



GALGOTIAS
UNIVERSITY

SCHOOL OF LOGISTICS AND AVIATION MANAGEMENT



**Project research topic: FACTORS AFFECTING LOGISTICS AND SUPPLY
CHAIN MANAGEMENT.**

**For the partial fulfilment of the requirement for the award of
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management.**

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CERTIFICATE FROM FACULTY GUIDE

This is to certify that the project report in title of Factors affecting logistics and supply chain management has been prepared by ms Rim Robert Kanisio under my supervision and guidance. The project report is submitted towards the partial fulfilment of 3 years, full time Bachelor of Business Administration in Logistics and supply chain management.

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DECLARATION

I Rim Robert Kanisio, Roll No 18021011165. Student of BBA/ Logistics and supply chain management, Galgotias University, Greater Noida, hereby declare that the project report on " Factors affecting logistics and supply chain management" is an original and authenticated work done by me.

I further declare that it has not been submitted elsewhere by any other person in any institution for the award of any degree or diploma.

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ABSTRACT

Key words: Logistics, supply chain, environmental uncertainty

The purpose of this study is to analyse the multiple factors affecting logistics and supply chain management industry and operations, and how does these factors impact the operation of the industry.

In the present global market, the competition is not between the companies but between the supply chains. The comparison of performance measures of supply chains helps to identify a good supply chain. The best performing supply chains may survive over a long period. The performance of a supply chain is affected by various internal and external factors. The objective of this paper is to identify and conduct a detailed study of the major factors affecting the supply chain performance. The factors are identified by reviewing various literature in the supply chain field. In this respect, a total of 54 literature are reviewed. The major factors identified as supply chain structure, inventory control policy, information sharing, customer demand, forecasting method, lead time and review period length. The optimum selection of parameters of these factors improves the supply chain performance.

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INTRODUCTION

Supply chain management is the management of the flow of goods and services that involves the movement and storage of raw materials, of work-in-process inventory, and of finished goods as well as end to end order fulfillment from point of origin to point of consumption. Therefore supply chain management is applied by many companies across the globe due to its demonstrated results such as delivery time reduction, improved financial performance, greater customer satisfaction, building trust among suppliers, and others. Companies resort to supply chain practices to improve their performance. While on the other hand logistics is that part of supply chain that deals with implementation of a complex operation, hence In a general business sense logistics is the management of the flow of things between the point of origin and the point of consumption to meet the requirements of customers or corporations Thus, in order to understand how effective this supply chain and logistics are to an industry we need to look unto the factors that affect them so as to be able to use them effectively for the development of the supply chain and logistics operations.

About supply chain management

Supply chain management is the management of the flow of goods and services and includes all processes that transform raw materials into final products. It involves the active streamlining of a business's supply-side activities to maximize customer value and gain a competitive advantage in the marketplace.

SCM represents an effort by suppliers to develop and implement supply chains that are as efficient and economical as possible. Supply chains cover everything from production to product development to the information systems needed to direct these undertakings.

Hence before going into introducing the factors we have to first understand the overview of supply chain management from all perspective and also from supplier point of view.

COOPERATION AND COLLABORATION.

