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RESEARCH ARTICLE

IMPACT OF GLOBALIZATION ON LOGISTICS CORPORATIONS

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ABSTRACT

With the onset of technology, the world is shrinking at a phenomenal pace. What used to be a supply chain nightmare, now with interconnected solutions has become a globalized model of world integration in the form of economy, culture and infrastructure. This review article is a detailed understanding of how informational, communicational and transnational investment has impacted the local, regional and global economies.

Key Words:

Supply Chain, Logistics, Management, Operations, Globalization, Impact, Corporation, Enterprise.

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INTRODUCTION

Before we start exploring the connection between Globalisation and Logistics, we should understand the concept of Globalisation. Broadly we can say that it is democratisation and integration of world's infrastructure, culture and economy. All this is done by spreading of informational, communicational and transnational investment technologies and their impact on national, regional and local economies.

With the onset of 20th century, we saw great improvements in the areas of communication and transportation. This resulted in international diversification aligned with innovation and performance. In other words, we can also say growth of international trade is a vital part of globalization.

LITERATURE REVIEW

Driving forces of globalization and their impact on global Logistics corporations: The rise of global logistics can be mainly attributed to three reasons. The first being mass expansion of motorway networks which facilitated distribution, transport and warehousing. All these factors resulted in mass consuming societies.

Another driving factor is global policies which encouraged cross border movement of goods and services. Bilateral agreements helped to regulate movements and mutual sharing of infrastructure. The third reason was innovations seen in packing industry. All this was driven by continuously changing customer demands, marketing environment which required optimized logistical processes. Global logistics has been driving the process of globalization by being a key enabler of same but on the other hand we can see that globalization has also made systems more complex which has in some cases lead to an increase in the activity cost associated with information and material management. Logistics play an important role in a company's effort to stay competitive. The ease in movement of cargo supports export functions of the corporations. The period post 1990 was a decade of numerous changes. This was the time when global logistics was introduced and widely discussed in board room meetings across the world. The continuous changes in global economy was driven by this change. Customers shifted the power to be the end of supply chain functions and new global policies related to deregulation of various industries forced the importance of logistics as a strategic weapon for getting the ahead in the competitive race. The evolution in technology which started with physical distribution management in early 1960's and 70's eventually evolved into AI empowered movement of goods and services. Logistics helped companies to gain better efficient distribution and procurement. This made outsourcing a much more viable and convenient option for the corporations.

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As the number of players in this industry increased, competition helped to decrease the cost of inventories. Open borders and MoU's signed between nations helped these corporations to sustain longer logistical channels. When customers started to give response, the time span required to complete a logistics operation decreased by almost 40%.

Let's discuss the driving forces in detail

- **Globalization:** Something which started post World War 2 and is still evolving. This has been dedicated towards customer satisfaction since the last two decades.
- **Technology:** It helped to facilitate the changes and the processes became complex, but technology ensured their completion. With customers having access to their data 24x7, customers were able to live track their cargo movements and forecast their impact on live business requirements.
- **Consolidation and Power Shift:** Large corporations were dependent on the quality of their supply chains to get their product and services to their customers. They show their influence through the logistics chain to show their brand's advantage in product distribution.
- **Customer Empowerment:** The inputs received while understanding consumer behaviour had a direct and indirect impact on logistic operations. As the customer demands have increased, the quality checks on the supply chain operations has also been compensated. Customers are now able to connect with suppliers directly and directly get a chance to compare quality, prices offered and service experience. Suppliers on the other hand to lure more customers to their services have started to provide customized services and products which are responsive and flexible as per customer requirements.
- **Government Regulations:** The global deregulations done globally during the period of 1980s and 1990s is an example which helped to ease logistic operations., the deregulations on transportation, financial and communication sector done globally has helped corporations to easily do cross border cargo movements.

