Benefits of Supply Chain Management