

REVERSE LOGISTICS IN THE SUPPLY CHAIN MANAGEMENT

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ABSTRACT

Reverse logistics is more than just returns management, it is "activities related to returns avoidance, gatekeeping, disposal and all other after-market supply chain issues". Returns management—increasingly being recognized as affecting competitive positioning -provides an important link between marketing and logistics. The broad nature of its cross-functional impact suggests that firms would benefit by improving internal integration efforts. In particular, a firm's ability to react to and plan for the influence of external factors on the returns management process is improved by such internal integration. In a firm's planning for returns, a primary factor is the remaining value of the material returning and how to recover that value. "Returned goods, or elements of the product, could even be returned to suppliers and supply chain partners for them to re-manufacture". This study examines the reverse logistics from supply chain perspective.

Keywords: *Reverse Logistics, Supply Chain, Vendor, Supplier, Purchaser, Relationship Logistics*

INTRODUCTION

Reverse Logistics is 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. More precisely, reverse logistics is the process of moving goods from their typical final destination for the purpose of capturing value, or proper disposal. 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.

Reverse logistics encompasses all operations related to the upstream movement of products and materials. It is "the process of moving goods from their typical final destination for the purpose of capturing value, or proper disposal. Remanufacturing and refurbishing activities also may be

included in the definition of reverse logistics." Growing green concerns and advancement of green supply chain management concepts and practices make it all the more relevant. The number of publications on the topic of reverse logistics have increased significantly over the past two decades. The first use of the term "reverse logistics" in a publication was by James R. Stock in a White Paper titled "Reverse Logistics," published by the Council of Logistics Management in 1992. The concept was further refined in subsequent publications by Stock (1998) in another Council of Logistics Management book, titled Development and Implementation of Reverse Logistics Programs, and by Rogers and Tibben-Lembke (1999) in a book published by the Reverse Logistics Association titled Going Backwards: Reverse Logistics Trends and Practices. The reverse logistics process includes the management and the sale of surplus as well as returned equipment and machines from the hardware leasing business. Normally, logistics deal with events that bring the product towards the customer. In the case of reverse logistics, the resource goes at least one step back in the supply chain. For instance, goods move from the customer to the distributor or to the manufacturer.

When a manufacturer's product normally moves through the supply chain network, it is to reach the distributor or customer. Any process or management after the delivery of the product involves reverse logistics. If the product is defective, the customer would return the product. The manufacturing firm would then have to organise shipping of the defective product, testing the product, dismantling, repairing, recycling or disposing the product. The product would travel in reverse through the supply chain network in order to retain any use from the defective product. The logistics for such matters is reverse logistics. Today, the global reverse logistic supply chain is valued at \$415.20 billion and it is projected to reach over \$600 billion by 2025.

REVIEW OF LITERATURE

Chiang Ho (2022) suggests that there are three influential factors that drive the need for Reverse Logistics in businesses: Economic needs, Environmental needs, and Social needs. The study, who polled 12 environmental management expert from Taiwanese electronic firms, found that Economic needs are most important with an importance weight of 0.4842, followed by Environmental needs with an importance weight of 0.3728, while Social needs are relatively unimportant with an importance weight of 0.1430.

Patrick Sam (2021) states that the Economic need is caused by a company's desire to profit off of the recovery value such as in the US, the Taiwanese study reasons that the importance of Environmental needs is due to the concern for waste management shared by the developed countries such as the countries of the EU, Japan, and the US. For example, in the EU, there exists the "Waste Electronics and Electrical Equipment (WEEE) directive" which makes EU producers responsible for collection, treatment, recycling, and recovery of all WEEE, "Restriction of the Use of Certain Hazardous Substance in Electrical and Electronic Equipment directive" which restricts

the use of toxic materials in electronics, and "Eco-design Requirements for Energy-using Products directive" which encourage the recycling of electronic products.

Smith John (2020) states that an average of 8-10% of brick and mortar retail purchases are returned, compared to 20% of E-commerce purchases. In the USA alone, it is estimated that return deliveries will cost \$550 billion in 2020. December is traditionally the busiest month for reverse logistics in the United States, with UPS processing over 1 million returned packages daily through Christmas.

Mary Ian (2019) suggests that the reverse logistics research has also found that 84.6 percent of companies in the United States use secondary market and 70 percent see the secondary market as a "competitive advantage."

