A STUDY ON TRANSPORTATION WITH SPECIFIC REFERENCE TO LOAD PLANNING AND ROUTE SCHEDULING IN VRL LOGISTICS

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Abstract

Transportation is a main process of logistics management. Customers who experience a logistics may satisfy and comfortable with the logistics operations within the environment. The primary objective of this study is about the changes in cost and time for load planning and route scheduling for the transportation. The research was undertaken to assist managers, researchers and transportation planners to define logistics and its applications and its various relationships between transportation and logistics and to define the functions of load planning and route scheduling.

Introduction

In Logistics, Transportation system process is most things. It helps us to move people and goods from one place to another place with a variety of vehicles from different infrastructure system. Due to the trend of national and global area in recent times, the important of logistics management has been growing in various area. Transportation occupies one third of amount influence the performance for logistics cost and transportation system to logistics largely. In logistics, transportation system is used to deliver the goods to customers for company profit purpose.

Logistics system

"A business 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 operation." These orders are then transmitted and checked for completeness and accuracy. The availability of the product and

the customer's credit status are verified. Finally, the product are retrieved from the stock packed, and delivered along with their shipping documents.

Transportation

The transportation system is a logistics platform and its use and helpful to business plan, execute and optimize the physical movement of goods and vehicle are used for travelling for people and some variable items move from one place to another place.

Cost of transportation

Transportation cost to be includes the meaning of transportation containers, corridors, pallets, terminals, labours, and time. It occupies an important ratio in logistics activities. Transportation system makes goods products moveable and provides time and regional efficiency to promote value added service under the least cost principle. It plays a major role in market. It cost will be less for small volume, low weight and high value products. The transportation cost will be higher for heavy volume, heavy weight and low value products.

Warehouse

A warehouse is a place particularly designed for to store goods for some periods of time. Goods to be stored in warehouse has not yet been sold and are held in inventory until a buyer is found. A warehouse is used for retailers, the supply of manufacture s and wholesalers.

3PL

3PL is a service allows to outsource the operational logistics from warehousing, a way through to delivery and enable to focus on other part of business. These are all includes transportation, warehousing, picking and packing, inventory forecasting , order fulfilment, packaging and freight forwarding.

Load planning

Load planning is a function in the transportation industry is particularly uses for logistics in that shipments combined , often turned into heavy or large loads to decrease the value amount of vehicles transport goods and therefore making the profit efficient to company.

Load planning process to plan the loading for

- Box trucks,
- Trailers,
- Semi-trailers,
- Containers in the cockpit.

Route scheduling

Route scheduling is the process of an arrival assigning and service time for individual stop with drivers being assigning the shift to their working hours. It is mainly for routing and route scheduling to cut down the more expenses and mileage for vehicle and capital costs for trucks. In this route scheduling the important part of supply chain process related to both procurement and distribution. It is specific sequence in which the selecting transport, the vehicles should supply the demand by requesting quantities of goods at the right time.

Difference between routing and scheduling

Routing is the functions of finding and researching the most efficient way to visit a stop. But scheduling is the function of arranging the stops in possible way of order, the factors of accounting such as traffic and customer availability. Scheduling is an important to planning and the process of assigning vehicles to the trips of a particular timetable. In this function variations to be based on the characteristics of problem and such as the number of depots or vehicle type.

Types of route scheduling

- Separate single origin and destination,
- Multiple origin and destination point.

Best ways:

- Reduce the cost of vehicle,
- Reduce the particular distance,
- Reducing the travel time.

The dynamic problem in loading planning and route scheduling

The dynamic elements include both new request arrivals and dynamic travel times. These will be described below, followed by a description of the system's operating mode.

Dynamic elements

Customer requests: New requests continuously occur during the day and must be inserted at least cost into the current planned routes.

Travel times: Three different elements are considered to set the travel time between two customer locations:

Long-term forecasts: These travel time forecasts represent well documented long-term trends. It is not dynamic. These forecasts are time-dependent and vary depending on the time period (e.g., morning, lunch time, afternoon).

Short-term forecasts: When the vehicle is ready to depart from its current customer location, the travel time to its next destination is modified by a random uniform amount (positive or negative). This modification, which implies a rescheduling of the planned route, represents short-term forecasts based on any new information available at this time.

Dynamic perturbation: The travel time to the next destination is finally perturbed by adding a value generated with a normal probability by law of mean 0. This perturbation represents any unforeseen events that may occur along the current travel leg and represents the truly dynamic component of the travel time. This perturbation is known to the dispatching system only when the vehicle arrives at its planned destination.

