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Impact of latest Mobility Solutions on logistics

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Abstract

The word logistics has its origin from Greek word "logistike" which means the art of calculating. However, the modern interpretation of the term logistics has its origin in the military, where it was used to describe the activities related to the procurement of ammunitions, and essential supplies for troops located at the front. Logistics not only includes activities related to the physical movements of the goods but also manages relationship with suppliers and customers. However Logistic management is a means whereby the needs of customers are satisfied through integration and coordination of the supply chain. The main objective of the paper is to determine the various technology used in logistics and supply chain management including information technology, communication technology and automatic identification technology. The paper also discusses the impact of the technology on logistics and supply chain management. The author mainly focuses on the secondary data for collecting data relating to various technology used in logistics and supply chain management. The author draws conclusion that Technology is a vehicle to enhance supply chain competitiveness and performance by enhancing the overall effectiveness and efficiency of logistics system. Moreover various innovations in technology have made the task easier and faster besides being less laborious

Keywords: - Mobility, supply chain management, omni-channel retailing, mobility devices

1. INTRODUCTION

The council of logistic management defines logistics as "that part of supply chain process that plans, implements, and controls the efficient, effective, forward and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customer requirement".[1][2][3] In ordinary language the same can be defined as right product, at the right place, in right time, and in right condition. However supply chain consists of all stages that are required to satisfy the customer request. It starts from supplier passes through manufacturer, distribution, retailer and finally reaches the customer. The supply chain management is the oversight of materials, information and finances as they move in the process from supplier to manufacturer to wholesaler to retailer to customer. The emerging new technologies are creating strategic opportunities for the organizations to build competitive advantages in various functional areas of management including logistics and supply chain management. However the degree of success depends on the selection of the right technology for the application, availability of proper organizational infrastructure, culture and management policies. In logistics, information, communication and automation technologies has substantially increased speed of identification, data gathering, processing, analysis and transmission, with high level of accuracy and reliability. Technology is a means to enhance business competitiveness and performance. It plays a major role in success of supply chain by enhancing the overall effectiveness and efficiency of the logistics system.[6] [5] In logistics many new technologies are used in developed country while in India adoption process is very slow. However due to liberalization of the Indian economy the competitive pressure is building up and the only option to face the competition in to go in for technology enabled operations.

Fig:-1 Logistics Flow

The latest technologies being used in logistics and supply chain management are segregated into

- Communication Technology
- Automatic Identification Technology
- Information Technology

2. LITERATURE AND RESEARCH STRUCTURE

The secondary data through the literature review was collected from 61 academic journals leading to the identification of the scope for future research for independent variables explaining the impact of mobility in supply chain management. The existing literature finds out the driving forces for the impact of mobility on supply chain management, which is affected by factors such as omni-channel retailing, converging technologies, integration of the supply chain, real-time access, mobility devices and customer expectation.[7] The literature review deals with independent variables and sub variables through which the survey questions were formed. The path coefficient is presented along with the literature review to ensure strong statistical validity for the questionnaire. Though the normal practice is to present the path coefficient along with the data analysis section (and it is too early to present it here), it is felt that the reliability of independent variables as well as questionnaire representing sub variables can be given in the literature review itself to indicate the perfect fit with the literature with its quantitative validity.

3. LATEST TECHNOLOGIES ON LOGISTICS

Fig:-2 System architecture diagram

Procurement

In the initial period the procurement process in the organization was done by a separate department on the basis of least price from the supplier. In the next generation with the advent of IT the e-procurement is done where online auctions are conducted and strategic relations are forged with good suppliers by long term contracts and relationships.

Planning

In the initial period before the advent of IT, production and distribution planning was done based on historical data.[8] There was not much linkage with business planning and production changed with varying demand. However with the advent of IT planning approach include collaborative planning, forecasting and replenishment (CPRF). It involves long term commitment to information sharing for collaborative planning purposes like joint business planning(SKUs, brands) and financial planning.(sales, inventory, safety stock, pricing, fill rate)

Web-based collaboration

The web-based collaboration application enables to share and collaborate with supply chain partners on forecasts, replenishment and promotions plans to deliver the highest level of customer service and profitability.

Scheduling

In the initial period the scheduling was done to improve asset utilization and reduce manufacturing costs.[1] However with the advent of IT strong linkage is established between supply chain partners and customers. As such scheduling is done to serve the customer at the right time.

Inventory management

In the initial period every department tried to minimize the inventory by transferring it to the next level of the supply chain.[2] Thus the total inventory cost in the supply chain was high as there was no transparency of the inventory held in the supply chain. However with the advent of IT, techniques such as collaborative replenishment and vendor managed inventory were followed where manufacturer takes the responsibility to replenish the distributor inventory, resulting in inventory control and access to demand information.

Logistics and warehouse management

In the initial period logistics was more manual intensive and there was no visibility of the movement of goods. [3] However due to the advent of IT and technologies like RFID and GPS complete visibility in movement of goods is assured resulting into efficient logistic and warehouse management.

Customer service

In the initial period customer service was only reactive. The complaints or information was difficult to reach the concerned department and was time consuming process. However with the advent of IT, customer service is more proactive as it reaches the customer through internet and takes continuous feedback from them

4. CONCLUSION

"Technology" is vehicle to enhance supply chain competitiveness and performance by enhancing the overall effectiveness and efficiency of logistics system. Hence choosing the right technology for various logistics activities or sub-processes is very crucial to any business to gain competitive advantage in today's competitive market. [5] Example A cycle manufacturer must see how it can integrate the smallest component provider- namely, a brake shoe supplier and also the dealer at the rural center, in order to optimize production run and retain the customer instead of losing to the competitor. Today integration in the supply chain is possible due to available technology leading to efficiency in the supply chain only if the supply chain partners adopt the right strategy.

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