



Proceedings of GLOGIFT 09
November 12 – 14, 2009
National Institute of Industrial Engineering
Mumbai, India

OUTSOURCING STRATEGIES ADOPTED IN FLEXIBLE BUSINESS LOGISTICS

Sachin Kamble

Assistant professor
NITIE.Mumbai.

Neelkanth Dhone

Research Scholar.
NITIE Mumbai.

Avinash Ganbote

Assistant Professor
IOM Pune.

1. INTRODUCTION

Supply chain management is a philosophy that describes how organization should manage their supply chain mechanism to achieve strategic advantage. The objective of supply chain management is to synchronize the requirement of the final customer with the flow of material and information along the supply chain in order to reach balance between high customer satisfaction and customer satisfaction in yield of entire system and result from the combined efforts of all segment of supply chain mechanism. Galloway(1999). To achieve a balance between cost and customer satisfaction, manager of an organization must think about single, integrated chain rather than individual segment. Integration is required among the entire supply chain component. (Ronald.2002). Purchase Manager should develop process, which focuses on functional issues. For that manager must realize that business process function to create value for customer and such a process typically transcend functional unit boundaries and even organizational boundaries. Logistics is emerging as important arm of supply chain management to supply right quality and quantity of material at right place and at right time (Sameer 2007).Landeghem(2001).

Industry uses many labels for the activities we referred as business logistics such as physical distribution, material management, distribution, re-engineering. Logistics management, Industrial logistics, marketing logistics, distribution & transportation management. The council of logistic management, a professional organization dedicated to the study of improvement in logistics defines it as “The process of planning, implementing and controlling the effective cost effective flow and storage of goods & services & related information from pooling of origin to point of consumption for the purpose of conforming to customer requirements”. (Knemeyer 2002) (Elliet and Robinovethet1999).

Remko(2000) Nathalie(2009) Define, logistic is the process of strategically managing the procurement, movement and storage of materials, part and finished inventory and related information flow through the organization and its marketing channels in a such a way that current and future profitability and customer satisfaction maximize through the cost effective fulfillment of orders. it indicates that “Logistic is part of supply chain process that plan implement and control efficient, effective flow

and storage of goods, services and related information from the point of origin to the point of consumption in order to meet customer requirements”.

Business logistic links the sources of raw material to the location of final customer, often by spanning industry wide channels of supply and distribution. These linkages promote both the flow of physical product & logistics related information, each of which is essential for efficient and effective integration of logistic process. In addition multi functional value chain linkages with other areas of the organization such as finance, marketing and production”the important part of the business management which are further discussed (Ramko 2008), (Gimenes 2006)in this review.

2. OBJECTIVES OF STUDY

1. To understand various elements of logistics and their functional integration.
2. To identify new techniques used in business logistics.
3. To review the existing academic literature on logistics as a functional system and to study impact of out- sourcing strategies on logistic practices.
4. To write an explanation why organizations should outsource logistic functions and as to why outsourcing of logistics areas would be advantages to them

3. REVIEW OF LITERATURE

A) OUT SOURCING IN BUSINESS LOGISTICS:-THIRD PARTY LOGISTICS (3PL)

Previous section of the discussion was focused on importance of traditional logistics, Practiced by many organizations around the world with varying degree of success then the question arise that what is missing. Why traditional logistic management is not enough in today in global competitive world? The answer lies in bridging the gap between traditional logistics with modern ways. Over the last decade, a number of studies have examined the issue of logistic services outsourcing in different countries. Firms are increasingly seeking to treat logistic operation strategically to gain competitive advantage but often lack of competence to run the efficient logistic services (Sohail, Batnagar, and Sohail 2006).

A comparative analysis of experience of USA and European manufacturer in using third party logistics was under taken by Lieb *et. al* (2008) to test the following factors;

- i) Levels of commitment to usage of third party logistics. (3PL) (ranging from extensive to very limited).
- ii) Budget allocation of total logistic budget to third party provider.
- iii) Geographical coverage provided by third party organization (domestic vs. international).
- iv) Utilization of third party services classified as warehouse management shipment consolidation, fleet management, and order fulfillment and product returns carrier selection.
- v) Logistics, information system rate negotiation.

