"Logistics' and Supply Chain Technologies: As Advanced Corporate Strategy In I.4.0

Dr.Sandeep Tare
Assoc.Professor,Director-MER,SKC LNCT Gr,Indore,
Chairman- Indian Institute of Materials Management Indore.

Abstract: Logistics Management refers to the Integrated Process of Planning, Designing, Co-ordinating,monitoring,Executing, Optimizing and Managing of all logistics activities like Order Processing, Acquiring Resources &Services, Inventory Management, Materials Planning, Warehousing & Storing, Material Handling, Network Design, Inbound & Outbound Routing & Transportation, Fleet Management, Production & Operations Planning, Packaging and other Associated Functions, Activities &Documentations to provide Timely, Cost-Effectively and Efficiently Customer Services from the Point of Origin to the Point of Consumption by Adoption & Integration of Relevant Activities, Systems, Technologies and Communications in order to meet Customers' Requirements.

As internet connectivity improves, the volume of commercial activities conducted through Digital platform is also increasing ,so as Supply chain and logistics activities is also changing and evolving into something new every minute ,every hour ,every day though invention and development various next generation of emerging technologies, which enable smooth functioning of logistics' and supply chain activities across the consumer bases .Today's emerging technologies are more concerned with Speed,Accuracy,Safety(SAS) Along with Variety,Volume,Velocity (V3) ,since geographic boundaries are shrinking but consumer canvases are expanding like anything with minimal patience and maximum spending capacity. In and as Advanced Corporate Strategies (ACS), corporate now think to reinvent their overall strategies which gives much above than competitive advantage means corporate advantage T he latest trends in supply chain and logistics focus on smart, tech-driven management to reduce operating expenses and increase efficiency. In the Indian context, the new Logistics Policy released, is a giant step towards reducing logistics cost and bringing in productivity and efficiency in our logistics and supply chain system. The supply chain process is constantly evolving and hence undergoing constant changes across countries. Logistics and supply chain is vital for any business in terms of supply of quality raw materials, efficient manufacturing process, as well as tracking, transport, and storage of the finished goods. Companies implementing well-designed supply chain practices can meet consumer needs in a more expeditious and timely manner. This strengthens customer relationships and loyalty, translating into revenue boost and acquisition of new customers through positive word of mouth. Supply chain digitization : Digitization is the process of using the latest tech solutions together with other physical and digital assets to redesign logistics practices. This way, they can adjust better to the fastpaced, highly competitive, omni-channel business environment. Digitization improves the speed, dynamics, and resiliency of the supply chain operations, leading to greater customer responsiveness and ultimately higher revenue. By embracing digitalization, companies can experience real value, increased revenue, and market valuation. Digital supply chains will continue to be essential elements of numerous trends on this list, including visibility, resilience, and agility. Digitized networks use technology to augment workflow and data

collection — meaning that this trend has ramifications on both talent and data infrastructures. Successfully digitizing supply chains requires large-scale sensor implementation via the internet of things; shared internal and external interfaces, such as cloudbased networks; and process automation and verification. The adoption of tools such as blockchain, artificial intelligence and machine learning will meaningfully improve decision-making. To reap the full benefits of digitalization, companies must fundamentally redesign their supply chain strategy. It's not enough to just embellish it with digital technology. In the field of digitization, the Internet of Things (IoT) holds a prominent place as a highly transformative technological solution in the logistics sphere. IoT refers to a system of interrelated computing devices allowingtransfer of data over networks without human input. It helps companies monitor inventory, manage warehouse stock, optimize fleet routes, and reduce dead mileage

INTORDUCTION

Corporate advantage generated from corporate strategy is a part of overall profitable performance of organization require new technologies and applications will changes the faces of industry of, Manufacturing, Marketing, CRM , Supply Chain (Including Stores, Material , Procurement ,Inventory activities),Logistics activities on International & Domestic level are,it helps in a manner of efficient combination of 1) Superior firm resources,2) Dominant market positions in profitable industries.

The Internet of Things (IoT),Cloud Computing,. Drones, Driverless Vehicles, Big Data and Predictive Maintenance Technology, Augmented Reality (AR),Autonomous Robots, Green Supply Chain, Google Glass & Voice Technology, AI.

Industry 4.0.
"The question arises with industry 4.0 of whether it is achievable or not or only sustainable with competitive advantage or need something else like advanced corporate advantage.."-Industry 4.0, is a broad vision of tomorrow's manufacturing ,Supply chain , Logistics and CRM',this fit between emerging technologies , firm resources allows organization to get corporate advantage.

