

REVERSE LOGISTIC: A REVIEW PAPER

Wan Hasmat Wan Hasan

Faculty of Business and Management,
Universiti Teknologi MARA (UiTM) Melaka,
Malaysia

Mastura Roni

Faculty of Business and Management,
Universiti Teknologi MARA (UiTM) Melaka, Malaysia

Nur Hidayah Zaini

Faculty of Business and Management,
Universiti Teknologi MARA (UiTM) Melaka, Malaysia

Muhammad Fairuz Jamil

Faculty of Business and Management,
Universiti Teknologi MARA (UiTM) Melaka, Malaysia

Corresponding Author's Email: hasmat@uitm.edu.my

Article history:

Received : 22 Julai 2022

Accepted : 17 Oktober 2022

Published : 21 Oktober 2022

ABSTRACT

This paper presents a literature review of reverse logistic. The important terminologies and concepts pertaining to reverse logistic are presented. An overview of the importance as well as the urgency to implement reverse logistics is also presented according to the recent studies published in related areas. This paper highlighted the contribution of reverse logistics towards sustainability and how firms could save cost and minimize resources through reverse logistics resulting from reuse of materials, recycling of materials at the end of their product life. The comparison reviewed between reverse and forward logistic have enlighten the need for improvement in supply chain process which requires integrated and effective strategy as to ensure success sustainable product return to the company. Sustainability among manufacturers has become a major concern among various organizational sectors to comply with regulatory requirements and customer pressure. Furthermore, an increased awareness among manufacturers regarding the need to minimize the negative impact of production activities on the environment and need to be more responsible producers to

ensure products are safe for the customer's consumption has led to higher concerns for reverse logistics in Malaysia, as well as the global market.

Keywords: reverse logistic, retailers, sustainability

INTRODUCTION

In the year of 2022, retailers are expected to receive 13 billion returns worth \$573 billion every year which accounts quadruples times of the total sales from e-commerce activities received in 2018 (Deloitte, 2022). This resulted from most of the firms adopted various business strategies with the aims to acquire massive amount of profits for their businesses and at the same time minimize losses. In today's competitive business world, firms are constantly looking for innovative methods to improve their processes, increase customer satisfaction, and remain ahead of their competition. For the past decade or two, reverse logistics has been regarded as a strategy for bringing these things to reality (Reddy, 2011).

Reverse logistics is a relatively new concept, emerged from various key concepts such as closed loop supply chain, green supply chain management, waste management and sustainable practices. Recently, researchers and logistics corporations attempted to focus on its effects on managerial decisions while minimizing the negative effects of manufacturing operation towards social, economic and environmental. Furthermore, in recent years, customer happiness has been recognized as a critical component of any company's growth, and the emphasis on boosting customer satisfaction has grown significantly. Researchers recently discovered that reverse logistics can significantly improve consumer satisfaction. This research intends to review concepts and important terminology related to reverse logistic, as well as gives an overview of the contribution of reverse logistics towards sustainability and how firms benefits from reverse logistics activities. This paper anticipates to present the comparison between reverse and forward logistic as to gives overview of the approach used by firms in their supply chain that affects the way firms manage its used products and waste.

METHODOLOGY

Researchers explored relevant and recent publications related to reverse logistics from few prominent journals from supply chain and sustainable practices. This includes several scientific databases such as Google Scholar, UiTM digital library, WoS, Scopus as well as WEB searches in order to analyse reverse logistic field. The articles selected by focusing on reverse logistic terminologies, general concept and comparison between forward and reverse logistic in order to describe and understand the general overview of reverse logistics area.

LITERATURE REVIEW

i. Logistic

One of the important elements in the operation management generally or specifically in supply chain management is logistic. Logistic component can be one of the cost efficiency management and has received growing attention nowadays (Sundram et.al, 2018). The Council of Logistics Management (CLM) defines logistics 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 (Li X., 2014, p.1). Logistics has been part of the supply chain process that plans, implements, and controls the efficient, effective flow and storage of goods, services, and related information from the point-of origin to the point-of-consumption in order to meet customers' requirements (CLM, 1999). In addition, Markus H., and Rodrigue J., (2014) considered logistics as a core component of transport geography and provided an overview of the freight distribution in connection to traditional perspective with transportation as a part of an integrated demand.

There are several subcategories under logistics such as agricultural, tourism, military, health care, sports, and humanitarian (Kukovic D., 2014). Agriculture logistics encompasses various activities in the entire supply chain process of a business including product purchasing, loading and unloading, distribution, transportation, handling, production, warehousing, processing, distribution, and information processing, as well as links with the stakeholders. While tourism logistics refers to the timely movement of people from their point of origin to their desired destination, as well as the transit of commodities throughout the tourism industry (Jin Z., Dai K., Fu G., & Li Y., 2017).

Purchasing activities, warehousing, planning, transport, distribution and control is part of the healthcare supply chain in logistics. Generally, almost every party in an entire supply chain will be involved in the logistic process. Sports logistics supports the execution of sport events with a cost-effective organization of environmentally friendly services necessary for the timely execution of the event itself and relates to athletes, spectators and organizational staff, which adapt logistics (Herold, D. M., Schulenkorf N., Breitbarth, T., & Bongiovanni, I., 2020). In addition, in the area of implementation, military logistics is regarded as an important discipline which supports and develops military expeditions and strategies. Finally, humanitarian logistics involved a process of planning, implementing, monitoring, transport and storage of goods. To summarize, logistics can be divided into two main categories namely forward and backward logistics or known as reverse logistics.

