



# Reverse Logistics in Retail: An Exploratory Study of New Methods in Management Reporting that Have Proved Significantly Cost Effective

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## **Abstract:**

*Retail chains today have been challenged to identify ways to handle the reverse flow of goods in the most effective manner. The volume of online shopping has risen significantly and so has the flow of returns, adding complexity and discomfort to logistic operations. The volume of goods in the reverse mode has also questioned practices in the forward supply chain in areas of quality sourcing. Liberal return policies too have put pressure on the accuracy of forecasting return numbers. The nature of the reverse logistic operations demands significant improvements in the use of information technology. Failure to integrate the cost of handling reverse logistics to the integrated supply chain is perilous. This paper looks at some best practices that have evolved in the last two decades in handling and management reporting of reverse logistics in retail.*

## **INTRODUCTION**

An important component of the reverse logistics process is to accurately evaluate each product returned in order to determine the most optimal disposition option. Product returns are part of reverse logistics which includes a combination of other activities such as recycling, refurbishing, and repair, as well as waste disposal (Stock, 2001). Processing product returns has become a critical activity for organizations as the volume of goods flowing back through the supply chain rapidly increases (Guide et al., 2006). Adding to this challenge is the popularity of online selling which freely gives the customer an option to return goods whenever unsatisfied, within a stipulated period of time

It is believed that while product returns are known to account for a large proportion of reverse logistics activities, manufactures are able to recover only a portion of the value of the returned products because of processing delays (Guide et al., 2006).

Sound practices in product returns and reverse logistics can be a “win-win” situation benefiting both customers and the firm (Stock, 2004). When effectively handled, product return processes can help firms recover value. The growing concerns with disposal, environmental and legal issues and sustainability, all these operations in

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reverse logistics can provide insights into strategies for sustainable development (Srivastava & Srivastava, 2006).

However, it is tragic to note that some organizations still do not realize the critical nature of product returns and its direct impact to profitability and customer service, nor the benefits associated with efficient product returns. They see the reverse flow as an additional cost to be incurred in their normal business practices (Stock, 2004).

### **Unique Challenges**

Reverse logistics off late has shown to attract more respect today than in the past. However the level of attention and investment and attention may never be the same as afforded to forward distribution. And obviously so, because forward distribution, by and large is seen by most organizations as revenue generating avenues. This shift in attitude is due largely to an increased understanding of the costs associated with returns and of the opportunity to reduce those costs and improve recovery values through better management and automation. This has also led to the emphasis by corporates to after-sales service and the need to satisfy customer demands for rapid replacement or repair of products and parts.

According to Dr. Dale Rogers, professor of logistics and supply chain management and co-director of the Center for Supply Chain Management at Rutgers University, the reverse movement of products offers many challenges and opportunities not present with forward logistics. Rogers adds that U.S. companies also need to work harder at managing reverse processes once they are established or they will experience a “constant leak of profit” (Burnson, 2014).

In fact, recent research conducted by supply chain technology Stalwart Intermec found that more than 50% of all businesses they surveyed are incapable to determine if returned goods should be discarded, returned to a vendor, or moved back into inventory. The survey also found that 44 percent of distribution center managers consider returns a “pain point” in their operations. This predicament has led to Industry analysts and consultants to state that the challenge is well worth taking on, especially when considering the payoff (Burnson, 2014).

According to Rogers & Tibben-Lembke (2001, p. 129), the reverse activity manages both the physical flow and the information flow of little use or none (after sale) product returns, or of used products subject to reuse which return to the productive or business cycle.

