

Barriers to Reverse Logistics and the Circular Economy in Supply Chain Arrangements: A Qualitative Study in Ecuador

Barreiras á loxística inversa e a economía circular nos acordos da cadea de subministración: un estudo cualitativo en Ecuador

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Abstract

The objective of this research is to analyse the main barriers to implementing models related to the circular economy and reverse logistics in the framework of corporate social responsibility in Ecuador. The study has used a qualitative approach, using a non-probabilistic sample of seven companies, interviewing experts in the fields of production and operations management, as well as reverse logistics and the circular economy. The results, provided by Atlas.ti software, identify that the most common obstacles to putting reverse logistics and circular economy models into practice are the lack of stakeholder commitment, information on business sustainability and private and government investment, and the negative impact on the cost-benefit ratio of Latin American companies based on their business culture.

Keywords: Supply chain; Sustainable development; Circular economy; Reverse logistics; Sustainability; Barriers.

Resumo

O obxectivo desta investigación é analizar as principais barreiras para implementar modelos relacionados coa economía circular e a loxística inversa no marco da responsabilidade social empresarial en Ecuador. O estudo utilizou un enfoque cualitativo, utilizando unha mostra non probabilística de sete empresas, entrevistando a expertos nos ámbitos da xestión da produción e as operacións, así como da loxística inversa e a economía circular. Os resultados, proporcionados polo software Atlas.ti, identifican que os obstáculos máis comúns para poñer en práctica os modelos de loxística inversa e economía circular son a falta de compromiso das partes interesadas, de información sobre sustentabilidade empresarial e investimento privado e gobernamental e o impacto negativo na relación custo-beneficio das empresas latinoamericanas en función da súa cultura empresarial.

Palabras chave: Cadea de subministro; Desenvolvemento sostible; Economía circular; Loxística inversa; Sustentabilidade; Barreiras.

JEL Codes: F43; F63.

1. INTRODUCTION

Organisations, governments and academia are attentive to the Sustainable Development Goals (SDGs) proposed by the United Nations (UN) and are trying to lay out a plan of action by seeking opportunities to improve quality of life around the world. In a sense, the circular economy (CE) represents an alternative paradigm to the current linear production and consumption model. Its aim is to extend the life-cycle of goods and services in the market based on the value-retention option of reduce, reuse and recycle (Blomsma & Brennan, 2017; Korhonen et al., 2018). Supply chain management plays a major role in the transition to the CE, as it involves all the necessary processes to manage both forward and reverse flows, coordinate partners and minimise supply chain disruptions, ultimately aiming to displace primary production (EC, 2015; De Angelis et al., 2018; Enes & Kipöz, 2020; Fernández-Jardón & Martínez, 2022). Another concept that relates to the CE is reverse logistics (RL), which is a process of planning, implementation, efficient control, and optimal cost in the recovery of waste and returns (Bag & Gupta, 2020). Therefore, both RL and the CE play a decisive role in tackling global issues by making decisions and setting strategies, goals, objectives and activities that lead to improved organisational performance, providing a pillar of success for these constructs (Alamerew & Brissaud, 2020).

As a consequence, how the RL and CE variables contribute to fulfilling the SDGs proposed by the UN is fundamental and clear, while at the same time, with the emergence of the concept of Corporate Social Responsibility (CSR), their meanings have become relevant (ElAlfy et al., 2020; López et al., 2023). At present, sustainable development is a source of success, innovation, and profitability as well as of addressing sustainability due to the fact that it identifies opportunities and threats to improving sustainable corporate strategies (Baumgartner, 2014). The above concepts are related to CSR, which the United Nations Industrial Development Organisation defines as a management notion in which companies integrate social and environmental concerns into their business operations and their interactions with stakeholders; the implementation of RL and the CE is directed at operations, business management, and the fulfilment of the SDGs, thus addressing the social problems and challenges that currently arise in a responsible manner (Munro, 2020). Similarly, the SDGs require that organisations show strong commitment (Christ & Burritt, 2019), and the implications can span the economic, social, and environmental spheres. (Montiel et al., 2021). Additionally, SDG-driven corporate culture is becoming increasingly common in western countries, as it brings with it the restructuring of corporate sustainability strategies, including the promotion of brands, which are connected not only to the care of the environment but also to the internal work environment, where companies begin to attract customers and staff (Diaz-Sarachaga, 2021).

