
Reverse Logistics in Supply Chain Management: Opportunities and Challenges

Saloni Gupta¹ • Rati Dhillon²

¹Associate Professor, Bharti College, University of Delhi, Delhi

²Assistant Professor, Bharti College, University of Delhi, Delhi

Email Id: salonigupta0609@gmail.com

Abstract. Reverse Logistics is the process of reusing the raw materials for further production. It is one of the key aspects of the supply chain of environment conscious businesses today. One of the primary reasons behind adoption of reverse logistics in the supply chain is that the process is sustainable, and thus do not create harsh impact on the environment. The issue before today's global organizations is to find out the opportunities and challenges that reverse logistics has to offer.

Keywords: Supply chain management, reverse logistics, Enviroment

1. Introduction

Srivastava (2008) opines that reverse logistics is the process where green sustainable supply chain management and production practices are being adopted (Srivastava 2008). If considered from a holistic perspective, the process of reverse logistics reduces materials in the forward system in such a manner that minimal materials flow back, and the channel provides provisions for reuse of materials and recycling (Carter and Ellram 1998). The interest in reverse logistics is becoming so intense that various green legislations are getting formulated that are forcing the manufacturers to take back their used, end or lease or end of life products and recycle them so that resources could be conserved and waste generation could be made minimal (Mutha & Pokharel, 2009). India is also taking baby steps to adopt reverse logistics in supply chain management and e-commerce is one of the classic examples where reverse logistics is applied on daily basis (Jayaraman et al. 2003).

2. Objectives of the Study

The aim of this study is to understand what reverse logistics is. Thus, a deeper study on the importance of reverse logistics in supply chain management will also be done as part of the aim of this study, with underlying objectives being,

- Understanding the role of reverse logistics supply chain management
- In addition, the reason for implementing it in the supply chain within E-commerce platform will also be identified as other objective of the study

3. Literature Review

Reverse logistics is implemented in businesses in different manners. Firstly, businesses develop their own strategies for implementing reverse logistics. Secondly, some businesses employ third party providers for implementing it (Rogers & Tibben-Lembke, 2001). Certain corporate factors that are gauged for developing a successful reverse logistics framework are “*strategic costs, overall quality, customer service, environmental concerns, and legislative concerns*”. The operational aspects that are investigated include “*cost-benefit analysis, transportation, warehousing, supply management, remanufacturing and recycling, and packaging*”(Dowlatshahi, 2000). In case of third party provider, the advancement of technology and reverse logistics practices make it mandatory to select service providers that are skilled in specific reverse logistics functions. Thus, more emphasis needs to be provided on end-of-life product organizational roles for the purpose (Meade & Sarkis, 2002). When reverse logistics is implemented in SCM, it results in the manufacture of secondary products without the need of introducing any fresh raw material in SCM or making exorbitant investment in the production procedure. Cost mitigation actions are implemented for controlling waste emissions and undesirable effluents from production processes. In some cases, either some measures have to be taken by manufacturers to totally avoid generation of these emissions or have to be turned into a source of revenue generation by processing the effluents further. The process of recycling have to be implemented for reusing secondary raw materials like solid, liquid and gaseous waste. Specifically during the production stage of SCM, the role of reverse logistics would be to processing of production leftovers so that they can be reused as secondary raw materials (Corrêa & Xavier, 2013). Hence, in nutshell it can be said that the basic roles that the reverse logistics strategy serves when it is incorporated in the supply chain management is that it will recycle products, remanufacture products from production wastes, and recover materials for reuse by disassembling its unnecessary parts and using the essential parts (Ferrer & Whybark 2000; Guide Jr. et al. 2002).

Evaluating the reverse logistics within e-commerce websites in India, the worth of the industry is more than 20000 crore, however they are plagued with potential dangers of managing their returns. Currently, the return accounts for quarter of the total sales which adds to the overall logistics cost. Famous e-commerce websites like; Flipkart, Amazon, HomeShop18 and Snapdeal re-inventorize these products to be sold if in good condition or are taken back for auction at discounted prices(Singh 2015; Sood 2015)..As per the report compiled by Krishna (2014), Flipkart currently has higher returns in comparison to Amazon and Snapdeal. Reverse logistics is a problem in E-commerce portals because of several reasons. Research scholars point at internal neglect, higher complexity in the system and lack of experience in reverse logistics as some of reasons affecting the overall supply chain (Xu and Jiang, 2009).

Presently, Companies like Green dust handles reverse logistics for Homeshop18 which are specialist in picking up, bringing back, refurbishing and reselling rejects and doing a revenue sharing with suppliers

Importance of Reverse Logistics in sustainable development of supply chain

Incorporation of reverse logistics has become an indispensable part of SCM today. A marked increment has been noticed in the number of organizations that aspire to integrate this environmental friendly manufacturing and distributing procedure in their strategic plans and daily operations (Sarkis, 2003). Beamon (1998) suggests that one of the loopholes of the traditional SCM model is that there has been noticeable increment in the manufacturing cost that the manufactures have to incur. Secondly, problems like shrinking resource of the manufacturing bases, reduction of the product like cycles and leveling of the playing field within the field of manufacturing are other pertinent problems (Beamon, 1998). Wu and Dunn (1995) suggest that environment friendly logistics is being widely embraced as it is cross-functional in nature. Therefore, it helps businesses in identifying SCM processes that will be sustainable in nature and will have positive implication on the corporate management processes. Thus, the SCM process in which reverse logistics have been implemented helps the managers in identifying how operation cost can be reduced, how to optimize the internal and external inventory parameters, how to enhance the efficiency of the supply chain (Li et al 2010;Wu & Dunn 1995). In addition, the role of reverse logistics in extending product lifecycle while maximizing the speed of production and

reducing cost of production and expenditure on raw materials cannot be denied too (Kumar & Putnam 2008; Tibben-Lembke 2013).

