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Evaluating the Motives of Implementation of Reverse Supply Chain in Fabrication

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ABSTRACT

It is crucial for fashion businesses that use sustainable practises and produce sustainable products to provide information about their eco-products so that the industry will favour this type of value proposition. Given that the style and price of ethical apparel generally support the final consumer's intent to purchase, the industry's transition to sustainable practises requires the active participation of consumers. In a world where product life cycles are shortening, an increasing number of businesses are employing supply chains to increase their overall profits and maintain competitiveness. The rise of e-commerce, accelerated technological advancements, a shorter product life cycle, and a greater consumer interest in and preference for what is trendy have all contributed to an increase in returns and their rates of disposal. This paper primarily discusses the divergent motivations for reverse supply chain management and sustainable material recycling.

Keywords: Reverse supply chain management, Different drive for reverse supply management

INTRODUCTION

In a world with limited resources and disposal options, supporting a growing population that consumes more necessitates the recovery of discarded products and materials. refuse reduction has already become a significant issue for human society in terms of refuse disposal. Recycling products or materials appears inevitable to replace the typical one-way economy, and consumers now expect businesses to take measures to minimise their negative effects on the environment throughout the production process. In 2021, the world's fibre production reached a new high of 113 million tonnes, following a slight decline in 2020 due to COVID-19. From 58 million tonnes in 2000 to 113 million tonnes in 2021, global fibre production has virtually doubled in the last two decades, from 58 million tonnes to 113 million tonnes. If current trends persist, this production will reach 149 million tonnes by the year 2030 (Sandin G, Peters GM, 2018). In spite of this, recycled pre- and post-consumer textiles constituted less than 1% of the global fibre market in 2021. From 60 million tonnes in 2020 to 63 million tonnes in 2021, the production of synthetic materials derived from fossil fuels increased. According to the report Global Textile Recycling industry 2021 to 2026, the market is anticipated to expand at a CAGR of 3.6% between 2020 and 2027. Utilising a variety of processes, used garments and waste fibres are recovered and recycled into recycled textile. The majority of recyclable textiles are found in municipal waste, which includes used or abandoned apparel, tyres, shoes, carpets, furniture, and non-durable items such as sheets and towels. The textile and clothing (T&C) industry is the second most polluting industry in the world, second only to the hydrocarbon industry. By 2050, clothing sales are anticipated to quadruple from their present level. Numerous non-renewable resources are required for the production, distribution, and consumption of textile products. Environmental issues include the consumption of energy, water, and hazardous substances, as well as the production of solid waste and carbon dioxide emissions (Koszewska, M., 2018). Various garment manufacturers assert that businesses are growing increasingly concerned about the apparel supply chain.

UNDERSTAND DRIVERS AND BARRIERS OF REVERSE SUPPLY CHAIN

Reverse supply chain drivers

The writers of the 2004 book "A Framework of Reverse Logistics" by De Brito & Dekker look into the factors that promote or compel corporations to apply RL in their businesses. Following a thorough investigation and analysis of the works of numerous other authors, De Brito and Dekker both noted that these driving forces can be divided into three categories.

Legislation, economic benefits, corporate citizenship, and economic justifications

I. Economic factors (advantage)

a. Gains that are immediate (input materials, cost savings, value-added recovery)

b. Indirect gains (better relationships with clients/suppliers, a more positive social perception of the company, etc.)

II. Legislation

a. Consumer protection b. Environmental protection

III. Corporate citizenship

a. Enhanced social accountability

Direct and indirect economic gains are further broken down into this category

In terms of immediate advantages, writers said that returned goods assist lower the cost of raw materials by increasing the value of a particular returned product, which is advantageous for both businesses and customers. Through RL practises, a company can enhance its social reputation among its suppliers and clients in a way that promotes a green image, resulting in indirect economic gains. Future businesses will ultimately benefit from being proactive in responding to government-enforced regulations in order to achieve sustainability and, ultimately, safeguard their markets.