However, the problem of companies implementing the CE is that it requires the consolidation of its theoretical foundations, due to the complexity and uncertainty of the processes that relate it with RL, as they are linked to the suppliers, manufacturers, wholesalers and retailers in the supply chain (Agrawal & Singh, 2021; Beiler et al., 2020; Wang & Wang, 2020). There are indeed studies where the implementation of CE encourages resources to be used less and economic and environmental benefits to be maximised; this highlights how important it is to apply RL, since it is necessary to manage waste to reduce the environmental impact, obtaining a functional resource once captured and processed (Bag & Pretorius, 2020; Cao et al., 2021; Esposito et al., 2017; Lechner & Reimann, 2019; Ogunmakinde et al., 2021). Therefore, investigating the CE and RL is a topic of critical

importance for organisations, academia, managers responsible professionals and society (Alamerew & Brissaud, 2020).

The aim of this study is to recognise and analyse the barriers or critical success factors, differences and obstacles of the constructs that prevent compliance with the UN's SDGs, by way of an innovative framework of Supply Chain Management (SCM). Consequently, RL and the CE are necessary variables in the field of management. Additionally, it is important to note that barriers imply impediments to companies that decide not to adopt interrupt the adoption of productive activities or block efforts to improve the organisation (Govindan & Bouzon, 2018). Likewise, the literature describes external and internal barriers, whereas this study will firstly focus on the internal barriers from the focal point of the commitment from those in managerial positions, and secondly on the external barriers related to government commitment and how developed the company is, as well as RL and the CE in the supply chain to achieve its sustainability (Leal et al., 2019).

Taking the issues related to business barriers and the ways they are handled their governance into account, this research will be performed by using a qualitative approach methodology consisting of a review of the literature of the variables in question and insightful surveys interviews being conducted. From these surveys interviews, essential information will be obtained on RL and the CE in SCM and their effect on the UN's SDGs, which will then be analysed using the ATLAS.ti software. Consequently, this study aims to understand what the underlying aspects are upon setting clear rules to eliminate barriers that prevent compliance with the UN's SDGs, in addition to explain these constructs in terms of validity and contingencies.

Likewise, maintaining clean production is also considered, where RL and the CE are interrelated the supply chain, forming environmental and social objectives. For this purpose, strategies are designed in a practical way for the use of resources with clear and precise government policies to improve sustainability performance. The production processes are determined by the type of sector or industry where RL and the CE coincide. Therefore, the design of this analysis will serve to provide professionals with the mechanisms that will help them successfully implement the principles of sustainable production. That is why the following research question is posed:

What are the main barriers to implementing the CE and RL in SCM that hinder the fulfilment of the UN's SDGs? The purpose of this work is to explore and establish the causes of this situation with interviews, which, based on what has been explained in this section, will help to obtain the results of this research.

Finally, this study provides a new interpretation of the analysis of the main barriers to RL and CE being implemented in the CSR framework, focusing on the submission of the SDGs proposed by the UN in the Agenda for Sustainable Development 2030; another important practical implication is that it fills the gap where the inconsistency of these constructs had previously lain in terms of validity and contingencies. (Del Giudice et al., 2020; Jaim et al., 2017; Bag & Gupta, 2020; Geisendorf & Pietrulla, 2017; Meherishi et al., 2019; Chad et al., 2001; Lahane et al., 2020).

2. LITERATURE REVIEW

The linear economy is a traditional model in which raw materials are extracted to manufacture products, produced and then discarded, without taking into account the environmental footprint that this may leave behind or its consequences (Pimentel et al.,

2022; van Buren et al., 2016). Kazancoglu et al. (2021), Araujo Galvão et al. (2018) and García-Quevedo et al. (2020) have argued that the linear economy is based on "take, produce, consume and dispose", which is not sustainable. In contrast, corporate environmental management is based on strategic and operational decision-making in all areas of a company with the aim of minimising negative effects on the environment (Kazancoglu et al., 2021). Nowadays, companies are seeking to integrate environmental management practices with corporate strategies (Boffelli et al., 2019).

