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## MEASURING THE EFFECTIVENESS OF THIRD PARTY LOGISTICS IN CONTEMPORARY INDIAN INDUSTRY

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### *Abstract*

*The outsourcing of logistics action, to third party logistics service providers, is becoming a common practice in many contemporary Indian industries. The mainstream research in this field is exploratory research and it mainly focuses on better customer service, cost reduction, better profit, and risks to work with the Third Party Logistics (3PL), along with their role in the supply chain management. This paper presents an analysis on Effectiveness of the Third Party Logistics Manager or 3PL in contemporary Indian Industry. In this paper, researchers have discussed the current logistics activities in Indian industries and the usefulness of the 'Third Party Logistics Managers' and assessed the current and future trend in this direction.*

**Keywords:** 3PL, Supply Chain Management, Logistics Management, 4PL, Warehouse Management System, Transportation Management, Vendor Management Inventory.

**JEL Code:** L90

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### **1. Introduction**

The conventional 'Business Model', followed by the industries all over the world till mid-nineties, was to do all the organizational functions themselves, right from the sourcing of raw materials to converting them in house, into the components to sub-assemblies to the assemblies to the final product till it reaches the

customers and ultimately, the consumers. The trend has changed substantially in post-globalization wherein organizations are increasingly focusing on their core competencies and outsourcing activities and processes not only for the cost reduction but also for better value addition to the agencies, which stick to their core competencies. Automobile industry's core

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competency is to assemble and market automobiles. Their core competency is not managing activities like transportation, warehousing etc. which is best outsourced to a third party, who has local or global network of all sorts of transportation vehicles like trucks, ships, aircraft and has a network of warehouses all over the world and has an elaborate information system of tracking and tracing goods and services, till it reaches the end consumers.

A formal definition of Third party Logistics (3PL) could be the use of an external company, to perform all or part of the firm's management of materials and product distribution function (**Simchi-Levi, 2000**). It is also referred to the relationship between the organization and third party which, over and above the basic service, provides customized offerings, encompassing a broad number of service functions and it is characterized by a long-term, more mutually beneficial relationship. There are globally large organizations as third party logistics manager like UPS, Fedex, TNT, DHL etc. They own all sorts of transportation vehicles like trucks, tempos, LCVs, small transport vehicles to even tractors and motor cycles. These organizations have their own warehouses, all over the country and globally, at the lowest cost. For example, Ryder logistics has a dedicated five year agreement to design, manage and operate all of Whirlpool Corporation's inbound logistics. Same is the case with the Dynamic Logistics, Pune, with Tata Motors Ltd.

The principal reasons, for firms using 3PL services, can be attributed to sourcing, manufacturing, distribution and selling all over the world, leading to an increase in the material movement and storage, along with the related complexity. Competition has forced companies towards a customer centric, agile supply chain management and a reduction in the inventories. Companies normally focus on their core competency of manufacturing, service and new product/service development activities as well as expanding the existing product/service range.

## 2. Review of Literature

The benefit of outsourcing the transportation management, to the third party logistics managers, increases the efficiencies in the supply chain. This leads to better cost effectiveness and reliability. The third party logistics managers provide continual value addition, dynamic solutions and real time information to agile data-driven decisions. As per **Subrata Mitra (2006)**, logistics is not a core activity for a business firm. Considering future demand of third party logistics services, (**Dawe, 1994**) believes IT to be a key constituent in third party logistics. Decision makers are still very careful about the integration of Information Technology since it is having a high cost of implementation, risk of infrastructural damages and lack of validated effectiveness (**La Londe and Auker, 1995**). 3PL provider can offer a wide range of services and a logistics services provider comprises 3PL outsourcing. This is basically a longer-term business relationship with mutually shared benefits. This occurs when outsourcing of logistics activities, in a firm, moves from a tactical level (driven fundamentally by cost concerns) to strategic and decision makers level (**Murphy and Poist, 1998**). Strategic decision makers always aim for the mutual and shared benefits that working together delivers. **Lim (2000)** demonstrates that organizations, that emphasize on the strategy of completing all the activities by themselves, are beginning to recognize the significance of engaging a 3PL provider, to accomplish their full supply chain, which shows a more effective and efficient mode of operating the logistics of their business. **Efendigil et al., (2008)** propose that organizations contract out their core logistics operations, in order to avoid considerable capital expenses, linked with workforce or predetermined costs. Furthermore, providers, with an advanced IT infrastructure, are expected to lower logistics costs and integrate the supply chains, with regard to productivity and growth (**Vaidyanathan, 2005**). This is also becoming a

