

# **Reverse Aftermarket Logistics in E-Commerce a Case Study in a Manaus Microenterprise**

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## **Abstract**

*Logistics are of great importance in a globalized market. Supply chains are always in global competition, involving multiple countries and multiple companies. Direct Logistics is the process by which the products pass from the place of origin of the raw material to the final consumer. Aftermarket Reverse Logistics is required to resolve issues after products reach their final destination, and before consumption, but can also occur before, as is the case with e-commerce, due to problems in receiving ordering, packaging and shipping. Companies must always be prepared to respond quickly to this demand. Strict control of the entire process from order receipt to delivery to the consumer is required and this process needs to be integrated in real time. In the case study, of the orders sent, only about 3% present some problem, all of which are solved quickly. This result is the way the company handles each order, in constant*

*communication with the customer, clarifying doubts and solving problems quickly. The result is the low return rate compared to other e-commerce companies, and the 100% resolution of cases, always valuing the satisfaction of their customers.*

**Keywords:** Logistics; Reverse logistic; Reverse Aftermarket Logistics;

## **1. Introduction**

One cannot imagine the existence of civilization in the modern world without thinking of today's sophisticated logistics services. There are situations where the product is manufactured in one continent, with inputs coming from another continent. This same product can also be sold at locations other than the source of its inputs and from where it was manufactured. In today's globalized economy, logistics are becoming increasingly relevant. However, logistics does not only apply to large accidents. There is also the logistics practiced by small businesses that want to improve the level of service to their customers. This is the case of e-commerce companies. In no other case is logistics as important in company revenue as it is in the case of e-commerce. The company must always be prepared to deal with direct logistics and reverse logistics.

This paper will address the case of a micro-enterprise that has been engaged in e-commerce for almost 10 years, and will show how the company handles the aftermarket reverse logistics cases. As for methodology, according to [1], methodology is the set of systematic and rational activities that lead to the objective safely and economically, pointing the way to be followed, with control of errors and subsidies for decisions. For this work, a bibliographic and documentary research was performed in books, scientific articles, theses and dissertations. Also research the company's records regarding sales history, and also through interviews with the manager. The company's records were used as data collection instruments, as well as the manager's question form.

## **2. Literature Review**

### ***2.1 The Importance of Logistics in the Globalized Economy***

Logistics are of great importance in an increasingly globalized market. For [2], "markets are often national or international, even if production is concentrated in relatively scarce spots." Supply chains stifle global competition, involving multiple countries and multiple companies. These companies partner with each other to form the chain, but partnerships require "additional communication, coordination and risk-sharing actions. They are justified only if they produce substantially better results than companies could achieve by acting on their own", [3].

The need for efficient logistics is not of the present time, Para [2], "In the earliest times of the documented history of mankind, the most necessary commodities were not made near the places where they were most consumed, nor were they available in the most ancient times. demand". This was not just a matter of transportation, but a chain of actions that, if not well executed, would not allow goods to get where and how they should get. The importance of logistics has become increasingly evident over time. After the

Industrial Revolution and the advancement of technologies, they emerged to supply chains. Companies seek to make these supply chains as efficient as possible in order to continually improve the results of the companies involved. Companies are constantly seeking to increase the level of customer service, so that in this respect the differences between one chain and the other today are small, almost imperceptible.

### **2.2 Direct Logistics**

Direct Logistics is what the whole process is called, through which products pass from the origin of the raw material to its possession by the final consumer. For [2], this process "includes all important activities for making goods and services available to consumers whenever and wherever they want to purchase them." For [4], The flow of products and materials, at first, follows what is called direct distribution channels, which comprises the path that begins with the entry of virgin raw materials to the final consumer. This direct flow can be processed in several possibilities, ranging from manufacturers, wholesalers, retailers, to final consumption. This direct flow is the main concern of business logistics and marketing.

The evolution of Direct Logistics was due to the evolution of Information Technology, which allows a precise flow of data and the partnership between companies in the chain. For [5], "The emergence of logistics service providers offers the possibility to reduce fixed costs of moving product between customers and suppliers," and this savings is due to the fact that the logistics operator is always a company specialized in this area. kind of service.