The concept of the Circular Economy has gained prominence in academia and the business world since the late 1970s (Araujo Galvão et al., 2018; Geissdoerfer et al., 2017). The CE, which focuses on the efficient management of resources and energy, reduces the flow of materials at each stage of the value chain (De Angelis et al., 2018; Medina-Abad & Freire-Pesántez, 2023). For Homrich et al. (2018), the CE is a strategy that aims to understand the challenges of resource scarcity and waste disposal while van Buren et al. (2016) argued that it is a type of regenerative or restorative economic model that offers social value by rejecting unhealthy working conditions. Meanwhile, Gupta et al. (2019) and Ghisellini et al. (2016) added that in addition to reducing pollution, it reduces waste and minimises energy use, thus increasing resource efficiency. The CE is based on the principles of reduction, reuse, recycling, refurbishment, remanufacturing and recovery (Prieto-Sandoval et al., 2019). The implementation of the CE requires a country's economic and political system to be changed, which would directly affect its business structure. Therefore, the adoption of CE strategies calls for changes in companies' business models (Pieroni et al., 2019).

Another term, which has been attracting more and more attention in recent years and is related to the circular economy, is reverse logistics (Bouzon et al., 2015). In addition to being one of the most relevant topics discussed in supply chain management, reverse logistics plays a prominent role in applying the principles of the circular economy (Azadnia et al., 2021; Can Saglam, 2023). Rogers and Tibben-Lembke (1999, p.2) define reverse logistics as "planning, implementing and controlling the efficiency and effectiveness of costs, flows of raw materials, work-in-process and finished products, and related information, from the point of consumption to the point of origin for value recovery or appropriate disposal".

Furthermore, reverse logistics is considered to be a model that enables companies to deal with environmental issues more effectively (Carter & Ellram, 1998). The development of reverse logistics and supply chain models plays a relevant role when it comes to applying circular economy principles, although there are still many hurdles to overcome to implement them (Azadnia et al., 2021; Pimentel et al., 2022).

The extensive literature mentions that there are difficulties implementing both the circular economy and reverse logistics models. This is how previous studies (Korhonen et al., 2017; Araujo et al., 2018; Bilal et al., 2020) have categorised CE barriers: (i) internal, such as material resources, immaterial resources and competencies; (ii) external, such as capital support barrier, policy support barrier, and information support barrier. Nonetheless, Bilal et al. (2020) have argued that the barriers that appear most frequently in the literature are as follows: technological, policy and regulatory barriers, financial and economic barriers management, performance indicators, customer (interest in the environment or lack of information on environmental impact) and social barriers

In addition, supply chain management (SCM) with RL and the CE hinders the commitment between everyone involved from being fulfilled, as it attends to global and disruptive societal demand (Del Giudice et al., 2020). Hence, the practise of SCM with RL and the CE shows consistency in the construction of added values, which encourage those involved to collaborate with the development of the processes which can lead to improvements in firm

competitiveness and sustainability (Jaim et al., 2017). Therefore, it is necessary to build a conceptual framework with qualitative research, which should establish clear rules on barriers that affect RL and the CE in the SCM and avoid contingencies, increasing the validity and consistency of these constructs related to strengthening the commitment to comply with the UN SDGs. This, in turn, should impact those involved and contribute to the results of previously carried out research (Cardoso et al., 2019).

Likewise, Del Giudice et al. (2020), in their research, have recommended conducting a qualitative study of SCM and the CE where the consistency and the validity of the relationship that should exist between these two strategic management variables can be determined. In this regard, Jaim et al. (2017) proposed a strategic conceptual framework for the performance of SCM in the CE, where they stated that empirical studies must be carried out to validate a conceptual framework. Following a similar line, Lahane et al. (2020) have stated that the incorporation of the CE in SCM is defined as circular supply chain management (CSCM), whose focal point consists of cost reduction as an effective measure to increase profits as well as to incorporate the practices that subsequently optimise the use of resources for production (Govindan & Bouzon, 2018). Finally, Dey et al. (2020), in their study about CE barriers, presented the processes of selecting, making, distributing, using, and renewing; however, the authors emphasised that the study was carried out considering a closed-loop supply chain process, that is, incorporating RL. In many cases, the implementation of these variables solves the problems and challenges that organisations may face in terms of efficiency (Oliveira et al., 2019).

