AGEC 632: AGRIBUSINESS LOGISTICS

Chapter 2.
Supply Chain Performance: Achieving Strategic Fit in the Supply Chain

2021

Manhattan, Kansas

KANSAS STATE UNIVERSITY | Agricultural Economics

Learning Objetives

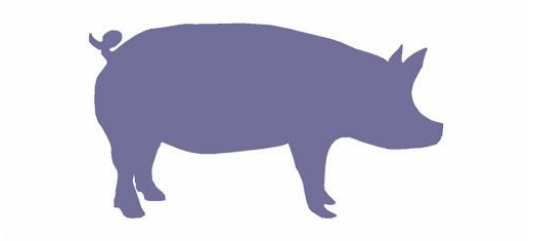
- Explain why achieving strategic fit is critical to a company's overall success.
- Describe how a company achieves strategic fit between its supply chain strategy and its competitive strategy.
- Discuss the importance of expanding the scope of strategic fit across the supply chain.
- Describe the major challenges that must be overcome to manage a supply chain successfully.

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 will be 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 to the customer.

All functional strategies must support one another and the competitive strategy.

Examples: Feed Additive



- **Competitive Strategy:** Feed additive which promotes 20% faster growth rates in hogs.
- **Product Development:** A complete hog feed which contains the new growth additive.
- **Marketing and Sales Strategy:** Position as new product development and sell to regional China distributors under private label.
- **Supply Chain Strategy:** Manufacture in China procure raw materials in China and import base materials from USA.

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The Value Chain

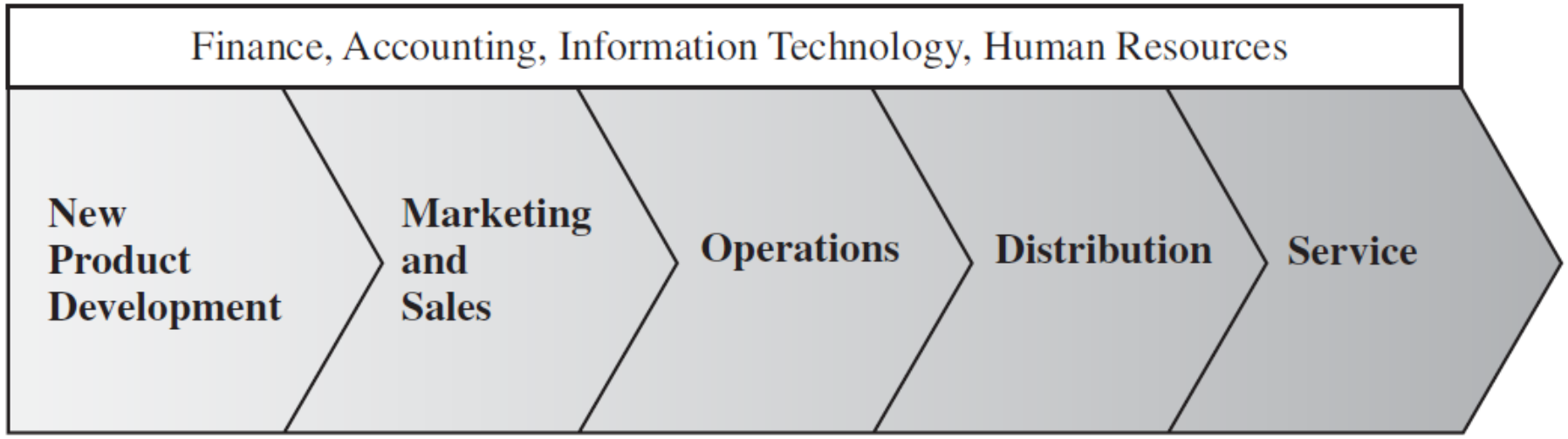

FIGURE 2-1 The Value Chain in a Company

Achieving Strategic Fit

Strategic Fit Theory

- **Strategic fit** – competitive and supply chain strategies have aligned 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

Applied to:

Feed Example

Pre-Mortem – why would we fail?

Achieving Strategic Fit

Theory

- The competitive strategy and all functional strategies must fit together to form a coordinated overall strategy.
- The different functions in a company must appropriately structure their processes and resources to be able to execute these strategies successfully.
- The design of the overall supply chain and the role of each stage must be aligned to support the supply chain strategy.

Applied to

Feed Model

- Align on one clear guiding strategy and have team buy-in.
- Form Cross Functional Team with communication protocols to ensure visibility.
- Align on technology so systems are speaking to each other directly (technology component).

How is Strategic Fit Achieved?

