

# A Study on Elastic Logistics in Supply Chain Management

C. Sengottuvelu\*, Md. Wahidul Habib\*\*, P.Dhivya\*\*\*

**Abstract :** *This research paper highlights the emerging developments in the logistics of supply chain management. In this study, the emerging logistics trends were highlighted. Authors have identified 15 logistics trends in the coming years. Elastic logistics was focused mainly considering current pandemic situations. Secondary data and published research articles were reviewed and used. Elastic logistics is all about by building the flexibility to expand and shrink according to the demands of the market in the supply chain during a given time frame. Further, in this study, the purchasing and supply chain management emerging strategies, thrust areas and , logistics & supply chain management linkages, emerging logistics trends, role of elasticity in warehouse operations, and benefits of elastic logistics in businesses. Adoption of elastic logistics philosophies is also discussion. In this context, elastic logistics concept adopted by a company in India also discussed. The case study is about Elastic Run Startup Company's success story. This paper is an outcome of qualitative study. It is concluded that further empirical research should be conducted.*

**Keywords:** *Elastic logistics, logistics trends, supply chain management, warehousing,*

## Introduction

Logistics has been the backbone of economic growth across the world since many years. Globally, logistics spend on Gross Domestic Product (GDP) workout to 10 percent (Approximately). India's spend in logistics cost comes about 13 percent of GDP.

For other countries like US it is 8.5 percent, Japan it is 8.7 percent and Korea it is 16, 5 percent (Janat Shah, 2009). India's larger spend is due to in efficiencies arising out of lack of organized players, 65 percent of logistics volume being through road, which is less efficient than air, water and rail and poor last mile connectivity. The main supply chain challenges in India are poor logistics infrastructure and connectivity issues.

\* Acharya Bangalore B School, Affiliated to Bangalore University, Bengaluru, India, Email: sengottuvelu138@gmail.com

\*\*ASA University Bangladesh

\*\*\* King College of Technology, Affiliated to Anna University, Chennai, India

## **Logistics and SCM**

Logistics is the process of strategically managing the procurement, movement and storage of materials, parts and finished inventory ( and the related information flows) through the organization and its marketing channels in such a way that current and future profitability are maximized through the cost ( Martin Christopher, 2003). The source of competitive advantage is found firstly in the ability of the organization to differentiate itself in terms of products & process, in the eyes of the customer, from its competition and secondly by operating at a lower cost and hence at greater profit. But the competitive advantage should be sustainable, for these companies shall adopt certain drivers. These drivers are: cost, quality, up-gradation of products, process flexibility, product flexibility and value advantage. Examples for product advantage are Sony, Honda etc. Examples for process advantage are Motorola, Toyota Motors, TVS Group of Companies, Dabbawallas of Mumbai etc. Logistics enables the companies to gain competitive advantage. Michael Porter has brought to a wider audience is the ‘value chain’. In supply chain, the companies are integrating their business activities with their suppliers and customers, whereas in value chain, companies are streamlining their internal activities. In simple terms, supply chain with external entities, whereas value chain deals with the internal aspects of the company. Companies can gain competitive advantage by performing those strategically important activities like designing, producing, marketing, delivering and supporting its product at affordable cost or better than its competitors’ price (Michael Porter, 1985).

Supply chain management is all about the all activities associated with the transformation of goods from the raw materials / inputs to the final stage, when the goods and services reach the end customer. One of the important definitions of supply chain management is that the management of upstream and downstream relationships with suppliers and customers to deliver superior customer value at less cost to the supply chain as a whole. Supply chain management is an integrated approach wherein the suppliers, customers and the firm activities are seamlessly integrated.

The main components of supply chain include planning, design and control of flow of products /services, information and finance along the supply chain. There are five important flows in a supply i. product / services flow, information flow, money / finance flow, value flow and transfer of title. Supply chain performance is very vital for the business. The main thrust areas of supply chain management are managing supply and demand through minimizing uncertainty, reducing lead times, minimizing the number of stages, improving flexibility,

improving process quality, minimizing variety, managing demand, delaying differentiation, kitting of supplies, focusing on 'A' category, planning for multiple supply chains, modifying performances measures, competing on service, moving from functions to processes and taking initiatives at an industry level ( Raghuram & Rangaraj, 2000).

