

## Reverse Logistics

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**Abstract:** The objective of this paper is to research on the current strategies and importance of Reverse Logistic(RL) operations and their impact. This review also establishes the role of the returns policy in the fashion supply chain. It also covers the different strategies adopted in the reverse supply chain across various supply chains and how it can be interconnected in the fashion supply chain. Retrologistics has always been considered as one of the least explored cost-oriented research areas. Beyond the handling of recycling and reuse, there is a tremendous scope for analysis of the returns in the RL process for identifying the causative factors. An analysis of causative factors may help in taking remedial measures for reduction in number of returns. Hence, several retail organizations have started giving importance in developing a best strategy and process for returns on the management program. Again, it is imperative for evolving strategy specific to the fashion industry/business to their specific needs and nature of operations. This review paper discusses different elements/strategies of operations involving RL in the fashion supply chain, different applications highlighting advantages and profit improvement/cost savings.

**Keywords:** Reverse logistics; Reverse supply chain; Supply Chain;

### I. Introduction

Reverse Logistics (RL) has been defined as the movement of the product or materials in the opposite direction for the purpose of creating or recapturing value or for proper disposal (Rogers and Tibben-Lembke, 1999). Reverse logistics is basically 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 creating value or for proper disposal (Daugherty et al., 2002). Going beyond the recycling and reuse, RL involves other processes including handling of the returned goods or merchandise, excess inventory, restock, product recalls, refurbishing, product disposals, etc. At the stage of supply chain designing, organizations should incorporate strategies for proper returns management. Such a proactive move can result in substantial savings in costs later. There is no one RL strategy that is applied/suited to all industries.

Professionals call RL with other names such as reverse supply chain, after market supply chain, after market logistics or retrologistics. This is gaining momentum in the industry positioned as a competitive strategy for retailers. Many players consider the returns process an integral element in the product life cycle. Nevertheless, many supply chains do not have an element called returns management in their supply chain. Research potential is enormous in the area of reverse supply chain as a process. RL also goes beyond the stage of selling the product to the customer. It also considers the stage of disposal of product or reselling of product by the customer. This review helps fashion professionals to understand the trends, inside processes and importance of returns management as an imperative element in their supply chain.

### II. What Supply Chain Management Theories Advocate

Currently prevailing solutions in SCM can be summarized as minimizing stock, reducing lead time, adding value, integrating supply chains, systemizing and professionalizing. These concepts tend to be the exemplification of best practices achieved by innovative firms and they are commonly accepted and shared by practitioners in all stages of supply chains.

Unnecessary stock causes extra costs for warehousing facilities, personnel, finance and administration. It can also make loss by product obsolescence. Just-in-time delivery is a good example of solution to achieve the reduction of stock level. Reducing lead time is an important factor for a competitive edge in the current situation as consumer needs are well diversified and product life cycle is becoming shorter. As a result, diversifying the products is postponed further in the downstream of the supply chain, i.e., closest to the customer end of the supply chain. Thus, adding values on the product such as modifying, packaging and labelling is carried at the distribution phase rather than at the manufacturing phase. These works are better coordinated by taking a wider command of supply chains horizontally and vertically, integrating decision making processes along with the state-of-the-art ICT. Finally, higher levels of work in these processes are only achieved by professionals of various fields in logistics. This leads to the concentration of resources on the core competence on the side of manufacturers and distributors by outsourcing logistics to professional third-party service providers (Christopher, 1992;

Bowersox et al., 2000; Hines et al., 2000; Schary and Skjoett-Larsen, 2001; Coyle et al., 2003; Harrison and van Hoek, 2005; and Shinohara, 2006). The main theme of these theories is the maximization of efficiency. By reducing stock, minimizing the time spent for goods to stay at the nodes and streamlining transportation, supply chains improve efficiency. This means that the objective of logistics is to maximize the efficiency of goods flow and increase goods movement.

However, one should note that few arguments have been made as to what is efficiency and whether extension of supply chains can really lead to an ultimate good. Without answering this initial question, the basic proposition of logistics and SCM will remain equivocal and the validity of its paradigm questionable.

