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New Paradigm of Shift to Supply Chain Management System

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Abstract:

Most of the manufacturers, wholesalers, retailers, and service firms today facing a problem of Management of returned or used merchandise and Reverse Logistics. In this study we are presenting the nature and enormity of the reverse logistics quandary in the industry and a literature investigation of the previous research in this area. Reverse Logistics deals with the processes associated with the reverse stream from users/owners to re-users. This paper provides content analysis of scientific literature on reverse logistics.

Keywords: Reverse Logistics, supply chain position, returnable tote, and probate.

I. INTRODUCTION

Reverse logistics is defined as "The process of planning, implementing, and controlling the efficient, cost effective flow of raw materials, in-process inventory, finished goods and related information from the point of consumption to the point of origin for the purpose of recapturing value or proper disposal."

Reverse logistics stands for all operations related to the reuse of products and materials. Remanufacturing and refurbishing activities also may be included in the definition of reverse logistics. Reverse logistics is more than reusing containers and recycling packaging materials. Redesigning packaging to use less material, or reducing the energy and pollution from transportation are important activities, but they might be better placed in the realm of "green" logistics. If no goods or materials are being sent "backward," the activity probably is not a reverse logistics activity. Reverse logistics also includes processing returned merchandise due to damage, seasonal inventory, restock, salvage, recalls, and excess inventory. It also includes recycling programs, hazardous material programs, obsolete equipment disposition, and asset recovery.

The evolution of reverse logistics for manufactured products is developing in direct proportion to the rapid advancements in technology and the subsequent price erosion of products as new and improved products enter the supply chain at a faster pace. With such thin margins and so much competition, mismanagement of the supply chain can be devastating. Those organizations with the infrastructure to capture and compare the composite value of components with real time intelligent analysis and disposition based on changes in refurbishment cost, resale value, spare parts, repair and overall demand will not only become more profitable, but such flexibility and scalability will allow them to outmaneuver and eliminate the competition.

Reverse Logistics has become a fairly serious issue in recent times primarily because retailers have been forced, due to increased competition, to take a liberal stand as far as returns are concerned. Meyer (1999) believes that returns have increased to as much as 30-50% in some cases. He observes that returns can be as high as 50% for goods sold on-line. Meyer (1999) also refers to a study conducted by the Reverse Logistics Executive Council, in that, U.S. firms spend more than an estimated $35 billion annually on handling, transportation, and processing of returned products. This estimate does not include disposition management, administration time, and the cost of converting impaired materials into productive assets. An issue of such dimension should be dignified with appropriate measures to implement reverse logistics.

Although the phenomenon of Reverse Logistics was in existence for a long time, it did not gain recognition until recently. This area has intrigued many people in terms of the impact it has had and continues to have on the business world. People have approached the subject in different ways and given their perspective on the same. The next section briefly mentions some of the study and analysis done in the area of reverse logistics. Reverse logistics is a complicated process that requires detailed planning in terms of continual audit of returns, determining the best disposition of products that is both economically and technically feasible, warehouse and transportation management, recycling programs, and other related areas.

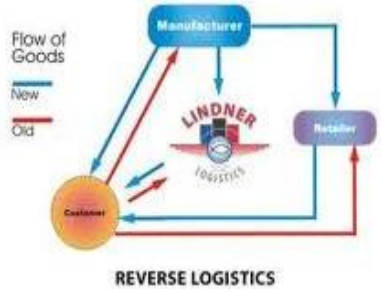

Figure 1: Reverse Logistics Model

II. LITERATURE REVIEW

During the early nineties, the Council of Logistics Management started publishing studies where reverse logistics was recognized as being relevant both for business and society (Stock, 1992). Other studies followed stressing the opportunities on reuse and recycling (Kopicki et al., 1993) In the late nineties, Kostecki (1998) discussed the marketing aspects of reuse and extended product life. Stock (1998) reported in detail how to set up and to carry out reverse logistics programs. Rogers and Tibben-Lembke (1999) presented a broad collection of reverse logistics business practices, giving special attention to the US experience (see also Lund, 2001). Recent reviews and literature compilation either on models to support reverse logistics or on the business perspective can be found at Fleischmann et al., 1997, Guide et al., 2000, Guide and van Wassenhove, 2003, and Dekker et al., 2003. Former studies have argued that the processes, actors, types of reuse and actors are relevant to characterize reverse logistics (Fleischmann et al., 1997). De Brito and Dekker (2002) provide typologies of the what, whom and how of reverse logistics.