Legislation

According to De Brito and Dekker, these kinds of drivers are regarded as legally binding, and businesses are required to follow them in order to adopt reverse logistics, whether out of concern for the environment or for other legal reasons.

Corporate citizenship

Businesses took ownership of improving social conditions and being concerned about environmental issues in order to have a positive reputation in the marketplace and draw in the largest possible client base. But this is not always the case; occasionally, businesses are compelled to address these social and environmental issues due to legislation or customer demand.

RSC (Reverse supply chain) drivers and barriers

This section focuses on the challenges that businesses must overcome when employing reverse logistics techniques. This section is broken into two smaller sections to enable the authors explain the principles in more detail.

Financial drivers

According to Figure, economic incentives are what motivate businesses to adopt RL practises. It is influenced by three secondary factors: financial accessibility, economic advantages, and competitive advantage. The details of these sub-factors are provided below.

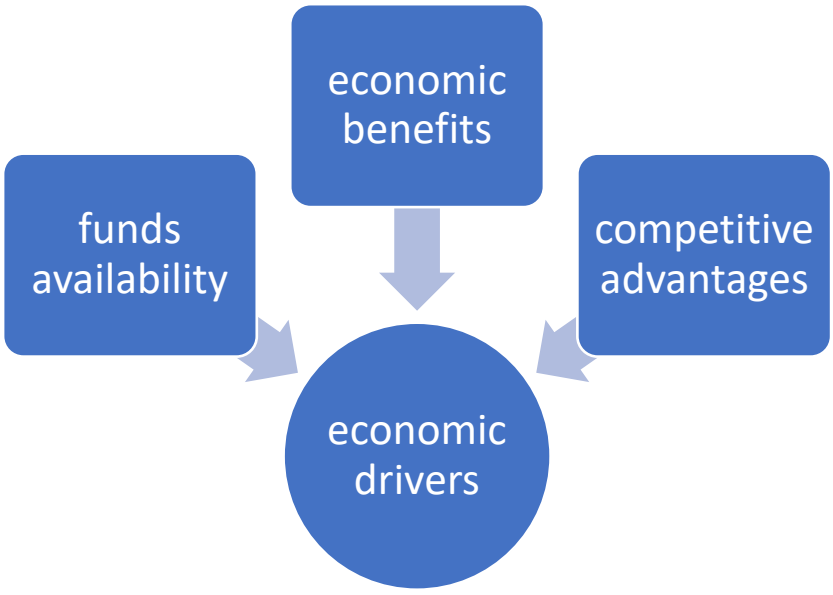

Figure 1. Economic drivers

Economic driver 1: Financial assistance and economic viability are both readily available

According to Govindan & Bouzon (2018), one of the organizational internal drivers that encourages businesses to implement and carry out reverse logistics practises is the availability of financial capital to invest in and operationalize the reverse logistics system. The financial support provided by an organization affects the adoption

of RL practises. The deployment of RL is supported by the firm's strong financial situation. According to conventional economic theory, businesses' only goal is to maximize profits so that their shareholders are satisfied. Even the business's involvement in socially responsible issues is seen as diverting from their primary goal of generating money. However, these indirect benefits are crucial for businesses in the long run because they improve relations between the company and its clients (Daugherty, Autry, and Ellinger, 2001). Reverse logistics has the potential to improve the firm's financial situation.

Economic driver 2: Financial gains from RL adoption

This driver will emphasise the advantages that businesses can gain from recycling or adding value to returned goods, as well as how it may assist businesses replace the raw materials they normally use with returned goods. Reverse logistics focuses on enhancing the value of returned goods. Recycling is the only way to add value and gives businesses more financial advantages. The internal motivator that propels businesses to embrace and deploy reverse logistic techniques is the economic benefits of recycling (Govindan & Bouzon, 2018). The effective implementation of reverse logistics procedures that can bolster supply chain adherents can improve the firm's economic and environmental conditions. There are many other approaches to handling garbage and returned goods, which is a larger field. By repairing, reusing, overhauling, remanufacturing, or reusing items or materials that are useful and have the potential to bring the company economic benefits, organisations can increase their chances of benefiting or reduce their costs associated with disposing of waste (Chan, Chan, & Jain, 2012).

