

Supply Chain Performance: Achieving Strategic Fit and Scope

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Outline

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

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What is the Objective of Supply Chain?

- ◆ Managing supply chain flows and assets, *to maximize supply chain surplus*
- ◆ *Supply chain surplus* or *supply chain profitability* is the difference between the revenue generated from the customer and the overall cost across the supply chain

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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

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Achieving Strategic Fit

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

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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 should 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
 - Dell's competitive strategy is to provide a large variety of customizable products at reasonable price

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How is Strategic Fit Achieved?

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

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Step 1: Understanding the Customer and Supply Chain Uncertainty

- ◆ Identify the needs of the customer segment being served (Seven-Eleven vs. BJ's)
- ◆ 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

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Step 1: Understanding the Customer and Supply Chain Uncertainty

- ◆ Overall attribute of customer demand
 - Quantity needed
 - Response time a customer is willing to tolerate
 - Variety of products needed
 - Service level required
 - Price of the product
 - Desired rate of innovation in the product
- ◆ Although there are many attributes along which customer demand varies, the goal is to identify one key measure for combining all of these attributes

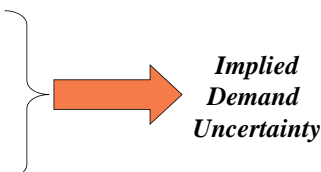
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Step 1: Understanding the Customer and Supply Chain Uncertainty

- ◆ **Demand uncertainty:** uncertainty of customer demand for a product
- ◆ **Implied demand uncertainty:** resulting uncertainty for only the portion of the demand that the supply chain plans to satisfy and the attributes the customer desires, not the entire demand

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Step 1: Understanding the Customer and Supply Chain Uncertainty

- ◆ Understanding the Customer
 - Lot size
 - Response time
 - Service level
 - Product variety
 - Price
 - Innovation
- 
- Implied Demand Uncertainty*

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Step 1: Understanding the Customer and Supply Chain Uncertainty

- ◆ Implied demand uncertainty is also related to customer needs and product attributes
- ◆ Table 1
- ◆ Table 2
- ◆ Table 3
- ◆ Figure 1
- ◆ **First step to strategic fit is to understand customers by mapping their demand on the implied uncertainty spectrum**

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Impact of Customer Needs on Implied Demand Uncertainty (Table 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

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Correlation Between Implied Demand Uncertainty and Other Attributes (Table 2)

Attribute	Low Implied Uncertainty (Functional Products, Predictable Demand)	High Implied Uncertainty (Innovative Products, Unpredictable Demand)
Product margin: (price - cost)/price	Low	High
Avg. forecast error	10%	40%-100%
Avg. stock out rate	1%-2%	10%-40%
Avg. forced season-end markdown as a % of full price	0%	10%-25%

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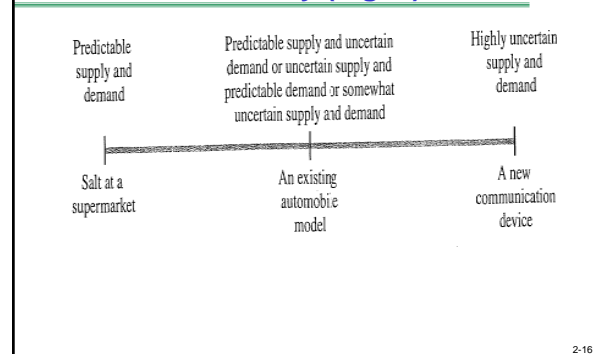
Impact of Supply Source Capability on Supply Uncertainty (Table 3)

Supply Source Capability	Causes Supply Uncertainty to ...
Frequent breakdowns	Increase
Unpredictable and low yields	Increase
Poor quality	Increase
Limited supply capacity	Increase
Inflexible supply capacity	Increase
Evolving production process	Increase

Source: Adapted from "Aligning Supply Chain Strategies with Product Uncertainties," Hau L. Lee, *California Management Review* (Spring 2002), 105-19.

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Levels of Implied Demand Uncertainty (Fig. 1)



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Step 2: Understanding the Supply Chain Capabilities

- ◆ How does the firm best meet demand in an uncertain environment?
- ◆ 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
 - handle supply uncertainty

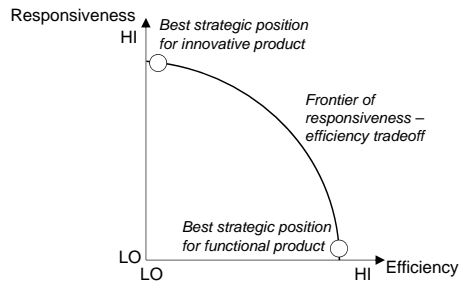
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Step 2: Understanding the Supply Chain Capabilities

- ◆ 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 (or lower efficiency)
- ◆ Figure 2: Efficiency-responsiveness tradeoff
- ◆ Figure 3: supply chain responsiveness spectrum
- ◆ **Second step to achieving strategic fit is to map the supply chain on the responsiveness spectrum**