Ecosystem of Global Logistics Corporations and the various challenges faced due to the cross-border market environment

There are various players in the Global Supply Chain Ecosystem. Managing global logistics operation is a complicated work. Normally each operation consists of hundreds of steps and connections. It starts from getting the materials, transporting them and ensuring they reach the final retailers. There are steps which form the basis of logistics. The retailers check for the demand associated with a product, based on the collected data and customer interests they notify the concerned company providing the product. The operations and sales department of the company forecast the expected demand and determine the needs and necessities. Then a final order is sent to the manufacturers. Normally multiple manufacturers receive the orders and join the raw materials in parts required to make the final products. The movement of these goods is done via intermodal shipping containers. The intermodal shipping company moves the containers using various mediums such as trucks, ships and railways.

This company further receives the goods at the terminal and delivers the goods at the retailer where the order was placed first-hand.

- **Manufacturer:** refers to an organization which proves the raw materials for parts, finished goods and other goods. In logistics the flow of goods from manufacturers is downstream. Manufacturer gives the goods to a logistics partner which delivers them to the organization.
- **Intermodal Marketing Company:** It is a special type of logistics provider which specialises in movement of intermodal containers. The movement of these containers is between railways, trucks and ships. The main role of IMC managing the supply chain of intermodal containers.
- **Terminal:** These are the places where the sent cargo is shifted from the container to trucks or rail for onward movement to warehouses. Terminals operate as a critical point for handover of cargo for downstream and upstream movement.
- **Non-Vessel Operating Common Carrier / Freight Forwarder:** This carrier manages cargo and organizes its movement from one location to another. These carriers normally contract with LSP's to move cargo on behalf of their clients. Their role is to administer transfer movement of goods. They arrange and manage necessary documentation and shipping notices. Further all low-level functions are managed by them. Globally NVOCCs are known as freight forwarders.
- **Transportation Provider:** It is a service provider which is responsible for movement of goods from one place to another. Normally the provider has leased or owns the entire logistics infrastructure required for handling and movement of goods. This provider normally receives a contract from an NVOCC or LSP for movement of goods. This provider includes various types, some of them are: -
 - Ocean transportation in which cargo movement is done by vessels which carry shipping containers.
 - Railway transportation helps to transport cargo by using intermodal containers placed on specialized carriages and locomotives.
 - Road / truck transportation in which special custom containers are moved fall under this category.
 - Air transportation is the costliest form of transportation as it requires custom logistics airplane.

Transportation of cargo is always done by one of these mediums whenever goods are required to be moved from point A to point B.

Logistics Service Provider aka LSP: It is a provider of variety of functions which include receiving, sending, transportation, storage and management of goods as they all go through a supply chain. Different LSP's are involved in various points of the supply chain as they normally receive goods from an upstream source and send them to a downstream one. The provider maybe involved in storing, warehousing of goods, container movement, cross docking and distribution.

Equipment Providers: These providers refer to intermodal container providers, shipping container providers, trailer providers and truck providers. The provider leases or owns the assets and physical infrastructure required for transportation of the goods. There are various examples which can fall under this category, some of them are: -

- Intermodal container providers which lease or own the containers for secure movement of goods.
- Trailer or truck providers who lease or own them for road transport.
- Railway providers who have leased or owned the carriages.
- Other providers such as vessel ship provider, container ship provider.

Equipment providers move cargo and logistics infrastructure to transport providers, NVOCCs, IMCs and logistics companies.

Beneficial Cargo Owner / Supplier: They are also known as retailers, receivers or importers of goods. They normally take the ownership of the goods on their arrival. BCOs have their own logistics functions which transport goods and take receipts. They do not rely on a freight forwarder or LSP. BCOs are large corporations which have a huge capital to sustain internal logistics functions. The most common examples of BCOs are: -

- In retail: Walmart and Amazon
- In FMCG: HUL and Nestle
- In technology companies: Apple and Microsoft
- In automotive companies: Tesla and Toyota.

All these companies receive the goods and after processing further sell them to their end customers.

Distribution Centre and Warehouse: These are the places which store the raw materials, ingredients, parts or finished goods. Their responsibility is to store and secure the goods in an appropriate environment to prevent their damage. In many scenarios we have also seen that warehouses also operate as a distribution centre in which they are responsible for arranging the downstream supply of goods towards other logistics organizations or the end customers. We can also call distribution centres and warehouses as intermediaries in the movement of goods and cargo from one place to another. They are responsible to hold the products and goods on behalf of the suppliers and are also required to distribute them to downstream organizations from where demand is present.