Theory

- Understanding the customer and supply chain uncertainty
- Understanding the supply chain

Feed Model

- Define Chinese Feed Buyer needs – This will define the cost and service requirements.
- Develop supply chain to procure ingredients.
  - Buy local? Import direct? Meet quality standards? Develop relationship with suppliers.
- Do our vendors ensure consistent supply? Are we a target buyer for them? If not, do we look for a distributor vs buying direct?

How is strategic fit achieved?

1. Understanding the customer and supply chain uncertainty.

2. Understanding the supply chain capabilities

3. Achieve strategic fit

1. Understanding the customer and supply chain uncertainty.

Step 1: Understanding the Customer and Supply Chain Uncertainty

Theory

- 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

Feed Model

- Standard packing size in China? Weight restrictions at plants? On roads?
- Are we appropriately resourced for customer service?
- Customers demand hog feed but are there other applications?
- How are we priced against competitors, and can the market bear the price?
- Can customers and competitors copy my product easily?

Customer Needs and Implied Demand Uncertainty

Customer Need	Causes Implied Demand Uncertainty to ...
Range of quantity required increases	Increase because a wider range of the quantity required implies greater variance in demand
Lead time decreases	Increase because there is less time in which to react to orders
Variety of products required increases	Increase because demand per product becomes more disaggregate
Number of channels through which product may be acquired increases	Increase because the total customer demand is now disaggregated over more channels
Rate of innovation increases	Increase because new products tend to have more uncertain demand
Required service level increases	Increase because the firm now has to handle unusual surges in demand

Table 2-1

Lead Time: Ingredients coming from both China and USA- can take 2 months to ship from the USA, likely have to bear risk and stock prior to a sale

Implied Uncertainty and Other Attributes

Theory

- Products with uncertain demand are often less mature and have less direct competition. As a result, margins tend to be high.
- Forecasting is more accurate when demand has less uncertainty.
- Increased implied demand uncertainty leads to increased difficulty in matching supply with demand. For a given product, this dynamic can lead to either a stockout or an oversupply situation.
- Markdowns are high for products with greater implied demand uncertainty because oversupply often results.

Feed Model

- We have a new feed product, We can assume a higher margin but higher risk
  - Inaccurate forecasting
  - Long lead time from USA
    May need to carry heavy inventories for imported ingredients
  - Hard to get consistent supply of ingredients without consistent output
    May need to carry heavy inventories for local ingredients
  - Determine the shelf life of both our ingredients and our finished feed blend

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2. Understanding the supply chain capabilities

Step 2: Understanding Supply Chain Capabilities

Theory

- How does the firm best meet demand?

Supply chain responsiveness is the 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

Feed Model

- Determine if ingredient suppliers can scale up inline with us
- Determine how much inventory they keep on hand
- Can I get multiple ingredients from one vendor?
- Are my vendors introducing me to new ingredients that could further my capabilities?
- Am I a tier 1 client for the vendor? If not, alternative strategy? Distributor?