Competitive advantage is economic driver No. 3

Competitive advantage may become an external driver for the firm to implement reverse logistics, claim Govindan & Bouzon (2018). The two drives described above, which talk about the possibility for creating profits and cutting costs for the businesses, can help the company stay competitive in the market. However, it is important to emphasise that considering the idea of a better image in the market because of eco-friendly depends on a high level of ecological consciousness. An organization's social image has also been seen as a driver. Businesses can meet their economic and ecological goals by managing product recovery through the elimination of a significant amount of trash (Thierry et al., 1995; Zarbakhshnia et al., 2019).

Economic hindrances

The second component of the economic element focuses on the obstacles that prevent businesses from implementing reverse logistic practises. Three different sorts of obstacles are used, and the figure below illustrates how frequently past researchers have examined these barriers. It is challenging for the businesses to embrace RL practises due to a lack of funding, a lack of understanding of the economic benefits of reverse logistics, and limited acknowledgement of competitive advantage.

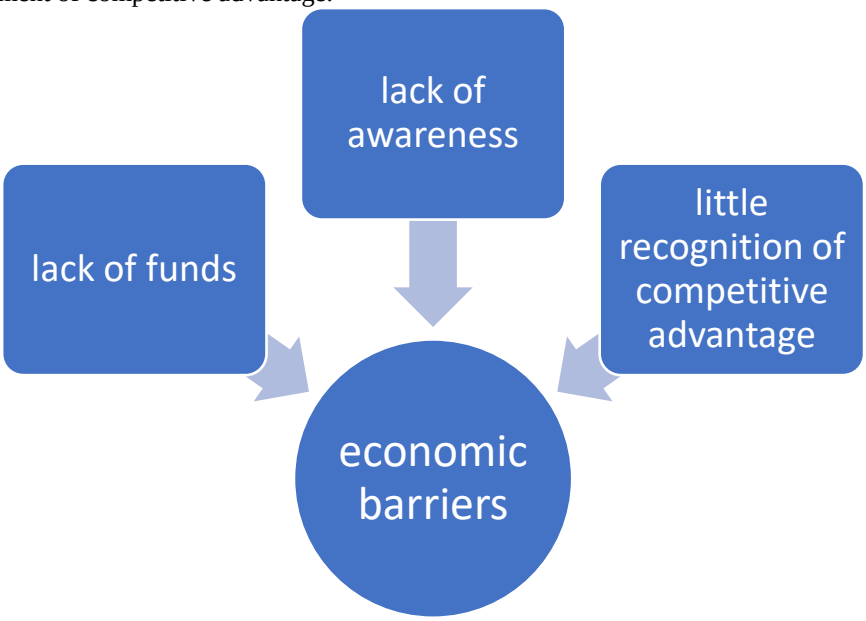

Figure 2. Economic hindrances

Economic barrier 1: Instability and a lack of financial support

Lack of financial support and limited resource availability are analysed in the study by Shaharudin, Zailani, and Tan (2015), and the results show that these are the two main internal barriers that prevent the adoption of environmental practises and their management. In addition to financial constraints, other obstacles such a lack of awareness and commitment can be internal or external (Ravi & Shankar, 2005).

The majority of the time, green practises like product recovery management are not seen as important activities that contribute to profit (Walsh & Thornley, 2012). Another obstacle to the implementation of RL is the lack of funding for the training of staff members involved in reverse logistic operations. The most crucial organizational resource for a company's efficient operations is its human resources.