### **A case in Point: The US Electronic Industry**

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In big American companies, the activity a decade ago, accounted for around 4% out of the total logistics costs, an estimated value of 35 to 42 US\$ billions a year (Norek, 2003; Rogers & Tibben-Lembke, 2001). Latest figures could not be obtained but can be easily presumed to be twice as the above figure. In the electronics industry, the average return rate on sales is 8% but when further segregated and sub categorized it can range from 4% to 15% (CEA report, 2010). This equates to \$14 billion in annual returns, and many of these products are not defective. According to Curtis Greve, Principal of Greve-Davis, Pittsburgh, a closer look at returns of consumer electronics in the US have established that the non-defective rate for consumer electronics hovers around 65% of total goods returned, meaning only 35% are actually defective. The non-defective product may be in perfect working order or damaged by the customer but still repairable. This is wealth lost, if not recovered and is bound to affect bottom line revenues. In many cases, the existence of a well-managed reverse logistics system is essential in the decision of purchasing products or services.

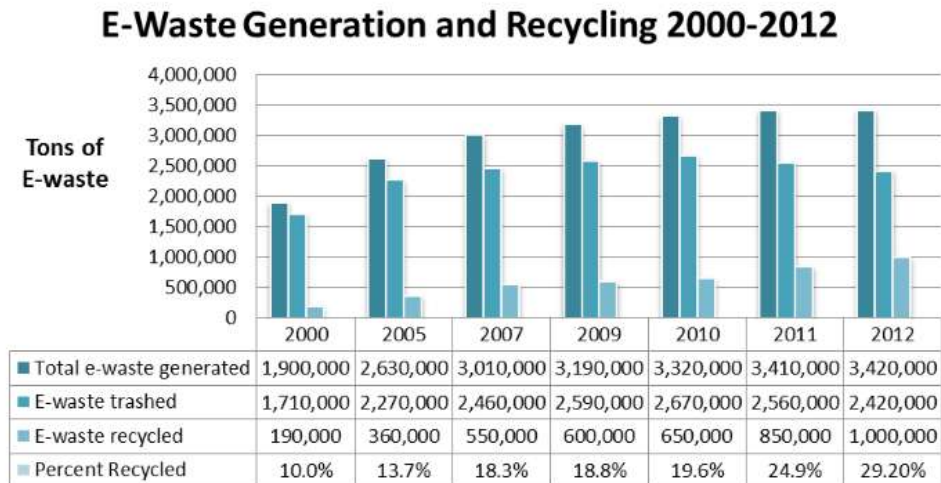
As a whole, the electronics industry spends over \$14 billion on returns every year. (Petersen & Kumar, 2010). High-tech manufacturers without a well-managed reverse logistics process could be losing over 50% of the returned inventory value since the majority of returned products can be sold in secondary channels. This lost opportunity could add up to millions for a medium to large company (Siriwardene, 2009). When high-tech manufacturers examine the total value of goods returned, the sheer size of the opportunity to tap into hidden profits can be staggering. For instance, 400 million units of e-waste are discarded in the U.S. alone every year (EPA report, 2012). According to the same source, of this amount, only about 13.6% of consumer electronics products were recycled. This includes both customer returns as well as old, obsolete goods that the consumer never returned but simply threw away. The EPA's most recent e-waste report shows that 3.412 million tons of e-waste was generated in the U.S for 2012. See Figure 1, below.

There is no question that the cost to industry of product returns is high. In the U.S. alone, the outlay for reverse logistics adds up to around \$100bn each year, according to Aberdeen Group, a research and analysis firm based in Boston. This actually is a conservative estimate, Aberdeen says, because reverse logistics costs typically are spread throughout the organization or hidden among various business functions (Murphy, 2007). What many fail to realize is that the average manufacturer will spend 9% to 15% of total revenue on returns, according to a 2010 Aberdeen Group study. They are often unaware of the impact returns management can have on their customers, their resources or their bottom line (Aberdeen Group, 2010). In fact, improving reverse logistics can help the company increase revenue up to 5% of total sales (Greve, 2011).