The products and services are flowing from upstream (sourcing, procurement and production) to downstream (warehousing, distribution, retailing and product recalls). The information flows across the supply chain. Money / finance flows from downstream. The movement of materials, intermediate goods and finished products is done by logistics. Logistics includes both inbound logistics (IBL) and outbound logistics (OBL). The internal movement of materials from one work centre to another work centre is the responsibility of material handling system (MHS). Transportation is the linkage process in supply chain and often consumes much of the resources. So, the choice of the transport mode is a fundamental part of supply chain management, which should be analyzed carefully because of its strategic impact upon a company's operational efficiency ( Mohanty & Deshmukh, 2004).

### **Emerging Purchasing and Supply Chain Strategies**

The Institute for Supply Management (ISM), USA and A.T. Kearney Inc has identified eight change areas in supply chain management. These eight change areas are: expanding the mission, goals and performance expectations of purchasing and supply, developing category strategies, developing and managing suppliers, designing and operating multiple supply networks, leveraging technology enablers, collaborating internally and externally, attracting and retaining supply management talent and managing and enabling the future supply management organization and measurement systems ( Handfield et al, 2014).

### **Emerging Trends in Logistics**



**Figure 1: Emerging Trends in Logistics**

During the pandemic, the demand increased for certain products. Examples, FMCG products, masks, sanitizers, medicines, vaccines etc. customers were in isolation, they turned to online shopping due travel restrictions and lockdowns. It is also found that raw materials & parts shortages for manufacturing industries. The Covid-19 pandemic has given lot challenges to logistic companies. This has resulted logistics companies are stepping up with innovative strategies to respond to these rapidly shifting logistics trends in2021. The emerging trends in the supply chain logistics industry are shown in table 1.

**Table 1: Emerging Trends in Logistics**

Sl. No	Emerging Trends
1	Blockchain
2	E-Commerce Logistics
3	Reverse Logistics
4	Elastic Logistics
5	Digital Training Solutions
6	Gamification
7	Warehouse Automation
8	Internet of Things (IoT)
9	Cloud Computing
10	Last Mile Delivery
11	Sustainable SCM
12	Social Sustainability
13	Logistics Industry Investment Trends
14	Lean Logistics
15	Risk Management Framework

### **Elastic Logistics**

Elastic logistics is defined as the flexibility to expand and shrink according to the demands of the market in the supply chain during a given time frame. Flexible automation solutions increase the agility and elasticity of the logistics infrastructure to cost- effectively meets market fluctuations. Part of flexibility also encompasses the ability to forecast risks, costs and demand. With advancements in Blockchain technology, Internet of Things (IoT), and

Artificial Intelligence (AI) / Machine Learning (ML), most of the logistics companies have these technologies in fleet management, conditions of the goods in transit and used in data analytics.

Elastic logistics is an approach of expanding and contracting logistical capabilities. This helps to improve the cost –effectiveness of the supply chain as a whole.. Elastic logistics is being driven both by big data and also increased process automation by deploying robots. Automation brings agility and lean in the supply chain management.

Demand variability, variability in production, warehouse operations and shipping can be managed by adopting elastic logistics philosophy. Some of the problems like over production, excessive inventory, overstocking, less truck load and price volatility can be managed through elastic logistics applications.. Figure 2 depicts the elastic logistics concept.



**Figure 2: Elastic Logistics**

### **Warehousing and Elasticity**

Elastic logistics concepts can be extended to warehouse operations also. So companies are implementing elastic warehouse model. More companies have already implemented elastic warehouse model to manage the demand with respect to time and location (distribution centres)

### **Literature Review**

Deepak Raj (2021), has studied the elastic logistics concept by focusing on explaining and implementing a framework of companies and managers to adopt in their business. This paper highlights the implementation aspects of Elastic logistics model in terms of time flexibility in serving customers.

TSan- Ming Choi (2020), has studied the service supply chain with which the logistics service provider (LSP) has to decide the quantity of capacity to reserve to satisfy future demand in the upcoming season, which depend on whether market disruption occurs or not. The author has also explained the importance of elastic logistics and proposes conditions and measures to achieve improvement in the supply chain by the adoption of elastic logistics.

Shoeb Ahmad (2020) has highlighted the key strategies like elastic overheads, elastic outsourcing and elastic blend.

Michael Wilson (2019) has studied the characteristics of elastic logistics by highlighting the ability to quickly shrink and expand logistical capabilities to align with a supply chains demand.

Sunil Chopra, Peter Miendl & Dharam Vir Kalra ( 2016) have identified the key supply chain drivers for supply chain performance such as facility, transportation, information, inventory, sourcing and pricing.

