

LOGISTICS IS ALL TECHNOLOGY DRIVEN

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Abstract

The word logistics has its origin from Greek word logistike which means the art of calculating. Logistics not only include activities related to the physical movement of goods but also manages relationship with suppliers and customers. The main objective of the paper is to determine the various technology used in logistics including communication technology, information technology, automatic identification technology. The paper also discuss the impact of the technology on logistics. This paper mainly focus on secondary data for collecting data relating to various technology used in logistics.

Keywords: Logistics, Communication, Information, Automation.

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Introduction

The Council of Logistics Management defines logistics as that part of supply chain process that plans , implements and control the efficient , effective , forward and reverse flow and storage of goods , services and related information between the point of origin to point of consumption in order to meet customer requirement . In the other way logistics means getting the right product , at the right place , in the right time as per request .

The emerging new technologies are creating many opportunities to build strong competitive advantages in different functional area of management including logistics. However ,the success of any organization depending upon selection of the right technology for the specific area availability of proper organization infrastructure . In logistics, information (data), communication and automation technology has substantially increased speed of identification ,data collection , data storing , alteration and transmission with high level of accuracy and reliability .technology plays a major role in success of logistics by focusing on the overall efficiency and effective of logistics system . However due to open up Indian economy, the competitive pressure is so high and the only option to tackle the competition in to go in for technology based operations.

The latest technology being used in logistics

Communication Technology

Automation Identification Technology

Information Technology

Objectives

1. To decide the different technology aids in logistics.
2. To discuss the positive impact of technology on logistics.

I. Communication Technology

The communication plays a vital role in logistics operations. there is various communication technology which are enables to supervisor's customer service leading to competitiveness through the high speed and accuracy in communication.

a. EDI (Electronic Data Interchange)

EDI technology is used for transfer of documents from one computer to another computer . some documents like cheques, invoice , receipts , challan are sent electronically from one company to another .

The benefits of using EDI technology

- Reduction in transaction cost due to paperless operations.
- Reduction in order cycle time and inventory that will help to improve the competitiveness of the customer.
- JIT (Just In Time) manufacturing techniques can be adopted.

b. Automated Guided Vehicle System

The system uses of magnetic or optical guidance system. The magnetic system uses energized wire laid on the warehouse floor for guiding the material handling equipment .In AGVS operator is not required which means its eliminated .

II. Automatic Identification Technology

This term used to describe the direct entry of data or information in the computer system, there is programmable logic controllers without operating a keyboard. These technologies aided bar code, radio frequency identification (RFID) and voice recognitions. The advantages of automation identification are accurate, cost saving, speed and convenience of data storage and processing of information.

a. Bar coding

Bar coding is sequence of parallel line of different thickness with spaces in between. These bars are nothing but the items of information in the code form which can be read with the help of scanner. The data printed in the bar code includes, manufacturer name, country code, product details, date of production and manufacturing date, materials information. Etc. These details are required at user end for stock management.

The bar code offers the following benefits

Reduced human errors.

Reduced paper work.

Ease in identification of inventory items during storage , pickup, retrieval dispatch and inspection.

Impact of bar code technology on operations of logistics

Procurement operations

The parts and components purchase from supplier are given bar codes which contain information on item name, batch name , order no, serial no ,date of manufacturing etc. The information in bar code helps in identifying and tracking the components. The information decoded by the scanner is immediately logged the central computer which helps the real time update of inventory records.

Processing

During the order processing the bar code will help in keeping identification of items based on their date of entry into warehouse or store . This will ease material storage, dispatch and retrieval in FIFO (First In First Out) inventory management system.

Production Operation

During the production process the identification of in-process and finished items become easier due to bar coding.

Distribution operation

During distribution, bar code helps in identifying and tracking the transit of finished goods to the customer.

b. Radio Frequency Identification (RFID)

RFID is an automatic identification and data capture (AIDC) technology. RFID first appeared in tracking and access the application during 1980. RFID wirelessly exchange information between a tagged objectives and reader.

RFID has significant impact on logistics

- Improve the tracking , logistics and planning operations of Indian railways , state public transport service.
- Improve the ability of manufacturing to better manage the inventory level
- Implement automatic toll collection on large network highway.

III. Information Technology

IT consist of hardware and software that capture, evaluate and provide information wherever it is needed.

The information technology used in logistics

Enterprise Resources Planning (ERP)

ERP is integrated software, encompassing all the business operations and bring about significant change in the way people work. ERP is a business solution that addresses to certain identified business issues. ERP is very expensive which require sufficient amount of planning. In India major ERP in use SAP, Oracle which has been developed by foreign companies to suit the business environment obtainable in those countries.

