

Returning Back: Carving Out Reverse Logistics Practices

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Abstract

Logistics or Forward Logistics had been defined in several ways that includes transportation, inbound, outbound or production related logistics etc. At the end of 20th century much of the focus began to shift towards the backward practices being followed, that is, the returned item which was until then a bit overlooked was started to be considered of much importance. Although customer feedback or customer service is still a better way to know about the product but what about the delivery schedule and re-delivery of the returned product. A number of new companies have emerged in the Indian subcontinent that not only supply products, refurbish or reuse scrap but also re-engineer processes and services and thus provide a better solution to small issues that hold a major impact. This paper extracts the elements that have influenced the Reverse Logistics Practices and their implementation in different spheres of the businesses in a small industrial area.

Keywords

Logistics, Reverse Logistics, Refurbish, Re-engineer

I. Introduction

A. Logistics and Supply Chain Management

Logistics is the management of the flow of resources between the point of origin and in order to meet some requirements, for example, of customers or corporations. The resources managed in logistics can include physical items, such as food, materials, equipment, liquids, and staff, as well as abstract items, such as time, information, particles, and energy. The logistics of physical items usually involves the integration of information flow, material, handling, production, packaging, inventory, transportation, warehousing, and often security. The complexity of logistics can be modeled, analyzed, visualized, and optimized by dedicated simulation software. The minimization of the use of resources is a common motivation.

B. Inbound and Outbound Logistics

Inbound logistics is one of the primary processes of logistics, concentrating on purchasing and arranging the inbound movement of materials, parts, and/or finished inventory from suppliers to manufacturing or assembly plants, warehouses, or retail stores. Outbound logistics is the process related to the storage and movement of the final product and the related information flows from the end of the production line to the end user.

C. Logistics Field

Procurement logistics consists of activities such as market research, requirements planning, make-or-buy decisions, supplier management, ordering, and order controlling. The targets in procurement logistics might be contradictory: maximizing efficiency by concentrating on core competences, outsourcing while maintaining the autonomy of the company, or minimizing procurement costs while maximizing security within the supply process.

Production logistics connects procurement to distribution logistics. Its main function is to use available production capacities to produce the products needed in distribution logistics. Production

logistics activities are related to organizational concepts, layout planning, production planning, and control.

Distribution logistics has, as main tasks, the delivery of the finished products to the customer. It consists of order processing, warehousing, and transportation. Distribution logistics is necessary because the time, place, and quantity of production differs with the time, place, and quantity of consumption.

Disposal logistics has as its main function to reduce logistics cost(s) and enhance service(s) related to the disposal of waste produced during the operation of a business.

Reverse logistics denotes all those operations related to the reuse of products and materials. The reverse logistics process includes the management and the sale of surpluses, as well as products being returned to vendors from buyers.

Green Logistics describes all attempts to measure and minimize the ecological impact of logistics activities. This includes all activities of the forward and reverse flows.

D. Third-party Logistics

Third-party logistics (3PL) involves using external organizations to execute logistics activities that have traditionally been performed within an organization itself. According to this definition, third-party logistics includes any form of outsourcing of logistics activities previously performed in house. For example, if a company with its own warehousing facilities decides to employ external transportation, this would be an example of third-party logistics. Logistics is an emerging business area in many countries. Reverse logistics (RL) can be defined as the process of moving end products from their typical final destination for the purpose of capturing value or proper disposal. A RL system (RLS) incorporates a supply chain that has been redesigned to manage the flow of products or parts destined for remanufacturing, repairing, or disposal and to effectively use the resources. Reverse logistics starts where the traditional principles of supply chain management (SCM) come to a conclusion; this is when a consumer product reaches its end of life or use, and is redundant to its users. Reverse logistics (RL) stands for all the operations related to the reuse of used products, excess inventory of products and materials including collection, disassembly and processing of used products, parts, and/or materials.

II. Review of Literature

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. Other studies followed stressing the opportunities on reuse and recycling. In the late nineties, marketing aspects of reuse and extending product life of manufactured items have been focused and detailed framework to set up and carry out reverse logistics programs have been proposed. Rogers and Tibben-Lembke (1999) have presented a broad collection of reverse logistics business practices. Eltayeb et al. have explored that taking back products and packaging, business organizations can generate benefits to the environment, in the form of reduced waste and better resource utilization, in addition to economic benefits and cost reductions to the organizations. Carter and Ellram (1998) have investigated drivers and constraints determining a company's reverse logistics

