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Role of reverse logistics in product recall: Case study on Nestle Maggi

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ABSTRACT

This study investigates how reverse logistics plays a crucial role during the crisis of a product recall. A product recall is a rapidly growing problem that can affect a business pertaining to any industry that causes significant damage to the organization. The effect of such an event can, however, be minimized with the implementation of a functional logistical system. We analyze in detail, the cause and impact of a product recall on an organization and logistical procedures followed during such time. We further examine the categories of reverse logistics and various implications that may occur in logistics specifically during a recall. The article also focuses on the role of third party logistics, and warehouse management system during the event of a product recall. The study simultaneously aims at comprehensively covering the logistical implications of a product recall. Product Recalls are a serious cause for concern for not just large scale but small and medium scale enterprises as well. The ability of the firm to withstand product recalls is evaluated on the basis of their preparedness to continue with the recall and their regular operations concurrently. This can be observed in the latter part of the study where the case of Nestle Maggi, one of the biggest product recalls is carefully reviewed. For the purpose of analyzing Nestlé's reverse logistics procedure, we gathered secondary data from various sources. Based on the data collected and reviewed from external sources, the study highlights various suggestions and alternatives that could have been adopted to reduce the cost implications faced by the company.

Keywords— Product recall, Reverse logistics, Distribution, Supply chain, Customer

1. INTRODUCTION

The supply chain of a business is a core function that can either make or break a business. In this day and generation, which is witnessing rapid growth in the business environment, there is a high rise of complexities that are arising in the supply chain of a business. Competition has become so fierce that, there is immense competition amongst the supply chains of rival firms. As firms are expanding overseas, so is there supply chain, which the supply challenging problems in managing the supply chain effectively. One of the most challenging problems is that of Product safety. The supply chain comprises of various parties such as product designers, suppliers, manufacturers etc. who play an important role in ascertaining and ensuring the safety of a product. In order to keep the goals of all the stakeholders aligned in an organization, product safety must be effectively monitored through the supply chain in an organization (John Z. Ni, 2014). It is generally expected that whenever a consumer purchases a product from the market, it is going to be safe when used for its intended purpose. Unfortunately, this isn't always the case. Such unprecedented events lead to a product recall.

1.1 Product Recall

A product recall is a severe post-production plague borne by the manufacturer or company that has detrimental repercussions on a fully functional organization. It not only damages the goodwill of the producer/ seller but also incurs major costs for the firm. It includes a series of time consuming work such as notifying responsible authorities concerning the firm's intention of a recall, consumer hotlines, communication channels, etc. In certain cases, the government too can call for the recall of the product. Recalls are carried out by the firm to protect its Identity or to limit corporate image ruination in case of faulty/defective production. Recalls are carried out in case the products produced by firms pose any sort of threat to the consumer, which may land the firm in legal trouble. There are various costs associated with a product recall such as loss of future sales, the ruination of corporate image, legal costs etc. that may completely dissolve a business.

Product recall involves the reclamation of unsafe products in the market to provide safety to the consumer in case of manufacturing defects and thereby, providing compensation for the inconvenience caused. Recalls can affect a business in any industry and are known to be one of the most rapidly progressing menaces of a functional business. Recalls occur daily across

various industries all over the globe. During recalls, enormous expenditure and time-consuming activities are carried out to safely retrieve the products from the hands of consumers. Handling product recalls is a very challenging task, but if handled correctly, the effect of the disaster can be minimized. However, in case of improper handling during a recall, the firm may incur the following expenses:

Table 1: Impact of Product recall

Inventory	Time-consuming, costly process of replacing inventory, storing recalled products during repairs.
Customer Loyalty	Negative marketing, the ruination of image affecting customer relationship. However, quick responses during recalls can help maintain customer loyalty.
Regulatory	The organisation can be shut down by Noncompliance
Liability	Without a recall plan/process, a firm is left unprotected from logistical, financial liabilities.
Brand	Improper handling of recalls results in downfall of the brand, especially in case of continuous problems

