

# ACHIEVING CORE COMPETENCY BY IMPLEMENTING EFFECTIVE ICT SOLUTIONS IN INDIAN LOGISTICS SECTOR

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## Abstract

*In today's competitive environment it is hard to find any organization, however big or small it is, across the verticals that doesn't get tested by volatile, uncertain, complex and ambiguous business situations. These situations, often referred to as VUCA, are very common in this ever changing business environment. It has become essential for survival and growth for the organizations to constantly and consistently innovate their processes, anticipate and manage VUCA, embrace change as though they were looking forward to it and follow what customers has got to say. All this is possible when an organization has an intelligent system at place. Logistics sector is no different. The global logistics industry has traversed from around 2700 B.C. when material handling technology was used in pyramid construction where blocks of stone weighing several tons were transported and assembled at the construction site till today in the era of advancing globalization efficient logistics is seen as a competitive edge in the era of globalization (Discover Logistics, DHL logbook). The Indian logistics industry has come a long way from being a labour intensive during 60's to the present technology oriented system that provides wide range of logistics services (Viswanadham, Puvaneswari, 2004). The logistics industry in India is evolving rapidly and it is the interplay of infrastructure, technology and new types of service providers that will define whether the industry is able to help its customers reduce their logistics costs and provide effective services which are also growing. At the firm level, the logistics focus is moving towards reducing cycle times in order to add value to their customers. Consequently, better tools and strategies are being sought by firms in order to enhance their decision making. Interestingly, this is leading to an emergence of innovative practices to allow business and public service to operate at a higher growth rate in an environment where the support systems are getting augmented concurrently (Chandra, Jain, 2007). Logistics sector in*

*India is highly segmented and unorganized (KPMG, 2007) which is the major cause for the industry to be more volatile and uncertain. Policy changes by the government (Chandra, Jain, 2007) are only adding to woos. Indian logistics industry faces a fiercely competitive and volatile business. VUCA talks on systemic failures and behavioral failures which are imperative to organizational failure. These elements present the context in which organizations view their current and future state. They present boundaries for planning and policy management. They come together in ways that either confound decisions or sharpen the capacity to look ahead, plan ahead and move ahead. (Abidi, Joshi, 2015). This research paper was able to understand the most common problems/challenges the logistics industry is facing. Fragmentation, role of multiple middlemen, disintegration/lack of communication between participating partners, difficulty in order procurement, picking & sorting are the most common problems that were identified. These problems are the major cause for the organizations not able to perform well in the competitive, volatile and uncertain environment. The study also identified the following benefits the organizations can get by implementing ICT solutions - getting accurate information, reduced overall cost, reduced the overall waiting period of the fleets, increased visibility to the customers, more opportunities for business expansion and can have better control over their business. The study concludes with proposing available ICT solutions in addressing the issues identified - implementing technologies like GPS, RFID, Bar coding, Forecasting tools, Warehouse management systems, Transport management systems, Online portals to name a few.*

**Key Words:** VUCA, Logistics, ICT, Indian logistics Industry, ICT in logistics

## 1.Introduction

Business competitiveness is nothing new for any business establishment given the current scenario. Any businesses, irrespective of their years of existence, across the domains have gone through various ups and downs which are inevitable. These variations could be due to various internal and external factors. The internal variations are usually caused by people and processes as these two are an integral part of any organization and take part in all the decision making processes. The external variations are the results of various known and unknown factors. There are organizations which have combated these variations/uncertainties and there are organizations which just succumbed under the tremendous pressure. Those who continue to exist are successfully able to foresee the turbulent market behavior which is the result of many factors. Volatile and uncertain markets & economies are also among those factors that add to market turbulence. Volatility and uncertainty in the likes of demand & supplies, government policies, changing trends among the consumers, technology, buying pattern, have become very common in the market place. In today's competitive scenario, there is no business which is not affected by volatile, uncertain, complex and ambiguous economic conditions. It has become a part of their routine.

VUCA stands for volatility, uncertainty, complexity and ambiguity. Historically, the strategic term was used by the US Army in late 1990s for the post-Cold War world. However, VUCA has become a popular term among business leaders in recent years, especially after the 2008-09 financial crises, as a clear reflection of the modern world. It is even believed that VUCA has become the "new normal"<sup>1</sup>.