John Emerson (2018) specifies that the 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 3PL's themselves realize 12% to 15% profits on this business.

THE GOAL OF REVERSE LOGISTICS

Regardless of the type of organization you represent, optimizing your reverse logistics can provide beneficial outcomes for both you and the environment. The goal of successful reverse logistics is to keep products moving in circularity so that manufacturing, distribution, shipping and delivery, returns, repairs and disposal can all remain in sync as part of a constantly spinning model of efficiency. Not only does this lower costs for organizations and subsequently their customers and end users, but it also reduces the number of products that end up in our landfills. By developing and adopting a solid reverse-logistics plan, your organization can create additional value for your customers by showing them how you manage these inevitable processes.

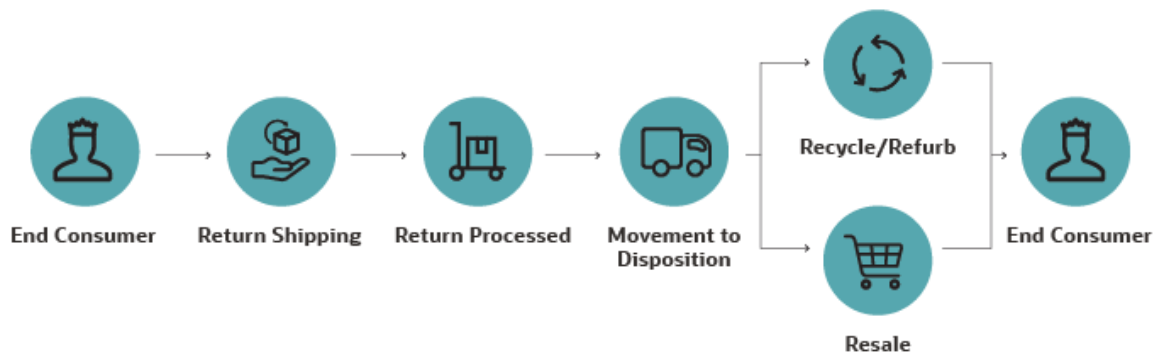
REVERSE LOGISTICS

In today's marketplace, many retailers treat merchandise returns as individual, disjointed transactions. "The challenge for retailers and vendors is to process returns at a proficiency level that allows quick, efficient and cost-effective collection and return of merchandise. Customer requirements facilitate demand for a high standard of service that includes accuracy and timeliness. It's the logistic company's responsibility to shorten the link from return origination to the time of resell." By following returns management best practices, retailers can achieve a returns process that addresses both the operational and customer retention issues associated with merchandise returns. Further, because of the connection between reverse logistics and customer retention, it has become a key component within Service Lifecycle Management (SLM), a business strategy aimed

at retaining customers by bundling even more coordination of a company's services data together to achieve greater efficiency in its operations.

Return of unsold goods

In certain industries, goods are distributed to downstream members in the supply chain with the understanding that the goods may be returned for credit if they are not sold e.g., newspapers and magazines. This acts as an incentive for downstream members to carry more stock, because the risk of obsolescence is borne by the upstream supply chain members. However, there is also a distinct risk attached to this logistics concept. The downstream member in the supply chain might exploit the situation by ordering more stock than is required and returning large volumes. In this way, the downstream partner is able to offer high level of service without carrying the risks associated with large inventories. The supplier effectively finances the inventory for the downstream member. It is therefore important to analyze customers' accounts for hidden costs.



Reverse logistics is an important aspect of supply chain management, which successful supply chain organizations use to execute operations efficiently and increase value for their end customers. By investing time into learning the different types of reverse logistics and the challenges involved in coordination and management, supply chain professionals can leverage their understanding to help lower costs and keep processes running smoothly.

Reverse logistics refers to the supply chain process of returning products from end users back through the supply chain to either the retailer or manufacturer. Whether the customer is returning items they don't need, the end of the product life cycle has been reached or the product is damaged or flawed, it's simply good business to offer returns to your customers, and that's where reverse logistics comes into play. This process also applies when items need to be either disposed of or recycled and includes the scenario where the end user is the one handling the refurbishment, disposal or even resale of the product in question.