Supply chain functions, tools and techniques used in developing logistics strategy, building scenarios and modelling for management of goods: Supply chain management forms a major part of online businesses these days. It refers to the management of flow of goods and services across various stages. It might start from manufacturer to the retailers or to the customer directly. At all levels, proper logistics management is required to make sure the movement of goods and services is as per requirement. This management involves a lot of processes and components. Inventory is managed, warehousing is done, raw materials are stored etc. It refers to management, planning and designing of entire logistics functions from production to the point of sale.

Management Functions involved in Supply Chain: Mainly the management consists of four major components and key element components, such as: -

- **Integration:** It is the major part with objective being coordinating communication to produce timely and

effective results. This is done by innovating new technological processes or by innovating a new software.

- **Operations:** This involves daily management of day to day operations in business. It can involve functions such as keeping an eye on the levels of inventory or anticipating the upcoming market approaches.
- **Purchasing:** It involves decision making related to the purchasing and management. The purchases involve buying of raw materials, sourcing materials and so on.
- **Distribution:** This deals with the management of goods and their movement across retailers, wholesalers and eventually customers.
- In addition to these main four functions, there are smaller functions as well such as alignment of distribution flows, integrating delivery functions, designing complex systems and coordinating resources.
- All these points put together form the functions of supply chain management.

Techniques used: Effective management of logistics can be put at the core of supply chain management excellence. This management sits at the intersection of supply and demand. Based on the previous decade's data we can see that managing inventory levels, outsourced supply chains and SKU proliferation have been putting an upward pressure on inventory levels. This has helped the companies to make solid progress on the basics and has even helped in the improvement of bottom-line. Corporations have been facing huge issues due to complexities in the supply chain networks and these are due to several network pressures.

- Managing increased global scope and reach.
- Network changes emerging from divestitures, mergers and acquisitions.
- Loss of visibility and control due to virtualization.
- Problems created due to multi-channel go to market strategies.
- The shorter product lifecycles seen in all sectors.

Due to these reasons we have a serious need to use optimized techniques and scenario building for effective management of goods.

Five Strategies for Improving Management Across Complex Networks are

- **Getting more granular with safety stock management:** Companies used simplistic means to determine safety stock levels. Having comprehensive reviews of products and supply chain management can be a good practice to follow in this case. By using technology, safety stock management can be forecasted and managed.
- **Adding inventory planning to S&OP Process:** While planning sales and operations process, we can add inventory planning to the mix. This can help us to bridge the gap and help to derive the need for making better policy decisions. Strong levels on technology support can help companies to integrate this process and engage executives in better inventory planning process.
- **Regular use of supply chain network optimization tools for tactical planning:** This involves redesigning of entire supply chain networks. Organizations tend to follow this practice every 3-5 years. This process involves checking which products are doing well and

how are they getting sourced currently. There is a check on current optimal trade-off between transportation and inventory and better ways are checked on how can the goods move better across the existing network. This process can help companies to save hundreds of millions of dollars in logistics savings just by investing in technology and proper network planning.

- **Using distributed order management tools to manage multi-channel complexity and reduce inventories:** This involves capturing orders from multiple sources and identifying efficient ways to fulfil these orders. This helps the company to present a consistent face and process the customer requests on all available channels. DOM is known to improve inventory levels in multiple channel logistics management. Software used for this can vary considerably in focus and capabilities. But in the end the implementation should be in line with the company's future direction.
- **Stepping up to inventory management software:** Inventory optimization software's can be a huge asset for organizations. This software tends to look at the problems holistically and considers the optimal inventory levels from finished goods to raw materials, optimizing entire logistics network in the process. The solutions are based on probabilistic modelling which means that while generating the solution the software uses history and other factors to consider the different lead times and demand patterns to provide us a better plan. The only drawback of this system is that companies require skilled guides to help them reach the destination effectively and smoothly.