ii. Reverse Logistic

European Working Group on Reverse Logistics (REVLOG) defined Reverse Logistics as the process of planning, implementing, and controlling backward flows of raw materials, in-process inventory, packaging, and finished goods from a manufacturing, distribution, or use point to a point of recovery or proper disposal (Dekker R., Fleischmann M., Inderfurth K., & Wassenhove L.N.V., 2004, p.5). The opposing flow of commodities from downstream to upstream supply chain is referred to as reverse logistics, also known as closed loop supply chain. Previously, supply chain management was solely concerned with the movement of goods from raw material suppliers to final consumers. However, reverse logistics, which is a segment of the supply chain process that focuses on returns management, receives little attention. Reverse logistics, as defined by the Council of Supply Chain Management (2010), is a specialized area of logistics that focuses on the transportation and management of items and resources after they have been sold and delivered to the client. Reverse logistics is a method of making businesses more environmentally friendly by recycling, reusing, and lowering the amount of materials they consume (Badenhorst, 2013). As such, reverse logistics is regarded as sustainability practices which focusing on managing used products in the entire supply chain so that firms could minimize production cost as well as gain competitive advantage and taking care of the environmental aspect.

Some of the benefits of implementing reverse logistics are that it allows businesses to save money and resources by reducing waste from reuse, recycling, product damage, expired products, product recalls, and disposal. It is critical to determine if things should be reused, recycled, or disposed of responsibly at the end of their useful lives. According to previous study, reverse logistics can help with sustainability, however, there are few empirical studies that link reverse logistics to long-term supply chain performance (Banihashemi T. A., Fei J., and Chen P.S., 2019). Furthermore, previous research has primarily focused on forward logistics, or the flow of products forward, rather than reverse logistics (Parmar & Shah, 2016; Gorane & Kant, 2015; Gill & Pabla 2013).

The transfer of raw materials to manufacturers, the transit of manufactured items to warehouses, the finished product before sale, and the delivery of the finished food or product to the end client are all examples of forward logistics (Rheude, 2021). Reverse logistics, on the other hand, refers to the process of moving products from the customer to the warehouse in the opposite way. In addition, reverse logistics is a supply chain management that transports items from customers back to the manufacturer's sellers, and most likely back to the customer again, as opposed to standard logistics, which starts with the supplier and goes towards the retailer and ends with the customer (Jenkins A., 2021).

iii. Applications of Forward and Reverse Logistic

Reverse logistic includes a process where the customers are responsible for the final disposal of the product which is recycling, refurbishing or resale (Jenkins, A., 2021). One of the companies that used reverse logistics is Levi's. Levi's implement reverse logistics to improve their sustainability in the textile industry. The retailer repurposes jeans and reprocesses the fibers into raw materials then makes a new one. Other than Levi's, L'occitane En Provence is also using reverse logistics, where their campaign is to promote recycling. They call their campaign Big Little Things, where customers can bring an empty bottle of any shampoo, skincare and others to any selected L'occitane boutique and will receive rewards.

Table 1: Comparison of forward and reverse logistics

COMPARISON STRUCTURE	FORWARD LOGISTIC	REVERSE LOGISTIC
Forecasting	Forecasting is simple and straightforward	Forecasting is complicated
Distribution Points	Using one-to-many approach	Using many-to-one approach
Consistency of Product Quality	Consistent	Less consistent
Packaging of product	Packaging is uniform and in order	Product packaging not uniform, damaged or in poor quality
Destination/Route	Destination is certain	Destination route is uncertain
Pricing	Pricing is relatively consistent	Depend of various factors
Completion of order	Fast is priority	Fast is not priority
Distribution Costs	Costs are visible	Reverse costs are observable
Management of inventory	Inventory management is consistent	Inventory management is not consistent
Negotiation	Negotiation is simple	Negotiation is complex
Marketing technique	Well-known	Quite complicated
Visibility of process	Clear	Vague

Sources: Viva (2020). 12 Difference Between Forward and Reverse Logistic in Retail Environment

Table 1 illustrates the 12 differences of Forward and Reverse Logistic concerning retail business anticipated by Ronald and Dale (2002). One of the difference between forward logistic and reverse logistic is in terms of standardization. In forward logistics, the recycling process from raw material towards the end customer is standard, however, for reverse logistics the process is uncertain.

Fleishmen et al. (1997) as stated by Ronald and Dales (2002), claimed that origin number and points of destination has become huge difference between forward and reverse logistics. As stated above, forward logistics is known as a movement of product from one-to-many destination, while reverse logistic is the opposite, from many origins to one destination (Rajagopal, Sundram and Naidu, 2015).

In terms of packaging, forward logistics which is good and products are coming from vendors, and most of the time it comes with complete packaging and protection during transit. By contrast, in reverse logistics most products may not have complete packaging. Most probably, during the transit the packaging of the product is damaged. It is either because of handling or has been opened by consumers. Rajagopal et.al (2015) states that one of the reasons some of the products are damaged during transit is due to unclear or unsystematic process of reverse logistics.

CONCLUSION AND RECOMMENDATION

This paper demonstrated a review of some of the research that has been conducted in the field of logistics and supply chain as well as summarizing the difference between reverse and forward logistics. Reverse logistics have been regarded a vital business strategy in the present and will continue to emerge with the advancement of technology. Reverse logistics is also seen as a sustainability effort by businesses as part of their commitment towards environmental policy and Sustainable Development Goals (SDG) in Malaysian context.

The importance of reverse logistics in retail business is very prominent and offers substantial opportunities to business as well as manufacturers. In the early business establishment, businesses implemented independent policies and processes of managing logistics in their firms. This has to be changed into more holistic and integrated strategies by re-examining the firm's entire supply chain so that smarter strategies could take place throughout the entire network of the company supply chain process. This includes identifying how, when and why businesses make returns of their products which reflect how retailers implement their order processing, the networking and collaboration with their suppliers and assortment choices that will drive down return rates.

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