TYPES OF REVERSE LOGISTICS

Following are the main types of reverse logistics:

- **Returns management**
The most common reverse-logistics process, returns management, deals with regular customer returns and should represent a seamless, hassle-free experience in order to boost customer loyalty and brand image.
- **Return policy and procedure**
This is the policy against which all customer returns are measured, and it should be followed consistently by both customers and employees alike. It's good practice to keep these policies visible and easily accessible to customers.
- **Remanufacturing or refurbishment**
Reconditioning products that are returned prevents organizations and retailers from forfeiting profit (or losing money) on defective products while eliminating unnecessary waste.
- **Packaging management**
Organizations with packaging management processes are able to reuse packaging in order to reduce waste and save the cost that would otherwise be spent on new packaging for returned items.
- **Unsold products**
Directly focused on returning items from end users or fulfilment centres back to manufacturers, the process of returning unsold products is commonly the result of delivery refusal, poor sales or could involve other factors.
- **End of service life**
Some products need to be returned at the end of their useful life in order for manufacturers to manage their proper environmental disposal.
- **Delivery failure**
If products cannot be delivered, they are returned to fulfilment centres where they may be shipped back to the manufacturer, however, it's possible for efficient organizations to manage delivery failure by correcting the issue and resending.
- **Rental equipment**
Rented or leased products are returned at the end of a defined term and sent back to the manufacturer for either disposal, recycling or redeployment.

- **Repair and maintenance**

Such as in the case of many consumer electronics (laptops, for example), products may be returned to have repairs or warranty work performed.

THE REVERSE LOGISTICS PROCESS

The process used to manage the return of goods depends on the type of reverse logistics in question as well as the type of business the organization operates and in which industry. For example, a clothing retailer will often deal with generic customer returns, while a coffee pod manufacturer would offers customers a mail-back recycling program for used pods. Breweries use reverse logistics to gain back their keg canisters so that they can clean and refill them for further distribution. Each business should have its process mapped out to ensure maximum efficiency and to take advantage of any incentives for streamlining its reverse-logistics activities to increase environmental sustainability.

THE FIVE STAGES OF REVERSE LOGISTICS

1. Process the return

When customers initiate a return, the organization must then initiate the return process and put their standard operating procedure in motion. Every company that deals with returns needs to have an organized method of initiating returns. This means outlining the step-by-step process that returned items will go through once they leave the hands of the customer or end user. Defining this stage can help organizations reduce unnecessary waste and pollution as a result of uncoordinated trucking.

2. Determine the return category

Upon return, products need to be inspected in order to determine where they should be placed next in the process. Once a product is returned there are a few options for next steps. It may need to undergo refurbishment, recycling or be prepped for resale to fill another order. Organizations that have streamlined their reverse-logistics processes will have systems in place to identify the issue and categorize the return before it arrives. For instance, at the initiation of a return, e-commerce giant Amazon asks its customers to indicate the reason, be it that the wrong item was shipped, the item is defective, the shipping materials were damaged or another issue. This enables the organization to process the return promptly.

3. Move products to reduce waste

Continuously keeping returned products in motion can help to reduce the amount of waste produced when products sit for lengthy periods. Items due for repairs should be moved quickly to the repair department so that they are not left in the balance. The same applies to items requiring disposal or resale — these should be moved to the appropriate designated area where they can be managed and continue on their journey through the remainder of the supply chain as necessary.

4. Execute the repair process

Items relocated to the repair department should be dealt with in a timely fashion so that any necessary end-of-life arrangements can be made. Repairable items should be repaired quickly and reinstated into the organization's inventory or disposed of if they are irreparable. In the case where specific parts or components are still usable, these should be sold off to manufacturers to be used in the creation of new products.

5. Recycle items that cannot be repaired or resold

If it can't be fixed or parted out, it must be disposed of in the correct fashion. Organizations must do their due diligence when it comes to recycling and disposing of items that cannot be repaired. This means taking environmental sustainability into account and addressing issues that result from wasted products. Any component that can be recycled should be handled accordingly which may involve the disassembly of the product in full or in part.

ADVANTAGES OF REVERSE LOGISTICS

When done correctly, reverse logistics helps to reduce waste, improve customer satisfaction, and generate new revenue streams.