Recently, many articles dedicated to the analysis of the practice of reverse logistics have appeared, including Canon (Meijer, 1998), Philip Morris (Andriesse, 1999), Kodak (Toktay et al., 2000) and Nortel Networks (Linton and Jonhson, 2000). Meyers (1999) writes that in a survey of logistics managers, Rogers and Tibben-Lembke (1999) found that four in ten logistics managers consider reverse logistics relatively unimportant compared to other company issues. In terms of resource recovery, the most often described option was recycling and re-use/redistribution (De Koster et al., 2001). Parker (1996) has consolidated the proceedings of the First Annual International Congress on Reverse Logistics Management held in 1996 that focused on the important contribution of accounting for environmental issues. Epstein of Stanford University observed that ABC costing provided an opportunity to minimize costs and increase profitability. Stinson of the University of Texas, Austin, commented that environmental accounting spread across many accounting areas and standards, including financial, managerial, regulatory, tax, and national accounts.

III. REVERSE LOGISTICS STRATEGIES

Depending on the life cycle of a manufacturer's products, and the value of the products, firms will discover that different combinations of the above strategies will be needed to effectively and efficiently handle their returns. For high-value products with short life cycles, like computers, video games, and camcorders, a POS (Point of sale) system may be a very efficient way for retailers and manufacturers to reduce the costs of fraudulent returns. However, the cost of POS registration may make it difficult for many items to be managed in this manner. For example, the cost to track an individual low cost item, such as a pair of jeans, would probably prohibit using POS registration.

This section analyzes and evaluates the RE strategies according to the following decision-making focus: Reverse Logistics Network Structure, Relationships, Inventory Management, and Planning and Control (see Ganeshan et all, 1999; Fleischmann et al, 1997). Furthermore, we give an overview of deposition for processing and transmitting environmental sensitive material.

IV. RETURN MANAGEMENT

Both products and packaging return for a variety of reasons, but returns can be broadly divided between those that are unplanned and those that are planned and desired. Unplanned returns are typically limited to products which customers have purchased. The list of reasons for return is lengthy and each requires different physical handling. It is important that the reason for return is recorded and used to modify future business behavior.

4.1 Returns of New Products

- The customer changed his/her mind
- The product was defective
- The customer perceived the product to be defective
- The product was damaged in transit
- A vendor error (such as wrong item or quantity sent)
- Returns of used products
- Warranty returns
- Product recalls

The effect on margin of not reselling the maximum amount of stock within the season can be substantial, yet it is often given little senior management attention. Unsold stock is reputed to cost 25% of its value annually. Credit disputes with suppliers can run to millions of dollars per year. Moreover, there could be a similar cost hidden in the shops. The cost to the business of price reductions and mark-downs is enormous and is often the factor that sets retailers apart at year end. Good stock management and information can help retailers to buy and sell better. Retail buyers are motivated by the sale of goods and often factor into the bought price an allowance for returns, but this ignores the real costs and the unsold stock issues. Management of slow sellers can turn stock into cash. Retailers can have stockrooms jammed with unsold product, waiting months before it goes into sale. Money is tied up, damage and theft increases, it blocks the fire exits and when finally put on sale it does not make a coherent customer offer. Sale remainders are often dumped. Manufacturers can be deluged with batches of product returns due to retailers overstocking, end of promotion, end of accounting year, unseen build up in warehouses, water damaged packaging or product recalls. The retailers often deduct credit from the next invoice but it takes months to retrieve the item, if at all.

For retailers, returns are costly than they need to be in several ways. First, the returned inventory is idle while processing occurs and may take up to six weeks to be returned to the selling floor. Second, because processing takes so long, the item may be obsolete or past season before it's available for resale, and consequently must be sold at a deep discount. Third, the customer relationship suffers if returns of an item purchased through one channel can't be handled efficiently through other channels. Also, consumers may return items through several channels, including mailing the item back to the DC or returning the item to a local store.

4.2 Recycle and Redistribution

Another dimension in the area of reverse logistics is recycling and redistribution that focuses on environmental awareness through effective value management. Reuse and Recycling, Reverse Logistics Opportunities, published by the Council of Logistics Management in 1993 talks briefly about the advent of recycling laws in different countries. The German Waste and Packaging Law was enacted in April 1991. Under this law, manufacturers, distributors, and retailers were responsible for recycling packaging waste. Many other European countries also established recycling programs. In fact, to resolve discrepancies in legislation between member countries, the European Community proposed a "New Approach Standard" for reuse and recycling in July 1992. The standard was to replace the packaging rules in member countries at the time. The book also mentions mandatory recycling laws adopted by most states in the United States of America. These laws covered recycling goals for state governments, curbside collection requirements, commercial recycling requirements, and more general mandates for local governments to establish recycling programs.