Economic barrier 2: Lack of knowledge of the advantages of RL
According to Ravi & Shankar (2005), one of the difficulties in implementing RL is a lack of understanding of its practises. The results of the experiment also show a strong correlation between knowledge and use of RL (Zhang, 2007). Additionally, Cain (2008) finds that RL has a significant impact on an organization; as a result, greater awareness of the importance of reverse logistics needs to be spread.Sharma, Panda, Mahapatra, and Sahu (2011) assert that knowledge of reverse logistic outcomes may result in financial gain through efficient product recovery management. In this way, it is crucial to assess the organization's level of acknowledgment and recognition of whether it is aware of the benefits of RL practises and to examine the key business areas and products that could benefit from the application of reverse logistics.

Economic obstacle 3: Limited understanding of competitive advantage
According to (Guide & Daniel, 2000; Hauser & Lund, 2003), small companies and manufacturers who operate freely at their own pace have historically dominated the remanufacturing industry. Large corporations are becoming a part of the remanufacturing picture, and these corporations are taking remanufacturing seriously by adding value to the returned items, not just for the requirements of law or the environment, but also for the advantages of competition. These large corporations, including Caterpillar, Kodak, Delphi, and Xerox, have the opportunity to gain a competitive edge as well as enhance their environmental performance and image (Martin, Pinar, Guide, Daniel, Craighead & Christopher, 2010; Ferguson, 2010).

These advantages are discussed in the strategic contribution of reverse logistics in the article by which mentioned the three contributions of effective reverse logistic processes. The first contribution of the reverse logistics process is the reduction of operating cost. The second contribution of the reverse logistics process is the improvement of the products/services offered to the customer.

Congressional drivers
Figure shows the statutory factors that have compelled businesses to adopt RL practises. It is influenced by three secondary factors: the regulatory pressure to ensure proper item disposal, the incentive legislation, and the lowering of financial hazards. To help the reader comprehend the key ideas, these sub-factors are described in depth below.

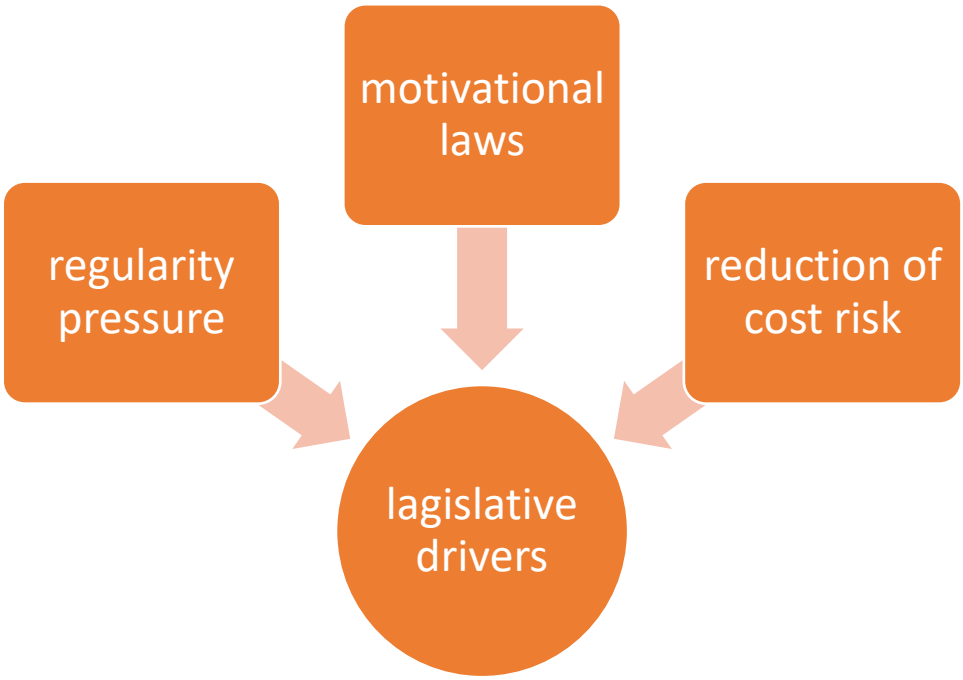

Figure3. Congressional drivers

Regulatory pressure is the first legislative driver
Chan (2007) asserts that legislation is both the most important operative driver in the adoption of reverse logistics and has the capacity to inspire its implementation. We will talk about the policy-related challenges that are the

