

## IMPORTANCE OF LOGISTICS AND USE OF INFORMATION TECHNOLOGY IN SHIPPING INDUSTRY WITH SPECIAL REFERENCE TO CONTAINER CORPORATION OF INDIA, PITHAMPUR

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### ABSTRACT

*In today's world one can not produce everything at their home or factory. We are dependent on other to fulfil our daily need and demand. This give rise to send goods from one place to another as per demand and give rise to logistics. It has been observed that efficient logistics can reduce the price of final product by almost 30 – 40 % depends of the distance and cargo value. It is require to understand the aspects of logistics the key factors and critical elements which will help the traders to mitigate their cost and send their good more efficiently. This research will help the trade and all the actors in the ecosystem of trade and how to deal with increased freight rates, which mode need to be selected for their cargo , how can they match the time schedule of delivery and how much stock they need to maintain This research will also give suggestion and conclusion to government and competent authorities to take appropriate actions to normalize the current chaos in shipping.*

**Keywords:** Logistics, Warehousing, Shipping Lines, Packing , Sea ports , Supply chain, Containers, Ships, Exporters, Importers, Banks, Information technology, freight rates

### 1. Introduction

In theory, the term: logistics is not clearly defined (there is some duality). There is no single accepted definition. Particular authors emphasize different aspects within the definition of the concept, relating both to economic practice and to the area of knowledge. Here are some of these definitions: The American Council of Logistics Management has proposed a definition which is widespread in the USA: Logistics is the process of planning, implementing, and controlling the efficient, effective flow and storage of goods, services, and related information from point of origin to point of consumption for the purpose of conforming to customer requirements.

The European Logistics Association has adopted the definition that Logistics is a concept involving the organization, planning, control and execution of the flow of goods from their places of manufacturing (purchase), through the sphere of production and distribution, to the final consumer, which aims to satisfy the demands of the market with minimal commitment and capital [1-5]

In turn, H. Ch. Pohl claims that logistics comprises all the steps leading to planning, supervision, execution and control of the time-and-space transformation of goods and the related transformation in quantity and range of

assortment, the manipulation properties and the degree of logistics determination of goods. A coordinated execution of these activities enables the flow of goods that connects the origin point with the consumption point in a possibly most efficient manner.

Analyzing the content of the quoted and published definitions, one may conclude that: Logistics is a process of physical flow of goods/services and accompanying information;

- logistics is a concept of integrated management of goods/services and information flow;
- logistics is an interdisciplinary field (apart from its own heritage, it also makes use of technical, military, mathematic and economic sciences, including management) where the object of research are the regularities and phenomena which occur during the goods/information flow throughout the supply chain.

Therefore, the essence of logistics is the flow of material goods and services from their place of origin to the final customer (consumer). The aim is to ensure the adequacy of place (moving goods to places where there is a demand for them) and time (maintaining the right stocks levels and proper distribution of goods/services).<sup>11</sup> An efficient and effective implementation of logistics objectives is

possible thanks to the following activities[6-8]:

- movement and transport;
- warehousing and storage;
- industrial packaging;
- manipulation of materials;
- stocks control;
- fixing orders;
- demand forecasting;
- production planning;
- purchase;
- customer service at an appropriate professional level;
- warehouses and plants location;
- provision of spare parts and after-sales service;
- collection and disposal of waste.

It is the information flow that accompanies the flow of material goods and services in the production system. They play a key role in organizing and functioning of supply chains, linking all basic elements of the Logistics system. The integration of information flow makes the system open, efficient, and able to overcome obstacles arising during the flow processes. Thus, the activity of enterprises, including the virtual ones, is adapted to the requirements and changes of the environment. The environment of logistics consists of dynamically developing local markets, both in the country and abroad, with increasing risk and competitiveness. The pressure of the latter leads to continuous growth of efficiency of Logistics processes, which in practice means quality improvement and bigger effectiveness of the decision-making processes.

The above may take place when the decision-maker has information on the shaping of particular parameters that characterize the company activity and surrounding. Therefore, no decision arises "spontaneously", but is a transformation of one kind of (basic) information into another - that is, the decision [9-12].

The process of transforming basic information may be carried out in different ways, depending on the complexity of the phenomena which require making particular decision, as well as the choice of methods and techniques for this transformation. Always, however, the process of transforming information is the

integral part of decision-making.

Information has always accompanied the management processes, including logistics, however it has never been as much appreciated as it is today. It is seen as the base and the material for the processes, as well as a valuable corporate asset.

