

# Drivers for Reverse Logistics in South Africa: A Taxonomic Literature Review

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**Abstract**— various methods and literature have been developed to explain Reverse Logistics. In this paper, there is a review of scientific publications that have been reported in the literature. In addition, the paper analyse and identifies the drivers of reverse logistics.

**Key words:** reverse logistics, drivers for reverse logistics, taxonomy, modelling approaches

## I. INTRODUCTION

Reverse Logistics (RL) as a constituent of sustainable supply chain can play a role in creating sustainable enterprises for creating jobs and reducing poverty. [1] Recently Reverse logistic received a great interest from the researchers and firms as an important aspects to adopt as a strategic tool for growing the organisation's profit and a good corporate social responsibility image. RL is defined as "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 origin to the point of consumption for the purpose of conforming to customer requirements" [2]. RL prepares the returned inventory to avoid regular stock damage, reorder of inventory, rescue reviews, outdated products and also despatched and bundled products from the end customer. [3]. A forward supply chain, is an inclusive on customer fulfilment processes, and with all possible stakeholders such as transporters, manufactures, wholesalers, retailers, and end customers [4]. Which is vice versa of its traditional supply chain way of ensuring that a satisfying product is reached by the end user and is a little bit different with RL because after the end user the product needs to go back the producer. The logistical management exercise cannot be constrained by just a direct stream, additionally it needs to consider exercises which includes a reverse logistics stream [5].

The number of reviews and scientific publication for RL is growing exponentially, and increasing rapidly as well. For decision makers and most stakeholders, it has become difficult to find adequate written articles and solid guidance

as reverse logistics in the South Africa is not fully being practiced by most firms. The taxonomy of literature is presented to show the drivers of RL.

This paper aims to provide the elements or drivers of RL so that companies are aware of aspects to consider at all time when implementing the RL. As the study is based on the literature, it takes into account recent scientific literature reviews on RL and consider different views from the scholars. This was also complimented few articles from the practitioners in the field of RL. Observations were conducted at various government and non-governmental institutions and organizations to ensure that reverse logistic is not yet fully adopted by organisations operating in South Africa.

## II. LITERATURE SEARCH SURVEY

### *Literature search methodology*

Number of sources were selected and studied on RLelements and drivers. Sage, ScienceDirect, Emeralds, Taylor and Francis journals, and bibliographic studies such as [7] and [8]. The main keywords used in the search process are "reverse logistics", "sustainable supply chain management", and "drivers' enablers and elements of reverse logistics". Table 1 shows articles that are articles reviewed in this study and also used identify the drivers. The search engines used to collect relevant papers related to RL, returned products, resale products and by products is Google particularly Google Scholar.

## III. DEFINING MAJOR CONCEPTS

### *Regulatory measures*

[9] The sustainable supply chain changes from wanting to go green as a burden to a going green as a competitive advantage due to exchange of burden. [10] In some developing countries RL is still emerging, experiencing of profit and the introduction of such policies from the policy orientation and developed countries urge some firms to take part. [3] In most developing countries the solid waste management is a primary function of the local municipality then there is a need for an indicator to measure the success and effectiveness of proper handling and disposal within the local authority system is functioning,. The municipal solid waste (MSW) in developing international locations is the abridgment of the waste generated from domestic,

Manuscript received March 03, 2017; revised April, 05, 2017.  
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business and production activities by natural individuals that is gathered and handled through municipalities, [11], [12] and [3].

*Collaborative driver*

One of the reflected goals of the organisation needs to be increasing cooperation within supply chain management, in order to reach sustainable goals [5]. The multi-disciplinary collaborations can be achieved in an innovative manner within supply chain players, by managing the collaborations and relationships, governing mechanisms effective need to be defined by organizations [13]. The firm’s settings ensure strong relationships and collaboration with their suppliers and helps in adopting and developing environmental technologies that are innovative [14]. The green buying ensures the environmental friendly collaboration were supplier’s logistic activities and technologies incorporates the improvement of new merchandise and the advent of greater new environmental friendly manufacturing traces [15]. Sustainable supply chain management is to facilitate higher facts and material flows via developing integration and collaboration among supply chain parties to form higher relationships [13]. Despite the networks of complex global supply chain, achieving the goals of SSCM needs the decision making of the team involved in interrelationships and cooperation in the supply chain entities. In particular, effective and efficient supply chain relationships and sustainable collaborations can enhance the overall sustainable performance. In collaboration with suppliers in procuring materials. The collaboration with suppliers in procuring materials and services is happening in most large manufacturing firms ensuring a sustainable environment [14].

*Reverse logistics*

Reverse logistics and sustainable supply chain can play a role in creating sustainable enterprises for creating jobs and reducing poverty. Most firms are adopting RL due to its growing importance within the sustainable development, and it is used as a tool for contributing to the company’s profitability and corporate social image [1]. RL incorporates preparing returned stock because of harm, regular stock, restock and rescue reviews, overabundance stock, and in addition bundling and dispatching materials gotten from the end client or affiliate [12]. The goal in Table I is the identification key drivers of RL.