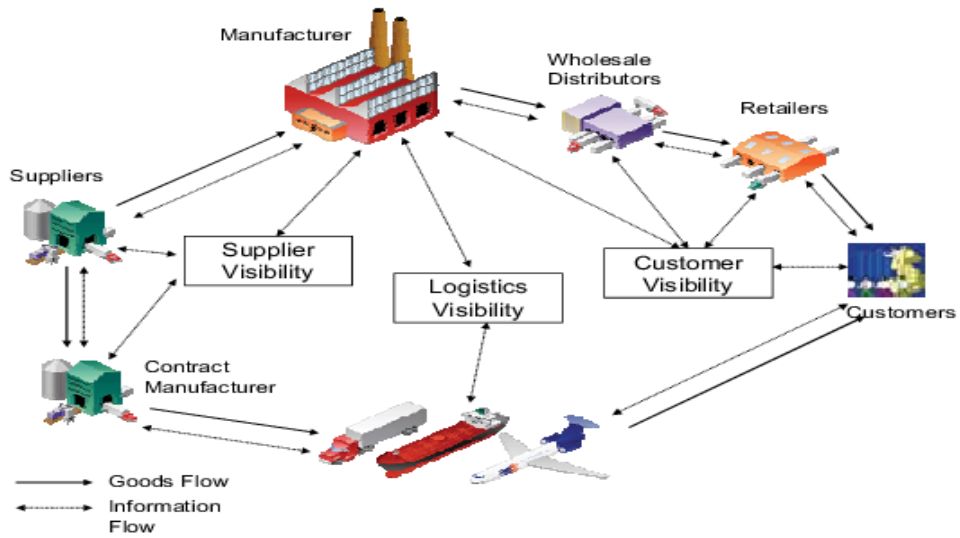


Fig. 1. A view of Supply Chain Visibility from a manufacturer's perspective



Fig.1. A view of supply chain management from all perspective

About Logistics management

Logistics refers to the movement of goods from the manufacturing point to the delivery destination which is the customer. Logistics plays a key role in every business transaction, it is impossible for firms to produce and distribute large amounts of products to the global market without logistics activities the other hand it is difficult to accomplish any business functions like marketing, manufacturing or even international commerce in the absence of logistics. Without logistics nothing can be done thus logistics is an important source of competitive advantage and as a critical success factor for business enterprises.

Therefore logistics activities, factors of logistics activities and the critical factors affecting those activities are identified in order to support the upgrading of logistics activities of the firm.

WHAT IS LOGISTICS MANAGEMENT?



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Identification of Logistics activities

The factors that affect the logistics activities in each of the six areas, namely order processing procurement, inventory management, production, packaging and transportation activities are discussed below;

Affecting factors	Logistics activities
Process related factors	
Cost related factors	
Quality related factors	
Delivery related factors	
Organizational factors	Order processing
Time related factors	Procurement
Human related factors	Inventory management
Product related factors	Production
Market related factors	Packaging
Economic related factors	Transportation
Service related factors	
ICT related factors	
Other factors	
Geographical distance factors	

Critical factors affecting	Logistics activities
Human related factors	Order processing
ICT related factors	Procurement
Asset related factors	Inventory management
Geographical distance factors	Production
Cost factors	Packaging
	Transportation

Above are the critical activities affecting logistics activities

Factors affecting logistics activities:

Good logistics management views each activity in the supply chain as contribute to the process of adding value. Logistics costs are driven or created by the activities that support the logistics processes.

Cost related factors

The following are the factors that disturbing logistics cost:

Deregulation (reduction in economic regulation)

Relaxed government control of carriers? rates and fares, entry, and exit, mergers ad acquisitions.

Reductions in economic regulation in the US airfreight, railroad, and trucking industries allowed individual carriers flexibility in pricing and service.

This flexibility is important to logistics for several reasons:

1. It provides companies with the ability to implement the detailed logistics approach in the sense that companies could specify different service levels, and prices could be adjusted accordingly.
2. The increased flexibility in pricing allows large buyers of transportation service to reduce their transportation costs by leveraging large amounts of freight with a limited number of carriers.

Changes in consumer behavior

Changes in consumer behavior have important logistical implications.

The concept market demassification suggests that, in contrast to mass markets, an ever-increasing number of market segments has distinct preferences.

One way to address market demassification is through mass customization, which refers to the ability of a company to deliver highly customized products and services that are designed to meet the needs and wants of individual segments or consumers. Mass customization demands that logistics systems must be flexible rather than rigid.

In terms of changing family roles, more and more women are in the employment roles of organizations all over the world. One consequence of this has been an increasing emphasis on the conveniences associated with a family shopping experience.

This convenience is manifested in various ways to include extended store hours, home delivery of purchased items, and ready to eat, ready to cook foods. Each of these has logistics-related implications.

As for rising customer expectations, it should come as no surprise that consumer expectations tend to increase through time, which means that a satisfactory level of performance in the past might not be considered as so today.