In a company managed in a traditional way, data analyses and reports are done by many departments, which base on different kinds of systems and IT tools. This irrevocably leads to multiple versions of not necessarily consistent data. In a knowledge-based economy, the analytical capability of a company becomes one of the most important competition elements, irrespective of the industry. The companies which use analytical skills while building their competitive advantage, create centralized data centers to enable information management, i. e. by selecting information most important for managerial decisions, making the same sources accessible for use by different departments, preserving coherence when it comes to formats, definitions and standards [13-16].

## 2. Critical Elements of Logistics System

1. Nature of Product
2. Location of the manufacturing plant
3. Availability of infrastructure such as road, rail m Ports Air Ports Material Handling system etc.
4. Availability of different mode of transportation

Below, a few areas of logistics are presented, where information management makes the operations efficient and effective:

- 1) Supply chain - simulation and optimization of flows in the supply chain allows for stocks reductions and preventing a situation when stocks are running out.
- 2) Price fixing - allows to specify the price level that would bring maximum income or profit.
- 3) Multi-dimensional segregation of clients - identification of groups of clients with similar features and behaving the same way, buying similar products etc., which results in better understanding of the consumers. All this has impact on planning efficiency and the effectiveness of marketing, by customization and

- personalization of interactions.
- 4) Customer Loyalty Analysis - modeling the factors that might cause the loss of customers and defining customer groups, which could potentially switch to competition. These actions allow to take effective steps to keep regular customers for given products. The analysis also helps to develop loyalty programs, in order to stabilize the portfolio of customers.
  - 5) The analysis of customer value in terms of cooperation profitability, detection of the most profitable customer groups, as well as recognizing the non-profitable and loss-making ones. These measures make it possible to effectively plan cooperation with customers and increase profitability.
  - 6) The analysis of customer satisfaction - assessing the level of customer satisfaction and its changes as products and services develop. Such measure helps to plan activities aimed at raising the customers' satisfaction with the goods provided.
  - 6) The control of logistics costs - a continuous analysis of financial results, assisted by integrated IT software, allows to effectively manage the costs within the company.
  - 7) Human resources - the accumulated knowledge facilitates the choice of employees for specific tasks or work, with a particular pay level.
  - 8) The quality of products and services - monitoring and early detection of quality problems and their minimization ensure customer satisfaction.

The analysis of electronic channels use frequency - establishing common navigation paths for customers using the electronic channels of distribution (WWW, WAP, payphone etc.), discovering the factors that influence the efficiency of their use and foster the realization of anticipated transactions, increasing the effectiveness of using electronic channels available to customers, raising the sales efficiency via these channels.

Modern logistics does not only need data, information, but also knowledge which is an intangible asset of the organization, connected with human activity which, when applied, may be the source of competitive advantage.<sup>12</sup> This knowledge, if properly used in an enterprise, may not only bring about success, but also

provide conditions for its further extension and sharing.

### 3. Characteristics of the logistics information system

Logistics management is connected with acquisition, collection, processing and transmission of large amounts of information. Meeting the information demand of the management functions requires that an information system be created, which would provide continuous access to timely, accurate and truthful information.

From the perspective of logistics, the basic benefits of implementing information systems include:<sup>13</sup> customer service improvement:

- increasing the atmosphere of trust and confidence through good communication within the logistics chain;
- The possibility to use electronic signatures, the system of protection and certification, standardization in the field of electronic business;
- stock levels reduction;
- synchronization of supply, production and distribution processes;
- the capacity to produce to order - as opposed to "to stock" production;
- the reduction of possible downtime caused by shortage of materials for production;
- cost levels reduction, especially connected with transport and storage;
- improvement of delivery timeliness, lessening probable errors made in orders;
- reduction of the number of documents in circulation.

The information system consists of information streams, which link the executive elements of the logistics system with the management system, and with the set of procedures for processing information.

Formally, information systems may be traditional or based on information technologies. Since, as it has been previously mentioned, Logistics management involves processing of a massive amount of information, the Logistics information system should be based on information technologies by default. Proper implementation and application of information technology and resources which

facilitate the functioning of Logistics information systems, is a guarantee of business performance improvement, which manifests itself in 14

- operations speed improvement;
- production quality improvement;
- the quality of customer service;
- cost reduction, and thereby higher competitiveness on the market. Among the essential logistics functions where information technology is used, we may find the following
- customer service and communication, focused on improving the customer supplier relation;
- control and planning, related to foreseeing the customers' demands in advance and to monitoring the natural flows, in order to detect any unwanted alterations in the plan;
- coordination, responsible for linking various Logistics operations into one coherent system.