significant component for greening supply chains, with regard to the reduction and the recycling or reuse of source product materials (**Rogers and Tibben-Lembke, 2001**). Reverse logistics plays an important role, in achieving green supply chains, by providing customers with the opportunity, to return the warranted and/or defective products to the manufacturer (**Efendigil et al., 2008**).

### **3. Statement of the Problem**

Logistics is a very important business activity, in terms of customer satisfaction and cost of distribution. In India, this is one of the major problematic areas, for the industry, to be globally competitive. The average logistics cost is 13% of the GDP in India, compared to about 10% in the developed nations. The average movement of goods is more than 75%, by road, in India. The infrastructure, road conditions, Government regulations like road permit check at State borders, dual sales tax regulations, local taxes etc., make the movement of goods by road, extremely inefficient and costly, compared to other countries. The average movement of goods by road in India is about 300-350 km per day as compared to 700 kms per day internationally. The complex regulations and handling of the government authorities is one of the major problems for the industries, as their core competence is what they produce and market and not the logistics management, consisting of management of transportation, warehousing, packaging etc. Hence increasingly, the organizations are looking for outsourcing such activities to expert service providers. With globalization, the need for such service providers has become more critical for the business success.

### **4. Need for the Study**

Outsourcing the logistics function, to a third party logistics provider, is freeing up resources to focus on core competencies. The firms, having expertise in performing logistics activities as their core offerings to other firm, can do the task of logistics management better

and much more efficiently, leading to maximization of the customer satisfaction, along with cost effectiveness. Even if companies have resources available to them, even then outsourcing logistics could be a better option. Globally, there is a trend, among multinational organizations as well as the third party logistics managers, to opt for the IT based Warehouse Management System or 'WMS'. Third party logistics companies are increasingly sharing the responsibility, for managing the global logistics, supporting the supply chains, keeping customers and stores properly stocked, and delivering the perfect order every time. Logistics outsourcing to a third party logistics managers provider, can be a fast way to re-engineer distribution networks to meet up global market demands and achieve a competitive edge. Hence the need for the present study, is to analyze the effectiveness of third party logistics managers of Indian industry.

### **5. Objective of the Study**

To study and understand the contemporary global logistics activities, implemented by the Indian industries and to find out the benefits and scope of the outsourcing of logistics activities, by Indian firms, to a third party.

### **6. Hypotheses of the Study**

The following hypotheses were framed and tested in the study.

**NH-1:** Outsourcing of the Logistics Activity to a third party has no benefit to the Industry.

**NH-2:** Indian firms have no tendency to outsource logistics activities to third party logistics provider.

**NH-3:** There is no utilization of IT based warehouse and transportation management system in contemporary Indian business.

**NH-4:** 3PL is not cost effective and economical.

**NH-5:** 3PL does not increase customer service.

### **7. Research Methodology**

The research methodology for the study is as follows.

### 7.1 Sample Selection

Questionnaire was administered to 100 respondents, drawn from various industry personnel, working in pharmaceutical, software, automobile, healthcare, FMCG and other fields. Researchers obtained input from people, having more than five years of working experience. Respondents were, directly or indirectly, linked with logistics activities of their respective firms.

### 7.2 Sources of Data

The data were collected from the respondents, drawn from various industries, in and around Mumbai. The questionnaire was administered to the respondents, to generate primary data.

### 7.3 Period of the Study

The study was cross sectional. Responses were collected during the period of August 2015 to July 2016.

### 7.4 Tools used

Statistical tools like Mean, Median and Mode were used. T-test were used for testing the hypotheses.

