

A Study on Supply Chain in Food Industry

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Abstract

India has a huge opportunity to become a leading global food supplier if only it has the right marketing strategies and also agile, adaptive and efficient supply chain. The food supply chain is complex with perishable goods and numerous small stakeholders. In India, the infrastructure connecting these partners is very weak. Each stake holder: farmers, wholesalers, food manufacturers, retailers all work in silos. Also, demand forecasting is totally absent and the farmers try to push what they produce in to the market. Supply chain Management is very crucial factor in food industry; this study proposes to understand food supply chain management system and analyzes the bottlenecks of Supply Chain Management in Food industry. It also makes an attempt to Study the SCM models for food industry.

Introduction

Effective supply chain management is essential for the food industry because of the fact that the food gets spoiled. The business should take care that the right products reaches the right customer at the right price and at the right time in right condition and this can be done by the managing the supply chain effectively. This improves the customer satisfaction.

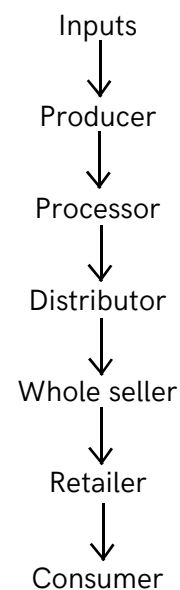
The supply chain process involves the two way flow of goods or services and the information between the manufacturers and the customers. Lot of companies in the food industry Nestle, Unilever, Magnolia etc., is getting the feedback from the customers and they utilize the suggestions given by the customers in the development of the products. Globalization has its impact on the supply and demand in the food industry;

globalization of the supply chain means transporting food across the world to be processed and back again to the country of origin to be sold can make environmental and commercial sense. Ineffective and incompetent supply chain management can lead to the bankruptcy of the business. The technological change in the supply chain management improves the communication, and brings the significant changes in the relationship between the partners in the supply chain, enhances the productivity and the profits of the businesses in the food industry.

A food supply chain is a network of food-related business enterprises through which food

Products move from production through consumption, including pre-production and post-consumption activities.

Typical links in the supply chain are:



For example, a food supply chain featuring pork products might include feed suppliers or veterinarians, a cooperative of farmer producers, meat packing and fabrication plants, food distributors/marketers, supermarkets and consumers. Preproduction activities might include university-based research and development, and post-consumption activities could include waste disposal and recycling, while government regulations would likely be engaged throughout the chain.

India has a huge opportunity to become a leading global food supplier if only it has the right marketing strategies and also agile, adaptive and efficient supply chain. India has diversity in terms of its population with several religious groups with different food habits and culture. This diversity should be used to advantage to become the "Halal FoodHub", the "Organic food hub", the "Vegetarian food hub" the "Sea food hub" among others.

The food supply chain is complex with perishable goods and numerous small stakeholders. In India, the infrastructure connecting these partners is very weak. Each stakeholder: farmers, wholesalers, food manufacturers, retailers all work in silos. Also, demand forecasting is totally absent and the farmers try to push what they produce into the market. Data integration, financial flow management, supply-demand matching, Collaborative forecasting, information sharing, goods movement synchronization through efficient transport scheduling, are very well practiced in high technology industries with immense benefits. These best practices should find their way into the food supply chains. Cold chain logistics supply chains should take advantage of technology improvements in data capture and processing, product tracking and tracing, synchronized freight transport transit times for time compression along the supply chain and supply-demand matching. Also, the supply chain needs to be designed and built as a whole in an integrated manner with the processes of new product development; procurement and order to delivery processes well designed and well supported using IT tools and software. The food supply chain can be subdivided into a number of sectors,

agriculture, horticulture, fisheries and aquaculture are the primary producers, the manufacturers who process the food for ready to eat or cook format together with the packaging companies are in the intermediate stage, and the retailers, wholesalers and caterers are in the last stage of the supply chain. At each stage value is added by the new ownership such as processors, distributors, packers, etc. and the cost and profits are part of the business. The food items can go to the final consumer from any of the three stages: from farmers in the form of fresh produce, to the caterers directly from the manufacturer, and finally from the retailer (small or big) to the consumer.