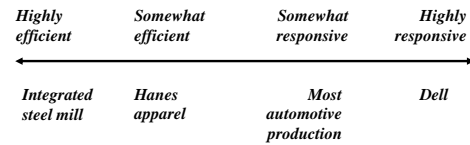
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Understanding the Supply Chain Capabilities: Efficiency-Responsiveness Tradeoff (Fig. 2)



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Responsiveness Spectrum (Figure 3)



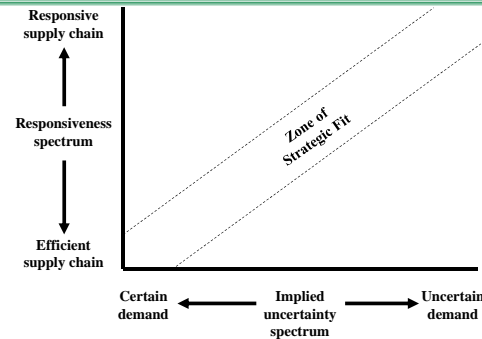
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Step 3: Achieving Strategic Fit

- ◆ This step is to ensure that what the supply chain does well is consistent with target customer's needs
- ◆ Fig. 4: Uncertainty/Responsiveness map (Finding the zone of strategic fit)
- ◆ Fig. 5: Uncertainty/Responsiveness in a supply chain
- ◆ Examples: Dell, Barilla

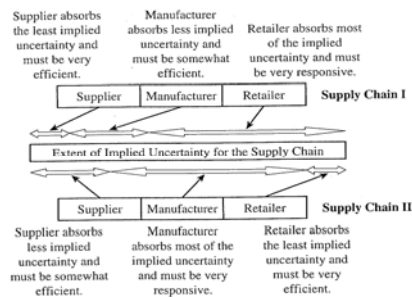
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Achieving Strategic Fit Shown on the Uncertainty/Responsiveness Map (Fig. 4)



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Different Roles and Allocations of Implied Uncertainty for a Given Level of Supply Chain Responsiveness (Fig. 5)



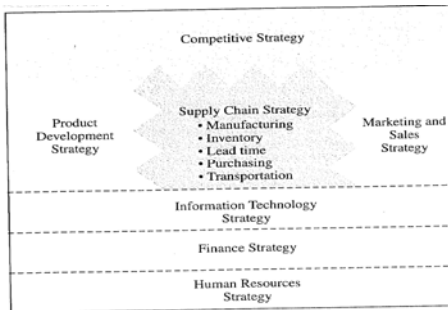
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Step 3: Achieving Strategic Fit

- ◆ All functions in the value chain must support the competitive strategy to achieve strategic fit – Fig. 6
- ◆ Two extremes: Efficient supply chains (Barilla) and responsive supply chains (Dell) – Table 4
- ◆ **The final step in achieving strategic fit is to match supply chain responsiveness with the implied uncertainty from demand and supply. The supply chain design and all functional strategies within the firm must also support the supply chain's level of responsiveness**

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Fit Between Competitive and Functional Strategies (Fig 6)



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Comparison of Efficient and Responsive Supply Chains (Table 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

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Note that

- ◆ Changing the strategies to achieve strategic fit may sound easy but in reality it can be quite difficult. We will discuss the many obstacles to achieve this fit in the subsequent lectures
- ◆ Two important points to remember are that
 - there is *no* supply chain strategy that is always right
 - there *is* a right supply chain strategy for a given competitive strategy

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Other Issues Affecting Strategic Fit

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

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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

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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

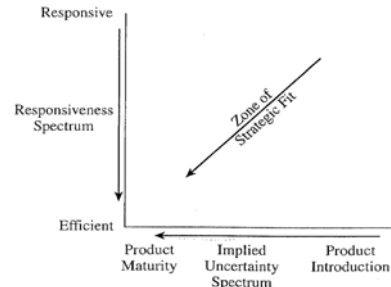
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Product Life Cycle

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

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Changes in Supply Chain over a Product Life Cycle (Fig. 7)



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Competitive Changes Over Time

- ◆ Competitive pressures can change over time. For example, changes in marketplace or increased globalization could lead to competitive pressures
- ◆ 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

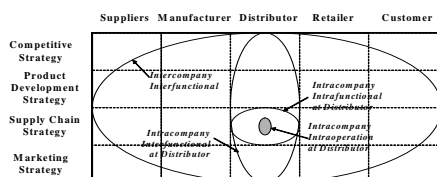
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Expanding Strategic Scope

- ◆ **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:**
 - Intra-company intra-operation scope
 - Intra-company intra-functional scope
 - Intra-company inter-functional scope
 - Inter-company inter-functional scope
 - Agile inter-company scope

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Different Scopes of Strategic Fit Across a Supply Chain (Fig. 8)



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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?

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