Ramko.I H. (2000) Identified role of logistics services in customization through postment mass customization is a new competitive paradigm. It is simply because

of its importance of interactive marketing and manufacturing product and customizing product in response to individual customer response while retaining cost effectiveness in operation based on being able to align the individual customer 3PL. Logistic plays an important role to achieve mass customization by extension of their service portfolio.

The survey was carried out in 1996-99 which includes 782 internationally operating companies in 3PL with special focus in manufacturing and retail sector. Further research continued for other sector like Automobile, Electronic Sectors where assembling of product is highly complex and technical in nature. Lieb(1999).

Sohal; et al (2002) is a comparative study of use of third party logistic service by Australian firm between 1995-99. The survey was focused on the various important aspect of the third party logistics service. They includes

- 1) The extent of use which firm uses services of contract logistics companies.
- 2) The specific contract logistic service used.
- 3) The benefits, which used for the user firm
- 4) The obstacles encountered in implementing contract logistic relationship
- 5) The import of use of contract logistics services on cost
- 6) Customer satisfaction and employee satisfaction of user firm

It has been observed that there is much difference in pattern of decision making between 1995 to 1999. Specially rend such kind of services from specialist function provider in the area of logistic. It also observed that more organizations are interested to maintain their services for international purpose and that is for longer time.

A study was carries out by Lieb (2008) with CEO perspective on the current status and future prospective of third party logistic (3PL) in Asia Pacific region. Study comes with following output such as price compression, market entrance of foreign 3PL and increased pressure of internationalization services identified as most important regional market phenomenon. The regional growth prospects will promote further investment by 3PL and private equity (PE) companies in the region.

But Transportation infrastructure will continue to trouble 3PLs, The regional 'talent shortage' will continue while 3PL have taken steps to improve recruitment, training and retention. Regional manufacturers who are potential buyers of 3PL services becomes more and more sophisticated and likely to place more pressure on price. This bargaining power continued to cost cutting process and selectivity of options available Aktas(2005).

The study by Peter Wanke, *et al.* (2007) unveils significant relationship between shipper sophistication of logistic function, manufacturing process structure and choice of type of 3PL. The study also proposes the new framework of segmenting 3PL service provider market in terms of sophistication of logistic function and logistic task implied by the type of operations. Data was collected from comprehensive survey on the use of 93 Brazilian (shippers) 3PL service providers. The findings supports for association between a type production process structure and preference for 3PL and V&T type of functional 3PL. However it also find out that shippers with type T-process structure are more sophisticated logistic method tend to integrate 3PLs. It has

been observed that logistic performance output is not considered while studying sophistication. More focus is required on this issue.

Elliot Rabinovicvh *et. al* (1999) this study focuses on sourcing of integrated logistic function. A survey of 392 logistic managers in different industries revealed multiple outsourcing linkages among the logistic activities. These results are consistent with previous findings that suggest that firm can improve customer service and reduce the cost by outsourcing logistical function. Results are also consistent with previous research that states that improved condition of information and material flow help in achievement of economies of scale and economies of scope.

Additional studies expected to do on analyzing integrated outsourcing process across different industrial sectors such as chemical, electronic etc. This will provide comprehensive view on; how integrated logistic plays crucial role in supply chain management? It can be also concludes that identifying common logistic outsourcing sequence in order to establish function are out sourced initially which are subsequently linked with Product assembly and order processing.