driving factor for the adoption of RL by businesses due to laws and regulations. Many nations have put in place regulations that businesses must follow in order to ensure the efficient disposal of product waste. Furthermore, businesses are encouraging customers to take an active role in ensuring the return of End-of-Life products in order to obtain tax rebates from governments (Govindan & Bouzon, 2018). Without adopting reverse logistic practises in their business plans, companies are even finding it difficult to obtain licenses (Govindan & Bouzon, 2018).

Lawmaker's driver 2: Laws of motivation

Regulations that encourage manufacturers to remanufacture their products are examples of motivating laws. In exchange, businesses receive benefits from the government, and it also opened the way for obtaining a licence to operate in the same market or other markets. One of the most common factors that pushes businesses to embrace RL practises is motivation legislation (Govindan & Bouzon, 2018).

It is required of businesses to follow environmental rules and to actively address this issue by forming an advisory board that only addresses environmental consequences and problems. Even a manager of the environment will act as a guide to help the senior administration follow environmental regulations effectively and build a network with the local staff to improve the company's reputation in the community. These efforts will guarantee the company's long-term existence while assisting in cost reduction and obtaining the licence necessary for the company to function in the market (Bansal & Roth, 2000).

Legislative driver no. 3: lowering cost risks

The application of RL practises is driven by the need to cut costs and avoid the fines and penalties imposed for a lack of attention to environmental issues (Govindan & Bouzon, 2018). The analysis of management choices reveals that managers are more motivated to implement RL measures to lower risks than they are to respond to environmental concerns. Instead of worrying about the benefits and concerns of the stakeholder, managers tend to concentrate more on the negative effects of not being environmentally friendly and non-compliance with environmental rules. Managers make efforts to defend their actions in order to satisfy and meet the requirements set by regulators, but they do not adopt green practises voluntarily. Companies that are proactive welcome the market's quick changes and evolving rules, viewing them as opportunities rather than threats. The same is true for businesses, which use green products as a way to recruit clients and staff who care about the environment.

Legislative obstacles

The second component of the legislative factor focuses on the obstacles that prevent businesses from implementing reverse logistic practises. Three different sorts of obstacles are used, and the figure below illustrates how frequently past researchers have examined these barriers. The three primary obstacles highlighted below are: a lack of environmental regulations, a lack of legislation to motivate people, and the belief that adopting RL will cost businesses money.