Today, the concept of a made to order, direct to customer personal computer has been made a reality by Dell Computer. Dell has considerably changed distribution channels and supply chains in the sense that make to order have much different production and inventory requirements than does make to stock.

Technological Advances

From a logistical perspective, some of the important technological advances have involved computer hardware and software in the sense that management of logistics involves a tremendous amount of data.

- **Key Importance of Information Technology in Supply Chain.**

Technological advances in computer hardware, software, and capacity have allowed logisticians to make faster, more informed, and more accurate decisions with respect to customer service, transportation, inventory management, and other logistics activities

The internet has proved to be a powerful tool for improving logistical effectiveness and efficiency., The heaviest use of the internet involves purchasing or procurement and transportation.

4. The Growing Power of Retailers

The emergence of “**power retailers**” such as Wal Mart, home depot, and best buy have influenced logistics to a great pricing.

Power retails have large market shares and low prices. Often they are the largest customer their suppliers.

Many power retailers have recognized superior logistics is an essential component of their corporate strategies and has adopted state of the art logistics practice.

For example, Walmart has implemented the practice of collaboration planning, forecasting, and replenishment successfully.

Related: [Tips for Reduction of Physical Distribution Costs.](#)

Globalization of trade

Although many factors such as rising standards of living and multicountry trade alliance have contributed to the growth of global trades, logistics has played a key role too.

International logistics is more challenging and costly than domestic logistics.

Top Positive Effects of Globalization (with examples).

The geographical distance between buyers and sellers is often greater (which may translate into longer transit times) and monitoring logistics processes is sometimes complicated by differences in business practices, culture, and language.

As for costs, the grey water geographic distances tend to result in higher transportation costs and documentation requirements can be quite costly as well

Factors affecting supply chain performance

The supply chain performance is influenced by various factors. Some of the main factors are supply chain structure, inventory control policy, information sharing, customer demand, forecasting method, lead time and review period length. These factors are described below: 3.1. Supply chain structure The number of facilities, the number of stages, and the structure of the material and information flow contribute to the complexity of the chain. classified as: dyadic, serial, convergent, divergent, conjoined and network.

The following are the various structure of supply chain

Dyadic: The dyadic structure consists of two business entities (e.g. buyer-vendor) [29].

Serial: Cascading of several dyadic structures form a serial SC structure, and generally, it consists of retailer, distributor, wholesaler and manufacturer entities or stages [29].

Convergent: Convergent structures are assembly-type structures in which each node (or facility) in the chain has at most one successor, but may have any number of predecessors [30].

Divergent: Each node in a divergent has at most one predecessor, but any number of successors [30]. A divergent structure can be observed in an SC in which one supplier distributes stock to its several downstream entities. Mineral processing organizations tend to have divergent structure.

Conjoined: It is a combination of convergent and divergent SC structures and is observed in web-based retailing [30].

Network: If an SC structure which is not falling in any of the above structures come under the category of network.

Critical factors affecting supply chain management

In order to understand how a supply chain works, it is important to identify the factors affecting supply chain management. The identification of these factors has been based on some previous work that show generic supply chain management factors and sub-factors that might affect

supply chain management activities and below are they mentioned;

Environmental uncertainty

Environmental uncertainty refers to the environmental issues in the product chain which is described as the unexpected changes of customer, supplier, competitor, and technology. It was also said that government support plays an important role for business success. Paulraj and Chen (2007a) mentioned that environmental uncertainty is an important factor in the realization of strategic supply management plans. The increase of outsourcing activities in the industry had augmented the awareness of the importance of strategic supply management, which leads to better relationship among organizations. Under this factor, three sub-factors were identified: environment, government support, and uncertainty aspects from overseas.

Company environment

This sub-factor is related to the company's relationship with suppliers and their level of trust and commitment. Company environment is also related to the company's expectations of quality, on time delivery, competition in the sector, and the level of rivalry among firms. In order to respond effectively to demand, companies realize that imports are a good option

for obtaining flexibility in response, even though working with countries from overseas implies working with uncertainty. According to a study carried out by Ambrose et al. (2010), uncertainty negatively affects company performance. But this can be reduced if a strategic relationship with critical suppliers is established (Chen et al., 2004). Thus, companies need to implement new strategies that allow them to deal with environmental uncertainties in the supply chain in order to perform in a proficient manner.