Step 2: Understanding Supply Chain Capabilities

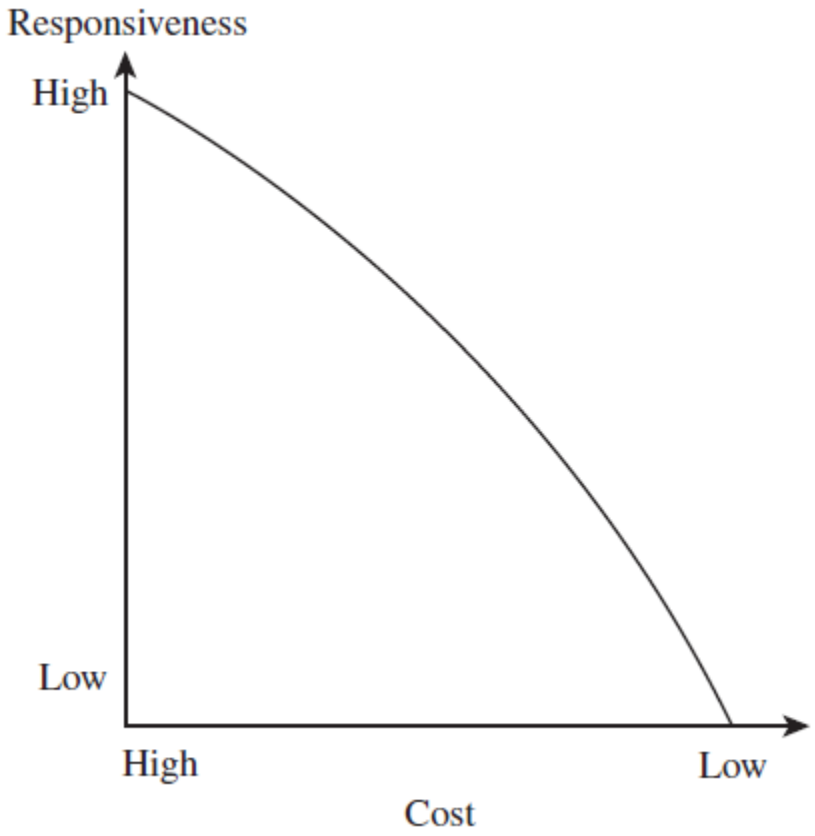
Theory

- Responsiveness comes at a cost.
- Supply chain efficiency is the inverse to the cost of making and delivering the product to the customer.
- The cost-responsiveness efficient frontier curve shows the lowest possible cost for a given level of responsiveness.

Feed Model

- Sea freight vs Air freight - $2500 to ship 20 mt by sea freight and $20,000 to ship by air freight
- See curve on next slide

Cost-Responsiveness Efficient Frontier



3. Achieving Strategic Fit

Step 3: Achieving Strategic Fit

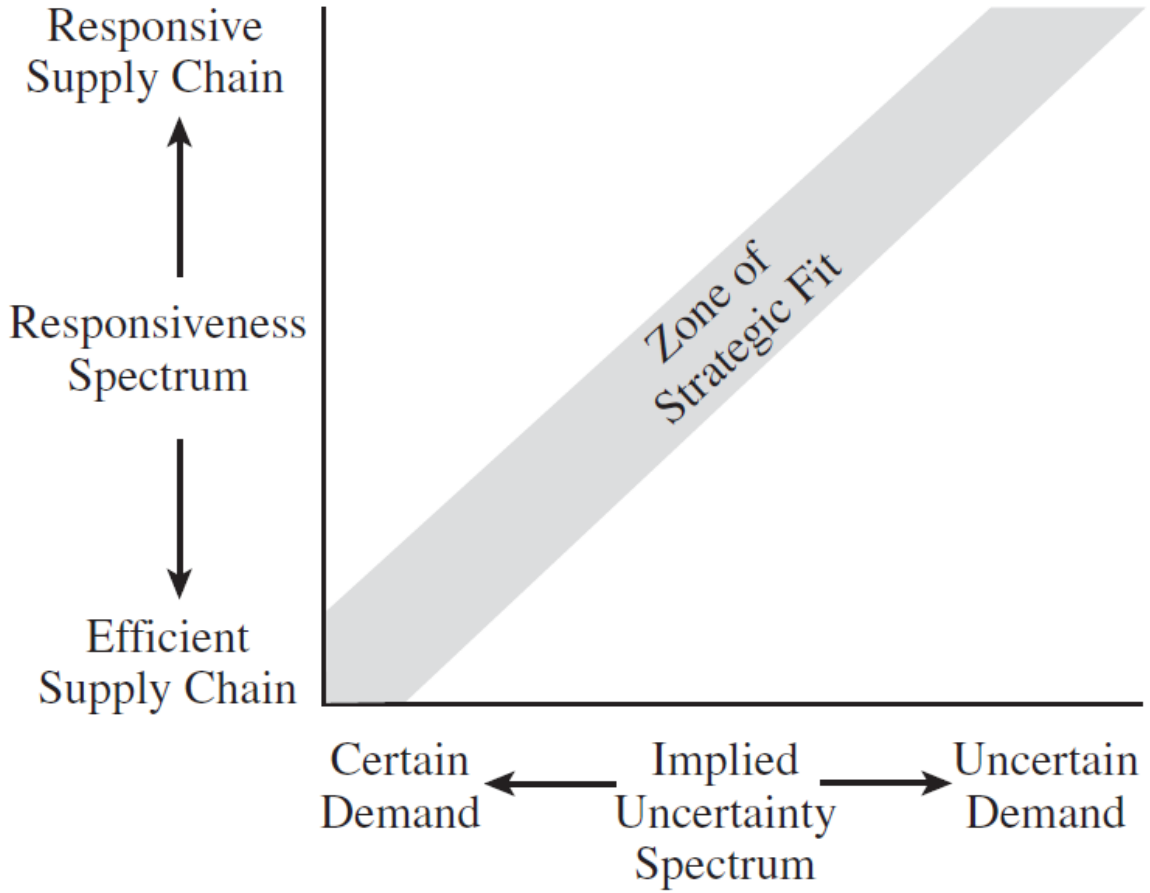
Theory

- Ensure that the degree of supply chain responsiveness is consistent with the implied uncertainty.
- Assign roles to different stages of the supply chain that ensure the appropriate level of responsiveness.
- Ensure that all functions maintain consistent strategies that support the competitive strategy.