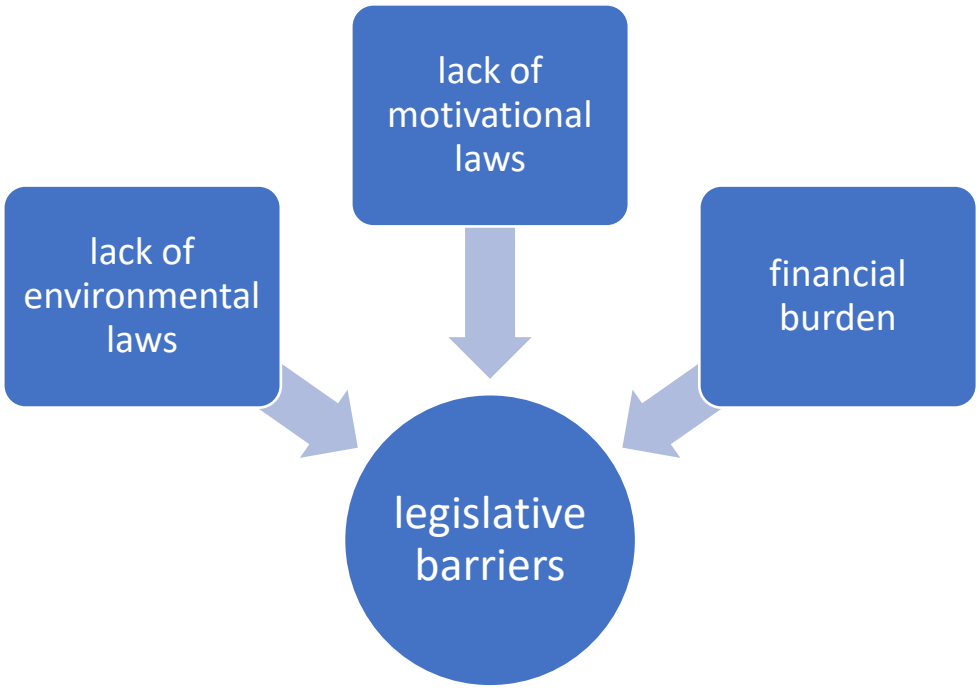

Figure 4. Legislative obstacles

Legislative obstacle 1: Absence of environmental regulations

Regulations are categorized as external barriers by Shaharudin et al. (2015). It was still challenging for the authors to identify the biggest hindrance to environmental efforts, and they recommended more research on green practises in order to more accurately assess and propose the main hindrance. In his work, Liu (2012) evaluated regulations as hurdles and stated how having clear laws from the government is essential for the efficient development of RL strategies. It is challenging for the businesses to choose the most efficient tactics to apply the RL because there are no clearly defined government policies. The morale of the organisations considering reverse logistics practises and its execution can eventually be lowered by the absence of defined and enforceable laws.

Legislative Obstacle 2: Absence of motivating laws

Shaharudin et al. (2014) claim that there are several obstacles caused by governmental activities, and one of these is the absence of legislation that may encourage businesses to use reverse logistic practises. The RL initiatives are hampered by the absence of motivational laws and availability. Some internal obstacles are a reaction to government policies or outside acts. Lack of motivation rules are created by the government, but they have an impact on other barriers and affect a firm's internal operations. Companies are unable to invest in research and development to find methods to lower the cost of End-of-Life products due to a lack of externally driven rules.
The commitment of senior management and their involvement in the RL practises is the second effect of laws that lack incentive.

Financial burden: the third legislative impediment

Cain (2008) found that RL has a significant impact on an organisation; as a result, a higher degree of knowledge about the importance of reverse logistics needs to be created. It is difficult to determine the degree of tax assessment, which creates a high level of uncertainty regarding tax and the cost of RL. Due to ignorance on the part of businesses and consumers, taxing on returned goods was perceived as a financial hardship (Govindan & Bouzon, 2018).

Understanding reverse logistic outcomes could result in financial gain through efficient product recovery management. In this way, it is critical to evaluate the organization's level of acknowledgment and recognition of the benefits of RL practises and to examine the key business areas and products that the company has the potential to profit from by implementing reverse logistics (Sharma et al., 2011). One of the barriers to its implementation is a lack of information regarding RL practises (Ravi & Shankar, 2005).

Drivers of corporate citizenship

Figure 5 shows the statutory factors that have compelled businesses to adopt RL practises. It is influenced by three sub-factors: long-term viability, public knowledge, and public motivation for proper handling of hazardous materials. To help the reader comprehend the key ideas, these sub-factors are described in depth below.