### **2.3 Reverse Logistics**

Reverse Logistics arises from the need to solve product-related problems once they reach their final destination in Direct Logistics, and "for many companies there is also a reverse logistics channel that needs to be equally managed" [2]. Thus, they are reallocated by reverse logistics, products that present some kind of problem along the path to the final consumer; that are hidden in themselves, manufacturing defects not detected in quality controls; that have problems during consumption, or even after the end of their life. For [4], the products supplied by the production system to meet society's demands have a history that begins with obtaining the necessary resources in the natural system and ends with the post-consumer destination. This can be a final destination (landfill, incineration, etc.) or a return to the production cycle (recycling, reuse, etc.).

In addition to its economic purpose, Reverse Logistics also aims to avoid environmental pollution. Para [6], Reverse Logistics is an instrument of economic and social development, characterized by the set of actions, procedures and means to enable the collection. and return of solid waste to the business sector for reuse and recycling, in its cycle or in other production cycles, or other environmentally appropriate final destination.

To [2], "in 1972, the US Congress passed the Consumer Product Guarantee Law, which authorizes the Consumer Product Safety Commission to set mandatory consumer product safety standards." In this context, in which the manufacturer becomes responsible for the product even after the end of its useful life, is the reverse logistics, which appears as a solution to some problems, mainly due to the shortening of the

useful life of the products that has been occurring in the last decades, with the development of new and modern technologies. According to [7], "the increasing disposability of products tends to make the performance of Reverse Logistics more significant, both in the aftermarket and in the post - consumer sector". Any manufactured product has components that, in whole or in part, will cause damage, often irreversible, to the environment. Such damage may be nullified or at least minimized if the product is disposed of properly and properly after use.

Human environmental degradation began in ancient times. For [8], Human beings have always sought a relationship of mastery over nature based on their creativity, aiming to ensure its existence in a hostile environment, which led to discoveries that facilitated different forms of domination over other living beings, Over time and technological evolution, environmental degradation is increasing in a geometric progression, so that, more than necessary, it is essential that companies seek to reduce the environmental impact caused by their products. Reverse Logistics is an excellent option for this environmental and economic problem. According to [7], the strategic objective of Reverse Logistics is to add value to a logistics product that is returned for business reasons, order processing errors, manufacturer warranties, product malfunctions or malfunctions, transportation malfunctions. , among other reasons. This return flow will be established between the various links in the direct distribution chain depending on the strategic objective or reason for its return.

Although, for [8], "today in the business sector, the most prominent theme is related to the problem of environmental sustainability." This is the most important point, along with sustainability, because it is known that every electronic product ( computers, mobile phones, robots, etc.), no matter how advanced the electronic technology applied to it, and however advanced and modern its functions, its physical components are all extracted from the environment, just as the components of products with Therefore, these natural resources, however numerous in nature, are finite and some even rare, such as gold widely used in computer manufacturing in general.

Gold, in addition to the beauty of its appearance, admired from the earliest times, by humanity, also has, among its properties, excellent conductivity of electric current, and is therefore used in personal computer circuits, mobile phones, robots, tablets. etc. According to [9], smartphones manufactured and currently used have, on average, about R \$ 4,20 only in gold and R \$ 0,63 in silver. The waste of noble metals present in this equipment results in an accumulated sum of R \$ 821,000,000.00, only considering the value of gold and silver present in discarded electronic devices, and still stored in homes in Brazil. For [4], in Brazil, by law, "consumers are required to make their waste adequately available for selective collection or, where applicable, reverse logistics of certain products." Battery of mobile phones, notebooks, batteries, etc. These are products that must be recycled to avoid serious harm to the environment.

Recycling can also be observed by the angle of depletion of mineral resources, the environment. "Recycling electronics is difficult, but it is necessary: including because if we do not do it, one hour we will no longer have to manufacture new gadgets," he explains [9]. Reverse Logistics can be applied to these end-of-life products so that these resources are not lost and returned "through the recycling of products and materials to be part of other products" [4]. At the 2020 Tokyo Olympics, for example, all other medals that will be handed to the champions will be made from recycled gold from disused mobile phones and computers.

Japan, in an ambitious, unprecedented and challenging project, has embarked on a major post-consumer reverse logistics program to recycle all the gold needed for the medals. Example that can be followed in other countries.