## 8. Analysis and Discussion

**Chart-1** shows that 44% of the industries were successful in gaining cost reduction of more than 30%, by outsourcing to third party logistics. Hence **NH-1** is rejected and alternate hypothesis is accepted. In other words, outsourcing of logistics activities to a third party, was beneficial to the industry. **Chart-2** denotes that 53% of companies were outsourcing, both 3PL and 4PL activities. Hence **NH-2** is rejected and alternate hypothesis is accepted. It implied that majority of Indian firms were increasingly outsourcing their logistics activities to a third party.

**Table-1** exhibits that 21% of companies recorded 30% and more utilization of IT based Warehouse Management System (WMS) and 50% of companies at 20% to 30% (**Chart-3**). Hence **NH-3** is rejected, alternate hypothesis is accepted, which signifies that there is considerable proportion of utilization of IT based

warehouse and transportation management systems, in contemporary Indian business. **Table-2** shows that out of 100 respondents, 68 used 3PL and or 4PL services and 62 of these users responded that the use of 3PL was beneficial. **Table-3** shows that out of 68 respondents, 53 recorded cost reduction of 15% or more, after utilizing 3PL services.

**Table-4** denotes that majority of 3PL and 4PL users, enjoyed cost advantage and they could focus on their core activities. Also data analysis, by t-test, indicated that P-value was less than 0.0001, for around 53 responses out of 100. Hence, null hypothesis **NH-4** could be rejected and alternate hypothesis could be accepted. In other words, 3PL was cost effective and economical. **Table-5** shows that a total of 51 respondents, out of 68, who used 3PL and or 4PL services, experienced better customer service. Hence null hypothesis **NH-5** is accepted. This implied that third party logistics increased the quantity of customer services.

## 9. Findings of the Study

Third party logistics could help firms to overcome many of the constraints of Indian contemporary businesses, as far as their Transportation, Warehousing, Packaging, Information management and Inventory management of the goods and services were concerned. Although it is still in the nascent stage, companies, using 3PL, were satisfied and enjoyed cost reduction, up to 30 % and even more. After critical analysis, all the hypotheses were tested and verified, using various statistical tools.

## 10. Suggestions

Indian 3PL industry is experiencing a fast growth, after the year 2000 because of the liberalization of policy and opening up of trade. This indicated that Indian firms were increasingly outsourcing their logistics activities to a third party partner. The increase of IT systems confirmed the utilization of IT based warehouse and transportation management system, in the contemporary Indian business. Outsourcing of the Logistics Activity to a third

party is beneficial to the Industry. Majority of Indian firms are increasingly outsourcing their logistics activities to a third party. There is growing utilization of IT based warehouse and transportation management system in contemporary Indian business because it is cost effective and economical and increases customer service.

### 11. Limitations of the Study

The data were collected from the Mumbai metropolitan region only. Data collection could have been done for different sectors of industry in India.

### 12. Conclusion

The third party logistics management can provide value-added services. 3PL firms can facilitate supply chain integration and performance enhancement. Third party logistics managers can link the vendors at the back end of the supply chain and customers at the front end of the supply chain, leading to supply chain integration. In the highly competitive business environment and globalization, Indian industries are looking for new logistics capabilities, beyond their own capabilities and more complex solutions to their business problems where their logistics partner can find a solution easily, due to their wider scope of competence and resources in the area of logistics. Greater acceptance of demand driven supply chain practices introduces complexities for the logistics service providers, to deliver more expert services. More companies are turning towards third party logistics managers to help them in successfully managing supply chain processes. Therefore, researchers suggest to the contemporary Indian business firms, to utilize 3PL services, more and more.

### 13. Scope for Further Research

The research work was confined to general study and implementation of the 'Third party Logistics managers' in contemporary Indian Industries, across various segments. This could be an interesting area of future research and application. Also a new concept of "Fourth

party Logistics Managers or 4PL is emerging as an improvement over the 3PL concept where 4PL logistics Manager may not own its own resources like 3PL but due to vast experience and expertise in the logistics management field, can design and manage the entire logistics management activity of an organization, with better efficiency and effectiveness as well as better value addition, at a lower cost.

