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## **Reverse Logistic as a competitive factor in the supply chain**

Reverse Logistics, or commonly known as reverse supply chain, covers the entire flow wide range of products and accessories that begins by the traditionally known by the name of 'returns', covers the optimization all over the reverse flow of products and the packaging analyzing all possibilities within the Supply Chain as: Reuse, Repair, Restoration, Re-manufacturing partial, Recycling or disposal, and deciding in each case is to be applied, and how and when to apply it.

All other processes that including the Reverse Logistics, life cycles of products, becoming shorter, excess supply and demand and capricious that it causes the environmental legislation we have generated increased and complicated the last decade this flow 'reverse'.

Currently the economic crisis has increased exponentially this flow so in most cases, as noted, this flow is no longer an 'angry' to be a 'problem' of increasing importance.

The circumstances and the flow characteristics presented in Reverse Logistics are completely different from those presented in the direct or primary logistics (conventional logistic) and consequently to implement strategies and techniques to optimize the backflow little or nothing to do with the conventional.

The issues presented by the Reverse Supply Chain could define as the economy of scale with much smaller volumes arising from fragmented sources at similar costs to get the direct supply chain and the amount seems impossible economic costs to businesses and is considerable.

However, the need to reduce the cost in supply chain has been one of the circumstances that have led to the emergence of stronger strategies today are critical



to compete in Direct Logistics (common logistic). It is working with members of the supply chain itself, with new logistics services providers; even though with the competitors as the synergy creates collaboration is more advantageous.

The growing importance of Reverse Logistics is noted in the approach from the classroom training programs and postgraduate Masters taking place at the Foundation ICIL given the same:

## 1. Reverse Logistics as drive of sales

Other way, how Reverse Logistics can and should be a key competitive point in business. How obsolescence management can go from being a cost factor in the Profit and Loss Account to become a factor of increasing sales?

In one word:

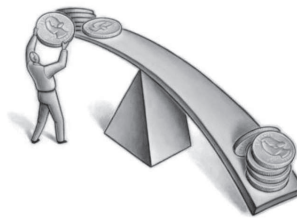


Figure 1. Changing cost per revenue

Source: presentation entitled "Reverse Logistic as a competitive factor in the supply chain", *First International Conference on Innovations for and Transitions to Sustainable Transport Systems*, 12 April, 2013, Wroclaw, Poland.

That is the question! Which are the aims to achieve the Reverse Logistics?

1. Increase sales.
2. Reduce stocks cost.
3. Reduce returns and transport cost.
4. Reduce cost of End of Live products (recycling and destruction).

## 2. What is the Reverse Logistics?

Reverse Logistics is the logistics activities set collection, disassemble parts, dismembering used products or their components and materials of different types and nature in order to maximize the use of its value, broadly sustainable use and latter case its destruction or disposal.

Key words:

- Collection,
- Value Maximization,
- Sustainable use.

### 3. Product life-cycle. Reverse Logistics paradigm

Let us pause here a moment and analyze in detail the diagram in the figure below relating to the life cycle of a product:

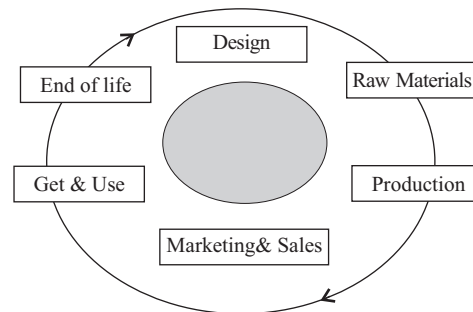


Figure 2. Reverse Logistics paradigm

Source: presentation entitled “Reverse Logistic as a competitive factor in the supply chain”, First International Conference on Innovations for and Transitions to Sustainable Transport Systems, 12 April, 2013, Wrocław, Poland.

This is where the new paradigm that is none other than: “Who produces the article is who is responsible for the lifecycle impacts”. This has changed everything, and it has changed so deeply that has made each of the links in the Product Lifecycle consider carefully the impact that violates environmental terms, and by extension is the company producing the ultimately responsible.

In a simplification not without ultimate meaning, we could say that:

### 4. Polluter pays

Let us see in detail the changes that this new paradigm has led in each of the essential links Lifecycle of a Product.

The design now has to go beyond the above, should include elements in nature or directly cleaner clean, recyclable, reducing the variation of materials, simplifying the number of compositions and eases of disassembly and directed design the

reuse of the product. Raw materials must now focus on reducing the impact on the environment, incorporate into its base of recycling materials, simplification and standardization. The production phase must now focus not only on the value of the product itself, but especially in the packaging that accompanies it. It is notorious environmental impact of packaging these especially difficult to eliminate and/or recycling.

