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DISPOSITION DECISIONS IN REVERSE LOGISTICS FOR INDIAN AUTOMOBILE SECTOR

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Abstract

A reverse supply chain is a series of activities required to regain a used or unused product from the customer and either dispose of it, reuse it or resell it. Reverse supply chain is an extension of supply chain and starts from the customers with acquisition of used products from them. There are various factors which effect the disposition decisions of the industries to be studied separately. Thepaper deals with the brief overview of reverse supply chain and their steps involved in management. Literature review has been performed on reverse logistics in order to get broad area about barriers, tools, implementation, scope and functional area. Total 11 attributes have been found for disposition decisions for Indian automobile sector.

Keywords*: Reverse Logistics,Multi Attitude Decision Making approach, Attributes, Automobile sector.*

Introduction

The world is facing a liberal scarceness of energy and mineral resources for which demand endures to climb. The products and processes environmental performance is important for sustainable manufacturing. Social and environmental sustainability increasingly influence economic policy decisions and can 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 theorganization and supply chain activities are not an exception.Many countries have regulatory dictating the waste prevention, recovery of waste for reuse, remanufacturing or recycling of materials.Reverse Supply Chain has considerable potential of value recovery from used products which is field of importance due to legislations and directives, consumer awareness, environmental concerns, corporate social responsibility and sustainable competitiveness.It helps in tackling environmental issues used product recycling, waste disposal and industry induced pollution.

Reverse Supply Chainstarts with acquisition of products from customers after the acquisition of used products which 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.

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 company, which must then 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 and 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.

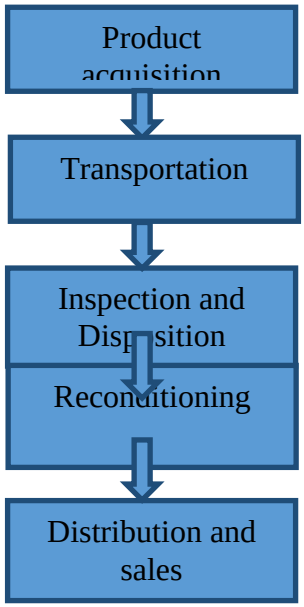

Figure: Flow chart of Reverse Supply Chain

Organizations can use products from three different sources: from forward supply chain (defective or damaged products), from Reverse Supply Chain called market driven system or from waste (discarded products) (Rogers and Tibben-lembke, 2001).It is a request to return a product after the discovery of safety issues or product defects that might endanger the consumer.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 (Shad Dowlatshahi,2000).So the companies have to quickly transport the product in order its value will not decay with time.

Product Acquisition

In Reverse Supply Chain process, set of steps are to be followed in order to collect the used products. This starts with acquisition of products from customers after the acquisition of used products which 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.

Reconditioning

It's the value addition process to the used product so that it can be used again in the forward supply chain. Companies can do so by opting 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.

Distribution and sales

The reconditioned products are sent back to the forward supply chain. Companies have to search out for the potential customers of remanufactured products for example, companies should search out for the chances of selling remanufactured products at low cost who cannot afford new product. Companies 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.The economic aspects of the process include transportation costs, packaging material, space for preparing orders, and shipping. These costs vary depending on the volume of products and the transportation mode used.

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