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**Fig. 1 E-Waste Generation and Recycling 2000-2012**



**[Source: EPA data from “Municipal Solid Waste Generation, Recycling and Disposal in the United States 2012,” Feb 2014; These EPA numbers are for “selected consumer electronics” which include products such as TVs, VCRs, DVD players, video cameras, stereo systems, telephones, and computer equipment]**

### **Reverse Logistics: Concepts and Management of the Activity**

Reverse logistics is a rather wide area/function that involves all the operations related to the reuse of products and materials such as the logistics activities of collecting, dismantling and processing of products and/or materials and used pieces in order to assure a sustainable recuperation of those that do not harm the environment (Revlog, 2005).

Managing the flow of goods through the forward-facing supply chain is hard enough, but keeping the reverse supply chain running smoothly presents a number of unique challenges (Reese, 2011). This is because of the fact that the reverse supply chain demands more labor attention. It may surprise many executives, but truly defective returns are often less than 20% of the products processed through a returns center. Moreover, the complexity of operations (see Fig 2 below) demands that the reverse logistics process must often be customized around each product coming back into the supply chain.

As a result of factors like these, many companies have elected to either implement new solutions to better manage their reverse logistics process or, alternatively, to outsource their reverse logistics operations to service providers to take advantage of economies of scale and specialized expertise in planning reverse logistics operations. The outsourcing side has seen both vertical-specific and more general offerings.

**Fig. 2. The Reverse Logistic Spectrum**



[Source: “Recovering lost profits by Improving Reverse” Available at [http://www.ups.com/media/en/Reverse\\_Logistics\\_wp.pdf](http://www.ups.com/media/en/Reverse_Logistics_wp.pdf)]

### **Impacting the bottom line through improved disposition methods**

A study of commercial returns can be fairly compared to a pipeline that is leaking and shrinking. As product moves through the reverse supply chain, it loses its asset value and this can be as high as 45% in the process. This loss is due to two primary reasons: the downgrading of the product to a lower value as it is subjected to the process of remanufacturing, segregating and salvaging for parts that could possibly be reused and secondly the depreciation decrease in product value with time. Electronic goods like PCs can lose value in excess of 1% per week, and the rate increases as the product reaches the end of its lifecycle (Kumar, 2011).

An earlier disposal strategy, triggered by reporting systems that give precise information in terms of value against time could save millions of dollars in overhead costs by reselling or recycling returns coming from the retailer’s returns center. However, most companies invest significant dollars and people to process returns themselves. Speeding disposition of returns to eliminate overhead and preserve product value seems to be the logical solution.

Having first hand quick access to information about product returns and where it needs to end makes it easier for companies to deal with regulatory issues and evaluate returned stock for possible secondary sales channels. Other benefits include low inventory level, low carrying costs, less taxes and insurance costs and not to forget low managing staff levels. In reality, reverse logistics costs are less than 4% of total supply chain costs for most companies. And while maximizing efficiency is always important, reverse logistics can also provide a wide variety of opportunities for



improvements, from customer service and returns processing to supplier relations and unexpected revenue source (Greve, 2011).

According to a Genco (2013) report, shortening the disposition cycle can improve net recovery by 25 to 50 percent. Typical cycles can range between three weeks to three months. This may depend on whether the disposition method is simple liquidation or one that requires value-added activities such as inspection and testing, repacking, or refurbishment. Avoiding duplication of activities at the retailers and the Vendors end would save lot of time and costs on reduced labor. It states that if this journey is not monitored well, the organization will be in for a huge surprise. Assuming a three-month cycle, a product vendor might generate a 31% lower yield compared to more immediate liquidation. Another significant, but less obvious downside to extending the disposition cycle for returns is product devaluation. On high-turnover products like cell phones, price erosion can be 10% per month. To obtain the greatest return, product needs to be resold into secondary markets while consumer interest is greatest.

According to Greve (2011), the biggest issue in handling returns, especially in the consumer electronics retail segment, is the combination of rising costs and lowering prices as the product takes different stages within the cycle till liquidation. A concerted effort is being made to improve recovery rates and reduce processing costs. For this, to be in control, Greve (2011) suggests that the Net Recovery Value (NRV) must be computed at various stages to find where the loss is minimal (see below). This can only be done if you have good management reporting systems backed by appropriate software. Companies that can do this have a big opportunity to dramatically improve profits.