Now the Marketing and Sales (distribution), must take into account, first the positive impact on society is a product to be clean or minimal, impact on the environment, while the second should take into account new standards packaging and optimization.

The acquisition phase and use (get & use), that as mentioned before is the stage where the consumer interacts with the product, is affected by the growing awareness of respect for the environment in all its aspects facilitating their classification when the end of life. Coming to the end of life phase is notable highlight the extraordinary change that whole society and the companies in particular has had and has to perform when compared to say 30 years ago in Spain and in general in the Western Countries. It is in this phase where the Reverse Logistics has entered fully to effectively manage such products straight to that end point of life itself.

Many companies have emerged as Reverse Logistics Operators for both solid waste from consumer as for industrial waste, recyclers, etc. Which not only solve an environmental problem but also very important and add value and increase our Gross Domestic Product (GDP) as a country with its business.

#### 4.1. The 6 paths of Reverse Logistics

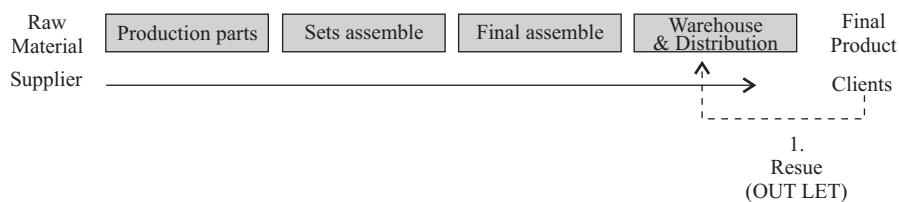


Figure 3. Way # 1. Reuse and/or resale on OUT LET

Source: presentation entitled "Reverse Logistic as a competitive factor in the supply chain", First International Conference on Innovations for and Transitions to Sustainable Transport Systems, 12 April, 2013, Wroclaw, Poland.

**RESUE:** is to retrieve the product itself to give it a new use, as it holds its shape and has a low or no deterioration. In this case the product is subjected to cleaning and maintenance operations, whereby the same is fully realized even if there are minor differences with similar but new.

In this way # 1 where are concentrated increasingly RESALE numbers in systems that leverage LET OUT 'downstream' products for any reason, not sold in time and planned commercial format and continue to add value as reusable products logistical sense.

It is interesting to add that this LET OUT system can increase sales by providing orderly exit and commercially structured such products while increasing the intrinsic profitability of the company while reducing stocks, is intended for storage space and increasing the profitability of sales points. Well known examples of this format we have them in textiles, publishing, etc.

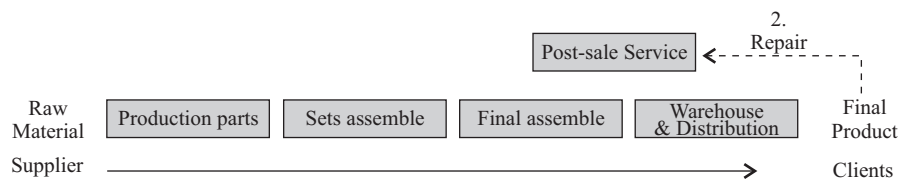


Figure 4. Way # 2. Repair

Source: presentation entitled "Reverse Logistic as a competitive factor in the supply chain", First International Conference on Innovations for and Transitions to Sustainable Transport Systems, 12 April, 2013, Wrocław, Poland.

**REPAIR:** in this case the option is come back into operation the waste product. These operations are performed in the customer's home or repair technical services.

The reason to make it had been the need to replace any part or component that has reached its useful life. An example of this type of products is small appliances, washers, dryers, etc.

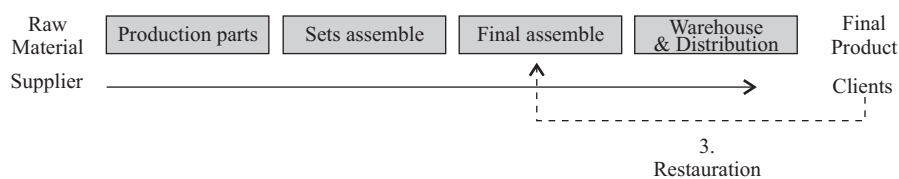


Figure 5. Way # 3. Restoration

Source: presentation entitled "Reverse Logistic as a competitive factor in the supply chain", First International Conference on Innovations for and Transitions to Sustainable Transport Systems, 12 April, 2013, Wrocław, Poland.

**RESTORATION:** it's back to the old product value by using new technologies to extend its life. That's mean that is necessary to come back into the facility house within the production process chain being thoroughly assembly.

This type of alternative can be observed in the case of civil aviation and military, for example.

