

## A STUDY ON TRANSPORTATION SYSTEM FOR NATIONAL PARCELS DISTRIBUTION IN VRL LOGISTICS

**Dr. S. Saravanan,**

Assistant Professor,

Department of Management studies,

Anna University, BIT Campus,

Tiruchirappalli.

**Arun Revanth. A,**

MBA Second year,

Department of Management studies,

Anna University, BIT Campus,

Tiruchirappalli.

### **Abstract**

The transportation system plays a vital role in logistics. Customers who experience a logistics may feel very satisfied and comfortable with the logistics operations within the environment. The primary objective of this study to investigate about transportation systems namely tramping systems and trumping systems for national wide parcel distribution and to define the role of transportation in logistics for the reference of further improvement. The research was undertaken to assist managers, researchers and transportation planners to define the basic views of logistics and its various applications and the relationships between transportation and logistics.

**Keywords:** Customer service, Transportation, Material handling, Inventory management, Order processing, Delivery, Warehouse, Storage, Packaging, tramping, trunking and Reverse Logistics.

### **Introduction**

The transportation system moves people and goods from one place to another using a variety of vehicles across different infrastructure systems. These Transportation systems serve people, and are created by people, both the system owners and operators, who run, manage, and maintain the system and travelers who use it. Customer's expectations and performances are changing now-a-days. They want more satisfaction and pleasant experiences from the logistics operations. So they are in the need of new systems.

Logistics is actually a detailed organization and implementation of a complex operation. The logistics is the management of the flow of things between the point of origin and the point of consumption in order to meet the requirements of customers or corporation. The resources managed in logistics can include physical item such as food, material, animals, equipment and liquids, as well as abstract items, such as time and information. The logistics of physical items involves the integration of information flow, material handling, production, packaging, inventory, transportation, warehousing, and offers security.

## **Logistics system**

The logistics system is made up of three main activities: order processing, inventory management, and freight transportation. Order processing is concerned with the information flow in the logistics system and includes a number of operations. The beginning of the process starts with a request from a customer for a particular product and it will be processed in an order form. These orders are then transmitted and checked for completeness and accuracy. The availability of the requested product and the customer's credit status are verified. Finally, products are retrieved from the stock packed, and delivered along with their shipping documents. Throughout this entire process, the customers have to be kept informed about the status of their orders.

## **Transportation**

Transportation systems are a fundamental part of logistics systems and planning, whenever vehicles are used to move people or items from one location to another location.

## **Transportation systems**

The transportation by trucks can be classified into two systems namely tramping system and trunking system.

## **Tramping system**

Tramping is the meant for making long distance deliveries. As the typical journey for the distribution of goods will take several days, or longer if travelling across Tamil nadu for example, the driver will sleep in their cab overnight. In tramping job the drivers will be away from home for long period of time, so their vehicle will be assumed as their second home. The drivers will stay in the vehicle itself.

## **Trunking system**

Trunking is a type of transportation service that aims to streamline distribution. Primarily it involves HGVs using so-called "trunk roads" which connect major ports, cities, and airports, and are designed for long-distance and freight traffic. Trunking differs from general haulage in that it usually takes place overnight and on the same route. Trunking system is used for distribution of goods within one day. This system is used based on the customer preferences.

## **Segments of Transportation**

**The transport and logistics business is divided into two segments:-**

- Goods transportation
- Passenger transportation

## **Distribution**

A distribution is a group of facilities or an operation that tends to performs warehousing, consolidation, decomposition, packaging and other functions which linked with handling freight. The distribution means to provide value-added services to freight, which is stored for relatively short period of time (days or weeks). Goods stored in a distribution center have usually been sold and are in transit to their further destination. They can also perform light manufacturing activities such as assembly and labeling. A distribution center tends to focus on the demand of customers preferences and satisfaction.

## **Warehouse**

A **warehouse** is a facility or a place designed to store goods for longer periods of time. Goods stored in a warehouse have usually not yet been sold and are held in inventory until a buyer is found. A warehouse is driven by the supply of manufacturers and wholesalers.

## **Reverse logistics**

Another dimension of logistics is 'Reverse Logistics' (Rev Log). Goods return from the consumer point to the original and supply point, for various reasons. Bad delivery, over-supply, damage, expiry failing inspection tests at the customer point, goods unsold etc., are some instances where the materials transverses back. That is Reverse Logistics. The material that has to come back to the original point, or to the original supplier, has also to be handled effectively and efficiently.