The movement of goods from one stakeholder to another is facilitated by the in-house or third party logistics service provider. The information management is done by all the stakeholders and their information systems are all interconnected seamlessly. What we described above is the state of food chain in the advanced countries. In India and other developing countries, the state of food chain is more fragmented and primitive we have dealt with it in the earlier sections.

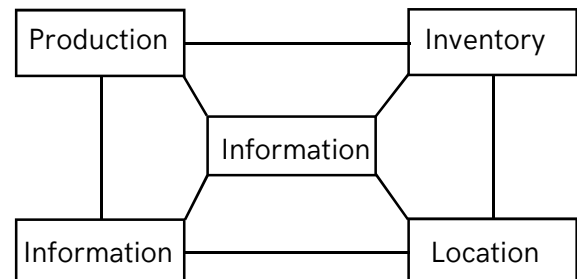
Food Supply Chain

High energy prices, poor harvests, rising demands for growing populations, use of biofuels and export bans have pushed up prices. The food supply chains aiming at maximizing the 'value creation' are heavily reliant on imports and a multi-tiered supply chains. Chain starts with a farmer using farm supplies like machinery, seeds, fertilisers, pesticides etc. The farmers then use logistics providers to transport the food either directly to the food processor or indirectly through storage and marketing via a cooperative group or consolidator. The involvement of the farmer is often limited up to the processor and does not extend down to the customer or even the distributor. This limits the traceability and transparency of a typical supply chain. The major forces affecting the traceability are identified by Roth et al (2008) as globalization, consolidation and commoditization. Globalization refers to the movement of the food supply chain model from regional, as witnessed few decades ago, to global

in terms of both importing raw materials to reduce cost as well as exports of final products to increase revenue at all levels of the supply chain. Consolidation refers to the growing trend amongst entities within the food chain to combine as many food categories as well as levels of the supply chain in pursuit of higher margins. This has led to the dominance of huge enterprises at each level. For example within retail Tesco consists of 3278 stores worldwide and employs 440,000 people, Cargill has diversified segments of farm supplies, marketer, storage and processing. It is currently the largest privately owned company in the US. It operates out of 67 countries worldwide and employs over 160000 people. Lastly commoditization refers to the distinction between food products as either value added or commodities. Value added goods are those where the specific nature of the food is of central importance to customers for e.g. vegetables, certain meats etc. On the other hand commodity foods are undifferentiated goods for e.g. grain. These compete mostly on price and are aggregated from multiple global sources and standardized.