The liability associated with product recalls majorly include costs related to handling recalled products, providing compensation, bearing financial costs with regard to any consequences related to the recalled product. Each country has a set of consumer protection laws with regard to product recalls, which may vary from region to region. The laws state regulations as to how much of the cost does the maker have to bear during a recall, penalties in case of failure to recall etc. The firm may also voluntarily recall its product upon numerous negative feedbacks from customers, in order to protect its identity. The FDA classifies recalls under three classes on the basis of serious injury/death, temporary illness/injury, violation of FDA regulations (Jackson & Morgan, 1988).

Examples- Takata airbags, Tylenol, Samsung Galaxy Note 7 etc.

1.2 Reverse Logistics

Reverse logistics is an integral part of a supply chain that includes a set of activities that occur after the sale of a product in order to regain the product value and to end lifecycle of the product. The general process includes return of the product to the original manufacturer or distributor for further servicing, recycling or refurbishment of the product. In reverse logistics, the products will undergo either of these following processes

- Remanufacturing: The product is rebuilt using new, reused or repaired parts
- Refurbishment: Products are resold after the original product is repaired and after it undergoes proper quality checks.
- Servicing: In case of servicing, any specific damaged part is fixed or replaced and then returned back to the original customer.
- Recycling and waste management: Products that are returned back to the manufacturer and those that can't be fixed are recycled into parts of another product. This reduces the waste generated by the company and promotes the concept of Green Logistics (Rouse, 2016).

2. LOGISTICAL IMPLICATIONS

The role of reverse logistics is huge in terms of product recall and this is determined by the type of product being recalled. For example, if we take food, the logistics could be as simple as just a direct return and then credit the customer's account. For another type of products like furniture, the store has to ship it back to the manufacturer. On receiving the defective product, the manufacturer swaps it with a new one or a comparable version. It is a huge task when this happens in large volumes as it's hard to track the entire quantity. For consumer electronics, the products are either refurbished and shipped back to the customer or are sold in the market to another customer (Cunnane, 2015).

Product retrieval: When a product recall hits, it's necessary for the manufacturer to respond as quickly as possible in order to eliminate the affected products from the market. The manufacturer should also work on minimizing the cost of logistics that it's going to incur during the recall process. In order to carefully remove the defective products from the market, companies use a field retrieval force. So in this case, the company assigns regional retrieval teams to visit distribution centres, retail stores physically and separate the affected products from the non-affected (Cunnane, 2015).

2.1 Intervention of Warehouse Management Systems (WMS) in product recalls

- The 3PL coordinates with the customer about the event and the product that is being recalled.
- These recalled items are marked by the warehouse management system (WMS) and are stored at a separate location to prevent them from getting distributed
- Specific protocols are provided to the warehousing personnel to place the recalled items at a segregated hold location
- The warehouse staff is notified of the location, and the WMS is updated.

During product recalls, the 3PL must follow a protocol related to ISO certification. ISO-9001 certified companies have committed their procedures to specific international standards to ensure quality and consistency.

So when it comes to product recalls it's necessary to standardize the product and to identify the ones that are damaged, expired or fall below the standards (*Can your 3PL's warehouse management services handle a recall?* 2019).

2.2 Drivers in Reverse Logistics

A reverse logistics system would efficient, effective and responsive if certain factors are aligned toward its success. These drivers ensure that the reverse logistics system is designed towards increasing supply chain responsiveness.

2.2.1 Product location: The location of the product in the supply chain determines the cost and retrieval time. If a product is present with the downstream members of the supply chain, then the duration and cost of recall would increase. Once the product is handed over to the customer, the process of recovering the product to the OEM becomes complicated. This problem exists in FMCG products, while it is easier in case of high-value goods where the customer base is low and the client interaction is less.

2.2.2 Product Collection System: On identifying the product location, the next step is to design the right collection system based on the type of product and the product location. Usually, collection happens through the channel members, the company's field force or a third party. Giving proper instructions to customers is necessary to motivate them to return the products.