activities. Based on a literature study, they identify regulation and customer preferences as major stimulating factors. At the same time, inferior quality of input resources and a lack of stakeholder commitment are found to be major obstacles for successful reverse logistics programs. Moreover, they have suggested critical factors in the reverse logistic process and developed a model that proposes how these factors interact. Subramanian et al. have discussed analysis and evaluation of RL strategies according to the following decision making focus: Reverse Logistics Network Structure, Relationships, Inventory management, and planning and control. The Reverse Logistics have been discussed for over a decade (stock, 1992, 1998; Pohlen and Farris, 1992). Many articles dedicated to analysis of practice of reverse logistics have appeared. Pokharel and Mutha have investigated the current development in research and practice in RL through content analysis of the published literature and have shown that research publication on RL is increasing specially after 2005 and therefore it shows the growing recognition of RL as a driver of supply chain and logistics. Janse et al. have summarized Barriers and facilitators in managing reverse logistics in the consumer electronics sector and provided a diagnostic tool for assessing a Consumer Electronics company’s RL practices and identifying potential for RL improvement, from a business perspective. Effective reverse logistics is believed to result in direct benefits, including improved customer satisfaction, decreased resource investment levels, and reductions in storage and distribution costs (Guintini and Andel, 1995a; Andel, 1997).

Faisal explored the barriers to corporate social responsibility (CSR) in supply chains and presented a hierarchy-based model and established the contextual relationships among these barriers using ISM. Reverse logistics can significantly impact a company’s bottom line by Recapturing value (Andel, 1997; Clendenin, 1997; South, 1998). A growing number of companies are finding that there’s money to be made by sending things back. Third Party Logistics Providers see that up to 7% of an enterprise’s gross sales are captured by return costs. Almost all reverse logistics contracts are customized to fit the size and type of company contracting. The 3PLs themselves realize from 12% to 15% profits on this business. Reverse logistics has important environmental dimensions, i.e. green logistics (Byrne and Deeb, 1993; Carter and Ellram, 1998; Wu and Dunn, 1995), as well as dimensions relating to value reclamation. The latter is of the most interest in the current research. The research focuses on companies’ efforts to reclaim value through the returns process. This may be prompted by a wide range of reasons including the reclamation of unsold, damaged, or mis-shipped product. Effective reverse logistics is believed to result in direct benefits, including improved customer satisfaction, decreased resource investment levels, and reductions in storage and distribution costs (Guintini and Andel, 1995a; Andel, 1997).

In fact, if a firm does reverse logistics well, it will make money (Stock 1998). Recovery of products for remanufacturing, repair, reconfiguration, and recycling can create profitable business opportunities (Giuntini and Andel, 1995b). Companies that are able to take advantage of economies of scale may do especially well. Reverse logistics also influences customer service/satisfaction. For example, the ability to quickly and efficiently handle the return of product for necessary repair can be critical (Blumberg, 1999). In spite of the fact that reverse logistics can so dramatically influence firm finances and customer relations, too often it is overlooked and the strategic value ignored. Rogers and Tibben-Lembke (1999) found that four in ten logistics managers consider reverse logistics unimportant compared to other company issues. It is estimated that

some industries have return rates in the range of 30 per cent to 50 per cent (Meyer, 1999); other estimates are as high as 60 per cent (Jedd, 1999). Various special cases of product returns have been studied and reviewed in detail(see Murphy, 1986; Murphy and Poist 1989). Also the control and rescheduling of remanufactured products have been considered(Flieschmann et al., 1997). Considering this, the perspectives that reverse logistics is unimportant is dangerous and likely to negatively impact firm performance.

Reverse logistics is not optional and it is not unimportant. Liberal return policies are standard marketing practice at many firms. Customers are often allowed to return products for any reason, no questions asked. This, coupled with the need to accommodate damaged or defective merchandise, product recalls, maintenance and repairs, and recycling, means logistics professionals must place a higher priority on effectively managing returns. According to Minahan (1998), efficient management of returns can reduce companies’ annual logistics costs by as much as 10 per cent. About 20 per cent of potential cost savings from improved reverse logistics typically come from labor savings; the other 80 per cent relates to savings in freight costs and reductions in pipeline inventory (McKeefry, 1997). In India Reverse logistics Industry accounts for about \$12 million as per the latest stats issued by the CII(Confederation of Indian Industry). Reverse Logistics in India is a perfect platform for the entire Reverse Logistics ecosystem to come together to search for new partners, new ideas and learn from the market leaders about their experiences.

III. Objectives

1. To review the reverse logistics current practices.
2. To find out the factors those hold importance to a supplier for customers in Reverse logistics process.
3. To review the procedures required for the improvement of the Reverse Logistics process.