Supply Chain Management Risks

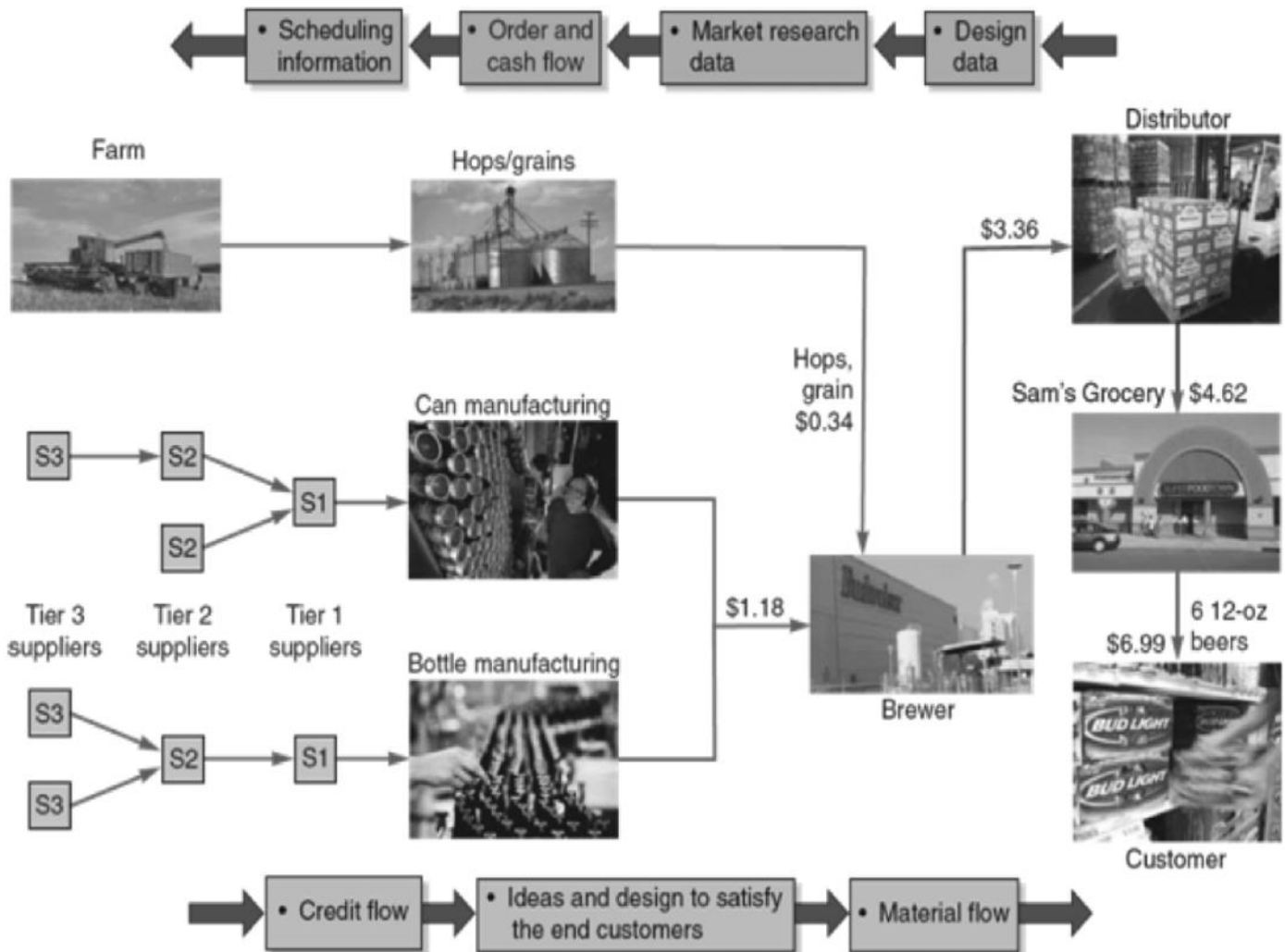
1. Internal to the firm:
 - i) Process
 - ii) Control
2. External to the firm but internal to the Supply network:
 - i) Demand
 - ii) Supply
3. External to the network:
 - i) Environmental

Major Supply Chain Drivers

- **Production**
- **Information**
- **Inventory**
- **Transportation**
- **Location**

In today's business environment, an efficient and effective supply chain is a necessity for staying competitive in the market. Nevertheless, supply chain management in India is still in its early stages of deployment. Managing supply chain is a complex job as it includes and affects the entire business activities of an organization and its business partners. Understanding the dynamics and complexity of the supply chain is quite challenging and a prerequisite for any supply chain endeavor.