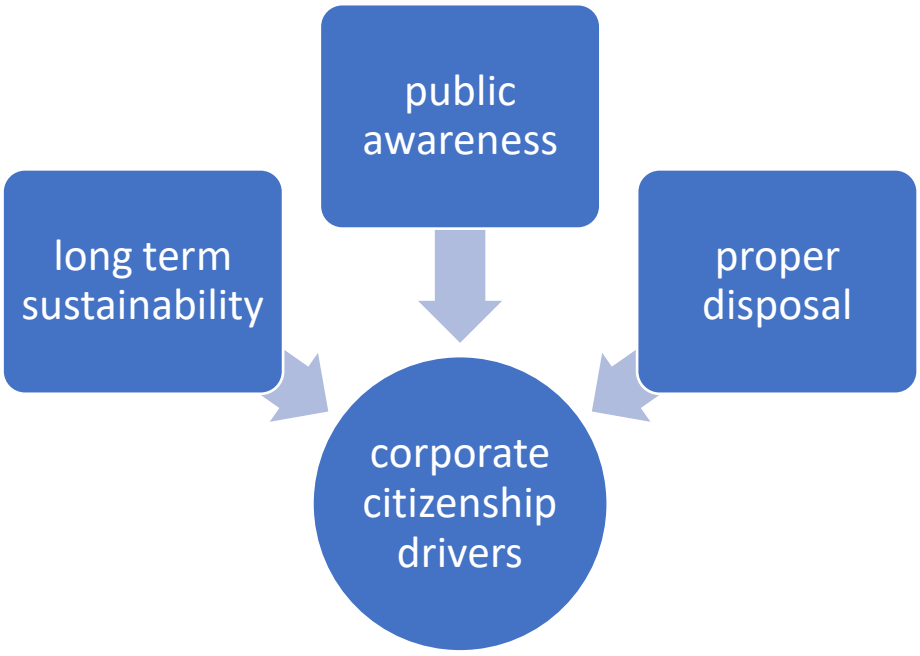

Figure 5. Drivers of corporate citizenship

Corporate citizenship driver 1: Sustainability over the long term

Long-term market survival is a goal for businesses. They become concerned about ecological consumption and the shortage of raw resources as a result (Govindan & Bouzon, 2018). According to Andiç, Yurt, and Baltacolu (2012), growing environmental sustainability awareness influences decisions in favour of reverse logistics. Only the planet's sustainability can assure the sustainability of a business. This justification alone ought to be sufficient to choose green, but sadly, this has not been the case thus far. However, it is encouraging to see this driver's growing importance as a discussion point when determining environmental sustainability factors (Andiç, Yurt, and Baltacolu, 2012).

Driver 2 of corporate citizenship: public awareness

RL practises are encouraged by public awareness and concern about the environment, which is promoted by NGOs (Govindan & Bouzon, 2018). Customers are becoming more conscious of the advantages of reverse logistics for the environment, according to lvarez-Gil, Berrone, Husillos & Lado (2007). They are the stakeholders who are most concerned about sustainability. Employees, stockholders, and the government come after them. Public knowledge of recycling has increased. As a result, pressure is put on businesses to implement RL in their processes (Alvarez-Gil et al., 2007).

Corporate citizenship driver 3: Proper disposal

The lack of suitable landfills is a problem that RL can address. It facilitates the reuse of end-of-life products rather than their environmental disposal. It stops the environment from being harmed by harmful elements from end-of-life products (Govindan & Bouzon, 2018). Customers consider alternatives to reuse of end-of-life products when landfills grow in number (Govindan & Bouzon, 2018). Land leaching could be a risk from landfills. According to Kannan, Diabat, and Shankar (2014), this has detrimental consequences on the ecology and the soil's fertility.

Barrier to corporate citizenship

The hurdles to RL associated to corporate citizenship are depicted in the figure below. The barriers to RL implementation include poor forecasting, hard regulations against RL, a lack of environmental legislation, and their abuse.