PRESENT EXTENT OF USAGE OF 3PL SERVICES:-

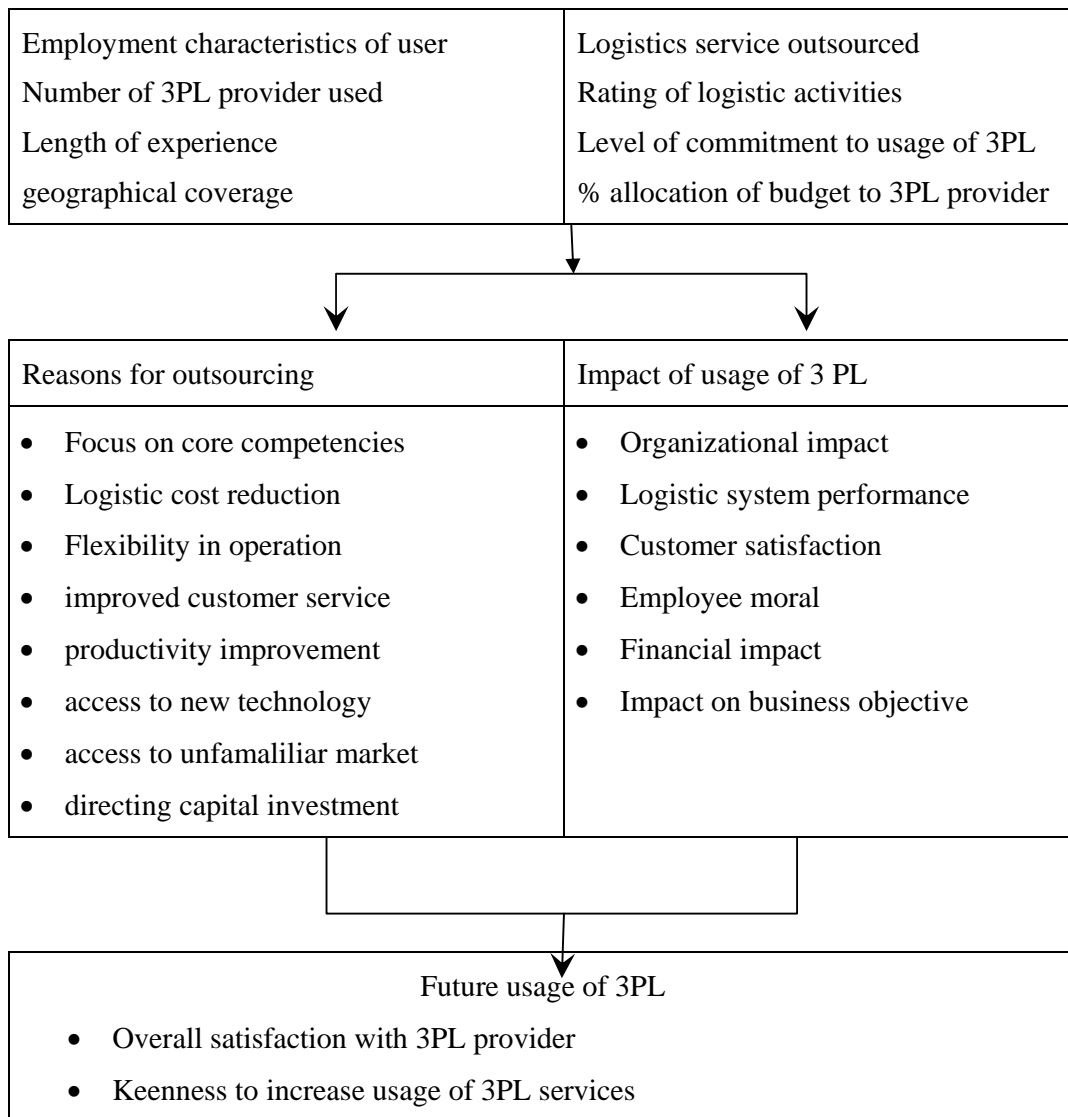
Lieb *et al* (1999),Ramko(2001) have documented the experience of North American and European companies by using third party logistic services. The study also indicate that European firm are significantly more committed and allocated for larger share of overall logistic budget on their 3PL companies as compared with American counter parts. However, company from both the region agreed that outsourcing need to be an all or nothing proposition. There seems to be consensus on “what” service are to be outsource with warehousing, shipment and fleet management being the 3 services which are most frequently used

Sohail,s (2006) analyzed third party scenario for Singapore and Malaysian firms. The study come out with conclusion that Singapore firm have been utilizing the services of 3PL service provider over the year. With over three quarters of user characterizing their commitment as moderate or extensive, and 50% of firm allocating over 30% of their logistic budget on 3PL service provider. Shipment consolidation out sourced by more than one-half of the firm and around 40% of firm outsources order fulfillment, carrier selection and freight payments.

The research on supply chain management practices in India has identified that outsourcing of logistic is growing activity and it is gaining more popularity for Indian organization and there has been increase in number of third party logistic provider over last couple of years . The major reason cited for usage of 3PL services include cost reduction (27%),strategic reasons (26%),process effectiveness (24%) and lack of internal capacity (11%). Further, they also added that usage of third party logistic is strategic decision and hence it is necessary to analyze the impact it has on business performance. The purpose of engaging in third party relation is seldom cost reduction alone but combination of service improvement and efficient operation. Following flow-chart shows schematic diagram of research framework.