## **Transportation costs:**

Transportation system is the basic activity among the business logistic system. Around one third to two thirds of the expenses of the business logistics costs are spent on transportation. The transportation cost here includes the means of transportation, corridors, containers, pallets, terminals, labors, and time. The transportation occupies an important ratio in logistics activities. The improvement of the item of higher and larger operations costs can get better effects. Hence, logistics managers must comprehend transport system operation thoroughly.

The transportation system makes goods and products movable and provides timely and regional efficiency to promote value-added services under the least cost principle. Transport affects the results of logistics activities and, of course, it influences production and sale and services. In the logistics system, transportation cost plays a vital role in objective market. Value of transportation varies with different industries. The transportation cost will be less for small volume, low weight and high value products. It is less regarded. The transportation cost will be higher for heavy volume, heavy weight and low valued products. It is more regarded.

## **Warehousing and 3PL solutions**

“Tailor-Made Multi-Locational Service”

Seamless logistics solutions organisation encompassing various components like supply chain management, inventory control management, warehousing management, JIT movement with an emphasis on CRM.

- Integrated 3pl solution.
- Inventory Management.
- Warehousing facility at various locations.
- Communication & IT service.
- Intra-city & re-distribution services.
- SKU management.
- Vendor management.
- Order management.

## **Warehouse services**

The outstanding warehouse service will only attract customers. The enough space should be provided for complete warehousing facilities to the clients for storage of goods. The logistics management should provide assistance in insuring goods, so that during transportation if any mis-happening occurs then clients can get indemnity for the same.

## **3PL**

3PL is a service that allows us to outsource operational logistics from warehousing, all the way through to delivery, and ultimately enables you to focus on other parts of your business. This includes transportation, warehousing, picking and packing, inventory forecasting, order fulfillment, packaging and freight forwarding.

## **Effects of transportation in logistics activities**

Transportation plays a connecting role among several steps that gives the result as the conversion of resources into useful goods in the name of an ultimate consumer. It is the planning for all the functions and sub-functions into a system of goods movement in order to minimize cost and maximize services to the customers that constitutes the concept of business logistics. The system, once put in place, must be effectively managed. Traditionally these steps involved to separate companies for production, storage, transportation, wholesale, and for retail sale. However

basically, the production/manufacturing plants, warehousing services, and merchandising establishments are all about doing transportation process. Production or manufacturing plants required the assembly of materials, components, and suppliers, with or without storage, processing and material handling within the plant and inventory. Warehousing services between plants and marketing or machineries outlets involves separate transport facilities. Merchandising establishments completed the chain with delivery to the consumers. The manufacturers limited themselves to the production of goods, leaving marketing and distribution to other firms. Warehousing and storage can be considered as the terms of services for the production process and for the product distribution. There have been major changes have to be made in the location of facilities with the closure of many single-user warehouses and an expansion of consolidation facilities and distribution centres. These developments reflect factors such as better transportation services and pressures may improve logistics performance.