Moreover, Geisendorf and Pietrulla (2017) identified defining characteristics of several concepts that serve as the basis for the conceptualisation of the CE; the authors also suggested developing an adequate operationalisation that can improve and contribute to SCM performance. In the same way, Meherishi et al. (2019) presented an orientation of the linear and circular economy against SCM structures, where they recommended researching from a more integrated perspective so that the EC variable evolves with an open-type systemic approach; consequently, the study would include targeted research to consolidate sustainability. Thus, SCM is related to the optimisation of operations and their maximum use of efficiency and effectiveness, seeking sustainability by adopting RL, in alignment with environmental objectives (Bag & Gupta, 2020). The CE is known to be a management model that seeks to take advantage of natural resources by preventing unnecessary waste from being created (Bernon et al., 2018). Consequently, the effective implementation of RL reaps direct rewards including higher customer satisfaction, lower resource investment levels and reductions in storage and distribution costs (Chad et al., 2001).

3. MATERIALS AND METHODS

For the data collection, an interview model was developed which was composed of seven structured questions based on the qualitative and inductive approach, which allowed the prior knowledge of the interviewees to be explored, who were already aware of the issues that were raised; likewise, the questions had the same purpose as the research questions as well as related theory. The sample was non-probabilistic, so the intentional choice of these companies was considered because they were involved in supply chains of different sizes and lines of business, to obtain information in different contexts, increasing the likelihood of gaining stronger results. These interviews were given to professionals who were working in the production departments of the seven companies and who answered the questionnaire based

on their experiences in operations and production systems linked to formulated organisations located in the city of Guayaquil in Ecuador. The modality of the interviews was online and varied in duration according to the availability of the production managers, averaging 30 minutes (Table 1).

Table 1. Companies and representatives

Company	Position	Years of experience	Age of company (in years)	Number of employees	Industry
A	Chief Operating Officer	26	63	450	Plastics
B	Manager	20	45	40	Canned food
C	Quality Control Manager	12	50	1,100	Fertilisers
D	Head Quality Control	11	100	1,000	Cement
E	Chief Operating Officer	41	40	110	Textiles
F	Manager	20	20	12	Yoghurts
G	Chief Operating Officer	20	50	700	Chemicals

Source: Authors

The survey questions for the interviews were determined according to the research of Dey et al. (2020), Frei et al. (2020), Oliveira et al. (2019) and Pal et al. (2019) and validated for the inductive development of the questions and answers regarding the barriers that MSC has with RL and the objectives of the CE (Table 2).

Table 2. Interview Model

Research Questions
1. Do you think that the lack of knowledge at a theoretical level of how to implement a reverse logistics or circular economy model and the commitment to it are strong barriers to its application?
2. Do you think that the investment costs to apply reverse logistics or circular economy models are high in the first instance and could prevent a manager/managers from making the decision to implement these models?
3. Do you think that the national policy on environmental mitigation has an effect on whether or not the circular economy or reverse logistic models are applied?
4. In your opinion, what are the pillars of a competitive company and would you include a business model that prioritised environmental care over the other pillars?
5. Do you think that the perspective of consumers towards a product may differ in relation to whether or not you applied the circular economy or reverse logistics models? If so, in what way could it differ?
6. In your opinion, should the company that were going to implement the reverse logistics or circular economy models obtain financial support from the other links in the supply chain for mutual benefit?
7. From your perspective, what are the benefits of implementing the reverse logistics or circular economy models in your company's supply chain? If your company has more than one production line, you may wish to refer to just one of them.

Source: Authors

The questions for the structured interview aimed to identify what the barriers to implementing clean production in business and government commitment to achieving the UN Millennium SDGs were. The analysis of these interviews was carried out by using Atlas.ti software.