PRESENT EXTENT OF USAGE OF 3PL SERVICES

Present extent of usage of 3PL services



(Source: Sahay & 2006)
 DIAGRAM NO.4

Globalization of corporation and ensuing competitive pressure has placed increasing dependence on ability of organization to deliver customer-adapted product all over the world. “Quick” and “on time delivery” has placed number of demand on logistic system and it has become rapidly developing area of investigation Sohal(2002). While many organizations are seeking to manage their logistic operations strategically, they realize that competitive advantage is not achieved as they lack competencies. Because of this, organization increasingly seeking to outsource the logistic activities.

B.FOURTH PARTY LOGISTICS(4PL):-

4PL is consider as true indicator of new category of players who act inference between producer, distributor, designer and carrier, as they do not have means to manufacture logistical service. (Neither trucks or ware housing assets) (Fulconis 2007).

Their role is reduced to that kind of logistical consumer having to manage logistical flows and choose most appropriate means for his customer. As result, it is necessary intermediately who is not depends upon transporting or warehousing companies for instance, but who select best in order to obtain best process the best activity and the best quality service. Thus, 4PL's customers have less or even no direct contact with companies that in end carry out logistical operation.

Langley *et al.* (2005) also discussed conceptual definition of fourth party logistics as a independent, singularly accountable, non asset based integrator of client's supply and demand chains. The 4PL role is to implement and manage value creating business solution through control of time, place and utilities and influence on form and possession utilities within the client organization. Performance and success of 4PL's intervention is measured as function value creation within organization.

Francols falconis (2007) also define 4PL as, linking to a supply chain integrator that assembles and manage the resources, capabilities and technology" of its own organization and of complementary service provider to deliver comprehensive supply chain solution.

C.SELECTION OF SERVICE PROVIDER:

1. SELECTION OF 3PL:

(Hertz.s 2003) : Choosing the right 3PL provider requires careful examination of what the company expect from 3PL provider. The company has to find it out if provider has the ability to meet company's goals and finally means of communication should be establish between 3PL provider and the company that hire them. Researcher has introduced five step model to choose effectively third party logistic provider as described below;

Step I: - Making decision.

First organization has to decide if they need 3PL, a cross-functional head, team should decide the necessity of same (3PL).

Step II: - Developing criteria and objective

This can be done by discussing them with all of the departments involved in the division making process. Also in this step, organization should make the list of top-ten 3PL service providers.

Step III: - The weeding out the process

After short listed top-ten, organizations should make direct communication with 3PL and directly talk upon competencies and capabilities of 3PL by in form either of documentary work or by mail and wait for their response. After that list of two or three should be prepared and send then request for proposal.

Step IV: - Determine top prospect

First company should set up appointments to do "walk through" of their facilities and learn about 3PL. Members of decision making team should go for the site visit to judge following;

- i) The 3PL has similar value/objective as of organization..
- ii) Up to date 3PL information technology system.
- iii) Trustworthiness of Key management

- iv) Mutual respect with each other.
- v) Both are required to share willingness to make work.

Step V: - Beginning New Partnership

After this rigorous process, organization should select new 3PL with signing contract with 3PL. There is a current trend of involvement of fourth party in logistics to help and manage number of third party logistics that may be involved with the companies operation (Samar et.al 2006). By adopting holistic approach, 4PL has involved breakthrough in the supply chain solution comprehensively, which increase integrating the strength of 3PL provider leading to the edge consulting firm, and technology provider such as strategic alliances, leverage the skill set, technology and global reach, which would have taken years to duplicate.