1. Lower Costs

One of the many pros of reverse logistics includes cutting down on costs. A well-run reverse logistics system helps your business save money. For example, you could save on administration, repairs, tech support, quality assurance, marketing, and disposal costs. It is also possible to save on transportation by offering economy shipping.

2. Higher Customer Satisfaction

Focusing on customer retention is one of the best ways to meet your business goals. It is much harder to attract new customers than to keep the ones you already have. Here are some services to offer customers to improve their return experience: Provide free shipping for return items, Issue customers a full refund, Customers are not required to send back the original packaging

3. Stronger Brand Reputation

Customers care about how you handle returns. They will not purchase from you if you do not have a friendly return policy. If your business is known for being difficult when customers want or need to return something, it will appear in reviews and ultimately hurt your business's reputation.

4. Lower Risk Management

A reverse logistics process is vital for businesses as it helps protect them from any risks associated with product exchanges and disposal. For example, some products need to undergo disposal immediately due to a safety recall. Others contain confidential data that must be deleted before recycling or disposal.

5. Improved Sustainability

Some people think everything that comes back through the reverse logistics supply chain is garbage and ready for disposal. But that's not always the case. Some items must be disposed of properly, but many items come back intact. If we reuse these items, we keep them out of the landfill for longer.

6. Improved Profitability

Remember that many returned products are simply not the right size, color, or model number for them. The items are usually in good condition and can be sold again. If something goes wrong with a product and the customer wants to return it, a well-oiled reverse logistics process will help make the process as smooth as possible. Receiving the product at a staging area, inspecting it, making any necessary repairs, and putting it into refurbished inventory for sale.

DISADVANTAGES OF REVERSE LOGISTICS

While reverse logistics offers many advantages for businesses, there are also some potential disadvantages.

1. Complicated Return Order Flows

Reverse supply chains involve coordinating multiple business partners and points of origin to get products back to where they need to go. Once a product reaches a Central Distribution Center (CDC) or Returns Forwarding Center (RFC), several steps are involved in receiving and handling a return, including: Verifying the product, Inspecting the product, Testing the product. Determining whether it would be more cost-effective to dispose of or recycle raw materials instead of refurbishing the product Completing any product repairs or Repackaging the product to be placed in refurbished inventory

2. Return Merchandise Authorization (RMA)

To prevent revenue loss, the person approving returns should determine why the customer is returning the product. If the problem can be fixed on the spot, the vendor should provide a solution for the customer and persuade them not to return the product they bought.

3. Changing Customer Demands

Customers who buy products for businesses or themselves expect to get the same services they would get if they were buying in person. They want to see how much stock is left how fast the delivery is, and how easy it is to return any items. Companies are motivated to improve their returns management systems to keep up with customer demand and stay competitive.

4. Lack of Customer Knowledge

It is an excellent idea to provide customers with detailed catalogs and identification guides. They will make more informed purchases and use your products correctly, decreasing the number of returns on products.

5. Meeting the Rising Demand

Since the pandemic started, people have been using more electronics at home. As a result, they need more repair services. To meet this demand, manufacturers have been updating their processes so that repairs are faster. In relation to managing high-demand orders, learn how to manage on-demand logistics in your business.

6. Lower Waste and Carbon Emission

Organizations trying to reduce carbon emissions and waste have more options than ever to make their supply chain more sustainable. Manufacturers reduce the number of new materials they need by using green strategies in the reverse supply chain. Doing so makes it easier for them to follow government mandates and environmental regulations.

CONCLUSION

Reverse logistics is a type of supply chain management that moves goods from customers back to the sellers or manufacturers. Once a customer receives a product, processes such as returns or recycling require reverse logistics. Reverse logistics start at the end consumer, moving backward through the supply chain to the distributor or from the distributor to the manufacturer. Reverse logistics can also include processes where the end consumer is responsible for the final disposal of the product, including recycling, refurbishing or resale. Managing the reverse logistics is essential for the bottom line and reputation of every business. Consumers need to feel like they are buying products from companies with integrity, and improving the reverse logistics opens up opportunities for a number of sustainable business practices. Reverse logistics has become imperative to the long-term well-being of businesses. Earlier it was seen as a burden for organisations as companies have to cater not only to customer satisfaction but to a delightful experience. Reverse logistics is vital to the future of the logistics industry. And technology will augment this intelligent operation by adding more favourable business outcomes through their analytics.

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