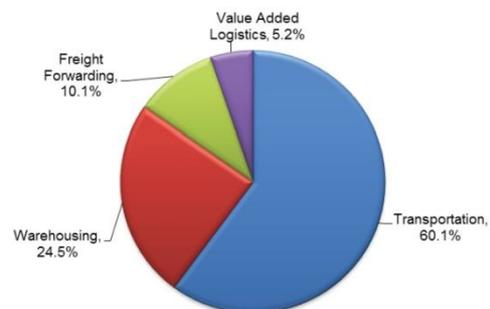
Latest innovations on the World Wide Web (www) have led to a huge transformation in the way the world exists. It has had a huge impact on the lives of the people and the business establishments in the way they function and live. The consistent and exponential growth of the e-commerce industry (the global CAGR of e-commerce industry is set to be 10.7%.<sup>2</sup>) across the globe has triggered insecurity among the establishments in their business processes, making the scenario more volatile and uncertain. Not to forget market complexities and ambiguous future.

The volatility and uncertainty in internal and external environment has made logistics issues more complex. Order fulfilment, picking & sorting, customer responsiveness, integration among the participating partners and flexibility are the key issues to respond to market volatility and uncertainty thereby gaining an upper hand in this competitive environment.

## Indian Logistics Industry

The logistics industry across the world rests on the pivotal idea of reducing costs for customers and providing efficient services. In India, the logistics industry has been growing by leaps and bounds. Although the Indian logistics industry is recording a steady growth, it seems to be somewhat stagnant at crossroads. Thanks to the ongoing global economic uncertainty and its impact on Indian economy. But given the various initiatives by the Government of India (Make in India, Digital India, Smart Cities development, Establishment of Food Parks are some of the examples), it may not wonder many if Indian economy will walk past this uncertainty. Logistics industry in particular has well positioned itself to post an exponential growth owing to these initiatives, focus on developing infrastructure, proposal to introduce GST, rise in the e-commerce industry, rising investment in the sector, to name a few. This offers opportunities across the spectrum for companies in transportation, storage, distribution, and allied services, according to a report by MotilalOswal Securities Ltd<sup>3</sup>.

According to the latest research by Frost and Sullivan<sup>4</sup>, the Indian logistics market recorded revenues of about US \$104.10 billion in 2014, witnessing a growth of about 4.9 percent over the previous year. Transportation accounts for about 60 percent of the market revenues. The Indian logistics market is likely to witness consistent growth of around 6-7 percent every year during the period 2014-2020 and reach revenues of about US \$150-\$160 billion by 2020.



Source: Frost & Sullivan Research

Fig. 1: Segmentation of Indian Logistics Market, 2014

Empirical evidence suggests the Indian logistics industry grows at 1.5-2 times the GDP growth. Indian logistics sector is estimated to have grown at a healthy 15% in the last five years. However, growth in sub-sectors varies, with the lowest being in basic trucking operations and highest in supply chain and e-tailing logistics. It is estimated that the share of India's logistics spend in GDP (2014) at 13% (versus 7-8% in developed countries), implying overall size of \$180-220 Bn (direct costs +wastages from inefficiencies). A comparison with other countries shows inefficiencies are high in the Indian logistics sector<sup>5</sup>.

<sup>1</sup>Krungsri Research

<sup>2</sup>www.statista.com

<sup>3</sup>Logistics|Transformational Times, March 2015, MotilalOswal Securities Limited

<sup>4</sup>Mega Trends in the Indian Logistics Sector for 2015-16, Frost and Sullivan and the CII Institute of Logistics

<sup>5</sup>Logistics|Transformational Times, March 2015, MotilalOswal Securities Limited.

Last two decades has witnessed a technological revolution offering solutions to make logistics and supply chain management more effective and efficient than it has ever been. One of the three major flows of supply chain management is “information flow”. It is said ‘no product flows unless information flows’. One of the key components to meet this requirement is the adaption of Information and Communication Technology (ICT). The necessity to meet ever growing customers’ expectations in a speedy and effective manner has left no option for the supply chain partners but to take maximum advantage of ICT. This has enabled them to create a strong network among the participating companies to ensure continuous flow of supply and demand information. This has led to an increased level of intensity for information requirement.

On the other hand, ICT has witnessed exponential development that has been strongly influencing the logistics services industry, making the companies involved, transform themselves from ‘brick & mortar’ to ‘brick & click’ in a very short period of time. This has opened up challenges among the competing logistics organizations across the globe. The scene is not as good in India. Reasons may be many. Unlike in some developed countries, the Indian logistics industry lags behind in adapting ICT. This can be attributed to constraints on investment in ICT, highly unorganized, varying levels of professionalism, traditional resistance to change, etc.