2. SELECTION OF 4PL:-

Alan win (2006)and Frost(2004) identified the following attributes which is important at selection of 4PL when partnering with the respective client organization

- 1) Ability to manage activities of multiple 3PL provider
- 2) Experience in fascinating supply chain integration
- 3) Cost- control management and reduction
- 4) Understanding of specific domain
- 5) Ability to operate at strategic, tactical, operation
- 6) Single accountability.
- 7) Demonstrated ability to manage supply chain uncertainty
- 8) Capable of process change improvement notably in the areas of forecasting and sales and operational planning .
- 9) Process 'rigor' what is mean by this?
- 10) Experience in managing global supply chain

D.DIFFERENCE BETWEEN 3PL AND 4PL:

DIFFERENCE BETWEEN 3PL AND 4PL

SR NO.	FACTOR	3PL	4PL
1	Asset basis	Asset based	Non asset based (except perhaps information and technology)
2	Accountability	Partly in conjunction with internal resources and other 3PL.	Total singular accountability (as it is internal).
3	Role	Logistic (typically)	Logistic supply and demand chain integration.
4	Business impact	Influence time and place utility.	Control time, place utility, and while influencing form and possession utilities.
5	Performance measurement	Cost	Value creation in client organization.
6	Management level focus	Tactical	Strategically

(Source:Tibben et.al 2006)

E. REVERSE LOGISTICS:-

In recent years, reverse logistic has become important issue for business allowing return from customer and is becoming an important tool. However, it gives rise to what merchant think as “headache” of handling the goods return by the customer. (Pogorelec2000) explain that reverse logistic goes against every retailer instincts. Reverse logistic has not earned a glamorous reputation because of the misconception that it is only cost drain and that add no value to supply chain. Mukhopadyay *et.al* (2006),Meade(2002) found that on average return reduced the profitability. In survey participant replied was that 42 percent handling of return goods, and also that return goods need to be services & sold off, destroyed or if not defective repackaged and sold through alternative sales channels. A generous return policy, therefore involves both a cost outlay per item returned & expertise in handling reverse flow. An expertise firm more often not designed for the problem of reverse logistic but more magnified for direct retailer doing business where the return by necessity will be done through third party logistic provider to physically transport the returned goods.

Hanafi *et al* (2008) defined reverse logistic as “A process of planning implementing and controlling the efficient, cost effective flow of raw material in process finished

good & related information from the point of consumption to point of origin for purpose of recapturing value or proper disposal.”

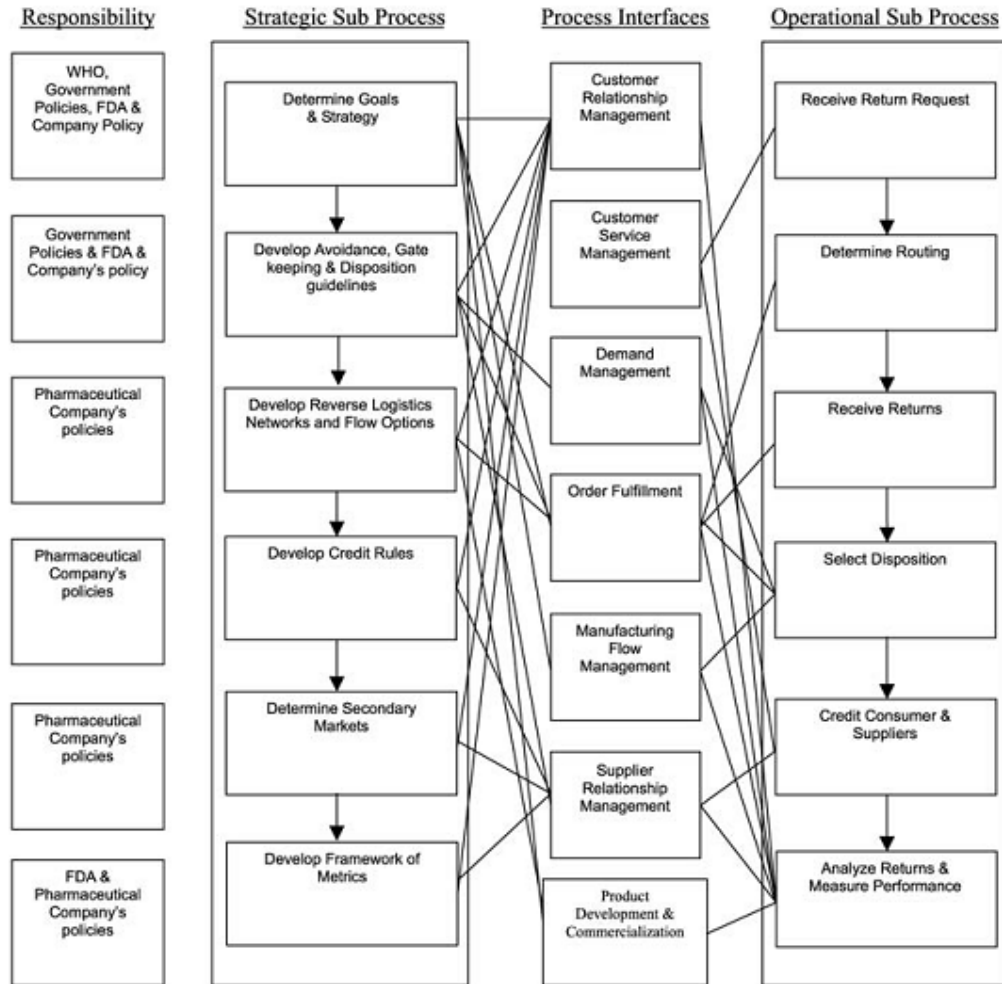
(Mortensen 2008) A study was performed to analyze the extent of integration between manufacturer and third party logistics. The focus was given to analyze co-operation, and information communication technology tool (ICT) used for support. Researcher also find out types of services supplied expected to be supply by 3PL in future. A case study approach was used to study seven manufacturers and 3PL provider. Cooperation is primarily found in sub process of three out of eight-business logistics process were studied with further integration on same process based on ICT tool & with focus on cost. ICT competencies seen as a qualifier not differentiator, Researcher also conclude that, as there is increase in competition in market manufacturer should not totally depend upon 3PL.

