

# Study on Supply Chain Management in food Industry

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## ABSTRACT

This study delves into the intricate dynamics of supply chain management (SCM) in the food sector to gain a better understanding of it and identify areas for improvement. The research covers every step of the food industry's supply chain, from sourcing ingredients to the consumer's purchase. Using both quantitative and qualitative methods, we examine a variety of challenges, including regulatory compliance, demand variability, quality control, and perishability. Sustainability, risk management, and technological integration are other new research frontiers. This study investigates theoretical frameworks and practical business practices to identify the factors that affect supply chain management's resilience and efficiency. Academics, politicians, and food industry experts can all benefit from the findings, which also deepen our knowledge of supply chain management in general.

**Keywords:** Supply chain management, Food industry, Optimization, Challenges, Sustainability, Technology, Risk management.

## I. INTRODUCTION

The term "supply chain management" (SCM) describes a typical method by which many warehouses and distribution centres work together to fulfil consumer demand. Instead, SCM encompasses the whole process, beginning with the procurement of raw materials and ending with the delivery of finished goods. However, supply chain complexity varies substantially among industries and organisations, making it all the more interesting to understand how companies work (Smith and Budress, 2005). Supply networks are essential to both the manufacturing and service industries.

One product supply chain is a good illustration of this. Starting with the procurement of raw materials, the process moves on to a single transformation, warehousing and distribution, and finally, sales to the end user. The supply chain becomes extremely complex when many completed

commodities share resources like facilities, capabilities, and components. Bertodo details the various ways in which inefficient material flow, alternative transportation routes, and other variables could cause material costs to increase in the end product (2002).

When speaking about internal company processes, the term "supply chain" can refer to a wide variety of activities. Among the many functions that make up logistics are inbound and outgoing transportation, storage, inventory management, sourcing, procurement, supply chain management, forecasting, order management, production scheduling and planning, and customer support. As a result of this, "the supply chain encompasses all of those activities associated with moving goods from the raw-materials stage through to the end user."

## II. LITERATURE REVIEW

Logistics Management System 3.1. 1. Supply chain management, or SCM, is well-known for its emphasis on methodical and effective resource management. Things like data, human capital, storage, transportation, and goods are all part of it. Each company and its supply chain autonomously handles strategic planning, material sourcing, production, advertising, and delivery. Frequently, the aims of these factions clash with one another. It's also clear that manufacturing and distribution goals clash with marketing's aims of increased sales and greater customer service. In its pursuit of output maximisation and expense minimization, industrial operations planning often ignores the consequences on distribution capacity and inventory. The information that is available during a purchase negotiation is usually rather simple. Taken together, these characteristics would make it harder for any company to execute a consistent plan. The only way to integrate and coordinate all of these distinct processes is to develop an SCM system that produces the expected outcomes.

### III. RESEARCH METHODOLOGY FOODSUPPLY CHAIN MANAGEMENTMODELCRITERIA

Part 4.1.1: A Prologue Having a model that lays out general guidelines to follow when making important decisions would benefit any company. Models that help with making good decisions and increasing sales need to consider all aspects of SCM. The profitability of a supply chain is heavily reliant on numerous variables. This includes activities such as designing infrastructure, controlling inventory, negotiating contract terms, delivering products, integrating the supply chain, acquiring services, developing products, and spending money on information technology. Although IT and SCM have made great strides, many issues remain unresolved. A big cause of the problems is the interdependence of many different departments, procedures, and independent components in the chain. Works by Lakovou (2001) and Tayur, Ganeshan, and Magazine (1999) are prominent instances of this kind of art. Food supply chain management is inefficient due to the existing state of thought and the nature of the related legislation. So far, the following issues have been brought to our attention: Among its numerous needs are the transportation and storage of food supplies. The distinctive features of supply chain management are ignored by conventional models of supply chains (Hobbs and Young, 2000; Van der Vorst, Beulens, De Wit, and Van Beek, 1998).

Like in (b), supply and demand are affected when buyers have worries about the product's quality, safety, and reliability because of its short shelf life.