The first and sixth questions have their theoretical basis in the study by Dey et al. (2020). In that body of research, the authors analysed the challenges that companies face when applying the CE and RL, by using the selecting, manufacturing, distributing, using, and recovery processes. They concluded that the challenges they faced were the lack of knowledge

and/or understanding of the benefits of extending the useful life of products and facilities due to the lack of commitment from management. With this in mind, the first question was based on the processes of selecting and using to treat the products so that their life cycle could be restarted and the lack of technical resources, referring to trained staff to carry out this work, the facilities and the machinery; regarding the sixth question, the same authors emphasized that financial resources were present in the making, using and recovering processes for financial resources and support.

The second and fourth questions were developed based on the study by [Frei et al. \(2020\)](#), where the authors grouped together various companies and investigated the main barriers to the implementation of the CE and RL, which were the lack of disposable income and the lack of sustainability. With reference to the latter, the barrier established by transportation and handling costs was mentioned, which were higher with reference to the return cost per product sold. The second barrier, mentioned in question four, was the environmental dimension linked to the recycling of products. A new product is created from the waste of another and linked to the reduction of waste due to a new product being created. Thus, the authors concluded that the companies that were the object of the study did not have sustainability management or that the role of the CE and RL in the companies was not clear.

The third question has already been raised by [Oliveira et al. \(2019\)](#), who noted the importance of national policies in reverse channels and the CE in the supply chain; these are pertinent in relation to environmental legislation and allow the shared responsibility of waste generated by manufacturers, importers, distributors, merchants and consumers to be established. The objective of waste collection management is to generate income by recovering packaging, reusing it, allowing for this sector to be boosted and enabling the creation of jobs. For this reason, the authors recommended examining and comparing different contexts of the implementation of RL and the CE.

The fifth question was based on the scientific article by [Pal et al. \(2019\)](#), who focused their research on the CE and the RL supply chain in order to try to improve the system or companies in the fashion and clothing sector, establishing what impedes circularity and the application of reverse channels. The authors discovered that consumer demand for products made had repercussions on the subsequent decisions of companies in this sector. All parties should work together to exchange ideas about how to improve economic viability.

4. RESULTS

To analyse the interviews, each response was transcribed and digitised then uploaded to the Atlas.ti program.

Subsequently, each question was analysed with its respective answers by citing the transcriptions, first by identifying the ideas and then by coding them (via Open Coding) to develop first-order concepts; second-order themes (categories or groups of codes) were then developed (by way of axial coding) by identifying first-order links; after that, in an exhaustive analysis, the connections based on the coding and categories were contrasted with the interaction between the theories to obtain the data (selective coding).

Therefore, six categories were determined: (1) stakeholder commitment, (2) value for money, (3) environmental care, (4) information on sustainable business models, (5) private investment, and (6) government resources. Next, [Table 3](#) presents the occurrences of the interview codes versus the categories to provide an overview of the qualitative analysis performed.

Table 3. Interviews - Categories

Interviews / Categories	Intervie wee 1 Gr=33	Intervie wee 2 Gr=15	Intervie wee 3 Gr=21	Intervie wee 4 Gr=23	Intervie wee 5 Gr=22	Intervie wee 6 Gr=21	Intervie wee 7 Gr=21	Total
Stakeholder Commitment Gr=50; GS=12	9	4	7	7	7	6	10	50
Value for money Gr=47; GS=13	6	4	6	10	7	9	5	47
Environmental care Gr=60; GS=17	12	4	9	11	8	7	9	60
Information on sustainable business models Gr=31; GS=9	4	3	6	5	6	1	6	31
Private investment Gr=29; GS=8	5	2	4	4	4	4	6	29
Government resources Gr=21; GS=5	1	2	2	1	4	6	5	21
Total	37	19	34	38	36	33	41	238

Source: Authors using ATLAS.ti

In [Table 3](#), the categories column and the groups of codes (shortened to Gr) refer to the citations that were carried out in the interviews to identify which codes belonged to that category, while GS meant the codes that each category represented, that is, the occurrences are detailed and the structured connection of the categories is determined, choosing those that had the greatest relevance and their relationship with the codes of lesser relevance. The rows represent Gr, which is the number of citations made in each of the seven interviews. Following the reference to a descriptive perspective ([Emond et al., 2019](#)), the category that was least referenced throughout the interviews was government resources and the second category from the bottom was private investment.