Feed Model

- Can my ingredient suppliers fill orders quick enough to meet my customer expectations?
- Are spot purchasing options widely available or do we need to have a firm contract in place?

Zone of Strategic Fit



For high level of performance, companies should move their competitive strategy (and resulting implied uncertainty), and supply chain strategy and resulting responsiveness) toward the zone of strategic fit.

Tailoring the Supply Chain

- Achieve strategic fit while serving many customer segments with a variety of products across multiple channels.

- Requires sharing some links in the supply chain with some products, while having separate operations for other links.

Supply Chain Levers to Deal with Uncertainty

Supply Chain Levers to Deal with Uncertainty

1. Capacity
2. Inventory
3. Time
4. Information
5. Price

Supply Chain Levers to Deal with Uncertainty

Capacity

- Ask Supplier how much excess capacity they have to produce ingredients for us?
- How quickly can they switch production lines?

Inventory

- How much inventory does my supplier keep on hand?

Supply Chain Levers to Deal with Uncertainty

Time

What is the order lead time, is the ingredient made to stock or made to order?

Information

Do my ingredient suppliers offer research on trends in the market place? This can be key when choosing a long-term supplier.

Supply Chain Levers to Deal with Uncertainty

Price

- Can I forward price or hedge my ingredient?

Changes Over Product Life-Cycle

Changes Over Product Life-Cycle

Beginning stages:

- Demand is very uncertain, and supply may be unpredictable.
- Margins are often high, and time is crucial to gaining sales.
- Product availability is also crucial to capturing the market.
- Cost is often a secondary consideration.

Changes Over Product Life-Cycle

Later stages:

- Demand has become more certain, and supply is predictable.
- Margins are lower as a result of an increase in competitive pressure.
- Price becomes a significant factor in customer choice

Intercompany Scope

The goal to maximize profits can sometimes lead to conflict between stages of the supply chain.

Inventory – both sides want the other sides to hold inventory – how to solve?

- Openly share information reduces inventories and lowers holding costs.

Pantry Suppliers – buy multiple products from the same vendor

- Leverage one ingredient to secure a supply of another
- Increases buying power
- Promotes a “partnership” attitude and potential strategic supply agreements.

Challenges

Changing technology and business environment

- Customer needs and technology change may force a firm to rethink their supply chain strategy

The environment and Sustainability

- Growing in relevance and must be accounted for when designing supply chain strategy.
- Opportunities may require coordination across different members of the supply chain

How is Strategic Fit Achieved?

Strategic fit requires that both the competitive and supply chain strategies of a company have aligned goals.

This refers to consistency between the customer priorities that the competitive strategy hopes to satisfy and the capabilities that the supply chain strategy aims to build.

For a company to achieve strategic fit, it must accomplish the following:

1) The competitive strategy and all functional strategies must fit together to form a coordinated overall strategy. Each functional strategy must support other functional strategies and help a firm reach its competitive strategy goal.

2) The different functions in a company must appropriately structure their processes and resources to be able to execute these strategies successfully.

3) The design of the overall supply chain and the role of each stage must be aligned to support the supply chain strategy.