### Volatility in Logistics Industry

According to PremVerma, chief executive officer at TML Distribution, which is Tata Motors’ outbound logistics division, the slowdown and lack of legislative progress have taken its toll on the logistics market in some respects. Automotive Logistics Magazine in 2013 reported that the government is struggling to cut a growing budget deficit, while bureaucracy and corruption at both central and state official levels are thought to be holding back considerable amount of investments, particularly in India’s woeful transport infrastructure. As the head of procurement at a leading OEM, R. Dinesh, co-chairman, CII Institute of Logistics Advisory Council, said, "Volatility is the biggest problem in today's environment." Volatility erodes the value of forecasting, production planning, and scheduling and creates problems with under- and overcapacity.

A research report published by A T Kearney focuses on the logistics cost in India. It goes on to claim, based on their research analysis, that the cost of logistics has a big impact on the supply chain because of India's predominant use of road transport. Logistics costs as a percent of sales are about 1 to 1.5 percent higher than in other Asian markets (as represented in the figure). Fuel and wages, which drive up road transport costs, are expected to increase.

Logistics costs are high for India's automotive supply chain

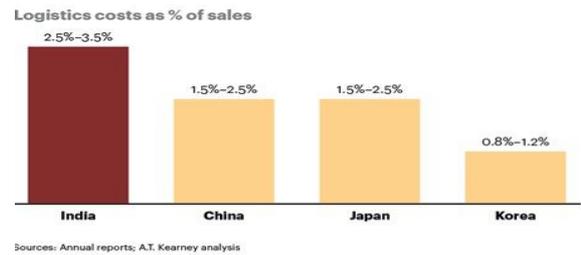


Fig 2: Logistics Costs as percentage of sales

### STATEMENT OF THE PROBLEM

Logistics firms need to manage information effectively and to integrate several activities including inbound and outbound transportation, distribution, warehousing, and fleet management, in order to streamline the physical product flows of their customers. The ICT systems are important to logistics, since they make available the right information, at the right time, at the right place, to the right person (which is also known as E-logistics). ICT systems are critical for managing logistics operations. Lack of timely information may lead to improper management of the above mentioned issues, impacting the overall performance of the organization. From the initial review of literature and various industry reports mentioned, it is evident that the Indian logistics industry is way far in achieving excellence from their overseas counterparts.

### 2.Literature Review

Managing businesses in volatile times, 2014: Through scenario planning, businesses will be equipped with greater flexibility and readiness to tackle incoming risks and uncertainties. Meanwhile, a new generation of economists are beginning to acknowledge that old-school theories and forecasting tools that rely on historical data may not be adequate to understand and forecast the new world, where so many structural changes are taking place that cycles are no longer obvious. Therefore, what we need is more systems thinking, greater room for imagination, and better acceptance of highly varied views and stances.

While Indian economy did not witness a significant slowdown when global volatility first started peaking in 2008, recent years have seen Indian business also searching for growth. The India economy has significantly slowed from 9.5 per cent to 4.5 per cent, rupee depreciated from 40 to 63, even the industrial output has fallen. While most companies recognize the need for action, few are able to respond appropriately and on time. Manish Chandra, Managing Director, Accenture Strategy – Operations, explained, "A global research indicated that businesses are aware of the challenges - for instance, 90 per cent of the companies believe that establishing robust systems and process in place is important to address volatility, only 10 per cent of the companies have implemented the same. And these 10% companies are 75 per cent more profitable than their peers.

**SurajitMazumdar, 2013:** Contrary to many optimistic perceptions about the Indian economy's future prospects, this paper argues that the next two decades will be a period of great uncertainty. A path pockmarked with great economic and political turmoil, rather than a sustained and smooth process of economic expansion is what is likely. These are inherent in the growth trajectory of the Indian economy – which will continue to be biased towards services and construction activities rather than manufacturing and which will bypass the majority of Indians. If there is to be any different story, it will not come from the economic trajectory endogenously producing a shift to a more stable trajectory. Rather, it is the politics of redistribution that it may give rise to that has to be the source of change. The fact that it may give rise to such a politics does not, however, mean it will.