IV. Reverse Logistics Practices

Typical reverse logistics practices would be the processes a company uses to collect used, damaged, unwanted (stock balancing returns), or outdated products, as well as packaging and shipping materials from the end-user or the reseller. Once a product has been returned to a company, the firm has many disposal options from which to choose. If the product can be returned to the supplier for a full refund, the firm may choose this option first. (Table 1) If the product has not been used, it may be resold to a different customer, or it may be sold through an outlet store. If it is not of sufficient quality to be sold through either of these options, it may be sold to a salvage company that will export the product to a foreign market.

Table 1:

Material	Reverse Logistics Practices
Products	Return to Supplier Resell Sell via Outlet Salvage Recondition Refurbish Remanufacture Reclaim Materials Recycle Landfill

Packaging	Reuse Refurbish Reclaim Materials Recycle Salvage
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If the product cannot be sold “as is,” or if the firm can significantly increase the selling price by reconditioning, refurbishing or remanufacturing the product, the firm may perform these activities before selling the product. If the firm does not perform these activities in-house, a third party firm may be contracted, or the product can be sold outright to a reconditioning/remanufacturing/refurbishing firm. After performing these activities, the product may be sold as a reconditioned or remanufactured product, but not as new. If the product cannot be reconditioned in any way, because of its poor condition, legal implications, or environmental restrictions, the firm will try to dispose of the product for the least cost. Any valuable materials that can be reclaimed will be reclaimed, and any other recyclable materials will be removed before the remainder is finally sent to a landfill.

Generally, packaging materials returned to a firm will be reused. Clearly, reusable totes and pallets will be used many times before disposal. Often, damaged totes and pallets can be refurbished and returned to use. This work may be done in-house, or using companies whose sole mission is to fix broken pallets and refurbish packaging. Once repairs can no longer be made, the reusable transport packaging must be disposed of. However, before it is sent to a landfill, all salvageable materials will be reclaimed. European firms are required by law to take back transport packaging used for their products. To reduce costs, firms attempt to reuse as much of these materials as possible, and reclaim the materials when they can no longer be reused.

Reverse Flow of Goods

Each of the activities in table 1 gives rise to some interesting questions, many of which will be addressed in this project. However, from a logistics perspective, the larger issue common to all of these activities is how the firm should effectively and efficiently get the products from where they are not wanted to where they can be processed, reused, and salvaged. Also, the firm must determine the “disposition” of each product. That is, for each product, the firm must decide the final destination for products inserted into the reverse logistics flow.

Many Indians today are embracing e-retailing with enthusiasm. Popular portals such as Flipkart are spearheading the conversion of offline shoppers into online bargain hunters.

V. Classifying Reverse Logistics Practices

Clearly, reverse logistics can include a wide variety of practices. These practices can be divided as follows: whether the goods in the reverse flow are coming from the end user or from another member of the distribution channel such as a retailer or distribution center; and whether the material in the reverse flow is a product or a packaging material. These two factors help to provide a basic framework for characterizing reverse logistics activities, although other important classification factors exist. Regardless of their final destination, all products in the reverse flow must be collected and sorted before being sent on to their next destinations. Where products are inserted into the reverse flow is a prime determinant in the resulting reverse logistics system. In Table 2, a number of reasons for products in the reverse flow have been placed within the context of this framework. If a product enters the reverse logistics flow from a customer, it may be a defective product,

or, the consumer may have claimed it was defective in order to be able to return it. The consumer may believe it to be defective even though it is really in perfect order. This category of returns is called “non-defective defectives.”

Table 2: Characterization of Items in Reverse Flow, by Type and Origin

	Supply chain partners	End Users
Products	Stock Balancing Returns Marketing Returns End of Life/Season Transit Damage	Defective/ Unwanted Products Warranty Returns Recalls Environmental Disposal Issues
Packaging	Reusable Totes Multi-Trip Packaging Disposal Requirements	Reuse Recycling Disposal Restrictions

It can be said that majority of the reverse logistics practices are related to the products only and not to the packaging. But there are always exceptions.

Like at Flipkart returned item is re-packaged in the same way as it was sent. A number of domestic firms are beginning to use reusable containers—such as plastic totes and knockdown cages.

VI. Research Methodology

A. Data Collection and Sampling

The data used was secondary as well as primary since the research was carried out using a questionnaire. To fulfill this task, the questionnaire developed was sent to 500 Companies that included dealers and retailers randomly within the Hardwar, Uttarakhand region out of which 147 were undeliverable. From among 353 questionnaires that reached their destination, 155 reverted out of which 100 were usable questionnaires with a response rate of 64.5%. The type of research conducted was exploratory. Several factors have been evaluated using five point likert scale and the adaptations were taken that have been developed by Rogers and Timben Lembke (1999).