**NRV=Total Liquidation Revenue + Recycling Revenue – Repair Costs – Processing Costs – Transportation Costs – Cost of Parts**

### **Technology Enablers for Reverse Logistics**

Information technology can be used in various ways to improve the reverse logistics in industries. One of the main uses of IT is to enable item tracking in the supply chain, enabling vendors to see the travel history of the item. This can help in quickly discerning whether products are as good as new and should be put back into the forward supply chain. This tracing ability also enables forecasting of product returns based on historic linkage between product returns and sales (Kumar, 2011).

The sight and prior information about possible product returns is not pleasant news. No one likes products coming back, but companies are learning they can relieve the pain and even realize some rewards by focusing more attention and using apt

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technology in this area (Murphy, 2007). Regardless of the approach that a company takes in addressing its reverse logistics challenge, a key goal of these initiatives is to improve visibility into the goods in motion throughout the reverse supply chain. Data collection of all the possible reverse flow products in all possible ways helps. And that's why information technology is playing such a critical role in the growth of reverse logistics. It is a very heavily IT-driven process because it is critical to be able to track the status of products in the reverse logistics supply chain so that they can fulfill their own service obligations (Reese, 2011).

Reverse logistics also involves refurbishing/testing facilities at multiple locations, routing of vehicles between retailers and these facilities, as well as scheduling of operations, all of which can be aided by information technology. It was found that a German recycling network could reduce its transport volume by 20% based on software optimization (Daniel et al, 2002).

In ideal conditions, a reverse logistics system should seamlessly integrate with the existing set-up of order management, supply-chain, warehouse management, and distributions solutions - like an assembly of best of breed solutions from a variety of vendors (Rogers et al., 1998). This real-time integration is crucial to not only verify and validate the returns, but also reconcile them with accompanying replacements, addition to inventory, fulfillment, shipping, and business intelligence (BI) systems. This is easier said than done. Organizations must see to it that the staff handling the flow of data are well aware of the volume of hidden cash that can be recovered will help the company cash flows and thus the finances of the companies in more ways than one.

Chawla stresses and highlights the e-commerce channel as one of the most cost-effective and shopper-friendly channel to offer a comprehensive reverse logistics tool. Therefore, it is important for the reverse logistics/product returns toolkit to seamlessly operate within the existing online channel, i.e., common shopping basket, with the intelligence to offer replacements, like-items, cross-sell, up-sell, and alternatives based on shopper history. It should intelligently apply and inform shopper of shipping charges depending on reasons for returns, replacements, or new orders, etc. (Chawla 2007). A good example is Tesco home delivery at your doorstep, where items not available as per the customers wish list, is offered a substitution( like-items) ,after going through the history of the customer's previous online shopping details and offering discounts wherever possible to stem the flow of items back to the warehouse.

A major issue for companies in reverse logistics operation is the dearth of good management reporting systems. Flexibility of the system is vital. One has to bear in mind that these systems, irrespective of the choice and type, have to work across

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boundaries spanning the entire operation of the company and therefore it adds additional complexity to the problem. The system should create a database at store level so that the retailer can begin tracking returned product and follow it all the way back through the supply chain) Some proposed systems could be as follows:

- RFID - to bring predictability, reliability, consistency and visibility.
- Advance WMS Solution in order for the various processes to run smoothly.
- With the advancements in capturing managing data at SKU level using GS1 data bars important information like aging, returns at store level etc. can be captured. (Rupnow, 2007)

For any business offering a returns policy on products, Enterprise Reverse Logistics (ERL) can start paying for itself in reduced costs almost immediately as has been the case at Philips. ERL is set up so that it can quickly integrate returns policies and procedures into the system and populate the database with all the product details. Often different products require different procedures – such as a particular repair depot for selected models – ERL can automatically select the most appropriate action. ERL is set up using standard business process methodologies and so can be easily integrated with finance or ERP packages (Rowley, 2010). With an innovative web-based ERL solution, Philips now has a more effective and cost-efficient method for handling returned goods.