In this field, practitioners and researchers have tended to follow the existing theories and discuss technicality in their application. Recent examples are seen in Chen’s (2008) model for customer-focused objective-based performance evaluation of logistics service providers and Kunadhamraks and Hanaoka’s (2008) evaluation of the logistics performance of intermodal transportation in Thailand. Gebauer and von Zedtwitz’s (2007) analyses of the differences in orientations between Western European and Chinese service organizations focus on the methodology development to adapt European firms to the Chinese culture operating in the country. However, as the magnitude of the Asian economy is increasing and it has great influence on the future of global economy, a question should be raised as to whether the SCM theories should holistically take the specificity of Asian value system into account.

III. Process Review on Reverse Supply Chain

The RL process is completely different from forward logistics. Figure 1 gives the basic elements of both forward and reverse logistics. In forward logistics, products are being sent to the DCs and then to respective stores. In this, it is much easy to predict the projections and track shipments via various visibility tools such as advanced shipment notifications, etc.; but RL does not have transparency and it is predominantly reactive, i.e., the company plans the handling of the returned materials after it reaches the manufacturer or place of disposal.

Research study conducted by Rogers and Tibben-Lembke (2002) reveals that the cost of RL accounts for only 4% of the total logistic costs. However, companies still consider it as a non-revenue generating process and this often results in few resources used in this phase of supply chain. The report says that 51.65% of apparel companies agree to take back returned products if they are defective or damaged in shipment. Approximately 48% take back merchandise because of wrong size purchase. Concurrently, there are concerns about sustainable development, environmental issues and legalities associated with the RL process. Much

effort has gone into handling the product returns in the best cost effective manner together with lots of research leading into customer satisfaction. Table 1 refers to a general return rate in various segments.

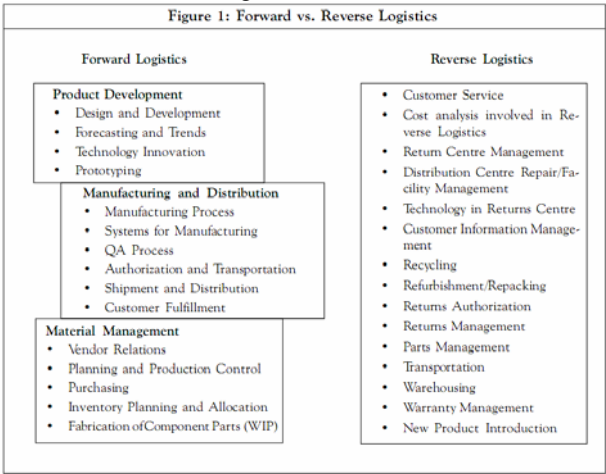


Table 1: Selected Return Rates for Different Merchandise Category (in %)

Business Products	< 1 to 5
Hard Goods Gifts	5 to 9
Home Décor	5 to 10
High-Tech Products	5.5 to 20
Casual Apparel	10 to 20
Shoes	10 to 30
Fitted Apparel	20 to 30
High Fashion Apparel	25 to 40

Source: F. Curtis Barry and Company

IV. Fashion Life Cycle with Recycling Logistics

From the purchase of a product to the return of a product, RL is a specialized process and involves all information to make the most out of the returned product. These concepts and their operational management are essential components in defining customer service through Customer Relationship Management (CRM) principles (Anton and Petouhoff, 2002). Not enough research attempts have been made on linking reverse supply chain with product life cycles concept, especially in the apparel field. Major phases identified in product life cycle are: development, introduction, growth, maturity, decline and ousting (cancellation phase). There has been little work on the relationship between RL and product life cycle which leads the product sales and returns to be unknown. It is imperative for any fashion brand to establish the base work on the reverse processes during the development stage itself and decisions made during this phase are long lasting.

V. Conclusion

In the global environment, innovations in handling the returned goods are essential to increase the effectiveness of the supply chain which in turn increases the profit of the product cycle. All supply chain managers should start looking at the returns management process as a constituent

element in their supply chain. Companies should start paying strong attention towards this management process by structuring the RL structure to deal with the challenges. Also, it is important to highlight that the success of the returns management process lies in the handling of customer and financial limitations. The concept of RL is evolving and not a single model or framework of RL can fit or suit all companies across industries. This is because the time, frequency of returns, supply chain systems and product types differ between organizations. Any organization, which wants to survive in the margin should establish good procedures for carrying out the returns management program, as returns reduce the profit levels for retailers.

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