4.1. Barriers to the implementation of RL and the CE and strategies

According to the information collected in the interviews, some of the barriers are the lack of information on sustainable business models, private investment and government resources to support the development of sustainable companies. [Dey et al. \(2020\)](#), [Frei et al. \(2020\)](#), [Oliveira et al. \(2019\)](#) and [Pal et al. \(2019\)](#) have also revealed these barriers, which influence the supply chain for wellness and sustainability.

4.1.1. Lack of Stakeholder Commitment

One reason for low stakeholder commitment is their lack of unity. Therefore, it is very rare to see associations or alliances, and cooperation between supply chain links are even less likely ([Dey et al., 2020](#)). It is also possible to find companies with little interest or knowledge in adhering to UN SDGs in that they are not committed to environmental awareness; consequently they have no prospect of taking advantage of resources, nor do they plan for or research sustainable business development ([Oliveira et al., 2019](#)). Likewise, reporting practices in relation to the content of each of the SDGs must be evaluated to modify the measurement system; by doing so, the results can be disclosed in compliance with

the organisation and omissions in the reports of corporate sustainability can be prevented (Tsalis et al., 2020) and participation in the key process of aligning business interests and identifying sustainability objectives can occur. The carelessness shown by businesses and governments has been highlighted in the interviews. In terms of the standards that the stakeholder commonly proposes for sustainability.

4.1.2. Environmental care and value for money

Sustainability in the business environment was also covered in the interviews and the Triple Bottom Line method, which regards the improvement of the economic environment and social spheres, was mentioned (Bag & Gupta 2020; Agrawal & Singh, 2021). A sustainable company can manage these two approaches and have sustainable production processes (Bernon et al., 2018). This implies carrying out environmental management with waste destruction in collection centres, the recovery of containers and/or product packaging, recycling and/or total or partial replacement processes (Jaim et al., 2017). Companies must defend the surrounding ecosystems and properly manage raw materials (Frei et al., 2020). Perhaps everything mentioned above may seem strategically tedious and even unimportant for companies, although if they wish to seek sustainable development by adopting the international regulations on environmental care established in the UN SDGs, they would improve their image, as well as the environment (Aguilera & Guerrero, 2017). It is important for sustainable development capacities to be high; internal control and corporate components must be well managed to promote continuous improvement and achieve sustainable development (Dhar et al., 2021). Kiesnere and Baumgartner (2019) also affirmed this, stating that companies should be supported by senior management and an open organisational culture with reference to sustainable development at the operational, strategic, and regulatory management levels, which would demonstrate and allow for the integration of global sustainability.

4.1.3. Lack of information on sustainable business

This barrier applies to those who are responsible for informing the public of and publicising the CE and RL and the benefits for the planet, i.e., the mass media, secondary schools, universities and businesses, who show inconsistencies on issues of sustainable production processes (Pal et al., 2019); however, this shortcoming could be dealt with by promoting a business culture of continuous learning, training and staff development, promoting environmental awareness, in addition to encouraging the mass media to engage in cultural education to protect the environment (Aguilera & Guerrero, 2017). The consequences of the lack of knowledge translate into errors and/or risks, especially when technical knowledge must be developed for feasibility studies that include stages such as the manufacturing process, handling logistics and the use of resources (Oktari et al., 2020). In this way, errors caused by not having much awareness can result in risks, sanctions and losses in the market. Therefore, as knowledge is much more important than simple information, this management must be related to the participation of all stakeholders who should use data analysis in a relevant way when making decisions. Additionally, there are theoretical gaps in many points, such as in business administration qualifications, research on this field and little government information on regulations and legislation, among other aspects. In some cases,

business paradigms are built to ignore the mitigation of pollution generated by production processes (Wang et al., 2021).

4.1.4. Lack of Private Investment

This barrier is related to the financial support that companies may receive if they wish to develop, by way of strategies and tools, according to the interviewees. Some declared, especially in small and medium-sized companies, which are more vulnerable to economic fluctuations, that they had received no private investment (Serrasqueiro et al. 2021). Many, however, mentioned the need to implement integrated systems, environmental policies and corporate sustainability in order to comply with regulations that would enhance their corporate image. In order for this to happen, it would be necessary for private banks to be flexible by financing projects that would seek to improve the financial situation of companies and that would demonstrate a viable economic return, by way of credit or loans that would allow deferment and that would also have low-interest rates (Robinson et al., 2020). Another solution could be to allow foreign direct investment from both international companies and private foreign banks that, by laying out their budget and payment planning, would be able to improve the quality of a company and implement strategic pillars of sustainability (Da Silva et al., 2021).