According to Hugos (2011), the supply chain key performance drivers are products, process, facility, transportation, inventory and information driven decision making.

## **Methodology**

The key concepts in logistics and supply chain management were studied through text books, published articles in leading journals like researchgate, Sage and websites. Secondary data was used in this research paper. Case study methodology was adopted.

## **Elastic Logistics in India- A Case Study**

Elastic Run is one of the Kalaari Capital's Portfolio Companies in Pune, India. ElasticRun operates in over 300 cities in India and works with over 1, 25,000 retail outlets. This company has the current revenue around \$ 350 million. It is expected to cross \$ 1 billion over the next 12 months. Elastic Run has over 100 brands, including top FMCG players such as HUL, P&G, Marico, Britannia, Colgate, Nivea, Patanjali and Dabur.

This company has raised \$75 million from Kalaari Capital from its existing investors like Avatar Ventures & Prosus Ventures. Elastic Run, which is looking to spread its reach to 10 million Kirana Stores, helps in future. This company helps the e-commerce companies such as Amazon and Flipkart with logistical reach and last mile delivery. According to the companies report, India has huge potential of having over 12 million Kiranas shops across

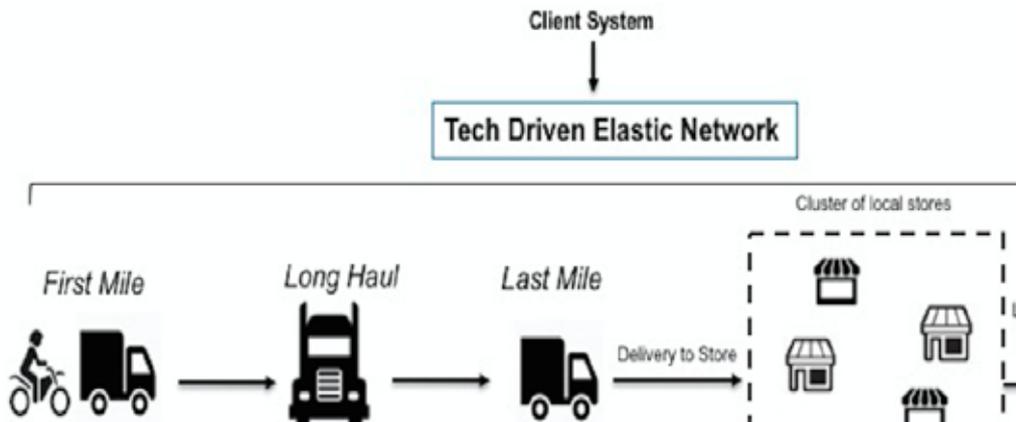
the country. Most of the stores are located in rural areas where sales are expected to grow to \$ 600 billion over next five years ( Sneha Shah, 2021).

### Tech Driven Elastic Network

This company has been successful in building a tech driven virtual network. Tech driven virtual network is a platform which can ensure control, availability, visibility and scalability across each leg of the network and yet operate on six sigma process excellence levels. The tech driven elastic network platform is consisting of first mile delivery, long haul and last mile. All these points are connected with delivery system i.e cluster of stores and local stores. Figure 3 describes the tech driven elastic network.