From the above literature, survey we can identify that logistic integration handled by 3 party logistic provider is nothing but managing function like Transportation. Total business process outsourcing is required to deal with uncertainty of market. Hence there must be fourth party should organize completely logistic process on strategic level for long time.

Goldsby(2000) The study analyze the pharmaceutical supply chain using D.M.A.I.C process for improvement of reverse logistics in a recall to avert the possibility of harm to a customer. A framework is used for guiding on towards the responsibilities of different organization concerning reverse logistics. It further developed into cause effect relationship performed on supply chain and hypothesized problem areas use of RFID, consistent information system and transportation carrier to streamline the supply chain and reducing the risk of the counterfeit drugs entering in the forward supply chain. The study yielded interesting and innovative solution being tested & convinced at the present time, but the specific information on pharmaceutical supply chain was limited majority of the reverse logistics for pharmaceuticals is bundled through third party providers & therefore specific knowledge is regarded being core competency.

THE REVERSE LOGISTICS AND RETURN MANAGEMENT FRAME WORK.

DIAGRAM.NO7



Source: Adapted from Croxton *et al.* (2001)

Sameer Kumar *et al.* (2007), Lauren (2008) have discussed a major problem car industry is facing worldwide problem how to make effective (closed loop) reverse supply chain design. While making environmental cars from limited resources, the system dynamics modeling analyze the closed loop supply chain design for the Japanese care industry. The relationship between reduce, reuse recycle & disposed one explored with lose scenario analysis using care consumption and data & forecast S.F model, subjected to extreme condition test for structural validity Dynamic analyses of different market scenarios for Japanese car industry's reverse supply chain conducted.

Further, this study come out with result that used car option in Japanese reverse supply chain may cause the emerging counties (importing used cars) not able to sustain this activity and the Japanese government and manufacture should take initiative to create or support reverse logistics facilities. Export comprises issues pertaining to how component can be realized recycled or remanufactured should be factored in product design phase to reduce cost of product & raw material. Similar study can be further expected in 2-wheeler automobile, as India is number one 2-wheeler manufacturer to world & facing big problem of reducing product life cycle.

Knemeyer (2002): This study demonstrates the value of utilizing qualitative research methods to analyze logistical problems. This study outlines specifically qualitative methodology feasibility of designing reverse logistic system to recycle or refurbish end of life computers that are deemed no longer useful for their owners. The qualitative methodology is modified version of computer visit programmed in which in-depth interviews were used to identify the special need of stake holders who could potentially participate in the proposed system .The result shows qualitative technique proved valuable in obtaining industry sensitive stakeholder data. That allows researcher to more thoroughly analyze the feasibility of proposed logistic system.