### **2.3.1 Reverse Post Consumer Logistics**

Reverse logistics has several functions, in addition to environmental and resource reuse, there is also Reverse Logistics after-sales and after-consumption. To [7], Reverse Post-Consumption Logistics shall plan, operate and control the return flow of post-consumer products or their constituent materials classified according to their state of life and origin: "Under Use", "End of Life ", and " Industrial Waste ".

These are products that have already been used and need to be discarded by the consumer, and the company responsible for introducing the product in the market should be responsible for its collection, giving it a certain purpose. Also according to [7], The increasing obsolescence and disposability of products observed in the last decade has been reflected in strategic corporate changes, within the organization itself and especially in all links of its operational network. These changes translate into increased "response speed" in its operations from product design conception to market release, through the adoption of high "operational flexibility" operating systems that allow, in addition to the speed of logistics flow, the ability to constantly adapt to customer requirements and to adopt "environmental responsibility" for their products after they are sold and consumed, which is commonly referred to as "EPR" (Extend Product Responsibility).

To [8], "when it is said that the product must return to its origin, it is not meant that it should be returned exactly to the point where it was manufactured, but rather to the Company that produced it". These are toxic, hazardous handling components, or extremely environmentally aggressive products, such as batteries, mobile phone and notebook batteries, hospital waste components, and so on. However, other items such as plastic and glass packaging, which are currently being disposed of almost without any rule, directly into the environment, may also return to their point of origin for reuse, or for the same purpose as bottles. glass bottles used as beer and soft drink packaging, which are reused for the same purpose after proper cleaning, or items may have other purposes, such as aluminum cans. However, for this, the company needs to have a specific planning. Second [4], for companies already in operation, including reverse logistics activities requires reviewing the business strategy and reviewing the work processes themselves, which should now consider the complete life cycle of products and services, waste conversion. in inputs, among other actions.

### **2.3.2 Reverse After Sales Logistics**

Aftermarket reverse logistics occurs when there is a need to collect a product before it is even consumed, which usually occurs soon after its sale to the final consumer, but may also occur before. According to [10], "aftermarket products return through the direct distribution chain itself, usually returning from one of the links in the chain or the end consumer himself and generally targeting the manufacturer of the product" . For [2], Contingency planning for payment involves virtually all functions that exist in any type of company. [...]. The logistics industry is present in product recall in three ways: by leading a recall task force commission, locating the affected products, and designing the recall logistics channel.

In today's marketplace, companies need to be prepared to respond to this demand, whether in cases and a large number of products, which need to be collected and reshipped at source, or in specific individual cases, where a customer has complained of a problem with the product. . To [10], "Aftermarket return is due to two main reasons, generically called warranty or quality issues and business issues." Warranty or quality issues are related to the product purchased by the consumer that is defective in the first attempt of use, for example. In the case of business problems, they are related to errors in the items of an order, returns of consignment products, etc.

### **2.3.3 Reverse Logistics in e-commerce**

E-commerce is the fastest growing type of commerce in the world, and in Brazil, for over a decade. This growth is due to the fact that it offers convenience, time savings (and often financial resources), and consumer safety, while at the same time lower cost to sellers. For [11], e-commerce is "the realization of the entire business process value chain in an electronic environment, through the intense application of information and communication technologies, tending to business objectives". However, for sales through the Internet to flow smoothly, it is necessary that the company has a well-planned logistics service, which is mostly outsourced, but needs to be very well integrated, because "for small businesses, creating a logistics system for e-commerce is absolutely impossible. "[11] E-commerce, to be successful, depends on excellent logistics performance by the company. According to [11], "It is not enough to implement a website [...] to undertake a commercial initiative on the world wide web. The recent failures of online stores to deliver products to their customers are the realization of this fact." [12] states that "reverse logistics, also known as reverse logistics, is a procedure to facilitate the return of products to e-commerce, which typically occurs when a purchased item is returned or exchanged."