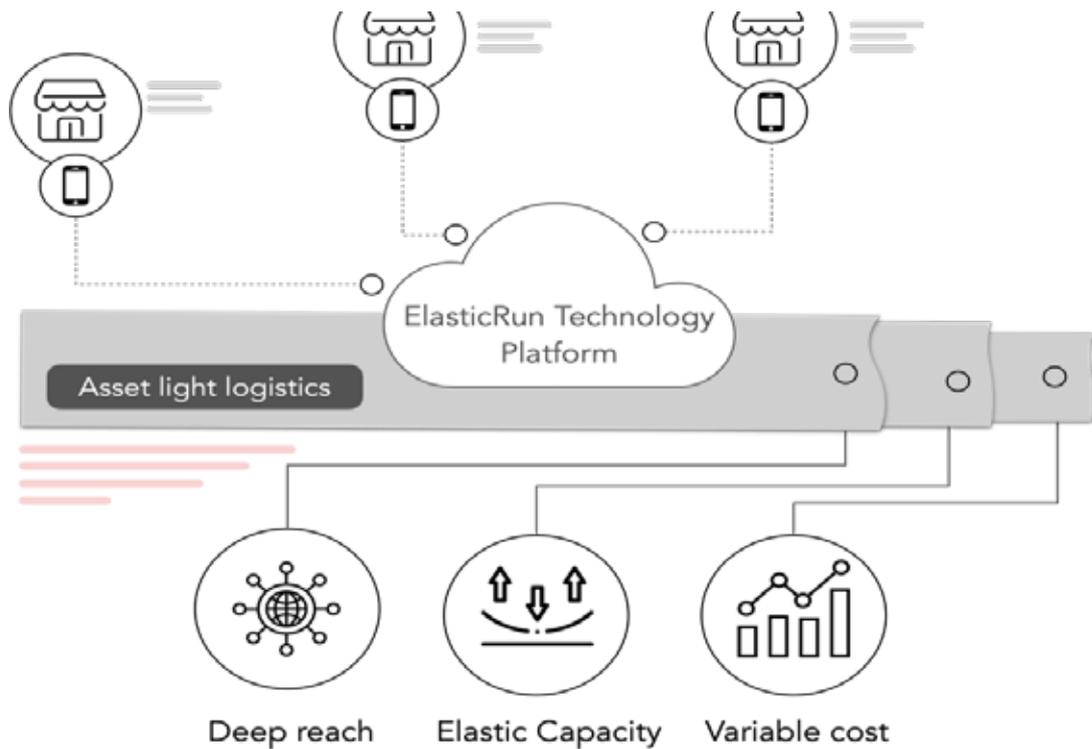
**Figure 3: Tech Driven Elastic Network.**

### Three pronged strategies



The company has adopted three pronged strategies i.e, deep reach, elastic capability and variable cost. This company has covered 28 states in India, 500 plus location, 100 plus brands and 100 million plus customers.

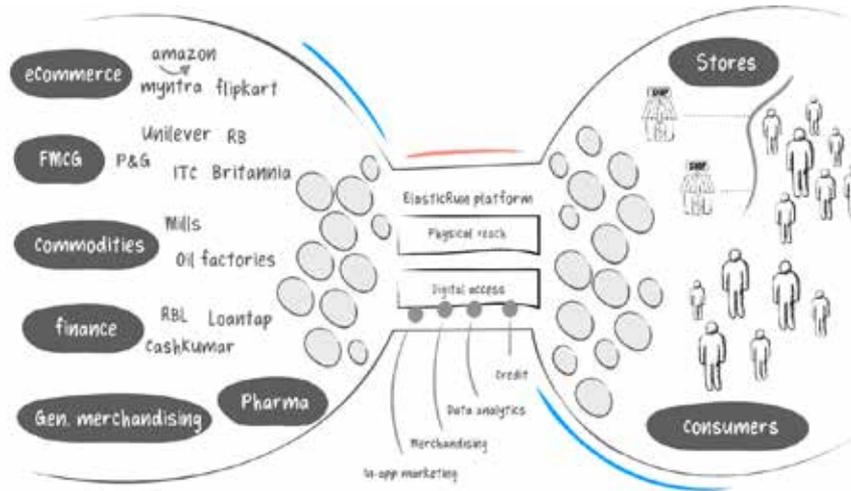
Deep reach is to cover low density regions un-service till date. Elastic capacity is to monitor on real time basis. Variable cost is to be minimized. Figure 4 explains the elastic run technology platform.



**Figure 4: ElasticRun Technology Platform**

### **ElasticRun: A Success Story**

ElasticRun is helping businesses reach traditionally un-served consumers through E-Commerce to reach out 100 plus million customers un-served earlier, covering 100 plus FMCG brands to directly reach 1,00,000 plus small stores in rural India with a credit facility through National Financial institutions to rollout credit offering to 1,00,000 rural stores. Figure 5 describes the elasticrun of Kalaari Group of Companies. This has enabled the company to provide reliable fulfillment at low rates and scale capacity in tandem with changing demand cycles. This has resulted in exponential growth in fulfillment volumes for both E-Commerce and FMCGs cluster translating into rapid top line increase without compromising on the bottom line. .



**Figure 5: ElasticRun of Kalaari Group of Companies**

**Key benefits of Elastic Logistics**

Managing demand and supply in the supply chains are difficult. It is also difficult to predict the demand variability. However, the rise of the digital age / digital transformation and E-Commerce has given lot of opportunities to the companies and their customers. This gives lot of benefits to both the customers and companies. Table 2 shows the key benefits of elastic logistics.