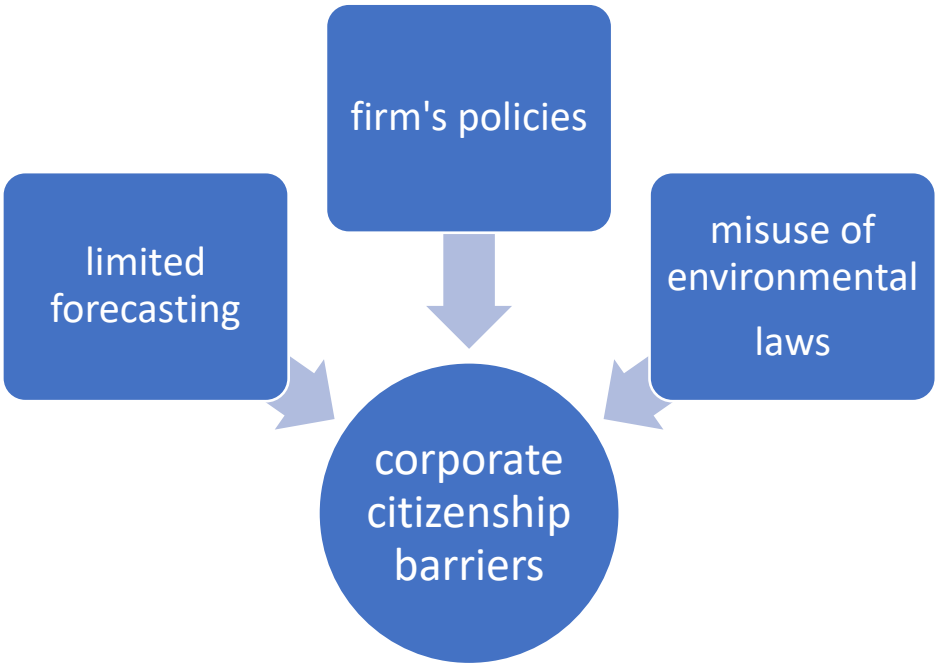

Figure 6. Barrier to corporate citizenship

The barrier of corporate citizenship 1. Insufficient forecasting

Reverse logistics planning and forecasting become challenging for businesses due to uncertain flows and products (i.e., demand, returns, and changeable product mix) (Govindan & Bouzon, 2018). Reverse logistics must be thoroughly planned out in order to be put into practice. Demand, sales, and the sort of goods should all be taken into account (Govindan & Bouzon, 2018). Reverse logistics has a higher level of uncertainty than advance logistics (Chan, Chan, and Jain, 2012). Planning and selecting reusable products are a challenge as well (Chan, Chan, and Jain, 2012).

Corporate citizenship barrier no. 2: Policies of the company against RL

Reverse logistics may not be used by businesses because they want their first-quality goods on the market and are concerned that the recycled product would hurt sales of the primary product. In order to prevent reverse supply chain, they adopt policies (Govindan & Bouzon, 2018).

It can be as a result of management's neglect and low priority for reverse logistics. Another difficulty is corporate strategy for dispositioning (Rogers & Tibben-Lembke, 2001). This might be brought on by management's neglect of process and product stewardship, which harms RL and green supply chain management (Govindan et al., 2014). The market share of the primary items may be threatened by the recycled product.

Barrier 3 to corporate citizenship: Lack of motivation laws

Government restrictions do not encourage businesses to promote responsible manufacturing (RL), encourage consumers to buy environmentally friendly products, or preserve a green environment (Govindan & Bouzon, 2018). One obstacle to the implementation of RL is the absence of economic policies that promote it. Because of this, the companies are left without an incentive to continue, and if other drivers do not make up for it, they lose interest (Abdulrahman, Gunasekaran, and Subramanian, 2014).

CONCLUSIONS

- Businesses may not use reverse logistics because they want their first-quality products to remain on the market and are concerned that recycled products will harm sales of their primary products. To prevent reverse supply chain, they implement policies.
- Uncertain flows and products (such as demand, returns, and fluctuating product balance) make reverse logistics planning and forecasting difficult for businesses. Reverse logistics must be meticulously plotted prior to implementation. Demand, sales, and the type of product should all be considered.
- Greater emphasis should be placed on the use of sustainable fibres, renewable energy, trash collection, reuse, and integrating production wastes into new fibre production or cascading to other pertinent industrial processes.

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