2.2.3 Recycling/ Disposal Centres: Recycling or disposal usually happens at the company's warehouses, distribution centres or specific holding locations of the recalled product. Once they are collected, the products undergo a quality check and the issue is determined. Based on this, the company decides whether to repair, remanufacture, refurbish or destroy the product. Hence companies must invest in these specific holding locations for recalled products. The extent of the investment depends on the complexity of the operational system, cost implications, and the gains expected by the company

2.2.4 Documentation System: Proper documentation at each level of the channel makes it easier to determine the product location. This proper documentation can also act as a database for future product recalls. When a recall hits, the company has to ensure transparency in its logistics. Usage of an electronic format of information exchange would help this process. Through Electronic Data Interchange (EDI), the logistics partners can share important information like transportation plans, retrieval of damaged products and inspection of it. EDI can help the companies be agile enough during a product recall by allowing the suppliers, manufacturers and other people involved to access information and react to it in real-time. (Sanket, 2009)

2.3 Categories of Reverse Logistics

- (a) Our study focuses on reverse logistics involved during a product recall. Recalls are issued on government agency websites, newspapers, television reports, social media platforms etc. The consumer is expected to return the defective/dangerous product to the seller for repair or refund. Such recalled products undergo screening during their entry into reverse logistics; this process is known as gatekeeping. These Organizations have become global and have implemented various methodologies such as outsourcing, offshoring etc. which give rise to product recalls (Akkucuk, 2016).
- (b) However, the concept of reverse logistics is involved in various types of events that occur during a product life cycle are as follows:
- (c) Product recalls: In this decade, product recalls have been a common phenomenon, with major producers recalling their products due to various issues ranging from packaging to hazardous materials in the product. In the electronics industry, recalls have occurred majorly due to battery issues that pose health risks or cause fire hazards. The major driver behind developing an efficient reverse logistics program is to mitigate potential risks like fines and penalties from regulatory agencies and even lawsuits.
- (d) Seasonal Products: Usually unsold seasonal products are recalled by the manufacturer or the wholesaler to repack it and sell it in the following season or certain soft goods are sold in the secondary market. Original Equipment Manufacturers consider seasonal recall programs as an opportunity to increase sales by providing consumers various offers and options and also provide both the seller and the buyer a margin. This increases the sale potential of the products.
- (e) End-of-life products: These are products that are at the end of the declining phase in the product life cycle. Hence the manufacturer aims at removing these products from the primary sales channel to introduce new models. By doing so, companies can reclaim spare parts of these end-of-life products or resell them in secondary channels.
- (f) Return of Unsold goods: Reverse logistics is involved in case of return of unsold goods in certain industries where the downstream members in the supply chain can return the goods for a credit if they are not sold. This option acts as an incentive for these downstream members to carry high stock without bearing any risk of loss.
- (g) Cash-on-delivery rejection: In the e-commerce space, it often happens that the customer rejects the product at the time of delivery and the mode of payment is cash. During this time the logistics partner follows reverse logistics to return the product to its origin. Then the e-com company adds this product back to its inventory after quality checks (Akkucuk, 2016).

3. CASE STUDY

The Food Safety and Standard Authority of India (FSSAI), had banned Nestle's Maggi, the market leader of Instant noodles in India in June 2015. Maggi to date is one of the most highly consumed brands of instant noodles. This product recall caused Nestle India to witness its first ever quarterly loss in over 15 years (Maggi Noodles Recall in India Continue to Impact the Balance Sheet: Nestle, 2017). Indians especially, are the highest consumers of Maggi across the globe. Approximately 400,000 tonnes of maggi was consumed by Indians in 2014 (Raza, 2019). These tasty instant noodles caught negative attention from the media when an inspector from Food Safety and Drug Administration in Uttar Pradesh, spotted information on the label of Maggi noodles packet that stated that, the product does not contain Monosodium Glutamate (MSG).