- *In I 4.0 , products finding its own way to get processed , through production process on customized basis too.*

- *I 4.0 ,enables machines and product to communicate with each other , cooperatively driving production for ultimate customer satisfaction.*

- *I 4.0 ,connect products that communicate with end users.*

- *I 4.0 , explore new digital business models , collect data to offer additional services as a service products ,which will be helpful to innovate new customized ,customer centric product(s).*

- *Most important in I 4.0 , that products on the assembly line speaks to shop floor machinery , how they are to be processed, customized, enhance scalability as well as sales volumes in cost effective manner.*

- *Effective fleet and cargo management for smooth and seam less delivery to customers.*

The Internet of Things (IoT*)- is a revolutionary manufacturing technology & network of physical & electronic objects ,embedded with sensors, software, within the existing network connectivity, ,enabling them to collect, exchange, and act on data, usually without human intervention—IoT , along with Cloud –Based GPS, make possible to keep track individual item its conditions and customer information pertaining to and for new innovation . Goods no longer be lost or misplaced in transit ,since each product will transmit its location for exact delivery.IoT, enables with RFID Chips , that attached with individual items to talk & transmit data pertaining to Identification , Location , Temperature ,Pressure, Snag , Humidity , Traffic conditions &,Damaged goods to central office in real time which enables in absolute CRM .IoT also benefits existing Supply Chain processes, Spanning assets utilization ,Warehouse space optimization   Production planning formulation competitive marketing strategies.IoT , provide opportunity for Supply Chain groups to co-develop new information based solutions for individual customers or markets.This technology is beneficial for 3PL & 4 PL to reap the rewards of highly satisfied customers thru fastest delivery & customized requirements.

CLOUD COMPUTING: Is the facility available of network of internet-connected remote servers to store, manage & process data, which enable to scale up ,CRM,SCM activities in cost effective manner.

-Highly effective for procurement & inventory people as well as shipping & logistic companies , reduces the dependence on local data base .Providing agile , real time communications across the different levels of value chain, which helps organization to collaborate quickly & respond to customer problem effectively.Since Cloud Computing is more scalable & dynamic ,allow companies to counter the problems of continuous shortening of materials , product, PLC& service life cycle , increases competitive advantage.Reflects positivelyin financial results, ROI, Customer base of the organizations, be a part of corporate strategy.

DRONES : An unmanned aircraft that can be either controlled remotely or left to fly autonomously through software controlled flight plans, embedded in their system.

-   Small, light & inexpensive to operate , can be used by 3 PL & Material people to deliver small packages with high speed & precession ,ensure speedy & safe delivery even at remote places to delight the customer(s), specially used by healthcare,food industry to cater speedily to needy customer bases.

-   **DRIVERLESS VEHICLE** : *Still in trial phase ,but having tremendous potential as tools for logistics & supply chain management.*

-Absolute Zero human intervention, no driver error ,higher efficiency through speeding up traffic flow ,allowing freight trucks to travel 24/7 without requiring driver rest time. - Highly beneficial for 3 PL and 4 PL ,substantially reduces their overheads by using driverless vehicle for delivery , which smoothen logistics activities across the chain .

BIG DATA &PREDICTIVE ANALYTICS: *Allow industries to collect, process &   measure big data from all to increase efficiency & productivity in real time.*

-   Predictive analyticsis the most important point in CRM,SCM with this technology , factories/marketer can connect with all value chain partners through internet & web pages that double their dashboards for controlling the processes along with after sales services .Predictive analytics is used in CRM,SCM to process accurate ,reliable and bring reduction of cost across the value chain.- Big Data along with Advanced Analytics ,which is more specific provide, an end-all solution to SCM & Logistics like –* Provide supplier network with grater data accuracypertaining to customer and vice-versa.Near to accurate demand forecasting and sensing .Integrated business planning &VMI..

AUGMENTED REALITY (AR) *: Provides a direct or indirect view of the real world of supply chain , logistics' , business environment ,augmented by computer- generated sensory inputs.*

- AR is People- Performance technology ,provides wearable devices to gain critical information about each customer, parcel ,freight , weight , content, destination, loading ,handling & delivery process.AR improving the handling of goods and speed of delivery to reduce the overall cost simultaneously improves customer satisfaction level.

AUTONOMOUS ROBOTS *:More autonomous ,flexible & cooperative interact with one another & work safely side by side.*

- Cost less with greater range of capabilities' than those used in manufacturing supply chain today. This robots with computer screen faces ,can perform multiple task ,including materials handling ,loading , unloading , product inspection, light assembly ,sorting & packaging ,ultimately leads to customer satisfaction , since it reduces human errors during handling and inspection phase.

GOOGLE GLASS & VOICE TECHNOLOGY *: This technology contains the fundamental component of any Computer or Smartphone .*

- More beneficial to Material handling &Logistic people, it allows to access exact distance, location of item(s) they are away from in the warehouse need to be pulled out, helps marketer for devising real time information on needs -demand pattern ,which enables high servable rate.In digital market place this would help to develop core competencies which ultimately convert into competitive advantage.