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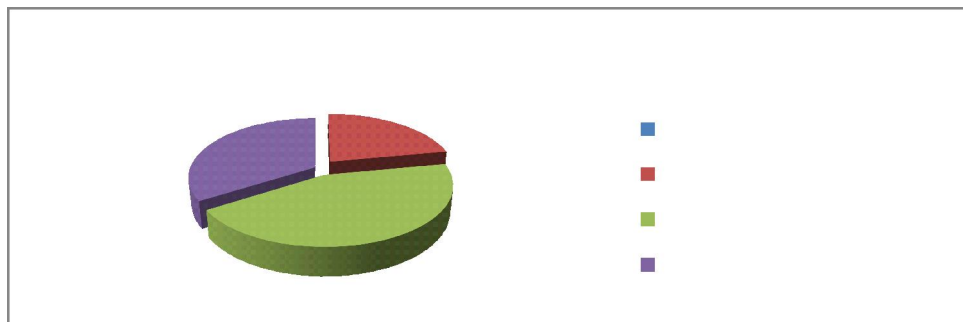
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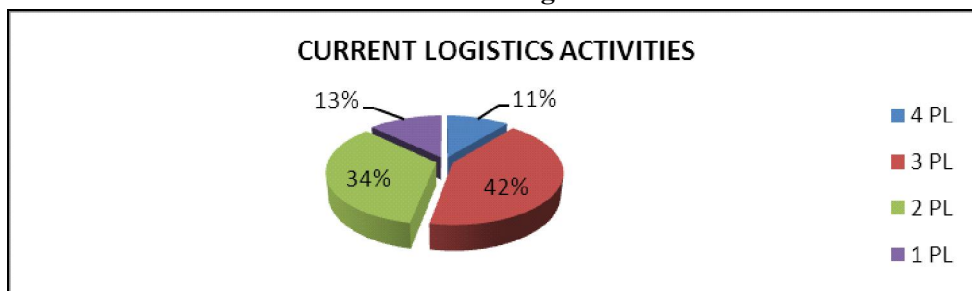
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**Chart – 1: Using 3PL in Cost Reduction**



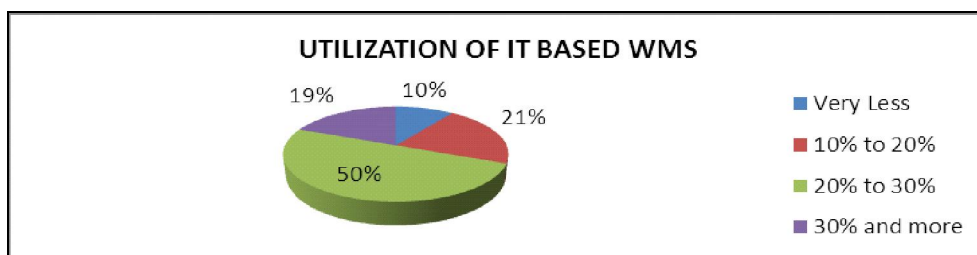
Source: Data using SPSS 16.0

**Chart – 2: Current Logistics Activities**



Source: Data using SPSS 16.0

**Chart – 3: Utilization of IT Based WMS**



Source: Data using SPSS 16.0

**Table –1: Utilization of IT based Warehousing Management System**

Utilization of IT based WMS	Number of Observations
Very less	7
10% to 20 %	14
20% to 30%	34
30% and more	13

Source: SAS output

**Table – 2: Bifurcation of the Respondents for Getting Response as Benefit**

Beneficial	Variable	Number of Observations
1 – (Yes)	3 PL	60
	4 PL	14
2 – (No)	3 PL	5
	4 PL	3

Source: SAS output

**Table – 3: Respondents for getting Cost Reduction as Benefit**

Cost Reduction	Number of Observations
No significant change in cost	0
Upto 15%	15
15% to 30%	30
More than 30 %	23

Source: SAS output

**Table – 4: Understanding the Benefits**

Cost Reduction	N Obs.	Lower 95% CL for Mean	Upper 95% CL for Mean	t Value	Pr >  t
2	15	.	.	.	.
3	30	1.0251274	1.3082059	16.86	<.0001
4	23	0.9533099	1.1336467	24	<.0001

Source: SAS output

**Table – 5: Respondents on the basis of Customer Service**

Customer Service	Variable	N Obs.	No. of Missing
1 – (YES)	3 PL	49	2
	4 PL	12	39
2 – (NO)	3 PL	16	1
	4 PL	5	12

Source: SAS output