A sample was then sent by the Inspector (Mr Sanjay Singh) to the laboratory to check for traces of MSG in the product in 2014, which was later found to be positive. Samples were then sent to the Central Food Laboratory in Kolkata and were tested over one year. In April 2015, it was ascertained that the amount of MSG and lead present was over 1,000 times than what was claimed by Maggi. MSG is known to be a harmful additive especially for children that causes problems such as liver inflammation, weight

gain, nausea etc. The global CEO of Nestle Paul Bulcke had stated that no MSG was used in the production of noodles, and the product posed no threat to the consumers. However, Maggi was proven guilty of containing a high quantity of lead (17.2 parts per million) as opposed to the standard 2.5 ppm, and also for the act of mislabeling since the packet stated that the product did not contain MSG. Nestle ended up recalling approximately 38,000 tonnes of Maggi noodles from the market in 3 months (5/06/15 - 1/09/15), which set an example as a logistical ordeal during a product recall crisis (Raza, 2019).

3.1 Reverse Logistics: Maggi Recall

Maggi’s reverse logistics procedure was not efficient enough to withstand a product recall of such magnitude. More than 27,000 tonnes of the product was recalled. Further, Maggi is known to have around 12,000 external parties associated with their distributor network which makes reverse logistics for the company extremely tedious to carry out.

Out of the 27,000 tonnes recalled, the factories constituted of about 1,400 tonnes along with the distribution centres that had around 9,000 tonnes themselves. The external distributors had around 7,000 tonnes and the remaining 10,000 tonnes approximately were tracked down to the retailers (Mitra, 2017).

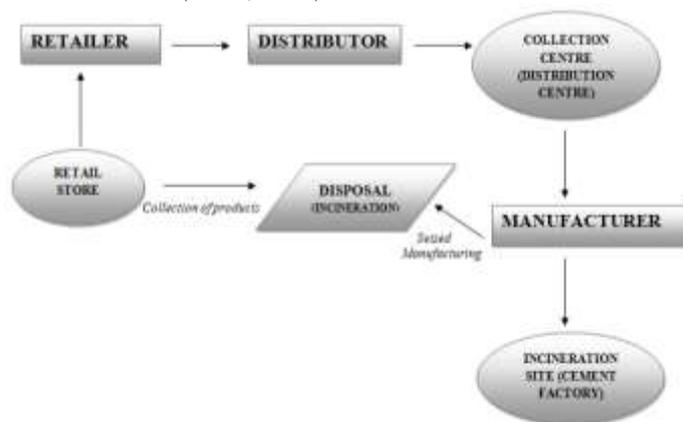


Fig. 1: Reverse logistics procedure implemented by Nestle

Now, coming down to the specifics of their reverse logistics procedure, the company decided to immediately stop production of any more units which made it slightly easier for them to track down existing products in their 3.5 retail stores across the globe. The retailers were paid in cash or credit, as per their convenience. The company used around 10,000 trucks for the purpose of recalling its product off the shelves of all their stores. These trucks served the purpose of Nestle's product collection system.

From the retail stores, the products are then sent back to one of their 38 distribution centres to repackage before any further action is taken. The company is using around 50% of its current storage space in the distribution centres for the storage of these recalled products. Due to this, the company has less available space for storage than required and so they've hired 12 extra storage spaces as well. These distribution centres were essentially treated as 'The Central Return Centre', after which, all the recalled products were being sent to get incinerated. At the end of the reverse logistics process, the company chooses to carry out one out of these 4 functions: Re-sell, Recycle, Scrap or Others. Nestle chose to scrap their recalled product. The company was incinerating these products at cement plants. There, the recalled products are crushed, mixed with fuel and then burnt in incinerators. Within the first 4 days, between 9 and 13 June, just 169 tonnes of the product was incinerated at 3 cement factories. The disposal centres for Nestle were these cement factories. The estimated time to incinerate all the recalled products was decided to be 40 days. However, the company's recall was not until the consumer but only till the distributor and retailer level. Hence, products beyond the retailers and distributors are out of the control of Nestle as of now. Around 5,600 tonnes of Maggi were stored at distribution centres or sent out for incineration and around 5,800 tonnes had been recalled from the retailers but was stuck with the distributors till June 13 (Mitra, 2017).

