

Utilization of Reverse Supply Chain and its Obscurity in Industries

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Abstract

The reverse supply chain is the series of consequence required to retrieve the product from the customer in the procedure of abode, reuse or resell it either product is used or unused. This paper deals with the reverse supply chain management along several steps involved in during whole process and problems faced while implementation. Attributes effecting reverse logistics are identified based on the literature review and assistances for identification of barriers, tools, scope and functional area. Thus an endeavour has been made for reverse logistics importance with respect to Indian scenario in automobile sector in order to find out the driving forces for reverse logistics during successful implementation in industries.

Keywords: Reverse Supply Chain; Benchmarking; Logistics; Industries

Introduction:

Social and environmental sustainability increasing influence economic policy decisions and have an impact on economic performance. In such context, consumers and legislations forces industries to consider their responsibility towards environment therefore to consider environmental aspects at different level within the organization and supply chain activities. Industries must design system to reduce their ecological footprint (Povoa et al., 2007). Reverse logistics is a complex process and need dedicated involvement from the top management. Industries are giving less attention towards reverse logistics because it involves physical process that often requires a series of intricate multi layered steps which involve generating returns authorization, printing a label, determining appropriate product handling, disposition and arranging transportation (Norek, 2003). Meade et al., (2007) classifies the factors that led to increase interest in reverse supply chain into two groups: environmental factors and business factors. Environmental factors include impact of products on environment, environmental legislations and environmental concern among customers.

In earliest days reverse supply chain (RSC) can be defined as reverse flow of goods (Murphy and Poist 1989). Rogers and lembke (1999) defined reverse supply chain as the combination of processes like planning, implementing, and controlling the efficient cost effective flow of raw materials in process industry, finished goods and related information from the point of consumption to the point of origin for the purpose of recapturing the value or proper disposal. Uncertainty in supply, quality and cost benefit relation with RSC is studied by (Kishore and Gupta, 2003). The flow of product returns is turning into a major concern for several makers (Blackburn et al., 2004). RSC has considerable potential of value recovery from used products. It is field of importance due to legislations and directives, consumer awareness, environmental concerns, corporate social responsibility and sustainable competitiveness. (Castell et al.,2004). Many organizations are benefited by RSC like Dell, Xerox, Canon, General Motors (Ashley, 1993; Bergstrom, 1993; Maxie, 1994). This helps in tackling environmental issues like used product recycling, waste disposal, and industry induced pollution. In this paper author has discussed about the factors affecting RSC in automobile sector in India, problems facing by automobile sector, what processes can be applied to overcome the difficulties, identification of the success factors and how these strategies can be

implemented.

Reverse Supply Chain System

In RSC process, set of steps are to be followed in order to collect the used products. This starts with acquisition of products from the customers after acquisition of used products they have to be transported to facilities for inspecting sorting and disposition. After assessing the condition of returned products most profitable decision (reuse, repair, remanufacturing, recycling, cannibalization and disposition) is made for its use after that product is supplied for distribution and sales.

Product Acquisition

Product acquisition is defined as the process of obtaining used products from the customers. As per the experts it is the key for a profitable supply chain. Quality, quantity and timing of product returns need to be cautiously managed. Industries must have a good relationship with retailers and distributors (Domgała and Wolniak, 2013). Organizations can get used products from three different sources: from forward supply chain (defective or damaged products), from RSC called market driven system or from waste as discarded products (Guide and Wassenhove, 2001).

Product return and product recall are the examples of acquisition from forward supply chain. Products are generally recalled by the organizations. It is a request to return a product after the discovery of safety issues or product defects that might endanger the consumer or put the maker at risk. Collection methods depend up on cost structure and collection quantity decisions (Atasu et al., 2013).

Transportation

Reverse logistics provide alternate use of resources that is cost effective and environmental friendly by increasing product life cycle (Melbin 1995). Both environmental and economic goals can be achieved by reverse logistics. But there is no best method available for transportation of used products from their owners to organizations. Factors affecting reverse logistics are strategic factors like strategic costs, overall quality, customer service, environmental concern and legislative concerns and the operational factors like cost benefit analysis, transportation, warehousing, supply management, remanufacturing, recycling and packaging (Dowlathshahi, 2000). Thus industries have to quickly transport the product in order its value will not decay with time.

Inspection and Disposition

In this process testing, sorting, classification of used products is done in order to check whether they are good for any reconditioning process or they are to be disposed. A preliminary sorting first occurs upon reception of the returned product by the industry, which have to examine the item in view of deciding how to treat. The next task is to undertake a

cross-verification of the returned item with the return authorization given at gatekeeping. Any discrepancies are corrected in order to control the activity properly. Return products can be commercial returns, service returns, distribution returns or end of life returns. Transportation, disposal, disassembly cost and quality of returned product decides sorting of products before disassembly and remanufacturing (Zikopoulos and Tagaras, 2008). This can be a time consuming task so it can be automated with the use of technologies like sensors, bar codes.

Reconditioning

It's the value addition process to used product so that it can be used again in the forward supply chain. Industries can opt for options that are broadly classified into three categories that are reuse, recycling, remanufacturing. In reuse, returned product can be used more than once after cleaning or reprocessing like container, pallet and bottle. In recycling material is recovered without conserving any product structure (K. Kim et al., 2006) example metal, glass, paper and plastic. Remanufacturing brings the product back into an as good as new condition by carrying out the necessary disassembly, overhaul and replacement operations for example electronic machine, toner cartridge and automobile part. Different industries have different type of manufacturing system. There are different processes available for different type of products, but five common alternatives discussed are reuse, repair, remanufacturing, recycling and disposal (Mutha and Pokharel, 2009).

Distribution and sales

The reconditioned products are sent back to the forward supply chain. Industries have to search out for the potential customers of remanufactured products for example, industries should search out for the chances of selling remanufactured products at low cost who cannot afford new product. Industries should search out for the opportunities of fitting refurbished products into their market policy for example smartphone manufacturers used to sell refurbished phones on lesser cost. In reverse logistics system, decisions for locating the different sites are taken that involved; the gatekeeping, the sorting, and the treatment are influenced strongly by logistical considerations, such as transportation cost, customs, etc. The economic aspects of the process include transportation costs, packaging material, space for preparing orders, and shipping. These costs are varying which depend on the volume of products and the transportation mode used.

Industrial Policies

Restrictive industrial policies are an important barrier to the reverse logistics (Rogers and Lembke, 1998). The lack of the importance of the reverse logistics and the management inattention are related to the policies followed by the industries. Industries want to create a brand image to the customers. They do not want to compromise on the end-product quality by using the returned products. Thus, the policies developed by industries of producing only virgin products also have a major effect of not handling the returned products and to recover the hidden secondary value from the returns. Due to the advent of extended producer responsibility (Lindhqvist, 2000) many industries have started to integrate the recovery options for the products into their supply chain. There seems to be a paradigm shift by the industries to change their rigid policies to incorporate the returns of the product to recover value economically that could give them edge over their competitors.

Conclusion

Reverse supply chain is still unexplored area with respect to current Indian context. There are various loop holes in reverse logistics system that consider every area and act as the barriers while implementation. Lack of knowledge, unawareness of customers, lack of top management commitment, underdeveloped technologies, high capital investment leads to ineffective reverse supply chain management are the main barriers for reverse supply chain. This study discussed about barriers in effective reverse logistics system, strategies adopted in different literatures, the critical factors affecting disposition decisions and various process while applying reverse supply chain management system.

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