The basic task of the information-gathering subsystem is to monitor the environment and the company itself in order to collect information indispensable for making logistics decisions. The fundamental information usually obtained for logistics management includes such areas as: the company targets and its logistics resources, customer orders, market research results, the condition of the system implementing logistics (logistics chain), as well as the stage of realization of logistics processes, conditions and limitations of the functioning logistics system.

Other significant sources of information are the reports on the state of the logistics system and on the realization of logistics processes. They provide information on: sales trends and forecasts, logistics costs, inventory, orders, procurement, logistics schedules, logistics needs etc.

In summary, we may group the ways to obtain information and the content of information itself, into six areas:

1. First - the new market environment, which is created by access to a global network through telecommunication infrastructure.
2. Second - the market space convergence resulting from the absence of geographic

isolation of companies and economies.

3. Third- the new technologies that enable people and organizations to interact in a network environment, as well as create and deploy new solutions and products.
4. Fourth- the convergence of infrastructure consisting of a combination of different technologies for distribution of data and information (cable networks, GSM, satellite solutions, instant messaging, mobile Internet access etc.)
5. Fifth- the convergence of processes involving e.g. the customization of products by means of integrated, virtual combination of customer expectations and Internet sales, e-payments and modern distribution processes.
6. Sixth- the convergence of products that may exist in various forms of physical and electronic formats, depending on the level of relevance to the consumer; i. e. books, knowledge.

The system supporting the making of decisions, including the Logistics ones, consists of computer software, operating on data-, procedures- and modelbases. With these tools, the logistics management authorities may examine the effects of different variants of the decision, using mathematical models and computer simulation techniques.

The most commonly used applications, systems and advisory services in Logistics are the following 15:

- the make or buy issue
- production planning, including the development of assortment planning, production hall interior design, production flow development, scheduling production on machines, minimizing WIP inventory.
- raw material supply planning, including the choice of supplier, supply forecasting, planning the possibilities of materials and components' substitution.;
- customer service, including identification of customers' needs and requirements;
- forecasting the demand, in terms of time and space;
- distribution planning, including the selection of distribution channels;
- planning the deployment of storage bases, including determination of their size and

- number;
- warehouse management, including warehouse space planning, admissions and releases scheduling, planning the allocation of stocks;
- stock control, including the estimation of safe stock level;
- stock distribution network modeling, including the location of logistics centers, storage and transport bases, transport nodes, the development of transport links between them;
- formation of cargo, including deployment of goods in cargo units;
- transport management, including the formation of the ownership structure of the transport fleet the choice of transport modes and the carrier;
- transportation planning, including cargo distribution and complementation, planning of removals (route-planning).

The logistics information system provides the ability to integrate multiple functions of logistics management and conditions the synergy of logistics operations. It is strategic in nature, as it is designed and implemented in order to improve the realization of the company's adopted strategy, and its aim is to achieve the company's objectives.

#### 4. Benefits of Efficient Logistics

1. Increased operational efficiency: - the primary object of any logistics system is to make optimum use of resources available so that in bound raw material, components
2. and sub-assemblies as well as finished products are delivered in the right time at

right place and in right quantity. This helps the supply chain to become more responsive to the ever-changing market at minimum cost and time.

3. Channelization of resources: - this defines the maximum utilization of the resources to the right place where the logistics provider can earn maximum of profit. The logistics provider needs to put his/her efforts and capital basis the demand and cost effectiveness of the logistics system.
4. Improved customer service: -Each department in a company works on their own principals for E.g :- Finance department would not like to keep up inventory for any product but the manufacturer need ready inventory all the time . Here logistics company need to work very efficiently to provide the fast delivery of the inventory to the company.
5. Inventory control: - Efficient logistics helps the company to keep the inventory under control. This reduces the cost of warehousing.

#### 5. Conclusion

Customer need to select the correct mode of transportation most suitable for the product, urgency, seasonality and costing. Stock also needs to be viewed by the customer timely so that it could not lead to dead stock or super urgency of the material. Packing and warehousing need to be review by the customer. In short all the elements and factors related to logistics need to analysed and reviewed on time by the customer to avoid delay, damage and additional cost in logistics.

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