#### **Trace and Track to Act or React: Use of Analytics**

Modern retail supply chains are longer, wider and more tangled than ever before. From handling of complex data, to scattered suppliers across the globe, coupled with high expectations of customers to cost, value and timely delivery are stretching traditional supply chain management approaches to their limits.

Supply chain analytics and management play a significant role not only in a retailer's cost structure and profitability but also in the quality of the customer experience. Both in the forward and return direction, buyers will no longer tolerate delivery problems or out-of-stock inventory. In lieu of this, retailers that are incapable or do not have the right processes to handle and sort inventory will ultimately lose out on customer loyalty (Skeen, 2014).

In order to have a holistic and accurate view of the movements of goods in both directions, tracking and tracing event in real time with agility, flexibility and minimum disruption is required (Skeen, 2014).

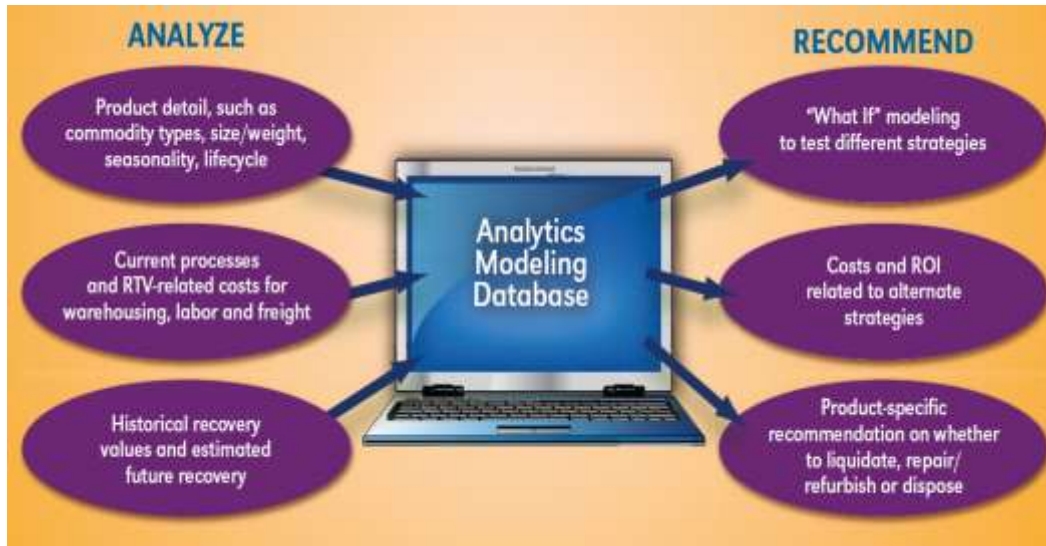
According to a white paper published by Genco, it is possible to analyze product, process and market data to determine the best disposition strategy by

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product type. Figure 3 illustrates, at a high level, the assessment methodology that specialized third-party reverse logistics providers follow.

**Fig. 3: “A Smart Return” Process**



[Source: Available at <http://www.genco.com/Whitepapers/retail-store-returns.php>]

In addition to building up track-and-trace capabilities, enterprises are also exploring options to make better use of the data that they are generating out of their reverse logistics processes. Solectron Corporation, now Flextronics International has attacked this problem by extending its analytics for returns down to the level of the call center, collecting information on reported problems, substantiating those problems when goods come into a return site, analyzing trends that highlight failures, and then reverting the information back to its customers' design staff to make corrections in future products with an intention to avoid the same mistake. Or, when no failure is detected, as happens with anywhere from 15 to 50 percent of returned products in electronics, Solectron pushes the information back to the front end of the process, to the call center staff, so that the support technicians can deflect those returns (Reese, 2011).