Government support

The level of support that the company receives from the government when importing raw materials or products from overseas or using domestic materials. It includes the use of norms, regulations, policies, and advice for the sector. The research conducted by Elzarka et al., (2011) describes how government can make a series of reforms to encourage exporters by increasing manufacturing sector's competitiveness in the international market through logistics competency. The increase of international trade for acquiring resources from other countries introduces complicated matters such as language barriers, transportation, transportation costs, exchange rates, tariffs, and administrative practices.

Information technology

Telecommunications and computer technology allow all the actors in the supply chain to communicate among each other. The use of information technology allows suppliers, manufacturers, distributors, retailers, and customers to reduce lead time, paperwork, and other unnecessary activities. It is also mentioned that managers will experience considerable advantages with its use such as the flow of information in a coordinated manner, access to information and data interchange, improved customer and supplier relationships, and inventory management not only at the national level but also internationally, the advantages will include supply contracts via internet, distribution of strategies, outsourcing and procurement. All companies are looking for cost and lead time reductions with the purpose of improving the level of service but also to enhance inter-organizational relationships (Humphreys et al. 2001). A study carried out by Tim (2007) states that through the use of communication tools, such as the web sites, industrial organizations can build value in their supply chain relationships. According to Turner (1993), another key for supply chain management success is the use of planning tools. He also mentions that without the use of information systems, companies cannot handle costs, offer superior customer service and lead in logistics performance. Turner (1993) indicates that firms cannot effectively manage cost, offer high customer service, and become leaders in supply

chain management without the incorporation of top of-the-line information technologies. Li (2001) identified 14 such information technology tools, among them electronic data interchange (EDI), enterprise resource planning (ERP), internet, and extranets. Li grouped these tools into three groups in terms of their primary purpose: communication tools, resource planning tools, and supply chain management tools. Given this classification, two sub factors are considered in this research: communication and planning tools.

Communication tools

Communication tools are used to facilitate data transfer and communication between the trading parts and this might include EDI, electronic fund transfer (EFT), intranet, internet, and extranet. Electronic Data Interchange (EDI) is used for procurement (purchase orders, order status, and order follow-up). EDI serves as electronic catalogs for customers who can get information, dimensions, and cost about a specific product. EFT provides trading partners with an effective way to transfer funds from one account to another through a value added network (VAN) or the internet. Intranets are corporate local area networks (LAN) or wide area networks (WAN) that communicate through the internet and are secured by firewalls. Usually this type of communication tool is used inside a corporation that features different locations. On the other hand, extranet allows

business to communicate and share business with external collaborators with a certain degree of security and privacy. Another type of communication tool is the internet, a uniform interface that allows global communication with the use of browsers. According to O'Neill (2008) the advances in information technology have made communication tools easier for users, allowing its presence in components to extend in the supply chain. Another significant communication tool is the internet based information and communication technology (ICT). This study suggested that the use of ICT is a strategic communication tool that improves the organization's competitiveness, allowing cost reduction and permitting the company's effectiveness.

Planning tools

Supply chain management planning tools are intended to integrate the resource planning activities in a firm or organization. Some of the most common planning tools are: material requirement planning (MRP), manufacturing resources planning (MRPII), and Enterprise Resource Planning (ERP). A MRP is a tool that allows an organization to schedule production activities to meet specific deadlines based on the bill of materials, inventory levels, and master production schedule. An improvement of MRP tools is MRPII which integrates manufacturing capabilities and capacities with the benefits of MRP. An ERP tool allows the organization to

integrate all processing information tasks related to all processes in the value chain. This is usually a single system that might include order management, inventory fulfillment, production planning, financial planning, and customer service in a company. It is the backbone of the logistic systems for a variety of firms. Some other IT tools exist that can be used to execute or manage the various activities and relationships in the entire supply chain (Kumar 2001). These may include: data warehouse (DW), vendor managed inventory (VMI), distribution requirement planning (DRP), and customer service management (CRM).