### **Direct store delivery (DSD)**

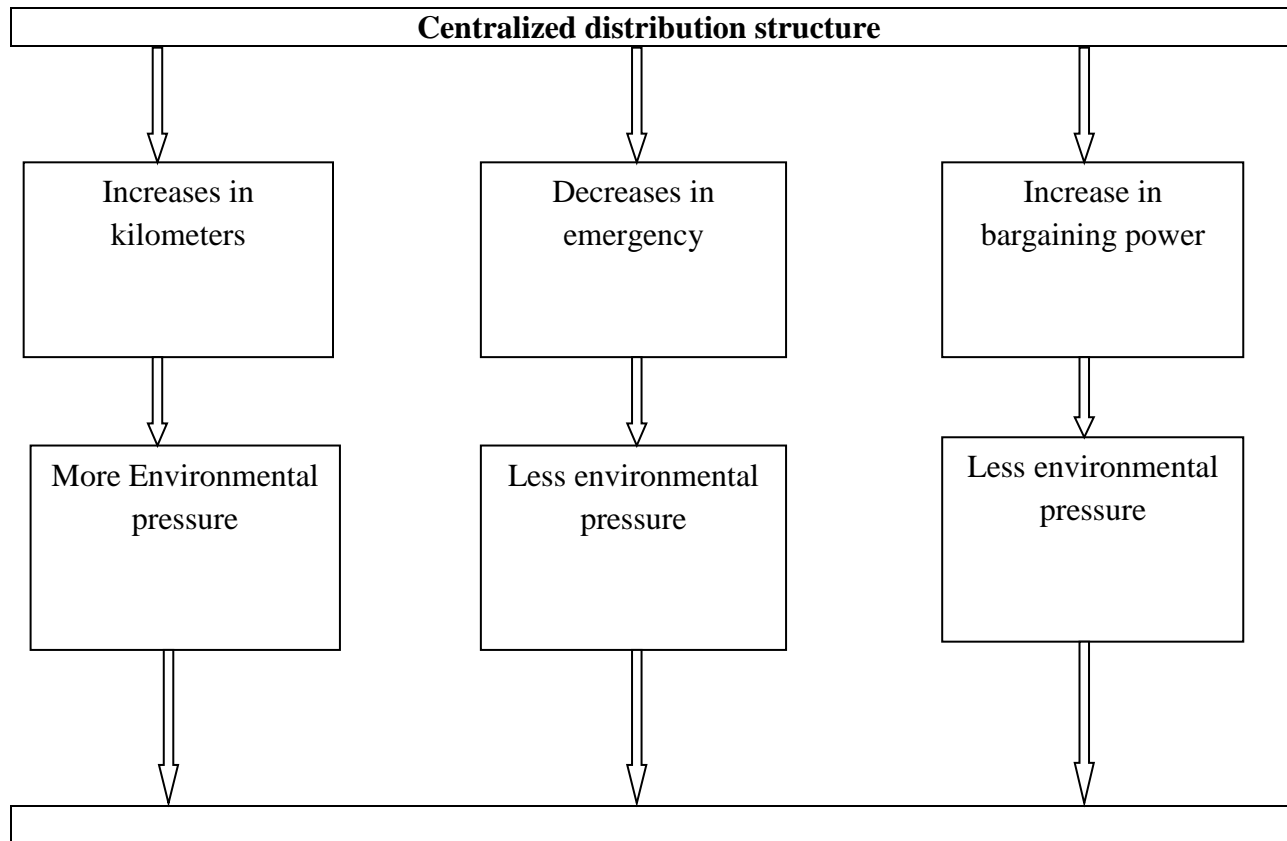
Direct store delivery is a method of distribution of products from a distributor to a retail store, thereby passing a retailer's distribution center. DSD products are typically fast-turning, high velocity and high consumer demand merchandise.

### **Centralized distribution structure**

The centralized distribution structure describes the flow of goods from the manufacturer's distribution network through to the wholesaler, whereby the wholesaler distributes the goods or merchandise to the customers or stores. The centralization causes an increase in transport work, this must not necessarily mean that emissions increase.

### **Features of Centralized distribution structure**

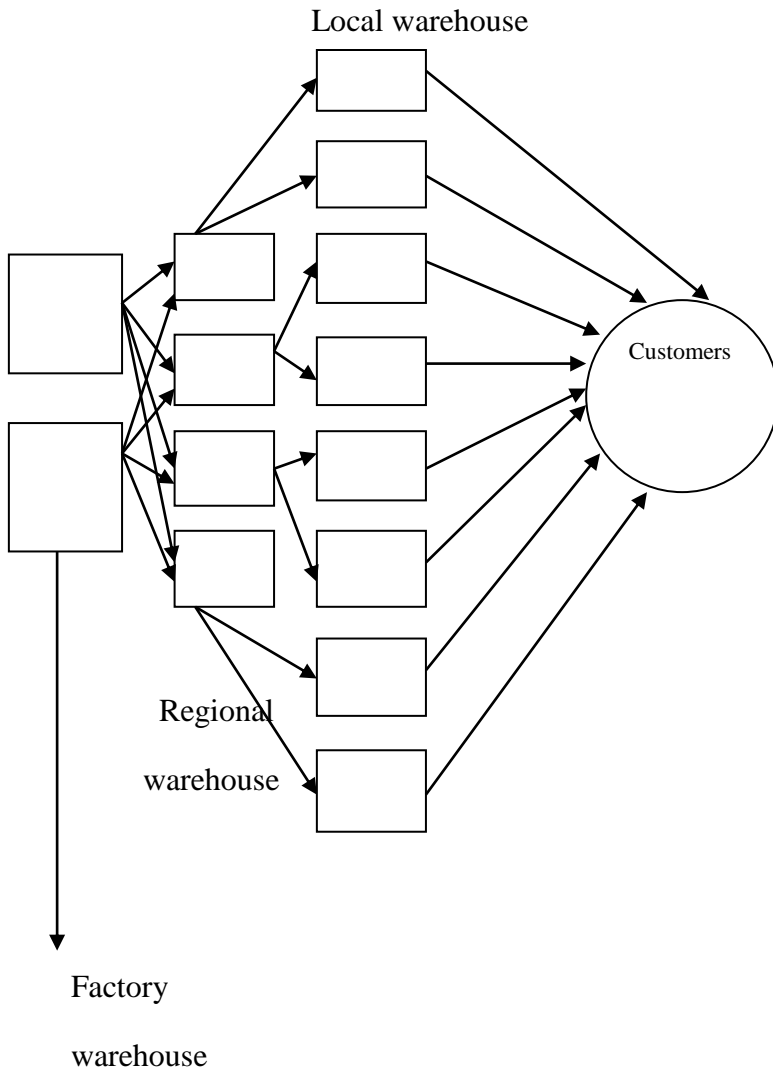
- Increase in tonnes kilometres
- Decrease in emergency deliveries