**Table 2: Key benefits of Elastic Logistics**

Sl.No	Key benefits	Details
1	Automation	Reduces human error, scaling abilities
2	Third-Party Partnering	Reduces risks of investing, provides robust scaling capabilities
3	Efficiency, Visibility and Control	Usage of a common dashboard, reduction in costs, better tracking system to improve the responsiveness
4	Enhanced user experience	Timely delivery, increased customer satisfaction and delight can certainly help the companies to retain customers.

## **Findings**

ElasticRun is helping businesses reach traditionally un-served consumers through E-Commerce to reach out 100 plus million customers un-served earlier, covering 100 plus FMCG brands to directly reach 1,00,000 plus small stores in rural India with a credit facility through National Financial institutions to rollout credit offering to 1,00,000 rural stores. This has enabled the company to provide reliable fulfillment at low rates and scale capacity in tandem with changing demand cycles. This has resulted in exponential growth in fulfillment volumes for both E-Commerce and FMCGs cluster translating into rapid top line increase without compromising on the bottom line. The startups companies will be moving from the current revenue of \$ 350 million to \$ 1 billion in the next 12 months.

India is having over 12 million Kiranas shops across the country. Most of the stores are located in rural areas where sales are expected to grow to \$ 600 billion over next five years ( Sneha Shah, 2021).

## **Conclusion**

In this paper, authors have studied the linkages between logistics and supply chain management. Supply chain management is a competitive tool to improve business results. The key supply chain performance drivers like products, process, facility, transport, inventory and information based decision making are highlighted. Emerging thrust areas in SCM, purchasing and SCM emerging strategies, emerging logistics trends and role of elasticity in warehouse operations are also discussed. One of the important emerging logistic trend- elastic logistics was discussed in detail with a case study. This case study is about an Indian Startup company successfully implemented elastic logistics concept through implementation of tech driven elastic network platform. It is concluded that lot of challenges ahead for the logistics professionals in terms of logistics expansion and business decisions. Experts have opined that freight and warehousing operations are having bright future. Technology is also enabling to move forward. At the same time, lots of challenges are ahead for logistics professionals in the coming years. Some of the challenges are economic disturbances, geo-political issues and foreign trade policies of countries.

## **Declarations**

### ***Funding source***

None.

### ***Competing Interests***

None.

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### Authors Biographies



Dr. Sengottuvelu is Professor in Operations & SCM Area at ABBS. His PhD is from Aligarh Muslim University, Aligarh in Supply Chain Management Area. He is having over 30 years of experience including 20 years in the industry (Worked for BEL Bangalore & Chennai Units and HAL Corporate Office, Bengaluru). His areas of interest are operations management and supply chains performance measurements, supply chain modeling, supply chain integration and collaboration.

He is a Certified Purchasing Manager (CPM) by Institute for Supply Management USA, Atlanta. He received the Government of India Ministry of Defense R& D Award for Best Design Efforts for the year 2003-04. He has published more than 60 papers in both National and International journals of repute. Dr.Sengottuvelu has conducted FDPs under the sponsorship of AICTE. He has organized conferences / workshops under the sponsorship of ICSSR and Consultancy Development Centre (CDC), DSIR, Govt. of India. He has organized number of MDPs to the Managers of Nitta Gelatin India Ltd, and Indian Oil Corporation Dealers in Kerala. He is also a recognized doctoral supervisor for two universities. Three research scholars have already been awarded with doctoral degrees under his guidance and three more are ongoing. Email Id: [sengottuvelu138@gmail.com](mailto:sengottuvelu138@gmail.com).



Dr. Md. Wahidul Habib is an Assistant Professor, Faculty of Business, ASA University Bangladesh. His PhD is from Jadavpur University, Kolkata, India in Services Marketing. His M.Phil degree is from University of Dhaka, Bangladesh and M.Com in Marketing from University of Dhaka, Bangladesh. He published number of research papers in National and International Journals. Dr. Habib has conducted number of certificate programmes and also offered number of consultancy services to various organizations.



Mrs. Dhivya. P is a management researcher worked for Maruti Suzuki Dealer in Tamilnadu, India for more than five years in Customer Relationship Management Department. Her MBA is from King College of Technology, affiliated to Anna University, Chennai, India. Her specialization is in Human Resource and Finance Management. She published a couple of papers in reputed Journals.