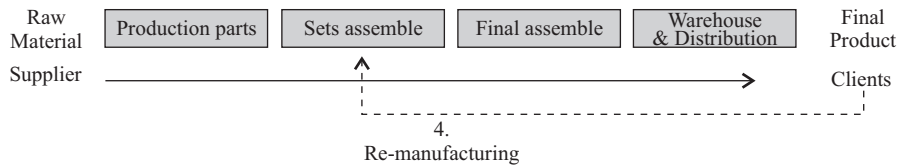


Figure 6. Way # 4. Re-manufacturing and cannibalization

Source: presentation entitled “Reverse Logistic as a competitive factor in the supply chain”, First International Conference on Innovations for and Transitions to Sustainable Transport Systems, 12 April, 2013, Wrocław, Poland.

**REMANUFACTURING:** products subject to this type of recovery have a degree of decomposition medium-high and give the company a major benefit because you get a manufacturing cost in many cases close to 50% of a new product. In other words the company uses its components in the manufacture of a product re original. Example of this are the automotive, electronics, mobile phone, etc.

**Cannibalization:** they are called to operations in the End-of-Life products which recovers only a fraction of the components that can later be used in a manufacturing process. These parts are intended for repair operations, restoration and re-manufacturing. Classic examples found in the electronics.

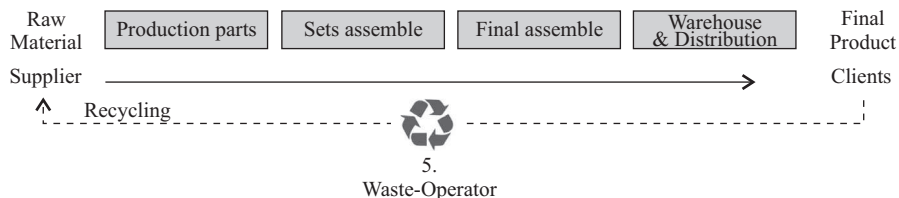


Figure 7. Way # 5. Recycling

Source: presentation entitled “Reverse Logistic as a competitive factor in the supply chain”, First International Conference on Innovations for and Transitions to Sustainable Transport Systems, 12 April, 2013, Wrocław, Poland.

**RECYCLING:** in this case seeks recovery of the material is a residue of another product for later use as feedstock in the production of the next one that can achieve levels of quality original product due to the use of new technologies increasingly advanced.

This treatment not only allows the use of waste thereby reducing the volume of trash, decreasing the use of other raw materials achieving a saving of energy

and natural resources. Besides effectively contributes directly to the increase in GDP (gross domestic product) and employment extension.

A study presented by the Association of European Plastics Recyclers determines which could create 50,000 jobs across the European Union if the current two-thirds of plastic waste generated within the EU, there were exported directly outside borders of the EU and should be dealt with properly by European logistics operators<sup>1</sup>.

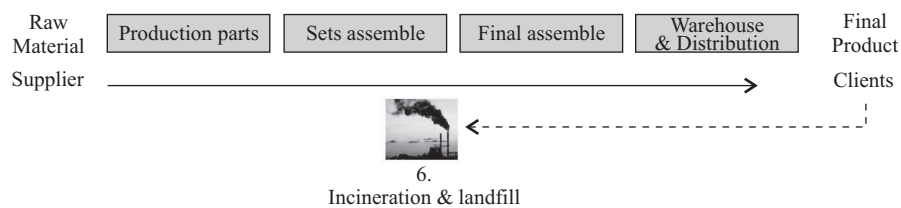


Figure 8. Way # 6. Incineration and landfill

Source: presentation entitled "Reverse Logistic as a competitive factor in the supply chain", First International Conference on Innovations for and Transitions to Sustainable Transport Systems, 12 April, 2013, Wrocław, Poland.

**CONTROLLED RELEASE:** is the final alternative for recovery and puts an End-of-Life products. It is used in the case that the product cannot be conditioned or used in any other way. It takes on big fields where excavated and filled with trash and alternating layers of soil are compacted. At all times it comes to choosing an area geologically and topographically suitable to prevent contamination of surface or groundwater. Because the anaerobic decomposition of organic waste generated gases, the landfill must be well ventilated to prevent explosions. Also noteworthy is the use itself of waste (biomass) as fuel gas.

Incineration is a controlled combustion process at high temperatures, which transforms the organic fraction of waste inert materials (ash) and gases. Throughout the process produces large amounts of heat that can be used for heating in cities or to generate electricity. Not a total elimination system, generating ash, slag and gases, it causes a significant reduction in weight (70%) and volume (80-90%) of the original waste.

We see that the differences are remarkable, because in the case of Reverse Logistics we encounter four different flow paths or the one that has the Direct Logistics is the leading from the supplier to the end customer through the different stages of the supply chain.