Again on the retail side, where returns are a nagging issue (and account for 10 to 20 percent of goods sold, average retailers are using more modern and sophisticated ways to incorporating and processing data on returns into their assessments of the value of any given customer. The rationale is simple. A big-spending customer with a low return rate is obviously more valuable as a client than a



low-spender with frequent returns (Reese, 2011). This can be termed as true business intelligence practices.

A streaming data analytics solution can not only provide a retailer with an up-to-the-minute and comprehensive view of all facets of the supply chain, but it can also let them collect, correlate, analyze and act on data from diverse sources and systems in real-time. According to Skeen, retailers that are most successful at tackling this problem are equipped with four key capabilities:

- End to end visibility across all sections of operations
- Ability to identify bottleneck in real time
- Integrate data from diverse sources and initiate coordination of activities.
- Leverage historical data for timely predictions

### **Using comprehensive strategies to handle data**

Data analytics has helped retailers to adjust to new realities within their industries. Citing an example, e-commerce has grown rapidly in the last decade. Research indicates that online sales will exceed \$1.4 trillion this year, up nearly 18% from 2013 (eMarketer, 2013). Taking into consideration the volume and value, retailers will need effective tools for managing order fulfillment and returns. When data management is incorporated within warehouse management systems, companies gain insights that can deliver increased savings or efficiency.

In a blog for All Things D, Benjamin Alamar (2013) points out that there are a number of strategies for implementing data management tools. Each strategy will impact and alter performance in a different way, giving companies various advantages over the competition. While some firms may choose to focus on reducing delivery times to end-users, others might want to refine their handling of returns thus saving cost on labor and time.

In addition to the above, access to a rich flow of appropriate data makes it easier to identify and clear defective merchandise. By monitoring the movement of goods through the supply chains, companies can determine exactly where specific products are located, thereby, speeding the recall process. A clear understanding of product movements, ably supported by good reporting software systems, businesses are able to improve the accuracy of their forecasting strategies as well. This has given rise to the use of more data management tools within supply chains.

The use of analytics has helped organizations identify inefficiencies and minimize risk. By collecting information at various points, companies can gain an

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accurate representation of where product is located and how various elements affect movement (Genco, 2014).

According to a KPMG study (2013), having good real-time visibility across all tiers in the supply chain can significantly increase speed to market, reduce capital expenditures and manage risk. According to Kenneth Johnson of Newgistics, whose Intelligent Returns Management solution is used extensively in the retail sector, if handling returns is done well than a company can improve customer retention rates and ultimately sell more (Murphy, 2007).

## **CONCLUSIONS**

Retail organizations have realized that a better understanding of product returns and efficient management of reverse logistics can provide them with a competitive advantage. In future more firms will give considerable attention on reverse logistics. The return flow of goods calls for greater attention and higher investments in freight, storage, and labor. Choosing disposition strategies that give optimum net recovery value holds the key. To determine the right disposition strategy, product vendors should analyze processing costs and recovery potential for each class of product sold. Assistance for such an analysis can also be requested from qualified third-party reverse logistics and asset recovery providers, who can offer recommendations that, could yield substantial, bottom-line savings. Having said that, the use of appropriate IT technology takes precedence.

In reverse logistics, IT applications for sound management reporting can be used to trace and track the goods on their return trip from the end consumer to the initial point of manufacturing. Timely access to accurate information on the status, location, and condition of products moving about in the supply chain is critical for a successful reverse supply chain. IT enables the companies operating in the reverse supply-chain channels collaborate efficiently. Efficient handling and disposition of returned product can make a competitive difference. Excellent reverse logistics practices add to the company's bottom line. Aspects to reduce the cost of reverse logistics include among others, an improved gatekeeping technology, a good return policy, earlier disposition decisions, faster processing, shorter cycle times and better data management. Within reverse logistics, maintaining the environment and making profits are complementary. Fewer disposed products can benefit companies and the environment.

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