Due to this recall and the reverse logistics procedure followed, the company faced a lot of costs in terms of monetary loss, loss in sales value, loss of workers, and overworking their employees while hiring extra workers. In terms of monetary loss, the company has experienced exceptional loss. The overall impact is seen to be as 320 Crore Rupees on profit before tax. The percentage of this value is 18% of the profit before tax in CY14. Apart from this, the company will also face other costs such as transportation and destruction costs. The sales value of 210 crore Rupees was assumed to be as sales return and the inventory is incinerated.

In terms of loss and overworking of workers, Nestle had to hire 30-40% additional workers at their distribution centres where they are made to work double shifts instead of the usual single ones to ensure that the work is completed. Some of their workers are on paid leave as the manufacturing of the products was put on hold (Mitra, 2017).

4. SUGGESTIONS

4.1 Adoption of Green Logistics

During Maggi's recall, the number of emissions given out from the 10,000 trucks used to bring the recalled products back to the distribution centres from the retailers and distributors were excessive, to say the least. Further, the company resorted to incinerating close to 27,000 tonnes of product which released enormous amounts of harmful emissions that caused a negative impact on the environment. By adopting green logistics, the company would have focused on minimizing the harmful ecological impacts of their logistics activities. They would have not resorted to incineration and would have looked at other means of disposal (Edward, 2017).

4.2 Reduced dependency on external distributors

Nestle has numerous external distributors globally supplying their products. This has proved to be advantageous for them, however, in times of crisis, like during the recall, having so many distributors hindered them from being able to control all their products. By reducing their dependency on external and distributors and improving the efficiency of their internal distributors, they can exercise more control over the actions taken towards their products.

4.3 Avoiding usage of distribution centres as collection centres

Nestle used their pre-existing distribution centres as their collection centres for their recalled products. Due to this decision, around 50% of their storage capacity was being utilized by the recalled products. If the company had been more prepared and had pre-decided separate locations for their collection centres, their distribution process would be smoother and they would not face a shortage in storage space at their distribution centres.

4.4 More preparedness

The Company did not have an efficient reverse logistics procedure already in place to deal with a recall of this magnitude. Further, the company was under the assumption that such a situation would not arise at all. However, having standardized protocols for emergencies like such, planning out the reverse logistics procedure and adopting strategies like mock recalls ensuring efficiency will lead to higher preparedness of the company.

4.5 Outsourcing

The Company, not having a set plan to deal with the product recall, should have outsourced their reverse logistics to one of the existing major players in the industry. This would lead to higher efficiency, reduction in errors, and more professionalism. Handing over their reverse logistics activities to companies like Delivery on time Logistics Pvt. Ltd., Delcart, Kintetsu World Express, FedEx Corporation which specialize in them, would be a more feasible solution for Nestle.

5. CONCLUSION

From the aforementioned study, it can be concluded that product recalls have a strenuous impact on the supply chain management as they not only result in major costs during implementation but also are an extremely time-consuming process. We can also state that supply chain activities play a crucial role during the event of a product recall, which may either foster customer relationship or destroy it. However, instead of adopting a more reactive approach to dealing with product recalls, companies should adopt a proactive approach. Furthermore, a crucial aspect that comes into play during a product recall is green logistics. Being environmentally conscious is one of the key factors that a company must keep in mind for product recalls and the execution of their reverse logistics procedure. How a company handles a product recall depends on the complexity of its operations, the cost implications and returns it expects after the event. Hence an effective, efficient and responsive reverse logistics system would ensure that the supply chain is agile enough to handle a product recall and allow the company to recapture value in the market.

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