Packaging

At the beginning of each goods and material flow there is the necessity to protect the goods from impacts during transport, transhipment and storage (TTS processes) from less quality of goods. This is mainly achieved by choosing a suitable packaging and by building so-called unit loads. In addition to its main function packaging needs to protect the goods during the TTS processes and the packaging had to meet the other requirements. In some cases, e.g., hazardous goods, it should also protect the workers and the environment from the unwanted sources. In order to facilitate efficient handling during these processes a packaging should have to allow for easier storage and transportation, e.g., in the form of uniform units which can be stacked or transported by conveyors. In the retail trade, packaging have a high marketing effect. It may offer customers and consumers a possible suitable effect, for example a unwanted seal or reuse for other purposes after the original contents have been removed. Finally, the identification and information effect plays an important role in identifying the goods within the material flow (e.g., by printed barcodes) as well as for the display of goods in the shop shelves. This variety of requirements, partly acts each other, and generally cannot be fulfilled by one single packaging alone, but only by a coordinated packaging system.

Types of packaging are also classified according to the waste they produce:

Transport packaging: Protecting the goods from the manufacturer to the distributor during the transportation.

Sales packaging: Packaging which are used by the final consumer for the transport of goods or until their consumption.

Outer packaging: Additional packaging of sales packaging which allow for distribution of the goods in the form of self-service, protect the goods against theft or serve as marketing media.

Literature Review

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.

Improved route planning and scheduling of waste collection and transport Teemu Nuortioa, Jari Kytojokib , Harri Niskaa , Olli Braysy, this paper describes the optimization of vehicle routes and schedules for collecting municipal solid waste in Eastern Finland.

Vehicle routing and scheduling with dynamic travel times, Jean-Yves Potvina, Ying Xua, Ilham Benyahia, in this paper, a dynamic vehicle routing and scheduling problem with time windows is described where both real-time customer requests and dynamic travel times are considered.

A Brief Overview of Intermodal Transportation, Tolga Bektas, Teodor Gabriel Crainic, this paper focuses on intermodal freight transportation broadly defined as a chain made up of several transportation modes that are more or less coordinated and interact in intermodal terminals to ensure door to door service.

Intermodal Transportation Teodor Gabriel Crainic, Kap Hwan Kim, The goal of the chapter is thus to be informative and provide a starting point for future research, by providing an overview of the evolution of the field and presenting methodological developments proposed to address a number of important operations and planning issues: system and service design, container fleet management, planning of container terminal operations, and national planning.

Multi-objective simultaneous stowage and load planning for a container ship with container rehandle in yard stack, AkioImai, KazuyaSasaki, EtsukoNishimura, StratosPapadimitriou, this paper is concerned with the ship's container stowage and loading parts that satisfy these two criteria.

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.

An emergency logistics distribution approach for quick response to urgent relief demand in disasters Jiuh-BiingSheu, this paper presents a hybrid fuzzy clusteringoptimization approach to the operation of emergency logistics co-distribution responding to the urgent relief demands in the crucial rescue period.

Empty container management for intermodal transportation networks Sook Tying Choong, Michael H. Cole, Erhan Kutanoglu, the analysis is based on an integer program that

seeks to minimize total costs related to moving empty containers, subject to meeting requirements for moving loaded containers.

Integration of inventory and transportation decisions in a logistics system Qiu hong Zhao, Shuang Chen, Stephen C.H. Leung, K.K. Lai, this paper addresses some of the challenges faced by a company which is responsible for delivering coal to its four subsidiaries situated along a river, through river hired or self owned vessel.

Electric Vehicles in Logistics and Transportation: A Survey on Emerging Environmental, Strategic, and Operational Challenges by Angel Alejandro Juan, Carlos Alberto Mendez, Javier Faulin, Jesica de Armas and Scott Erwin Grasman, the paper also analyzes how the introduction of EVs in L&T systems generates new variants of the wellknown Vehicle Routing Problem, one of the most studied optimization problems in the L&T field, and proposes the use of metaheuristics and simheuristics as the most efficient way to deal with these complex optimization problems.

A hierarchical clustering and routing procedure for large scale disaster relief logistics planning, Linet Özdamar, Onur Demir, this paper assess the performance of the algorithm by using large scale scenarios and find satisfactory results.

The role of logistics chain Yung-yu TSENG, Wen Long YUE, this paper defines the role of transportation in logistics for the reference of further improvement.

Conclusion

This study determines the changes in load planning and route scheduling for the transportation. This study may useful for logistics management in nearby future. This study may also helpful for reducing cost and time.

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