Impact of Information technology on functions of logistics

- Procurement
- Planning
- Scheduling
- Inventory management
- Customer service

Literature Review

Technology adoption in logistics -Adelkunle Simon and Isokpan Ruth

Technology adoption in logistics has significantly transformed the way the industry operates (Mathauer and Hofmann, 2019). The use of new technology has increase the efficiency, reduced costs, and improve customer service. Overall technology adoption in logistics has the potential to revolutionize the industry and create new opportunities to business to optimize their operations and improve better customer services.

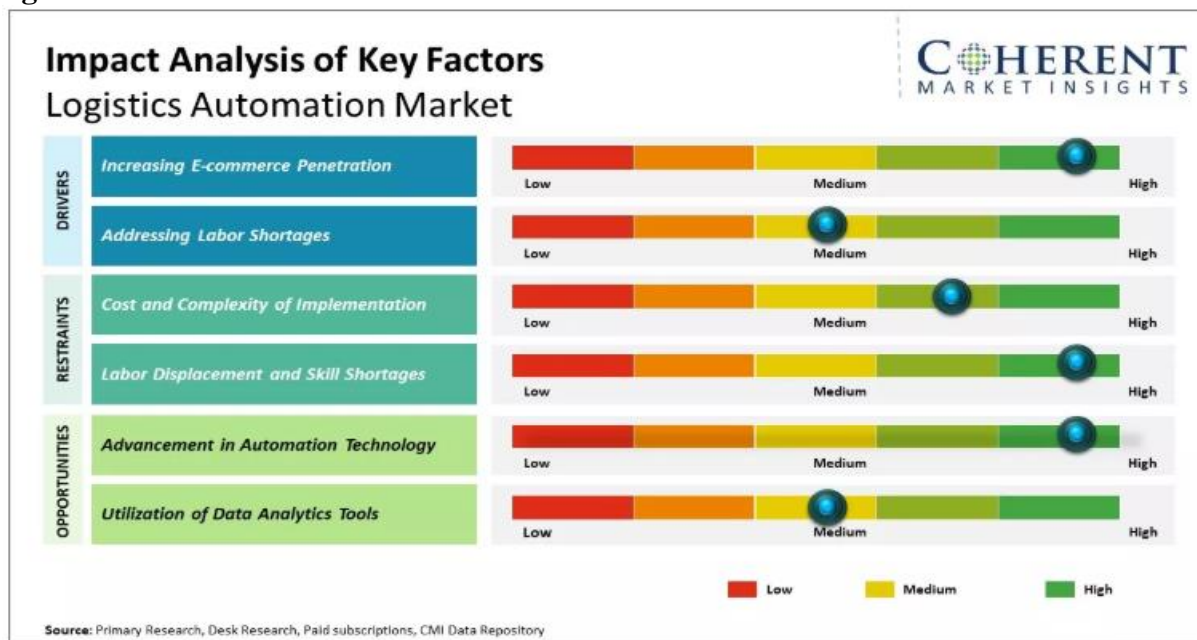
Adoption and impact of information and communication technology ICT on logistics industry – Hemant Kumar S.

Many organization are finding new ways to overcome the competition, they are constantly under pressure to create and deliver value to their customers. Adding to this is the ever growing technology trend especially information and communication technology is usually being applied in almost all the organization.

Research Methodology

This study utilizes secondary data from books and published articles to examine the relationship between economic growth and environmental sustainability. The data was collected through a literature review , using keywords such as logistics , communication technology ,information technology and automatic identification technology. While the use of secondary data provides convenient and cost effective ways to conduct research.

Logistics Automation Market



Source CMI Data Repository

The logistics automation market significant is witnessing significant trend of automation and advanced technology. Industry players are continuously focusing on incorporating new technological advancement such as ERP, RFID, Bar code technology, autonomous vehicles, and analysis solution to enhance efficiency and optimize logistics operations .Various companies are aided automation in logistics operations to reduced costs , improve productivity and they should be competitive in the market. Self-driving trucks, automated sortation system and delivery drone are some emerging areas that are expected to revolution logistics activities in coming years.

Conclusion

Technology is vehicle to focus on logistics competitiveness and performance by enhancing overall effectiveness and efficiency of logistics operations. Therefore, choosing a right technology for various logistics activities or process is very much important to any business to gain competitive advantages in today's competitive market.

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