(Barsky & Ellinger 2001) Product are returned for wide range of reasons including defect or damage, customer dissatisfaction & especially B-B context, lower than expected sales etc. Researcher also found out that 'Importance of convenient or what industry call 'liberal' return policies in retaining customer . The result of this survey reported that 92% of customer reported that return process is convenient and other 82% are reported that process is inconvenient.

According to Stock *et al* (2001) some firms are developing return programmers to handle product brought back for remanufacturing, refurbishing, and subsequent resale when worn out or product are refurbishing and or subsequent remanufactured. It is not uncommon for companies to realize higher margin on these manufactured than they do it for new items.

4.FUTURE SCOPE FOR STUDY:

As the Indian organization are tending towards multinational organization & moving consistently to find out new avenues, there is good amount of work is available of foreign MNCs. Similar type of long-term study should carried out to understand their comfort ability for outsourcing logistic decision.

'Managing it all' is normal practice used by small and medium (SMEs) scale organization that ultimately affect on core function. A study should carry out to identify role of out sourcing decision of logistic function on overall performance of supply chain. Protecting oneself from opportunistic behaviour of 4PL, having higher dependency from both the side of manufacturer as well retailer requires to have safeguard mechanism having more focus on research from that point of view. There are few studies that has been done to understand the role of out sourcing in the reverse logistics. More focus is required on this. More focus is required for various business segments like automobile, electronics pharmaceutical for development of repositioning strategies in Indian scenario

5.CONCLUSION:

As the organizations tending towards internationalization, global sourcing, inventory management, off shore manufacturing and distribution becomes important aspect of business. It is becoming highly difficult for the firm to promptly react to changes in market demand. In that case logistic is coming out as new weapon to improve the overall performance of supply chain. Therefore, it is important for any organization to consider logistic as process rather than function. Out sourcing the logistic function by managing less dependency, proven as increase in the business performance. Growing use of third party and fourth party logistic by big firms indicate it. Therefore, it is important for any organization to design their logistic strategies very strongly and using it as competitive advantage.

6. REFERENCES

1. Aktas.E 2005 “*Outsourcing logistical activities in Turkey*”. The Journal Of Enterprise Information Management vol.18 No3. Pp.,316-329
2. Alan Win,. 2006 “*The value 4PL can provide to and organization*” International Journals of Physical Distribution & Logistic Managements vol.38 No9 pp- 674-684
3. Barsky, N.P2001 ,” *Unleashing value in supply chain*” Strategic Finance vol. 82 no 7 pp., 7-32
4. Cristing Gimenes 2006 “*Logistics integration process food industry*” ” The International Journals of Logistic Management vol.36 no3 pp.,188-206
5. Elliot.R.,and Rabinovicht.m., 1999 “*Outsourcing of integrated logistic functions*” International Journals Of Physical Distribution & Logistic Management .vol58 no2 pp., 188-209
6. Forslund.H, 2008“*Logistics service performance Design content & effects*” International Journals Of Physical Distribution & Logistic Managements vol.39 No2 pp 131-144
7. Frost,A. and Sullivan.h, 2004 “*Fourth party logistics Turning A cost Into a value proposition*” Supply Chain Management .pp.,11-20
8. Fulconis.F, 2007 “*Strategy dynamic in logistical industry a transactional center prospective.*” Management Decision vol.45.No1 pp., 104-117
9. Galloway,I.1999” *Design for support and support the design- Integrated logistic supports- The business case* “ Logistic Information Management vol. 9 no, pp 24-31
10. Goldsby.T.J, 2000 “*Using activity based casting to re-engineer the reverse logistic channel*” International Journal of Physicl Distribution and Logistics Management vol.30 No6 pp.,500-514
11. Hanafi.J, 2008 ‘Reverse logistics strategies’ Journals of Logistic Management vol.19 No3 pp.,367-388
12. Hertz.S 2003 “Strategic development of third party logistic providers” Industrial marketing management. vol.32 pp. 139-49
13. Knemeyer, M.A. 2003 “*Logistics outsourcing relationship:- A customer perspectives* Journals of Business Logistics vol. 24 no 1 pp 77-109.
14. Knemeyer,A.M., 2002 “*A qualitative examination of factor affecting reverse logistic system End of life of computers*” International Journals Of Physical Distribution & Logistic Management vol.32 No. 6 pp., 455-475
15. Landeghem.R.V, 2001“*Benchmarking of logistical operation based on a causal model*” International journals of operation & production management vol. 21 No .1pp 108-145
16. Langley C.T, 2005 “*2005 third party logistics Result and findings of 10th Annual study.*”, pp-1-46
17. Lauren.R,and Skinner.J. 2008” *Examining Reverse logistic dispositon strategies*” International Journals Of Physical Distribution & Logistic Managements.vol 4.no 4 pp.,165-188.