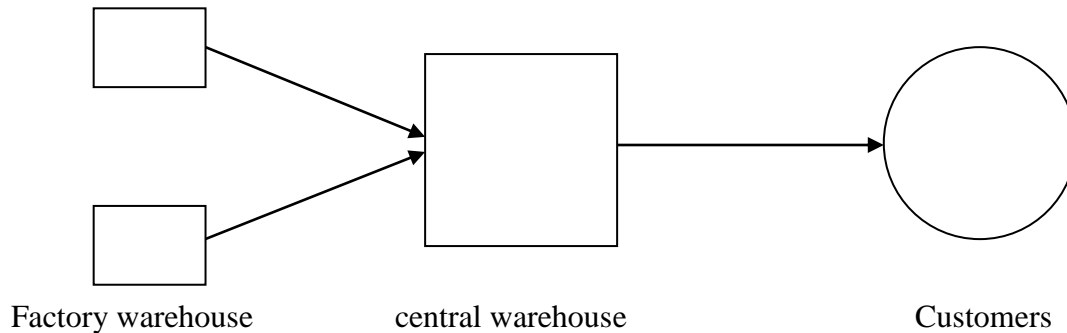
The centralized distribution structure is responsible for the flow between production unit and central warehouse. It has the possibility to improve the fill rate and multimodal transports.

Conceptual model

Decentralized distribution structure



### Centralized Distribution structure



### Review of literature

**Dr. S. Saravanan and Sathiyagothai B, Reverse logistics in food processing industries in India**, This study demonstrates that the Reverse Logistics (RL) is the process of backward flow of moving goods for the purpose of capturing value, proper disposal, remanufacturing and refurbishing activities.

**K Dogan, M Goetschalckx - Iie Transactions, 2009 - Taylor & Francis**, they study about the integrated design of strategic supply chain networks and the determination of tactical production-distribution allocations in the case of customer demands with seasonal variations, and their goal is to determine the configuration of the production-distribution system with the lowest sum of supply, production, transportation, inventory, and facility costs such that seasonal customer demands are met.

**FHWA International technological scanning by Douglas MacDonald Washington State DOT Co-Chair, Connie P. Yew, FHWA Co-Chair, Robert Arnold FHWA, John R. Baxter FHWA**, The purpose of this international scan was to investigate the use of performance measures in transportation planning and decision making in selected countries. Performance measures can relate to many different aspects of and be applied at different level of decision making, so the scan panel represented a diverse set of interests and concerns for both national and State-level decision making.

**Same-day delivery: The next evolutionary step in parcel logistics by Ludwig Hausmann, Nils-Arne Herrmann, Jan Krause, and Thomas Netzer in March 2014**, This study examines the drivers at work in the current logistics landscape, the coming scenario, and the challenges players will need to overcome to make same-day delivery a reality.

**The development of the parcel delivery service by katsuhikoHayashi and Toshinorinemato in 2014**, This paper reviews the development of the parcel delivery market



both in Japan and China, and presents a conceptual model to explain the development of the parcel delivery market in order to explain the characteristics of development processes in China compared with those in Japan. In China, the franchise system plays an important role to expand the network in a short period, while it is difficult to keep the same service quality throughout the network. This is why Chinese consumers have complained to the parcel delivery services and Chinese governments have introduced new rules and regulations. Furthermore, they investigate about the actual situation of parcel delivery operations in Shanghai, and discuss the impacts of regulations including city logistics policies on the Chinese parcel delivery market and future directions of them.