The CLM book (1993) in Reuse and Recycling, Reverse Logistics Opportunities, discusses the emerging issues and different options in non-hazardous waste reduction, and describes how these issues affect the supply chain. This book explains the concept of recycling, reusing, and source reduction--the three components of waste reduction. A short definition of each of these components would be appropriate at this point. Recycling is a four-stage process, involving:

- Collecting recyclable materials from waste generators;
- Processing recyclables materials, which are called secondary, as opposed to virgin, materials;
- Using these secondary materials to manufacture new products; and
- Returning the products to commerce.

Reusing is a process similar to recycling, except that instead of processing the products to create raw materials, the products are refurbished or repaired and used again in their original form. Source reduction involves reducing the amount and/or toxicity of material consumed or wastes generated (e.g., light-weighting packaging). Reuse may be considered as a type of source reduction. The CLM book (1993), on reuse and recycling, has, based on interviews with 17 companies and an extensive literature review, recognized that reuse and recycling programs often follow a three-phase pattern of development, namely: Reactive, Proactive, and Value-Seeking These phases represent increasing levels of corporate commitment to waste reduction and related environmental concerns. The reactive phase aims at compliance of existing laws, fulfilling individual environmental commitments, and achieving of cost savings. The objectives of the proactive approach are to preempt new environmental laws by voluntarily starting programs, developing competitive advantage through more efficient compliance, and sell products that satisfy customers' environmental concerns. Finally, the value-seeking phase aims at integrating environmental activities into a business strategy, and operating the firm to reduce its impact on the environment.

4.3 Deposition and Environmental Concerns

Traditionally, reverse logistics has attracted little attention, as organizations focused on the forward moving supply chain including marketing, sales, procurement, manufacturing, and distribution. Waste reduction includes recycling, reuse, and source reduction of returned products or packaging wastes from end-users. Green Logistics has gained increased momentum in recent years among manufacturers and retailers following government mandates and social responsibilities to the society. The catalyst that sparked this interest in reverse logistics has been environmentalism. Reverse logistics practices have often been environmentally driven, particularly in European countries such as Germany, where environmental regulations are more stringent than in the U.S. However, many organizations are discovering that improving their reverse logistics processes can be a value-added proposition that may or may not have anything to do with environmental concerns (Retzlaff-Roberts, 1998). The added value could be attributed to improved customer service leading to increased customer retention and sales. The added value could also be through reduced cost and/or reduced cycle time. So while environmentalism is and will continue to be a driver behind reverse logistics, it is by no means the only one. In fact the reverse logistics study described in this article is driven by customer satisfaction. It involves a direct marketer that is considering an innovative reorganization of its returns process in order to increase the convenience of the process, while reducing the cycle time.

The pathways that product can follow are:

- Sell as new.
- Return to supplier for credit. Financial penalties for faulty manufacture are common.
- Sell at discount in shop or via an outlet.
- Sell into secondary market.
- Donate to charity.
- Refurbish, inspect, test, remanufacture, repackage.
- Recycle component materials.

- Scrap to a licensed agent.

V. CONCLUSION

The lack of information on the product may prohibit higher levels of product recovery. Yet reuse and remanufacturing are generally economically more attractive than materials recycling. The economic efficiency of deposition programs is a major concern, particularly if a significant fraction of the products sold is returned through the deposition program. Guidance on sustainable product deposition design has to be provided. Especially higher product recovery levels require sound remarketing concepts. Reverse logistics in the context of deposition (collection, storage, and transportation of end-of-life products from the point of return to the point of product recovery and disposal) has not yet been well documented. A major problem in reverse logistics is the irregular return flow of end-of-life products and the uncertainty about the expected number of products returned through a deposition program. Concepts are required that allow the manufacturer to influence the customer's decision about when and where to return a product.

REFERENCES

[1] Andriesse F.G., "Successful implementation of reverse logistics at Philip Morris" in A.R. van Goor, S.D.P. Flapper and C. Clement (eds.), *Handbook Reverse Logistics*, Kluwer B.V., Deventer, The Netherlands, 1999.
[2] Council of Logistics Management, Reuse and Recycling: *Reverse Logistics Opportunities*, 1993
[3] De Brito M.P. and E.A. van der Laan, "Inventory control with product returns: *the impact of information" Econometric Institute Report* El 2002-29, Erasmus University Rotterdam, the Netherlands, 2002.
[4] Dekker R., K. Inderfurth, L. van Wassenhove and M. Fleischmann (eds.), (2003) Quantitative Approaches to Reverse Logistics (forthcoming).
[5] De Koster M.B.M., M.A. van de Vendel and M.P. de Brito, How to organise return handling: an exploratory study with nine retailer warehouses, Int. J. of Retail & Distribution Management, 2001, 30(8):407-421.
[6] Doherty, K., "What Goes around- Comes Back", U.S. Distribution Journal, 1996
[7] Reverse Logistics - Completing the Supply Chain Loop By Michael Shelor Patton Consultants, Inc.