VII. Findings and Data Analysis

The study conducted through the questionnaire shows the results as follows Table A shows the analysis as follows. The total number of participants was 100 and most of the participants included employers, retailers and dealers. Here the mean scores of all the important variables shows that not one of the factors is alone considered by the suppliers that could be given importance all the factors are moderately being considered which proves that the suppliers working on the reverse logistics activities contribute equally to each of the factor. The highest mean of 3.62 of the price factor reflects its importance on its own following this comes the importance of speedy delivery with 3.61. Therefore, the suppliers or retailers are conscious moderately about all of the factors that are important to them as well as to the customers.

Table 3: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Importance to cost reduction as a supplier	100	1	5	3.15	1.114	1.240
Importance to Price	100	1	5	3.62	1.033	1.066
Importance to Quality of Service	100	1	5	3.55	1.167	1.361
Importance to return policies	100	1	5	3.35	1.242	1.543
Importance of speedy delivery	100	1	5	3.61	1.188	1.412
Valid N (listwise)	100					

Note: All items used a 5-point Likert Scale with (1= Least Important and 5 = Most Important)

Improving Reverse Logistics Operations

As is often the case in complex business systems, the starting point for reverse logistics operations' improvement is not within the operational processes. It must happen well before operations and even before a product reaches production. Marketing should define:

1. How the secondary market affects original equipment demand?
2. What customer experience is sought?

Once these numbers are derived, a manufacturer can focus on the operational improvements needed to achieve these numbers. An often overlooked strategic aspect of reverse logistics is that it "clears the channel" for future purchases. By working with customers to trade up to replacement or new products, companies are able to elude inefficiencies and costs by avoiding product obsolescence. This also releases capital and space for replacement products. Of course, customers may buy replacement products, but what happens to the existing products that were displaced? The older products could very easily find their way into secondary markets and lessen the demand for newer products. VCR manufacturers present a good example of an industry that failed to provide reverse logistics. With the growing popularity of DVDs, have any of the VCR manufacturers tried to retain customer loyalty by offering a reverse logistics program for old VCRs? Or are the margins so thin on VCRs and DVD players that the products do not warrant a reverse logistics strategy? Consider the lost opportunities for the manufacturers to gain customer loyalty by helping dispose of old technology while up-selling and/or cross-selling some of its newer products. Time and again, new technologies are introduced to customers without reverse logistics strategies or market penetration goals in place. The computer industry is another example where solid reverse logistics strategies and goals can help a company end the lifecycle of one of its old products while introducing newer technology to its customers. The key is to dispose of the old product, but keep the customer. A good reverse logistics strategy should be as much about the lifecycle of the customer, as the lifecycle of the product. An Internet search of "used computers" warrants over 11,500,000 hits. One company, which disposes of used computers, processes more computer equipment in a single month than it did in an entire year just several years ago. Its expected volumes will quadruple in the next 12 months to more than 100,000 units annually or about 3 million pounds of computers. Time and time again, new technology is introduced to customers without a reverse logistics strategy or market penetration goals in place. UPS Supply Chain Solutions According to the International Association of Electronic Recyclers (IAER) 2003 industry report,

"There are more than 500 million units of computer equipment – CPUs, monitors, printers – currently installed in the USA from all sectors, including consumer, that will be obsolete in less than five years." IAER also cites a U.S. Environmental Protection Agency report from 2002 stating, "91 percent of consumer electronics are discarded."10 This recycling statistic says nothing about the generations of used computers being sold in emerging countries or secondary markets.

Without providing any type of customer experience or knowing the name and contact information of the buyer/user, any opportunity to up-sell, cross-sell, or try and maintain customer loyalty is lost. "Many companies are struggling with how to properly handle used and obsolete electronic goods and their components. They know that managing these goods within regulatory guidelines is critical to their post-sales supply chain to increase operational efficiencies and control costs, as well as contribute to a safer environment."11 It is important that a company control the availability of its products even in the secondary market. Reverse logistics can be used as a differentiator to distinguish one company from another, which further increases "switching costs" to competitors. A well-defined reverse logistics program can also be used to capture customer opinions and needs that can deepen the collaborative relationship.

VIII. Conclusion

Current reverse Logistics practices being followed are different from the contemporary style of logistics where it meant only the transfer of goods from one place to another even today several firms follow the same format. It is highly required that these companies must follow those practices that are meant to redefine the future and which brings transformation in the professional world. Third parties specializing in returns have seen a great increase in the demand for their services. Leading-edge companies are recognizing the strategic value of having a reverse logistics management system in place to keep goods on the retail shelf and in the warehouse fresh and in demand. There still remain those firms that have very vague knowledge regarding the efficient use of reverse logistics practices. This research however, shows a significant awareness about the reverse logistics practices and the procedures required for its improvement.

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