Supply Chain Drivers

Drivers of Supply Chain Performance

1. Facilities
2. Inventory
3. Transportation
4. Information
5. Sourcing
6. Pricing

Framework for Structuring Drivers

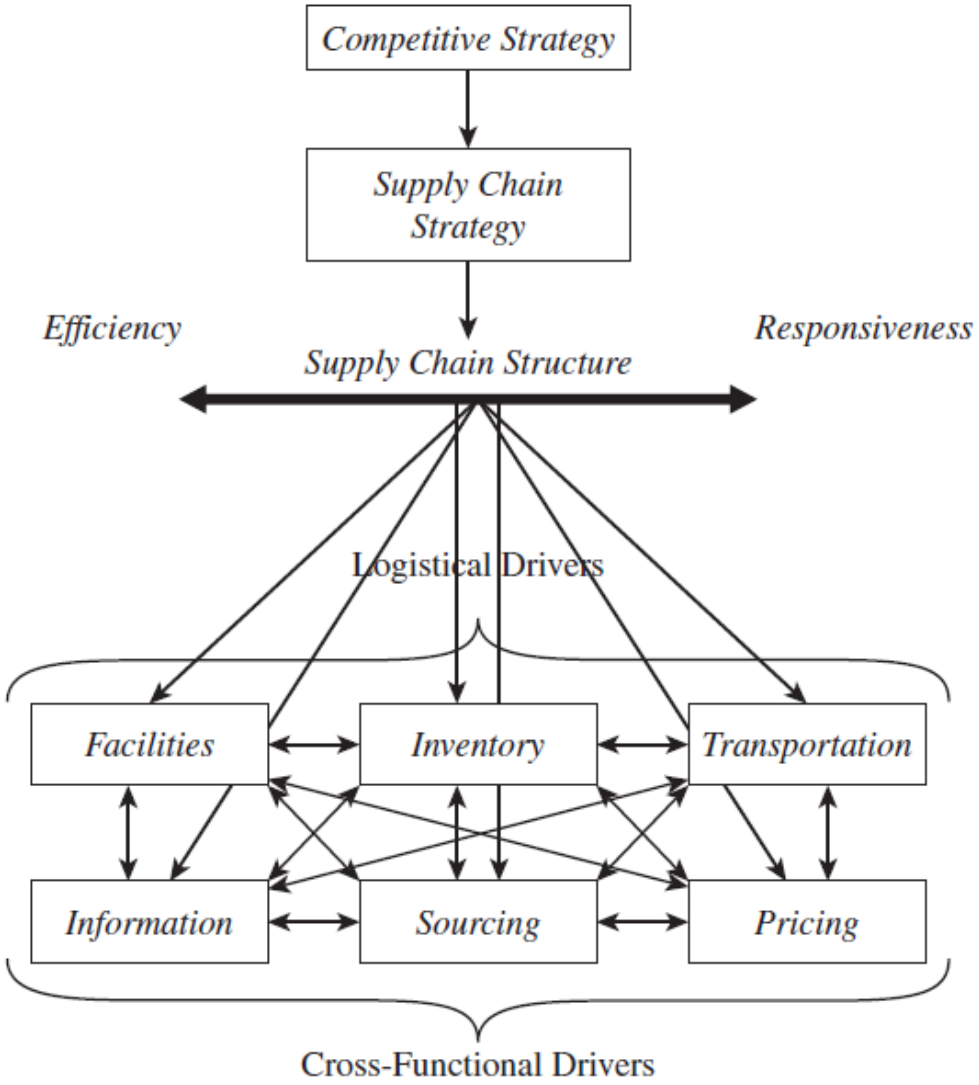


FIGURE 3-1 Supply Chain Decision-Making Framework

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1. Facilities

- Role in SC—locations where value-added activities occur (where product is stored, assembled, or fabricated).

- The two major types of facilities are production sites and storage sites.

Facilities decisions

- Location
- Capacity
- Operations: product focus or functional
- Warehousing: SKU storage, Job lot storage, Cross-docking

2. Inventory

- Inventory encompasses all raw materials, work in process, and finished goods within a supply chain.

  - ***Cycle inventory*** is the average amount of inventory used to satisfy demand between receipts of supplier shipments. The size of the cycle inventory is a result of the production, transportation, or purchase of material in large lots.

  - ***Safety inventory*** is inventory held in case demand exceeds expectation;
  - It is held to counter uncertainty. Because demand is uncertain and may exceed expectations.

- ***Seasonal inventory*** is built up to counter predictable seasonal variability in demand.

- ***Level of product availability*** is the fraction of demand that is served on time from product held in inventory. A high level of product availability provides a high level of responsiveness but increases cost because much inventory is held but rarely used.

3. Transportation

- Role in SC— to move materials from one stage in SC to the next
- Transportation can take the form of many combinations of modes and routes, each with its own performance characteristics.
- Transportation choices have a large impact on supply chain responsiveness and efficiency (or cost).

3. Transportation Decisions

- Mode of transport
- Route and network selection
- In-house transportation or outsource

Transportation Modes:

- Air
- Truck
- Rail
- Ship
- Pipeline
- Internet (e.g. music)

4. Information

- Information consists of data and analysis concerning facilities, inventory, transportation, costs, prices, and customers throughout the supply chain.

- Why information is potentially the biggest driver of performance?

5. Sourcing

- Sourcing is the choice of who will perform a particular supply chain activity, such as production, storage, transportation, or the management of information.

- These decisions determine what functions a firm performs and what functions the firm outsources. Source from single or multiple suppliers.

- **What is outsourcing?**

6. Pricing

- Pricing determines how much a firm will charge for the goods and services that it makes available in the supply chain.

- Pricing affects the behavior of the buyer of the good or service, thus affecting demand and supply chain performance.

Components of Pricing Decisions:

- Pricing and Economies of Scale
- Everyday Low Pricing Versus High–Low Pricing
- Fixed Price Versus Menu Pricing

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