Uncertainty aspects from overseas

When requiring the outsourcing of raw materials or products, it is important to acknowledge the existence of environmental factors such as political uncertainties in other countries that can increase risk for suppliers, provoke decisions of no investment, change business strategies, and in general influence business decisions. Social uncertainties such as religion, environment, language, cultural issues, limitations of communication (Bhattacharyya et al., 2010) and also the technology used in other countries might interfere with supply chain planning and function (Bized, 2007).

Review period length Review period length

refers to the time between the successive evaluations of inventory status to determine whether to reorder or not. The optimum selection of the review period depends on the nature of the demand of the product. Sezen [53] studied the changes in performance of a two-stage supply chain under various lengths of review period with lost sales environment and found that for products having high fluctuating demand shorter review periods are preferable to avoid long-lasting stock-outs. Also, for fast-moving consumer goods having a high carrying or shortage cost long review periods should be avoided. The study of Movahed and Zhang [54] for a serial three-stage SC under uncertain review period showed that a shorter review period is optimum to reduce the order variance; whereas a longer review period should be chosen to reduce the total expected cost. So a trade-off between the length of the review period and cost of the supply chain is essential.

Supply Chain Relationship

Supply chain relationships play an important role in achieving the firm's goals. The coordination and integration of activities with suppliers and understanding of customer's needs results in greater benefits for companies. According to Fraza (2000), supply chain www.intechopen.com Critical Factors Affecting Supply Chain Management: A Case Study in

the US Pallet Industry 37 management is directly related to relationship management, which includes suppliers and customers. Strategic supplier partnerships and customer relationships are main components in the supply chain management practices, leading to information sharing, which is one of the five pillars in achieving a solid supply chain relationship. Two sub-factors are considered in the model relationship with suppliers and customers.

. Forecasting method

Lee et al. [40] identified one of the main causes of the bullwhip effect in the supply chain is the use of demand forecasting. In a supply chain, the members need to forecast its future demand, and it is impossible to predict demand with certainty. This uncertainty will result in distorted order quantity and via order variance amplification [7]. The accuracy of forecast highly influences the supply chain performance measures such as inventory cost, backorder cost, lost sales cost, and customer's goodwill. An inaccurate forecast results in underutilization of the factory capacity [41]. Forecast method with appropriate ordering policy can alleviate the bullwhip effect up to 55% [42]. The most commonly used forecasting techniques include simple exponential smoothing and moving average. The simple exponential smoothing technique has an advantage of easy implementation in computer systems as it required fewer data storage [43]. However, the increase in order variance

under simple exponential technique is greater than the increase in the order variance under moving average forecast technique [44]. Some researchers [8], [45] analysed the impact of information sharing and forecasting models under different levels of demand patterns and suppliers capacity tightness on a divergent SC having one supplier and four retailers. They found that all the factors significantly affect the SC performances, such as service level and total cost.

Relationships With Suppliers

Companies are inclined to work with different suppliers in different ways. It is important that the relationship with suppliers satisfies their company needs. Hines (2004) mentioned that in commodity products, it is common to find an adversarial relationship mainly based on price between buyer and supplier. This type of relationship with suppliers does not allow for cost reduction in the supply chain. It may be beneficial to network the supplier, to develop partnerships and alliances that will benefit both partners. This could be based on production, personal, and or symbolic networking, that will turn on strategic alliances (Hines, 2004), allowing the information sharing, risk sharing, obtaining mutual benefits and coordinating plans, permitting the improvement of the supply chain.

Relationships With Customers

The global markets offer a variety of products of different quality and cost. As a result, companies are always competing and trying to reduce costs and improve quality. According to Burguess (1998) and Hoek (1999), customers look for more choices, better service, higher quality, and faster delivery. The relationship with customers has turned a strategic issue for today's companies.