For [13], "e-commerce logistics demand different operating practices in order to meet the needs of this type of consumer". The e-commerce consumer also "expects almost immediate delivery, making logistics planning much more dynamic than traditional logistics that focus on the transfer of large batches of products" [13]. Within e-commerce logistics, reverse logistics planning is necessary, as the return of purchases, whatever the reason, is very common and frequent. For [14], the reverse aftermarket channels [...] house the strategic and operational flows of aftermarket goods. These in turn are goods with little or no use, which after sorting, return through the direct links of the supply chain or, depending on the level of damage, are directed to post-consumer channels.

An e-commerce company needs to have strict control over the entire process, from order receipt and payment confirmation to receipt of the order by the consumer. This whole process needs to be integrated and real time. In addition, it is necessary to provide information to the customer throughout the process, within the period between purchase and delivery. [15] recommends that companies should "update data on the status of deliveries - or pickups and deliveries - and keep customers informed of the progress of their purchase". However, it is known that there are always failures in this control, and some orders end up being shipped wrong, suffering damage, during transportation or even returned by the consumer, because he did not like the product. In these cases, reverse logistics comes into play in order to recover the product and give it a proper destination. For [13], Reverse e-commerce logistics need to be efficient in order to define

the final destination of the product as quickly as possible. There are considerable losses of returned product value as a function of processing time, [...]. The cost of delay is steep for items that do not need recovery to be resold, as well as items that need to be recovered.

The economy of an e-commerce business depends largely on how it will handle those orders that, for some reason, have not had the proper destination: the end consumer.

### **3. Case Study in the Bazar Amazon Company**

#### ***3.1 Company History***

The company Bazar Amazônia was founded in 2008, with the objective of offering to the national public, products made in Manaus, with essence of the Amazon, to Brazil and abroad, initially, but adjustments in the project, made sales directed only to the Brazilian territory. From 2009 to 2010 the company was selected and participated in the PRIME-First Innovative Company program of the Financier of Studies and Research-FINEP, in 2010 the company started its operations through the virtual store.

The products sold by the company are cosmetics, phyto-cosmetics and phytotherapies. All produced by small factories in Manaus, with regional essences. The company currently has an average annual sales of R \$ 11,340.00, but intends to increase its market slowly, betting on good customer service, as it has done. The company's revenue is all from online store sales, since the company has no physical business location. The transportation from Manaus to the consumer's address is made by the Brazilian Post and Telegraph Company-ECT. The packaging and transportation from the factory to the post office is done by the company.

#### ***3.2 Logistics of an Order***

After payment confirmation, which can be made directly to the company or through online payment brokers, the order items are passed on as purchase to the factory. Then a person travels by motorcycle to the factory to drive the products to the company office, where the items are packaged, properly matched to the characteristics of each product, and labeled. The company sells products from at least three Manaus-based manufacturers. After packaging, the order goes to the post office, where it is posted. If the order has a total value over R \$ 50.00, the order is insured, which will serve to the carrier return the exact amount of the order to the company, in case of loss.

After posting, the order tracking code, informed by the Post Office, is passed on to the customer with an informative email message. The message tells the entire procedure to the customer and also how to proceed in case of violation of the package, packaging, or delay within the time informed by the Post. The same message also provides the customer with guidance on how to dispose of the packaging without harming the environment and how to proceed in case of packaging or package tampering during transportation. This customer orientation from origin to reverse path of logistics.

#### ***3.3 Treatment of problems***

Of the orders shipped, only about 3% have a problem before reaching the customer, or return before consumption. This number (reduced compared to other companies) is the result of the way the company handles each order, in constant communication with the customer. Some of these orders shipped and not

delivered for some reason are sent back to the company in Manaus through reverse aftermarket logistics, using the same shipping channel. Among the most common problems, the main reasons are: damage to the product caused by transportation by the carrier; products missing from the package, stolen during transportation under the carrier's responsibility; products with very short shelf life, or products other than those purchased, due to human packaging failure; carrier expired product. In all these cases the package is resent to the company which immediately sends a message to the customer asking if he prefers to resend the order or prefers the immediate refund of the amount paid.

Most of the company's customers, about 90%, prefer to resubmit the order. As for the products received back, they undergo evaluation. Those that are in good condition and within their expiration date are sold again in another order. Those with packaging violation are disposed of properly.