Since selling these goods is essential to avoiding degradation, it might not be in their best interest to hold onto them until better market circumstances come along. Having an adequate supply of cold storage facilities is crucial to ensure that food remains fresh throughout the year, as (d) both production and consumption of food follow seasonal trends. For regular deliveries, some stores may require chilled vans or trucks with extra specialised equipment.

#### OBJECTIVE

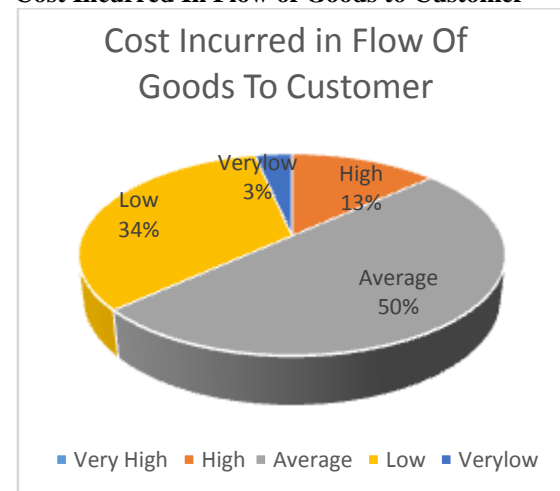
Improving the manufacturing, distributing, and delivering of food products is the main objective of research into food supply chain management (SCM). throughout order to improve overall performance and meet customer demands, it is crucial to identify possible risks, opportunities, and best practices throughout the food supply chain.

Considering aspects like cost, sustainability, food safety, and quality, the entire impact of supply chain management strategies on the food industry is an issue that necessitates investigation. The study's overarching goals are to increase efficiency, decrease wastage, and guarantee conformity with standards and norms by an analysis of these factors.

Also, we want to know how to make the food supply chain more open, responsible, and flexible by improving SCM with new ideas and technologies. Operations are being optimised, risks are being reduced, and stakeholder participation is being enhanced through the use of data analytics, blockchain technology, Internet of Things devices, and digital platforms.

#### ANALYSIS

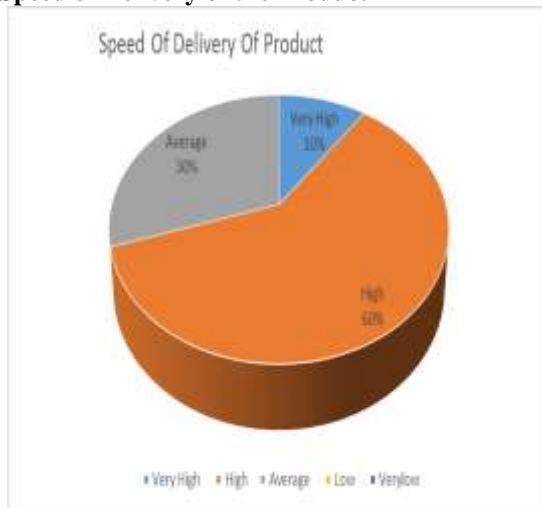
##### Cost Incurred In Flow of Goods to Customer



#### Interpretation

- The data analysis has yielded the following information:
- Thirteen percent of the participants believe that the cost to deliver things to the customer is expensive. 50% of people say the amount they pay is about average.
- 34% feel their payment is very little.
- A mere 3% of the population holds the view that the cost of delivering items to consumers is extremely low.

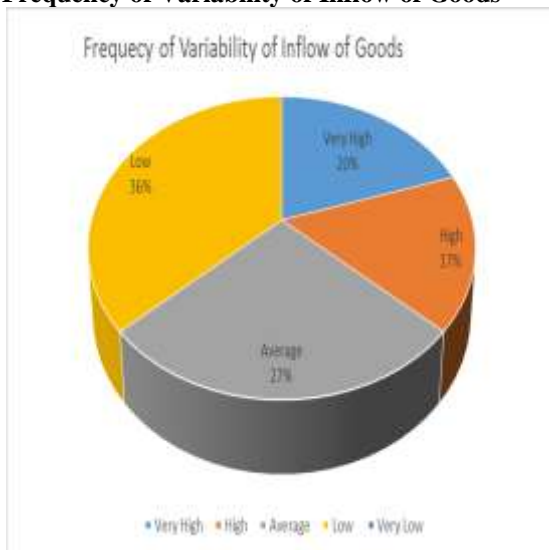
### Speed of Delivery of the Product



#### Interpretation

- Data analysis has yielded the following information:
- A only 10% of survey takers rate the speed with which their orders are fulfilled as extremely high.
- Sixty percent think their product delivery time is extremely fast.
- A third of consumers think the delivery is only OK.