**Diatha Krishna Sundar, 2001,** states: “Historically Indian transport sector is burdened with low end IT solutions, stand-alone applications, very labor-intensive operations and lack of standard equipment usage across the transportation companies. The low skill level of the workforce is also a major impediment in transforming this industry into exploiting IT services. Besides these, the low profit margins, lower yield miles per truck per month due to bad conditions of the roads are discouraging trucking companies from exploiting the possible IT enabled services. The government agencies involved in facilitating the material movement, like central excise and customs, regional transport departments, toll and tax collection agencies is not yet moved into E-Governance paradigm creating a major void in transforming the whole logistics industry into information age.”

Diatha concludes that “The "virtual logistics network framework" addresses services in the areas such as asset management, logistics productivity, global reach, inventory chain optimization, distribution management, reverse logistics, warehouse management, transport capacity matching, transport brokerage, and real time interface with federal agencies for speedy document clearance. In addition, if all the check posts are linked with concerned government agencies the delay could be considerably reduced. These processes in turn increase the productivity of the truck and enhance the profitability of operations.”

**Pankaj Chandra, Nimit Jain,2007,** state the following: Use of technology is quite limited – both IT and engineering equipments in order to increase productivity and service. An in-appropriate evaluation of the diverse benefits of technology has led to higher usage of manual labour across the logistics industry whether it is in the distribution activities or within plants. Technology in the logistics chain is being upgraded bringing better visibility on customer off-takes (though an absence of cash registers and the accompanying regulatory discipline to avoid tax evasion stand in the way of automated data updation). Introduction of more efficient transport technology and mobile communication has the potential of changing the logistics practices in the industry. Increasing competition

and the low penetration of IT also implies that the scope for change is immense and imminent. The need is to link physical logistics processes with communication technologies –building on the strengths of the IT and mobile communication industries. While the use of IT for logistics management is increasing, it is largely limited to large size firms.

### 3.OBJECTIVES OF THE STUDY

- To understand the uncertainties faced by logistics industry
- To study if implementation of ICT can lead to improved coordination leading to organizational growth
- To propose tentative framework for better ICT usage in logistics organizations

### 4.METHODOLOGY

A descriptive study was conducted by 50 randomly selected samples from the industry. For the research purpose, both primary and secondary data are utilized. Primary data was collected through structured questionnaire. The secondary data sources are various published reports that are related to the research topic. Data analysis was conducted using MS Excel (for initial tabulation of data, and simple data analysis) and IBM SPSS (for arriving at cross tabulation, descriptive statistical measures).

### 5.LIMITATIONS OF THE STUDY

- The study is limited to road transporters only.
- The study is conducted in and around Bangalore city. As the logistics industry is the most fragmented one can find organizations with branches across in the city.
- Data collected may be biased as some of the respondents may / may not want to implement technology.
- Sample providing the data may not be qualified. At times respondents had to be explained about the technology and the how it may help their day to day processes.

### MAJOR FINDINGS

#### Demographics:

- Most of the respondent organizations were partnership firms. And the analysis based on the findings reflect the fact that though firms have flexibility in terms of operations, decision making, expansion, diversification, the same attributes may also cause disadvantage to the firm in case one of the partners has a problem/casualty.
- It can also be inferred that organizations are in the industry for significant period and understand the nuances of the industry so as to decide what is best for them in order to be competitive.
- The findings substantiate the fact about fragmentation of the industry. Organizations have less number of

fleets and are dependent on other fleet owners in case of demand-supply mismatch.

**Adaption of ICT:**

- This analysis helped in understanding the fact that though ICT is in use in the industry, it is limited mostly to access internet and perform basic activities classified under office automation.
- Almost all the respondents are willing to connect through a system to other integrating partner in the industry to fulfill the customer needs. This indicates how fragmented the industry is and the need for integration among them.

**Order Procurement:**

- Almost all the respondents procure the order through intermediaries. Though there are organizations who procure directly from their clients, intermediaries contribute to the maximum.
- It can be inferred that intermediaries play a major role in getting the business. Though there are organizations who get the orders directly from the customers, a combination of direct orders and through intermediaries always work.

**Problems faced by the industry:**

- The major problem faced by the industry is that of multiple middlemen playing critical role in operating the industry.
- Absence of adequate and timely availability of the vehicles to fulfill the orders is another major challenge.
- The respondents felt that feeble communication among the concerned partners, and multiple middlemen are also considered as major problems.
- Lack of visibility to the customers, low capacity utilization of trucks and lack of focus on time sensitivities are also adding complexities to the already unorganized industry.
- All these problems are hampering the growth of the industry contributing to more complexities in operating the business. This analysis suggests that there is an urgent need to challenge these obstacles in an organized manner.