### 3.4 Comparison with other companies

When comparing the case study with other Brazilian companies, a major advantage is noteworthy because, Para [12], The reverse logistics process has a direct impact on e-commerce product sales. According to research by Invesp, at least 30% of all items purchased online are returned. However, 92% of consumers surveyed said they would not give up buying from the store again if the product return procedure was simple, and 79% want this process to cost them nothing.

Regarding the treatment given by other Brazilian companies, the reasons are described in Table 1, according to [18].

Table 1 - Main reasons for returning orders from other domestic companies

Main reasons for return	Hit Percentages
Wrong product shipment.	23%
Different product from the exposed in the online store.	22%
Defective Product	20%

Source: Adapted from [18].

Thus, it is observed that the company under study was able to reduce cases of return from 30% to 3%, when compared to the numbers of other companies, and was able to resolve 100% of cases quickly and satisfactorily to customers. Thus, the customer is satisfied with the prompt and accurate treatment to solve the problem, and the company even receives praise from consumers. How can the customer be satisfied if he did not receive the order on time or was unable to use it? The answer is that customers often refer to experiences they have had with other companies, with which they have had similar problems, and difficult or no solution, starting from not getting immediate answers when they report the problem to lawsuits. .

### 3.5 Income Statement

The average order in reverse logistics of the company under study represents only 10% of the average of other Brazilian companies that practice e-commerce, which shows an excellent result. The graph in Figure 1 shows the company's performance over 8 years and reverse logistics.



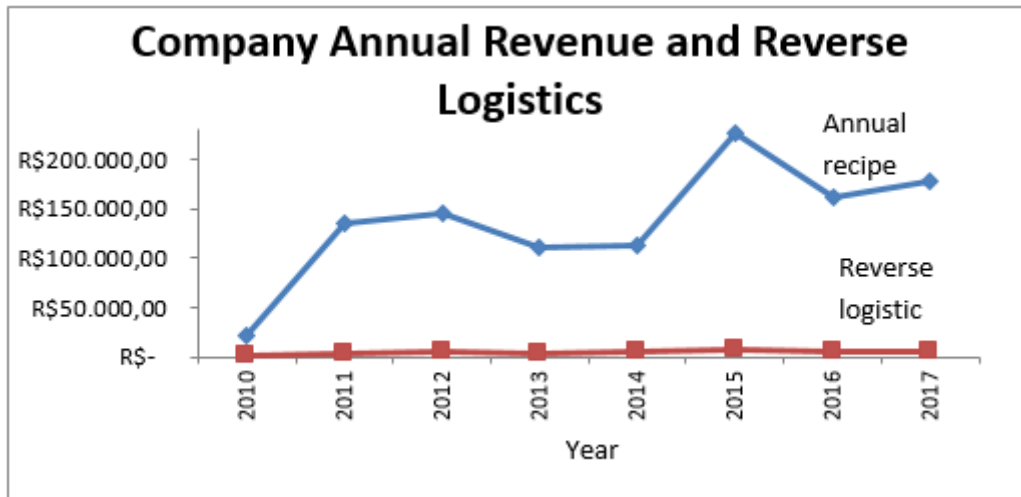


Figure 1 - Annual Revenue and Reverse Logistics

Source: the author

The importance of a serious reverse logistics policy makes a difference for a company under study, as [18] according to 67% of buyers researching the return process before making a purchase, and 62% are more likely to make purchases online if they can return an item to the store if necessary. In addition, 58% of consumers want a hassle-free exchange policy, and 27% would spend more on products if reverse logistics shipping were offered compared to 10% who will purchase regardless.

#### 4. Final Considerations

Concern for reverse logistics and customer service through rapid communication and clear and accurate information can help the company's performance and increase its reputation in the market, as consumers are always ready to complain about the company on social networks, and thus leaving the company name related to issues which, clearly, will influence in winning new customers. Correct flow of information is very important in e-commerce, "the more detailed the product description, the better. So customers can buy items more safely, lowering their chances of acquiring something without much knowledge, with high risk of return or exchange." The company under study prioritizes informing its customers about products in the online store and also providing extra information by email, phone or instant messaging applications, according to the preference and need of its customers, answering any questions, in time. real. This has all resulted in low returns compared to other e-commerce companies. Among the returns, the company solves 100% of cases, always looking for the best way to solve and always caring for the satisfaction of its customers.

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