Value-Added Process (Manufacturing)

Value-added products can be commodity processes or products that already exist; you only have to use smart modifications and apply them. According to Bishop (1990), value-added is defined as “adding those manufacturing or service steps to a commodity product, which the customer perceives as increasing its value”. Customers always want to pay the cost that they think is correct, and if they get something additional to the product, they got value-added. Two factors are significant when we talk about value-added: flexibility and quality. And, as stated by Benetto, Becker and Welfring (2009), production processes contribute to improved value-added. For example, Dramm (undated) affirms that the forest products industry is mainly focused on acquiring the highest value throughout the manufacturing process at the lowest cost, improving efficiency, quality, and

productivity. Thus, it is important to include the production system as a part of the value-added process.

Quality

Quality is not a bonus for the customer; it is expected. Quality is also important for the acceptance of a product. High costs, low productivity, and loss of market share are directly related to poor quality. Quality is meeting or exceeding the expectations of your customer (Bishop, 1990). This could be achieved, for example, by the use of quality metrics, which improves the production system (Juran, 1988). Achieving better efficiency, quality and productivity, and acquiring the highest value of a product at lower cost will improve the business performance of a company.

Logistics

Logistics is defined as “the responsibility to design and administer systems to control movement and geographical positioning of raw materials, work-in-progress, and finished inventories at the lowest total cost” (Bowersox et al., 2007). The research of Autry, Zacharia and Lamb (2008) establishes that logistics must be focused on the coordination and collaboration of activities, logistics social responsibility,

strategic distribution planning, and technology and information systems.

Supplier markets

According to Yushan and Cavusgil (2006), changes in the market create sensible companies regarding firm-supplier relationship. For manufacturers it is more important to build supplier's trust and to rely on suppliers, focusing on customer orientation, competitor orientation, and inter-functional coordination. The current competitive environment makes manufacturers aware of the need to reduce costs and to develop new products quickly. This is when supplier's expertise plays an important role. Superior supply chain management requires significant information with respect to supplier markets. Implementation of strategies in the supply chain will make the precious firm-supplier relationship difficult to copy by competition

Supplier Performance

When looking for successful supplier performance, it is important to emphasize relationship quality. Researchers such as Walter, Kaufman, and Palmatier, propose relationship quality as a "multi-dimensional construct consisting of trust, satisfaction, and commitment." Steward, Wu, and Hartley (2010) consider factors such as product quality; responsiveness to requests for change; sales, service

and/or technical support; total value received; and overall cost performance as a measurement of supply chain performance. They also found that “supplier performance is higher when the supply manager perceives trust and satisfaction on the part of the supplier’s account executive.”

Material Sourcing

Companies in any manufacturing sector are always looking for low-cost raw material, domestic or imported. With the objective of improving their competitive advantage, some of them see importing as an appealing option. As there are some advantages when importing resources, such as lower labor cost and lower cost of resources, there are also some disadvantages that companies have to take into account when evaluating whether or not to work with offshore companies. Importing raw materials, components or products increases the dependence on suppliers (Lockamy and McCormack, 2010), and some risks are identified such as culture, language, foreign exchange rate, regulations, quality, political and economic stability, and transportation delays (Canbolat et al., 2008).

Customer Satisfaction

The customer’s perception is not always the same as the product manufacturer’s perception. Customers may give

more value to low cost, on time delivery, delivery date certainty, or receiving a customized product (Simchi-Levi et al., 2003). Manufacturers and retailers are always looking for practical after-sales policies that will permit them to enhance customer satisfaction levels. Furthermore, an analysis conducted by Ou, Liu, Hung and Yen (2010) showed that customer-firm-supplier relationship management improves operational performance and customer satisfaction. Based on this, a sub-factor customer service is identified.

Customer Service

The goal of the companies is to give customers the best service in an efficient and effective manner (Handfield and Nichols, 1999), without forgetting about information such as product description, product availability, order status, shipping dates, and assisting them in all what they need (Lambert and Cooper, 2000). Quayle (2006) states that customer service is defined by demand forecasting, service levels, order processing, parts/service support, and aftermarket operations.

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