4.1.5. Lack of Government Resources

When it comes to the lack of government resources, it is not only the economic side, but everything that helps a country's government to implement sustainable business models (Oliveira et al., 2019). The respondents claimed to be unaware of these issues, even the clear national policies on environmental awareness for businesses which produce waste, such as fines, and incentives for those which demonstrate environmental sustainability, even in regional governments (Cao et al., 2021). Furthermore, creating or refining the legal frameworks for financing from public banks and/or tax reduction from collecting societies, regulations and incentives are all fundamental factors that allow businesses to grow and stay committed to mitigating their environmental impact (Floater et al., 2017). Hence, the promotion of sustainable development for companies wishing to improve their environmental awareness requires the disclosure of governance to comply with environmental regulations, encouraging them to be ecologically innovative.

The key advantage of companies applying RL and CE models is their increased competitiveness in the market (Bag & Gupta, 2020). Economic and commercial models based on the principles of regeneration and restoration are viable alternatives in the conception of sustainable development (Julianelli et al., 2020). By way of marketing techniques and image, improvements can be shared with the interested parties that are incorporating environmental policies and social responsibility among their strategic pillars (Aguilera & Guerrero, 2017). On a similar note, other even more sought-after benefits can be gained such as expansion and continuity in the market (Lechner & Reimann, 2019). In short, it can generate higher demand, and, therefore, higher sales due to the better economic performance, potentially leading to greater innovation and, ultimately, improved product quality owing to the higher levels of production/operational efficiency (Gåvertsson et al., 2018). Meanwhile, the costs associated with implementing the models depend on how the waste is handled or managed, in terms of recovering the used product and the associated logistics costs, since labour, facilities,

transportation and all other associated costs require a new production and sales process to be established (Bernon et al., 2018).

5. CONCLUSIONS

The purpose of this research was to determine the barriers to the implementation of RL and the CE in the MSC, which were considered to be elementary strategies for the fulfilment of the UN SDGs. In general, the constructs, factors and variables and how they were related to each other were explained in an exploratory way using the Atlas.ti software. The interviewees claimed that the strategic and managerial focus of organisations was on business culture and the SDGs. In addition, it was determined that the predominant barriers were the lack of information on sustainable business models, stakeholder commitment or coordination, private investment and government resources; it was, in summary, a review of the scientific-academic literature.

The results obtained in this body of research should increase public awareness of RL and the CE, since it has shown that strong business culture and educating workers on the environmental issue are fundamental factors for a company to implement the UN SDGs. Likewise, it has been argued that the advantages of implementing RL and CE models do not justify the cost, which is extremely high, implying that in the short term, organisations may prefer not to use these models. Regardless of this, the successful combination of environmental awareness with business culture relies on the commitment of all internal and external stakeholders, who need to work together to develop strategies to promote sustainable production processes in order to influence decisions in companies. Therefore, organisations should work hard to eliminate barriers and develop a business culture that cares for the environment without neglecting economic return.

This body of work provides a conceptual framework that highlights important opportunities for future study. It is always important to recognise the methodological limitations associated with qualitative data and the sample size, so studying these constructs with a larger stratified sample is recommended wherever possible. Despite the fact that a series of barriers preventing the implementation of RL and the CE have been identified, further research is required to acquire a deeper understanding of these critical factors; to do so, it is suggested that quantitative and mixed exploratory research be carried out on the constructs studied and on the sustainable environments that prevent the UN SDGs from being met.

This paper provides a review of the barriers that exist in companies for the implementation of circular economy and reverse logistics models, which are necessary for business sustainability in the medium and long term. In particular, RL and the CE contribute to environmental conservation and help reduce greenhouse gases. Therefore, the results of this study are essential to raise awareness of the need to maintain clean and sustainable production.

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