**Benefits anticipated from ICT implementation:**

- The respondents are in favor of getting accurate information, reduced overall cost, reduced the overall waiting period of the fleets, increased visibility to the customers, more opportunities for business expansion and can have better control over their business, if they implement ICT. The study also suggests more opportunities for business expansion followed by increased frequency of orders and improved order fulfillment as benefits by the ICT implementation.

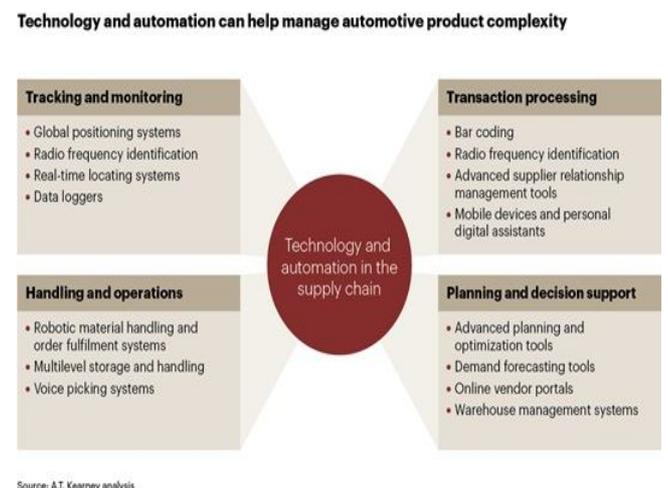
However, when we consider the overall responses, we can infer that almost all the problems/challenges faced by the industry can be tackled by using effective ICT solutions. From the following illustrations it is evident that there exist

ICT solutions suitable for all type of organizations and their processes which can be implemented effectively to combat the business competitiveness.

**IT helps**

At the India conference organized by Automotive logistics magazine, VinodhaJeyanthilal, India General Manager, IT Learning and Development, Ford Motor Company, quoted, “one of the most significant developments for aftermarket is Ford’s IT implementation, which will give the carmaker’s spare part network significantly higher levels of visibility and automation. “This system will integrate all of the country’s operators onto a single software platform for forecasting and inventory planning.” She continued saying “some of the system’s main features include a centralised forecasting across all of Ford’s part depots, along with an automatically created bill of distribution. Transport and routing will also be determined by the system. We expect that we will be able to carry less inventory as we better integrate the supply chain.”

Terra Technology, that helps companies outperform in volatile markets through automated and mathematically-sophisticated supply chain software solutions, has published in its website that mitigating market volatility risks has become a boardroom concern across the globe. Though market volatility is beyond the ability for individual companies to control, it is possible to control the effects of volatility with new forecasting technology. New algorithms to automate real-time processing of masses of data and to extract meaningful information from the noise now provide the means to control the effects of volatility. Lightening your inventory footprint through better forecasts reduces risk in several key areas, the largest of which is demand uncertainty. According to the A T Kearney research analysis, technology and automation can help the supply chain and logistics industry in many ways as mentioned in the figure.



**Fig 3:** Technology and automation solutions for the logistics and supply chain industry

## 6.CONCLUSION

Every problem/challenge has a solution. With the technology helping the man kind reaching out to the universe, it is not an herculean task for the tech providers to offer technology based solutions to the organizations that help them survive the stiff competition. A well-defined problem is half solved. Once a problem is clearly understood, there are solutions available for the same. Order procurement, Order picking & sorting, routing & scheduling, tracking & monitoring the consignments, documentation, integrating with other organizations for effective order fulfillment, forecasting, warehouse management are some of the logistical functions which can be effectively handled by implementing technologies like GPS, RFID, Bar coding, Forecasting tools, Warehouse management systems, Transport management systems, Online portals to name a few.

## SUGGESTIONS

Based on the fact findings from the research work, it can be suggested that the organizations in the logistics industry must leverage on the advantages that the ICT is offering. As found by the research, it is suggested that an ICT based system must be commissioned to integrate organizations in the industry in order to coordinate fleet movement and order procurement for mutual benefit. This system should act as an aggregator of the fleet owners and the intermediaries. This will not only benefit the fleet owners and intermediaries, but also the customers in terms of efficient and effective delivery of consignment. Today, we can see many such instances where aggregation of fragmented entities is working more efficiently than when they worked when they were an independent entity. OLA Cabs, GoGo Trucks, OYO Rooms are some industry specific examples of successful aggregation.

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