There are various technology trends which are driving the supply chain scenarios globally

- **Artificial Intelligence:** IT has a great potential to revolutionize supply chain processes. It can enhance, automate, make decisions, reinvent business models and ecosystems. It can help business to find patterns and work on solutions based on forecasting-based predictions. AI can help companies to build a better network design and capacity plan design.
- **Advanced Analytics:** It can enable companies to take full advantage of all future opportunities and can mitigate future events which might be harmful for the business. It has roles in areas such as supply chain planning, logistics, transportation and sourcing. Human dependencies can be lifted and can be replaced with prescriptive and predictive analysis.
- **Internet of Things:** Selectively IOT can be a part of end to end logistics processes. The interconnection of everything related to supply chain can help in higher uptime, better asset utilization, better customer experience and better response to customer demands.
- **Intelligent things:** The using of mobile robots and vehicles fall under the category of intelligent things. These are deployed in warehouses. They are known to make a huge business impact across product centric, service centric and asset centric industries. This enables organizations to replace and redeploy humans in better roles which do are more value adding while creating transformational business benefits.
- **Conversational systems:** The most common systems which fall under this category are virtual personal assistants and chatbots. These systems are known to

handle discovery questions and offer solutions to customers without at direct customer involvement. These systems offer solutions without any agent involvement, handle payments and ensure delivery with quality customer service.

- **Robotic process automation:** It allows supply chain leaders to cut costs, eliminate errors, speed up processes and link various application. This can convert manual data into automatic systems which are optimized.
- **Immersive technologies:** The technologies like virtual reality and augmented reality allow logistics corporations to provide their employees and customers with digital customer experiences. The use of these technologies can enhance repair and maintained in the entire supply chain operations by providing product visualization, store layout and planning.
- **Blockchain:** Decentralized supply chain functions such as traceability, authentication and smart contracts are candidates for blockchain. It can help businesses to track movement of goods from their source to end stores by developing unique id's which can include the attributes of the product which can be used to identify it.

Strategies which can be implemented for better Supply Chain Management Globally: Adopting a demand driven planning and business operating model which can be based on real time demand shaping and demand insights. This would involve prediction and contingency planning tools. Companies would be able to adjust their promotion and pricing strategies based on this information. By knowing where your inventory is, companies can provide end to end visibility to the sellers and buyers.

- Building an adaptive and agile supply chain network which would involve rapid planning and integrated solution. Companies can deploy dynamic planning capabilities and fine tune their operations to ensure responsive agility to meet the challenging demand.
- Optimized product designs and product management for supply and sustained profitable innovation. Innovation in process can play a crucial role in being one step ahead in competition. All network designs must be optimized for all processes involved in supply chain. All costs involved in the processes are required to be captured and analyses to maintain balance across businesses.
- Aligning supply chain with business goals. Now this can be done by integrating sales and operations together with corporate business planning. The result of this would be end-to-end process integration which would enable companies to achieve the right balance of supply and demand.
- Embedding sustainability into supply chain operations. Having sustainability as a core strategic component can help. Real time visibility can help companies to analyse and efficiently use the available resources. Businesses can keep up their momentum by ensuring continuous quality checks and auditing.
- Ensuring a reliable and predictable supply. This will help stakeholders to keep their customers happy. By working continuous improvement and excellence in operational strategies can lay the foundation for successful end to end supply chain operations.

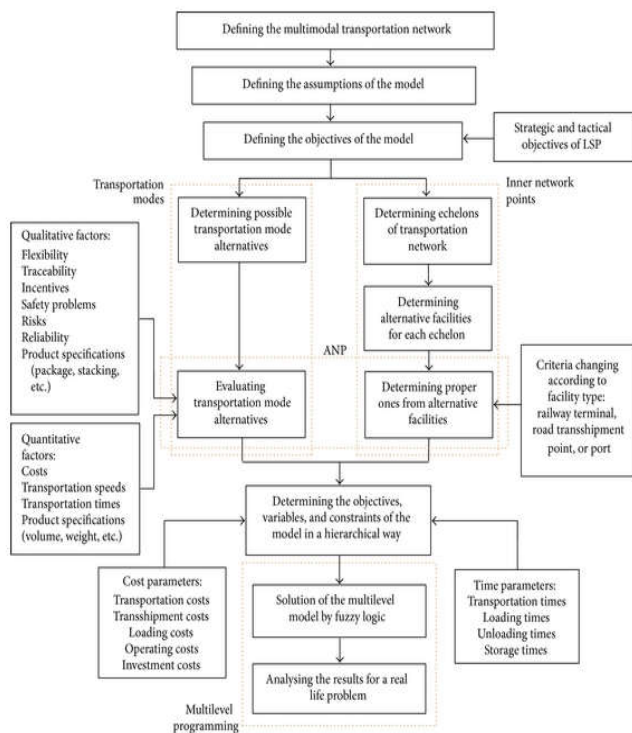
Thus, if we use the right processes, practices and tools at the right place and at the right time we can increase the business profitability. The key lies in effective implementation of same.