Typical Supply Chain of Food industry



Source: Pearson Education, Inc. publishing as Prentice Hall

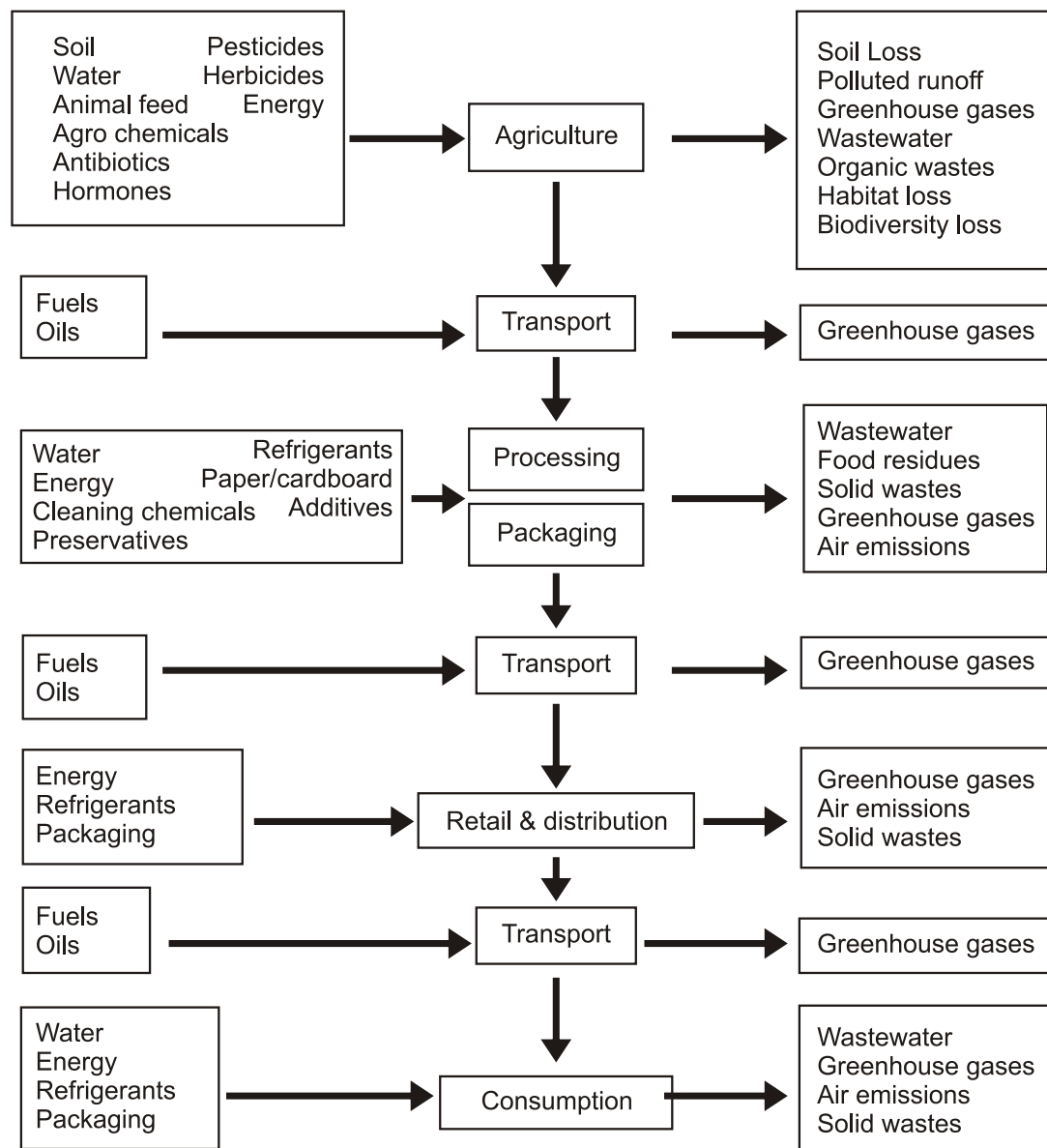
Supply Chain Economics

Supply Chain Costs as a Percent of Sales

Industry	% Purchased
All industry	52
Automobile	67
Food	60
Lumber	61
Paper	55
Petroleum	79
Transportation	62

Source: Pearson Education, Inc. publishing as Prentice Hall

Supply Chain Management Flowchart



Source: (AGRIPRODUCTS EXPORTS Marketing, SCM & Quality Management ppt by Amira Group)

With regards to Food Products, the logistics activities are carried out by different operators such as manufacturers, distributors, service suppliers, consumers, and could be grouped in 7 categories-

- Order Management (Order receipt, elaboration, transmission, implementation and invoicing)
- Management & Stock Control (Definition of supply timing and quantity, inventory upload and download, products and packaging codification)
- Warehousing (Conservation of goods, qualitative and quantitative controls before shipment)
- Shipment (Activities related to product movement and shipment receipt)
- Packaging (Pallets)
- Delivery (Products delivery from the starting point, to the destination)
- Sales Returns Management and Waste Disposal

Conclusion

In today's business environment, an efficient and effective supply chain is a necessity for staying competitive in the market. Nevertheless, supply chain management in India is still in its early stages of deployment. Managing supply chain is a complex job as it includes and affects the entire business activities of an organization and its business partners. Understanding the dynamics and complexity of the supply chain is quite challenging and a prerequisite for any supply chain endeavor.

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