### Frequency of Variability of Inflow of Goods



#### Interpretation

From the analysis of the data it is seen that:

- Twenty percent of stores expect a very unpredictable flow of inventory.
- A quarter of people believe that the movement of goods is highly unpredictable.

- 27% of people say that goods shipments are usually unpredictable.
- The remaining 36% feel that the amount of merchandise coming into their stores is quite consistent.

### IV. FINDINGS

Steps in Constructing the Model. An overarching view of supply chain issues is required for the development of a workable FSCM model in this industry. A food supply chain cannot function properly without the ability to arrange, plan, and manage the flow of goods and services from production to consumption, according to our research. Through careful coordination, FSCM ensures that the many interdependent links in the food and agricultural supply chain work together to maximise the value of the final product. All parties involved in the production and distribution of a products or service are considered links in the supply chain. Everyone agrees that one of the biggest problems with operational efficiency is the lack of certainty around input data, administrative and decision-making procedures, and order prediction horizons. Performance improvement principles were laid forth to ease the burden of each possible uncertainty source. An easier time managing issues may lead to better supply chain performance if linked decision processes had less or no ambiguity. Nevertheless, it is clear that enhancing the organization's internal control system is the greatest way to maximise the effectiveness of IFSCM initiatives. Using the IFSCM model helps to clarify the case study's findings. Overall, we aimed to show how various approaches affected the system's performance. The model was developed in two separate iterations. This study's initial segment explored the theoretical foundations of FSCM analysis and offered a method to flow of materials modelling. The meat of the article focused on the specifics of applying this tactic to the food distribution sector. With the goal of integrating and coordinating all of these components, the IFSCM Model was established. When deciding what and when to purchase in terms of raw materials, the procurement team should consult with all relevant vendors.

Make it easier for the company's stockroom, warehouse, and factory to share data. Improved communication between the distribution, wholesale, and retail sales channels is essential. The most effective use of financial resources is to expand into new markets.

## V. CONCLUSION

If you believe the Integrated Framework for Supply Chain Management (IFSCM) Model, Version 5.2.1, when it says that supply chain management is "the integration of all the processes, functions, and assets required to take a product or service from inception to delivery to a customer," then you're right. Improving the supply chain is the goal of the IFSCM paradigm, which has implications for manufacturing, warehousing, inventory management, transportation, and retail. A number of techniques exist for managing and controlling operations and production; some examples include Just-in-Time (JIT), Variable Manufacturing Inventory (VMI), and Zero Inventory (ZI). The overall supply chain management (SCM) should be optimised, however many existing approaches just tackle part of the issue. Even if it is difficult to predict when crucial inputs like food will be available, businesses are nonetheless expected to always deliver on schedule. Because regional stocking permits more cargo aggregation, sales might benefit from better delivery performance and lower transportation costs.

Work together (5.2.2) to get optimal outcomes. Part of the problem with internal coordination could be the interconnected structure of supply chain participants. Those in the supply chain may learn to work together more effectively and discover areas of agreement to accomplish their goals. Collaboration becomes possible when proof of data and process dependencies in a supply chain is found. Making ensuring that all internal decisions result in the expected consequences is obviously the purpose of supply chain coordination. The three pillars of company strategy, business information systems, and supply chain management are essential for this to be achieved. Organisations might potentially become more formidable rivals through the use of IFSCM models for downsizing, right-sizing, and re-engineering. There is a general consensus that the time, energy, and materials needed to finish this project must be used as efficiently as possible. With the right models to guide their strategic decisions, businesses have a better chance of increasing their output and income. The advantages don't last long, thus it's important to reevaluate management strategies often. Everyone from manufacturers to suppliers to subcontractors to internal processors to movers to wholesalers to storage facilities to consumers is a member of the Supply Chain Management (SCM) process. You should think of them as performing distinct roles

because they are actually fairly useful in tandem rather than in opposition to one another.

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