Operations and Multi-Modal Distribution Strategies Employed and Challenges faced in Domestic and International Operations

To be considered efficient, a transport system is required to meet various demands. For planning a multimodal transport, we need to factor in various scales and objectives.

- Traffic trends and mitigation strategies for the scouted route.
- Condition of local highways
- Availability of terminals
- Number of terminals which support intermodal connectivity
- Area specific transport plans
- Availability of ports

The following flow chart explains how the problem of selecting a multimodal transport is analysed.

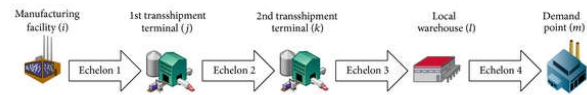


In a logistics corporation, the most important component is continuous flow of cargo. Multi-modal solutions ensure the uninterrupted movement based on the cargo load. Truckload or less than truck load shipment, in all cases multi-modal movement ensures the delivery of cargo. The advantages of multi-modal logistics are:

- Reduced overall logistics cost
- Increased efficiency by employing technology
- Improving visibility to entire supply chain network
- Expanding entire strategic toolkit and logistics expertise

The reason is that logistics operation directly impacts the flow of business. So proper planning of production and inventory is required to ensure best controlled approach.

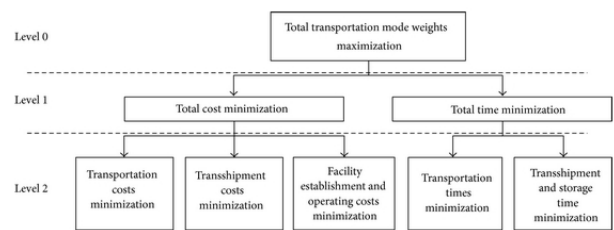
The diagram below explains the network design of a transportation network



One fact which plays a major role in selecting the multi-modal transportation is the cost involved. One point to consider here is that airway transport is not convenient for movement of good as its way costly as compared to others. So multi-modal transportation combination is normally a combination of: -

- Road
- Road-Rail
- Road-Sea
- Road-Rail-Sea

For a multi-modal transport design plan, there are various objectives which are required to be met. The structure of the objectives can be seen below.



Challenges of multimodal transport system

- Lack of infrastructure facilities
- Poor coordination among the agencies
- Huge dependency on paper documentation, fax and emails during official exchange of information between private and government agencies
- Lack of end to end tracking of cargo and logistics network
- Lack of efficient and reliable road network & infrastructure
- Customs and trade barriers

Challenges faced in global freight transport networks

- Customers preference towards sustainable and smart transport solutions: These days more customers are inclined towards using smart and sustainable transport solutions as they believe them to be eco-friendlier.
- Multimodal freight transport is gaining ground over traditional road transport: The reason behind this being a shift of national government shifting towards faster development of road and rail infrastructure. This system is more stable as compared to traditional old system.
- Increase in demand received from automotive and FMCG: Both of industries wish to take advance from the faster transit time and infrastructure developments.
- Transport companies struggle to provide reliable transport services: There is a huge flexibility issue in the transport network. The infrastructure doesn't correspond to the real time demand.
- Consolidated shipments due to smaller volumes: More customers prefer to book smaller volumes with shorter notice.

- Higher expectations on service levels and integrated systems: Transport companies are now making large investments in IT based solutions so that they can get real time information access across the entire supply chain network.

Conclusion

To sum it up, in multimodal transport system the sustainability trend is very apparent. If we see the current trend, then in future larger volumes would be carried by intermodal freight transport. Challenges would remain but flexibility in supply chain operations would help the system to become better and more efficient.

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