GREEN SUPPLY CHAIN*: It integrate environment thinking in to supply chain management including product design ,material sourcing & selection ,manufacturing process, delivery of the final product to end user .*

- - It reduces waste, reduces air & water emission ,reduces fuel consumption ,reduces noise & traffic congestion.- Improve health ,safety & security.- Increase revenue by reducing cost , increase asset utilization ,enhanced consumer value.

    AI (Artificial Intelligence) : Concurrently and most suitable technology ,which effectively smoothing the strategic business functions improves decision making skills .

HOW TECHNOLOGIES ARE CHANGING SCM/CRM /LOGISTICS INDUSTRY :--

- *Uber/Ola is just a software too, don't own any cars ,but are now biggest taxi company in the world.*

- *In 2030 it confirms that computers will become more intelligent than humans (AI effect).*

- *FB , has pattern of recognition software , that can recognize face better than humans more customer centric google adds is been propped.*

- *Autonomous cars already in the testing phase , we don't need to own a car anymore.*

- *EV cars & freight trucks will become mainstream about 2025 reduces over all travelling and transportation cost .*

- *Can control international logistics activities by sitting at one place ,ensuring seamless delivery in coordination with shipping lines.*

- *Flipkart/Amazon has done absorbing and internalizing AI in its CRM/SCM, which manages customer preference ,distribution cost and logistic operations effectively.*

- *Amazon /Flipkart are only making huge profits in logistics' of product and services movement and ware housing then in selling the products with the help of digital technologies.*

GLOBAL POSITIVE IMPACT:

As technology have been simplifying SCM ,Logistics process, control over inventory& reduces the cost.

US Logistic business ,which deliver 52 million tons of freight (worth about $52 bn)daily ,employ roughly 7mn people operates mostly behind the scene .Also looking to fill 1.8 million more jobs by 2025.

- *Amazon's annual savings for a logistics company is projected to be at least $3 bn in the pessimistic forecast and on around $10 bn in mid range forecast.*

- *$1 bn investment by GM in self- driving car by software up to 2023.*

- *IDC report says that , revenues for big data & business analytics would be more than $ 205bn in 2023.*

- *Coca Cola save $ 2mn in capital cost,10% improvement in workers productivity & Inbound- out bound order accuracy by 99.8%.*

Overview of Indian SCM & Logistics Sector:

Infra investment & GST implementation helps CRM/SCM &Logistic industry to grow by 11.5% CAGR, accounting INR 14,19,000 Cr.

*The impact of this positively reflects on each sub -sector like, Road Freight, Rail Freight, Warehousing, Waterways, Air Freight ,Packaging ,Courier Services, is likely to result in 3 million jobs up to 2019-2023.

*Public investment of INR 8 Lac .Cr. Is the primary factor driving job growth for more customer satisfaction and uses even in post pandemic .

* 50K jobs every year in IT – CRM /SCM Coupled industry.

*India's ranking on the World Logistic Performance Index (WLPI), has risen to 28 from 54 in 2023.

Conclusion:

Advanced corporate strategies enables customization is the order of the day and to sustain in today's CRM/ logistic and supply chain management. Now collaboration and coordination will be the need of an hour & become easy to achieving the benefits of SCM.Customer centricity across the globe make International logistics and SCM more critical along with the need of maintaining or optimum increase in profit margins,require corporates to rapidly adopt the emerging technologies to stay ahead in competition by integrating new technologies with corporate strategic business plan, can greatly enhance the supply chain through cutting costs and improving customer satisfaction as well as market share. As mentioned above, supply chain logistics is constantly changing and the current trends will continue to make supply chain system a very competitive, professional, and mean process, thus if implemented carefully, will prove to be an optimiser of costs, increase all round efficiency and boost productivity all around.

Better supply, demand ,planning, customer centric strategy formulation, with better optimization for manufacturing ,distribution and inventory management , consumer satisfaction ,better availability of products , understanding of supply chain risks and contingency planning .Reduction in delays ,quality and bring in an increased change in CRM/SCM must be the next Competitive-Corporate strategy in winning market @ I.4.0., which finally enables sustainable corporate advantage.

Sources:
1.The Financial Express,
2. WWW.BSStandard.com
3.Quality Digest
4.MMR,IFPSM ,Dec-2021,Vol-14,Issue 2,ISSN 2320-0758
5.MMR,IFPSM ,Sept-2021,Vol-9,Issue 2.ISSN 2320-0758
6. MMR,IFPSM ,April-2019,Vol-15,Issue 6.ISSN 2320-0758
7.www.blockchain.com
8. www.emerginging technologies.com

9. MMR,IFPSM,Aug-2019, Vol-15,Issue 10, ISSN 2320-0758

10. MMR,IFPSM,October-2019, Vol-15,Issue 12, ISSN 2320-0758

11. MMR,IFPSM,October -2022,Vol-18 Issue,15, ISSN 2320-0758

12. The ETs.

13. The ACS , IIM B,2021.