**Bowersox D.J/ Closs D.J/ Helferich O.K(1986)**, This study determines Logistics management and the integration of physical distribution, manufacturing support, material procurement, and material handling.

**The role of transportation logistic chain by Yung-yu Tseng**, The purpose of this paper is to re-clarify and redefine the position relationship between transportation and logistics systems through collecting and analysing various applications of the logistics activities by further improvements within the environment.

**Cooper, M. C., Lambert, D. M., & Pagh, J. D. (1997)**. This study clears that there is a need for some level of coordination of activities and processes within and between organizations in the supply chain that extends beyond logistics. This article proposes a conceptual model that provides guidance for future supply chain decision-making and research.

**Davis, F. W., & Manrodt, K. B. (1991). Service logistics: an introduction.** This study is used to determine the potential of applying logistics principles in service organisations. The authors suggest that logistics principles are even more important in service organisations than in production firms. Service logistics is defined as the management of activities which responds to customers on an individual basis. The historical services underpinnings are examined and some guiding concepts central to service response logistics are provided. These concepts include the benefit delivery, delivery processes, delivery orientation, responsive planning, and a customer service model that focuses on individual customer needs.

**Priya Datta, P., Christopher, M., & Allen, P. (2007). Agent-based modelling of complex production/distribution systems to improve resilience.** This paper presents an agent-based computational framework for studying a complex multi-product, multi-country supply chain subject to demand variability, production and distribution capacity constraints with the aim of improving operational resilience.

## Conclusion

To bring further improvements in transportation for the distribution, some changes might play a vital role. The transportation is the imperative factor, if a logistics company concentrates on transportation, they get more number of customers to enhance their business around the nation.

This paper may helpful to build the successful logistics company. The overall aim of the paper is to create the customer's intention and to improve company's operations.

## References

- Dr. S. Saravanan & Sathiyagothai B, (2017). Reverse logistics in food processing industries in India. *International Journal of Economics & Management Sciences*, 408(6).
- Dr. S. Saravanan and D. Arunkumar, "A conceptual model of Logistics information system effectiveness on retail outlets towards customer service quality in Tiruchirappalli" *International journal of management and commence innovations*. Vol 3, Issue 2, pp: 1058-1062.
- Tseng, Y. Y., Yue, W. L., & Taylor, M. A. (2005, October). The role of transportation in logistics chain. Eastern Asia Society for Transportation Studies.
- Carroll, J. (2004). The magical reserve tracing system-RFID. Taiwan CNET.
- Lambert, D., Stock, J. R., Ellram, L. M., & Grant, D. (2006). *Fundamentals of Logistics Management: First European Edition*. McGraw-Hill.
- Raghuram, G., & Rangaraj, N. (2000). Logistics and supply chain management cases and concepts. *Opsearch*, 37(2), 183-185.
- Krishnaswami, O. R., & Satyaprasad, B. G. (2016). *Business Research Methods*. Mumbai, IND.
- Chang, Y.H. (1998) *Logistical Management*. Hwa-Tai Bookstore Ltd., Taiwan.
- Cooper, M. C., Lambert, D. M., & Pagh, J. D. (1997). Supply chain management: more than a new name for logistics. *The international journal of logistics management*, 8(1), 1-14.
- Davis, F. W., & Manrodt, K. B. (1991). Service logistics: an introduction. *International Journal of Physical Distribution & Logistics Management*.
- Priya Datta, P., Christopher, M., & Allen, P. (2007). Agent-based modelling of complex production/distribution systems to improve resilience. *International Journal of Logistics Research and Applications*, 10(3), 187-203.
- Tseng, Y. Y., Yue, W. L., & Taylor, M. A. (2005, October). The role of transportation in logistics chain. Eastern Asia Society for Transportation Studies.
- Bowersox, D. J., Closs, D. J., & Helferich, O. K. (1986). *Logistical management: a systems integration of physical distribution, manufacturing support, and materials procurement*.
- Hausmann, L., Herrmann, N. A., Krause, J., & Netzer, T. (2014). Same-day delivery: The next evolutionary step in parcel logistics. *McKinsey & Company*.