18. Lieb, R.C.1999, “*Third party logistical services a comparison of experienced American & European manufacturers*” International Journals of Physical Distribution & Logistic Managements vol.23.No6. pp 35-44
19. Lieb.E 2008 “ *current status & Future prospect at third party logistic industry* “ International journals of physical distribution & logistics management vol.38 No6 pp 495-512
20. Meade.L, 2002 “*A conceptual model for selection and evaluating third party reverse logistic providers*” Supply Chain Management An International Journal vol.7 No.5 pp-283-295
21. Montensen.O., 2008 “ *Integration between manufacture and third party logistic providers* “ International Journals of Operation & Production Management. vol.28 no4 pp .,331-359
22. Nathalie F.C., 2009 “*Supply chain integration The role of logistic service provider*” International Journals of Productivity and Performance Management vol.58, No1 , pp., 71-91
23. Perogelec.J, Aghazadeb 2003 “ *How to choose an effective third party provider*” Management Research News vol.30. no9 pp., 50 – 65
24. Ramko .V. H, 2008 “*Breat divides International alignment between logistic and peer functions*” ” The International Journals of Logistic Management vol.19 no2 pp., 110-129
25. Ramko I. h., 2001 “*Epilogue UPS logistics practical approach to the e-supply chain*” International Journals of Physical Distribution & Logistic management vo.31 No.6 pp.,463-468
26. Remko.I.H., 2000 “*Global and pan-European logistics?*” International Journals of Physical Distribution & Logistic Management. Vol. 30 no5 pp., 454-460
27. Remok.I.H., 2000 “*Role of third party logistics provider in customization through postponements.*” International Journal of Physical Distribution & Logistic Management .vol.11, No.4 pp.,374-387
28. Ronald.S.,2002 “*Life cycle After death-Reverse logistics and product life cycle*” International Journal Of Physical Distribution & Logistics Management ,vol 32,No3 pp., 233-244
29. Sadiq.M, and Sohail.J. 2005 “*The usage of third party logistics in Soudi Arabia* “International Journals of Physical Distribution & Logistic management vol.35 no9 pp .,637-653
30. Sahay.B.S, 2006 “*3PL Practices – An Indian perspectives*” International Journals Of Physical Distribution & Logistic Managements vol.36, No9, pp., 666- 689
31. Samar. K,and Mukhopadnay.S 2006, “*The role of 4PL as reverse logistic integrator*” International Journals Of Physical Distribution & Logistic Managements vol.36 No.9 pp.,716-729
32. Sameer, K.,2007 “*System dynamics study of Japanese automotive industry closed loop supply chain*” Journal Of Manufacturing Technology Management vol.18 no2, pp., 116-138

33. Sohail.S 2006 “*A competitive study on the use of third party logistic service by Singaporean & Malaysian firm*” International Journals Of Physical Distribution & Logistic Managements vol.36 No.9 pp.,690-701
34. Sohal.A.M., 2002“*A comparison of use of third party logistic services buy Australian firms between 1995-1999*” International Journal of Physical Distribution & Logistic Management vol.83 No1, pp- 59-68
35. Stock. I,2001 “ *Happy (product) Returns*” Howard business school Review vol.80 no.7 pp.,10-17
36. Svensson.G,2008 “*Empirical characteristics and Egocentricity in “top” journals of logistics management*” The International Journals of Logistic Management vol.19 No3 pp .,436-450
37. Tibben –Lemke.R 2002 “*Difference between Forward and reverse logistics in retail environment*” Supply Chain Management An International Journal vol. 7-No.5 pp.,271-282
38. Wanke .P.F 2008 “*strategic logistic decision making “*” The International Journals of Logistic Management vol.34 No.6 pp.,466-464
39. Wanke.P., 2007 “*Logistical sophistication manufacturing segments and the choice of logistic provider*” International Journals of Operation and Production Management.vol.27. pp., 542-55