<sup>1</sup> *Plastics & Rubber Magazine*, No. 658, p. 6.

Reverse Logistics faces as a differentiated management of each of its paths in short we can summarize as shown in the Table 1.

Table 1. Differences between direct logistics and reverse logistics

Direct Logistic	Reverse Logistic
The demand estimation is relatively certain	The demand estimation is highest complex
The transport from one to many locations	The transport goes from many locations to one, generally.
Total quality of product	The quality of product is not clear and certain
The packaging and labeling is so efficient	The packaging and labeling is often damaged or missing
The price is known by the market	The price is unknown by the market and depending of many factors
The speed is important key	The speed is not as important key as Direct Logistic flow
The cost are clear and accounting systems monitored	The cost are less clearly visible and rarely accounted thoroughly
The inventory management exist	The inventory management is more complex
The product lifecycle are managed	The product lifecycle are more complex in its management
The marketing tools are widely know	Hardly marketing tools are used

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From the point of view of demand is in my opinion where is the fundamental distinction between the estimate and consistent performance model between Forward and Reverse Logistics, and is the origin of the difficulty in many cases and economic sectors. The statement that "no one plans the losses and rejections" is in many cases a strong assumption.

## 5. The 'Seven Deadly Sins' of Reverse Logistics

From the point of view of the producer of the goods sooner or later reach for any of the six paths of Reverse Logistics to the final situation of life (End-of-Life)) in its process is important stop and gaze on the typical mistakes that many organizations still discuss at that point and that is the main object of this book to alert them and bring them back to the object that the 'problems' they become opportunities.



The so-called 'Seven Deadly Sins' of Reverse Logistics can be detailed as follows:

1. Inability to recognize that the Reverse Logistics can be a tool and create competitive advantages with it.
2. To think that once sold and delivered products to customers and ultimately consumers, the responsibility of the production company disappears.
3. Lack of internal and external adaptation of the company organizing the flows of the Reverse Logistics.
4. Conviction of little or low importance of taking time and company resources to Reverse Logistics.
5. Belief that cycle times (loop logistics) of returns are much higher and the variables inherent in Direct Logistics regarding the products sold.
6. Thinking that the 'problems' arising from the products coming through refunds and returns are resolved over time to be absorbed by the organization.
7. Belief that refunds, process losses, etc. are in no case a significant economic problem and potential revenues are insignificant.

An internal checklist that responds to these 'Seven Deadly Sins', and much can help companies to seriously consider its position before the potential advantages that a proper management of all logistics flows (Direct and Indirect) will allow strengthening their competitiveness and consequently its position in the sector to which it belongs.

## 6. Reverse Logistics and Value Chains

Reverse Logistics can and should be another link within the different value chains whose reasons of appearance in the current management of the Company could be summarized as:

1. Life cycles of products getting shorter.
2. Need to share knowledge – complementarities.
3. Mandatory cost reduction.
4. Increasing demands from customers and consumers (especially consumers),
5. Posted speed increasingly demanding.
6. Geographic relocation – Global stocks.
7. Exploitation of localized competitive advantages on a global level (clusters),
8. Increase increasing need to sell and increase the intrinsic profitability of the company.

Therefore, perhaps the most strategic decision in this situation is to seek the best alliance or in other words, to decide what is best integrated chain.

This requires formalizing the establishment of strategic partnerships at the global level for economic sectors and key processes, which is not worth optimizing a given logistic process (distribution, purchasing, production, procurement, etc.), But the whole optimization flows from operations, and global vision, using 'niche' specialization and value where transparency and speed of information is vital. Reverse Logistics Well by the operators and/or recyclers will be integrated into the relevant links within the different value chains as key type specialization of product to leverage the added value of each of the links in the proper treatment of:

1. Repair of products at any link in the chain.
2. Reuses, logistics after sales services.
3. Restoration, depending on the phase of the chain product.
4. Remanufacturing of certain chain.
5. Recycling and re-produce new raw material.
6. Eliminating waste permanently unusable.
7. Leveraging 'downstream' and returning unsold products to place in retail channels both in new market niches such as enhancing business strategies, known as Out Let.
8. Logistics flows crenate collection and re-distribution of capillaries in end of life products reducing stock and facilitating new sale.
9. Managing effectively obsolete unsold products.

It is important therefore that strategic alliances to include Reverse Logistics operators (specialized logistics operators, recyclers, manipulators, etc.), as another link because for maximum competitive efficiency cannot ignore the proper management and utilization value of reverse flows in End-of-Life products, products not sold in campaigns, process losses, etc.

In short, the Reverse Logistics is:

1. A new way to fight in the market.
2. A competitive advantage.
3. A loyalty tool.