Table I. Taxonomy of Reverse logistics literature

Focus	Author	Key words
<b>Environmental Regulations</b>	[18]	Reverse logistics
	[19]	Growing environmental concerns,
	[20]	ecological awareness

	[21]	Logistics, supply chain management
<b>Customer Demand</b>	[18]	Reverse logistics, operations management
	[21]	Uncertainty on Market demand
<b>Expected Business Benefits</b>	[18]	Drivers, Logistics, reverse logistics
	[13]	Revenue opportunity
	[13]	Cost Minimisation
	[22]	Possible economic benefits
	[20]	value recovery from the used products
	[23]	Profitability issues
<b>Social Responsibility</b>	[18]	Reverse logistics
	[19]	Corporate social responsibility (CSR)
	[13]	Logistics, closed loop supply chains
	[20]	consumer laws and social responsibilities
	[23]	Corporate social concern
	[12]	Corporate Citizenship
	[24]	Corporate image
	[25]	Community sustainability
<b>Sustainable Competitiveness.</b>	[19]	Literature review, reverse logistics
	[26]	Business competitiveness
	[23]	Sustainability -extreme global competition
<b>Legislation</b>	[19]	Literature review, reverse logistics
	[22]	Legal pressure
	[12]	Comply with legislation/directive
	[23]	Forced regulation
	[20]	legislations and directives/ law pressure
	[24]	public concern for the environment and influence of laws,
	[4]	
<b>Stakeholder engagement</b>	[19]	Supply chain management
	[27]	

<b>Returned products</b>	[22]	Logistics, supply chain management
	[23]	augmented products' returns
	[20]	Product return
	[28] [27]	Logistics, reverse logistics, supply chain management
<b>Lack of resources</b>	[19]	Reverse logistics
	[21]	Transportation
	[25]	Effective, efficient, and reliable transportation
	[29]	Fuel

Table II: Enablers of RL

<b>RL Enablers</b>	<b>Authors</b>
<b>Returned Products</b>	[22], [23], [20], [20], [27], & [4]
<b>Legislation</b>	[19], [22], [12], [23], [20], [24] & [30]
<b>Sustainable competitiveness.</b>	[19], [26] & [23]
<b>Expected business benefits</b>	[18], [13], [31], [22], [20], [23]
<b>Social responsibility</b>	[18], [19], [13], [20], [23], [12], [24], [25]
<b>Environmental regulations</b>	[18], [19], [20], [21]
<b>Customer demand</b>	[18]
<b>Lack of resources</b>	[21]
<b>Stakeholder engagement</b>	[19], [27]

The supply chain, in its classical form (forward supply chain), is a combination of processes to fulfil customers' requests and includes all possible entities like suppliers, manufacturers, transporters, warehouses, retailers, and customers themselves [31]. RL is the vice versa of the supply chain traditional way of ensuring that a satisfying product is reached by the end user and is a little bit different with RL because this time after the end user the product needs to go back the producer. This accentuates that the

logistic management exercises cannot be constrained by just a direct stream but additionally need to consider exercises which include a reverse logistics stream [13].

The sustainable supply chain management (SSCM) concerns the management of material, information and data, capital flows and collaboration and integration among companies along the supply chain, working towards achieving the three drivers of sustainable transport namely economic, environmental and social factors for ensuring that both customer and stakeholder requirements are met [24]. The goal does not differ from RL. The definition of RL is the process of planning, organising, executing, and monitoring the efficient and cost effective flow of raw materials, in-process inventory, finished goods from the point of consumption to the point of origin for the purpose of recapturing value or proper disposal [17]. RL is the series of activities required to retrieve a used product from a customer and for disposal, reuse and recycling [32]. It is emphasized that the purpose of reverse logistics is the recovery of value or proper disposal [6].

The main challenges faced by organisations with RL is the management of customer expectations in terms of return policy, educating customers and establishing new points of contact with customers, outsourcing and partnering with other organisations [6], [17]. The added process costs and RL needs to have more improved investigation by companies, as they have further stated that the challenge is a lack of relevant research studies and company discussions within the RL area and this results in obstacles in mastering and implementing RL advantages [31]. Companies such as Kodak, Fuji Film, Hewlett-Packard, IBM Europe, Xerox and Dell have voluntarily partaken in the recovery of their products from the end user [33]. RL has been beneficial to some of the organizations like General Motors, Canon, Dell, and Hewlett-Packard and Kodak [1].

Reverse logistics is a process whereby firms can become more environmentally responsible through recycling, reusing and reducing the amount of materials used in the forward system [1]. The following are the drivers or the enablers of reverse logistics: SSCM and RL all work towards a common goal. Business benefits returned. Companies implementing reverse logistics initiatives adopt the programs with the aim of getting the economic benefits that are related to the returned products [34].

#### IV. CONCLUSIONS

Most research, that has already been done, focused on the outcome of the research. The main aim of this research was to identify the drivers RL, so that when firms are considering the implementation of RL, get to understand what will be the main drivers to success. Most of the literature to arrive at the drivers of RL was mostly from the scholars and practitioners in the field. While some of the research was mostly focusing on implementing and introducing RL in firms, some of the elements or drivers that this study have identified tend to be ignored or not included. The success of reverse logistic lies in the hands of

the practitioners, strategic decision makers, scholars, to all make an effort to keep on improving the process of RL in a way that the company will be able to be cost effective and efficient, lastly to ensure that all time there are lesson learnt.

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