It is important for the e-commerce portals to have proper laws and regulations while designing the reverse logistic policy in order to standardize the process (Sood, 2015). Xu and Jiang (2009), point that laws should be made about the return policy, and focus should be given towards protection of environment by promotion of recycling of returned products. Further, since the Indian e-commerce market is driven by competition, therefore customer driven approach is the key to customer satisfaction. Report by Krishna (2014) indicates that Flipkart has the worst return policies which have made people switch from the brand to other brands like Amazon and Snapdeal.

4. Conclusions

Reverse logistics expels the introduction of fresh raw materials in the supply chain, and instead uses byproducts, effluents and other secondary wastes for producing something new. This study enumerates that the importance of reverse logistics within e-commerce portals to determine the need and importance of reverse logistics. The role of this logistics process is to reuse, recycle and remanufacture materials that are already a part of a manufacturing process. Among some of the immediate benefits that organization such as, Flipkart, Amazon, and Snapdeal can earn after implementation of this system is extension of product life cycle and decrease in overhead cost.

5. References

- Beamon, B. M. (1998). Supply chain design and analysis: *International Journal of Production Economics*, 55(3), 281–294. [http://doi.org/10.1016/S0925-5273\(98\)00079-6](http://doi.org/10.1016/S0925-5273(98)00079-6)
- Corrêa, H. L., & Xavier, L. H. (2013). Concepts, design and implementation of Reverse Logistics Systems for sustainable supply chains in Brazil. *Journal of Operations and Supply Chain Management*, 6(1), 1–25. Retrieved from http://www.researchgate.net/profile/Lucia_Helena_Xavier/publication/255787150_Concepts_design_and_implementation_of_Reverse_Logistics_Systems_for_sustainable_supply_chains_in_Brazil/links/00b7d5244325ae60f1000000.pdf
- Dowlatshahi, S. (2000). Developing a Theory of Reverse Logistics. *Interfaces*, 30(3), 143–155. Retrieved from <http://pubsonline.informs.org/doi/abs/10.1287/inte.30.3.143.11670>

- Ferrer, G., & Whybark, D. C. (2000). From Garbage to Goods: Successfully Manufacturing Systems and Skills. *Business Horizons*, 43(6), 55–65.
- Guide Jr., V., R., D., Wassenhove, V., & Luk, N. (2002). The Reverse Supply Chain. *Harvard Business Review*, 80(2), 25–27.
- Jayaraman, R., Srivastava, A., Balgi, A. V, Kumar, A., & Prasad, B. (2003). A Study of Operating Practices and Supply Chains in the e-Commerce Online Retail Businesses in India - ProQuest. *Supply Chain Management Systems*, 2(3), 33–47. Retrieved from <http://search.proquest.com/openview/f8f6f7756d4fbefc2997eb39bfefde6/1?pq-origsite=gscholar>
- Li, B. H., Zhang, L., Wang, S. L., Tao, F., Cao, J. W., Jiang, X. D., ... & Chai, X. D. (2010). Cloud manufacturing:a new service-oriented networked manufacturing model. *Computer Integrated Manufacturing Systems*, 16(1).
- Meade, L., & Sarkis, J. (2002). A conceptual model for selecting and evaluating third-party reverse logistics providers. *Supply Chain Management: An International Journal*, 7(5), 283–295. <http://doi.org/10.1108/13598540210447728>
- Mutha, A., & Pokharel, S. (2009). Strategic network design for reverse logistics and remanufacturing using new and old product modules. *Computers & Industrial Engineering*, 56(1), 334–346. <http://doi.org/10.1016/j.cie.2008.06.006>
- Krishna V., (2014) How heavy is the reverse logisitcs burden for the top e-com players in India, Available at: <http://www.vccircle.com/news/technology/2014/11/17/how-heavy-reverse-logistics-burden-top-e-com-players-india>
- Rogers, D. S., & Tibben-Lembke, R. (2001). AN EXAMINATION OF REVERSE LOGISTICS PRACTICES. *Journal of Business Logistics*, 22(2), 129–148. <http://doi.org/10.1002/j.2158-1592.2001.tb00007.x>
- Sarkis, J. (2003). A strategic decision framework for green supply chain management. *Journal of Cleaner Production*, 11(4), 397–409. [http://doi.org/10.1016/S0959-6526\(02\)00062-8](http://doi.org/10.1016/S0959-6526(02)00062-8)
- Singh, P. K. (2015). How e-retailing is affecting traditional supply chains & logistics | Business Standard News. *Business Standard*. Retrieved from http://www.business-standard.com/article/punditry/how-e-retailing-is-affecting-traditional-supply-chains-logistics-115082800351_1.html
- Sood, V. (2015). Shipments by third-party logistics companies to double: Flipkart - timesofindia-economictimes. *The Economic Times*. Retrieved from http://articles.economictimes.indiatimes.com/2015-01-12/news/57983090_1_logistics-companies-ekart-flipkart

- Tibben-Lembke, R. S. (2013). Life after death: reverse logistics and the product life cycle. *International Journal of Physical Distribution & Logistics Management*, 32(3), 223 – 244. Retrieved from <http://www.emeraldinsight.com/doi/abs/10.1108/09600030210426548>
- Wu, H., & Dunn, S. C. (1995). Environmentally responsible logistics systems. *International Journal of Physical Distribution & Logistics Management*, 25(2), 20–38. <http://doi.org/10.1108/09600039510083925>
- Xu J., & Jiang Y., (2009). Study of Reverse Logistics in the E-commerce Environment, *International Business Research*, 2(1), 128-130.