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Driver, barriers, and practices towards the adoption of a sustainable supply chain and circular economy: Experiences from South Africa's flexible packaging industry.

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ABSTRACT

Sustainability and circular economy have seen an increase in coverage both within the media as well as in academic literature in the past decade. The ever-growing population has placed pressures on production to increase capacity while the development of downstream infrastructure for handing the post-consumer waste has been left significantly underdeveloped. This as lead to an increase in waste going to landfills or polluting the parks and oceans of the planet. Consumers and governments have begun to act against unsustainable practices and policies of organisations are forcing organisations to adopt sustainable practices or run the risk of taxation, levies, and even backlashes in sales from consumers. The time has arrived for organisations to fully embrace sustainability and a circular economy as adopting sustainability has never been more relevant. Organisations across the supply chain of the flexible packaging industry in South Africa (as well as in other industries globally) have been using sustainable as a source of competitive and strategic advantage.

Given the importance of this topic, this research investigates the internal and external, drivers, barriers, and practices based on the experiences of industry experts within the supply chain of flexible packaging in an emerging economy (South Africa). The research covers current literature on sustainability, the circular economy, as well as the drivers, barriers, and practices towards them. Through investigating an industry within an emerging economy, the research looked to provide contributions to the extant literature and theory as well as identify new insights (refinements or extensions). The findings of this research identified three areas of difference and possible refinements and extensions to the theory. In conclusion on the drivers, barriers, and practices towards sustainability and circular economy, the researcher provides recommendations to managers and other business stakeholders on how to move towards sustainability and circular economy, as well as highlight possible further areas for research.

KEY WORDS

Sustainability, circular economy, flexible packaging, sustainable supply chain, supply chain, drivers, barriers, and practices.

DECLARATION

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

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CHAPTER 1: INTRODUCTION TO THE RESEARCH PROBLEM

1.1. Background to Research Problem.

In the recent decade, there has been a global transition towards sustainable development in response to growing environmental issues, such as climate change (PAGE, 2018). South Africa embraced the need to move towards sustainability and circular economy, or green economy, and has been declared at the highest level of politics within the country (Department of Environment Forestry and Fisheries, 2021). The South African government has implemented a number of legislations and amendments to the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), hereby known as "the Act" since 2008, with the latest amendment being the Extended Producer Responsibility (EPR) regulations (Department of Environment Forestry and Fisheries, 2021). The EPR legislation is set to be enacted as of 05 November 2021 and aims to reduce the amount of single use plastics and waste generated from packaging in South Africa. Additionally, the EPR regulations also intends to help develop infrastructure in that would allow for and encourage recycling, reuse, and remanufacturing of materials, also known as the 3Rs of circular economy (Department of Environment Forestry and Fisheries, 2021). The EPR legislation follows the United Nations (UN) Sustainable Development Goals (SDG) that provide a blueprint for countries to implement sustainable consumption and production patterns from the implementation of the 10-year Framework programs (United Nations, n.d.-b).

The ever rising population number over the past two decades has meant that the demand and consumption of materials has increased eightfold worldwide (Govindan & Hasanagic, 2018). The UN estimates that the global population will increase to around 9.7 billion people by 2050 and could peak at 11 billion by 2100 (United Nations, n.d.-a), thus adding further demands on production.

Flexible packaging is used through all consumer product markets as it offers high barrier protection to products, extends shelf life, and allows for light weight packaging solutions (Flexible Packaging Association, 2016). Flexible packaging is manufactured from a variety of products, or substrates, such as paper, plastic, aluminium foil, coated papers and films, or a combination of these in the forms of laminates (Flexible Packaging Association, 2016). Flexible packaging is defined in Bening, Pruess, & Blum (2021) as a material that is easily manipulated and whose shape can be effortlessly changed. Examples are bags, pouches, and sachets (Bening et al., 2021).

The process of construction of and finishes used, such as coatings and laminations of different substrates, as well as the possibility of contamination these products (RecyclePaperZA, n.d.), makes flexible packaging difficult to recycle (Bening et al., 2021; Chen et al., 2021; Confederation of Paper Industries Ltd, 2020; Pauer et al., 2020). South Africa has a shortage of processing facilities that are able to recycle these materials (RecyclePaperZA, n.d.). The Consumer Goods Council of South Africa (CGCSA), also stated that South Africa does not have enough large-scale post-consumer waste management programmes which assist in the separation and processing of sustainable packaging (Consumer Goods Council of South Africa, 2020).

According to Linnenkoper (2019) South Africa is sending around 95 million tons of waste into landfill sites across the country and only 40% of all materials were being recycled in 2019. Over 34% of households in South Africa do not have access to regular waste disposal services and the separation of waste is not legislated by government, therefore there is little to no practice (The Moss Group, 2020). Non-recycled materials such as flexible packaging are amongst those that are currently not accepted for recycling by companies such as Green Cycle, due to high costs of disposing (not recycling) for these types of materials (Green Cycle, n.d.).

The flexible packaging industry is currently operating as a linear economy and is unsustainable as the materials either cannot be recycled or reused. Therefore, it is of utmost importance that organisations within the flexible packaging supply chain in South Africa begin to embrace becoming more sustainable and assist in the development of a circular economy.

1.2. Research Problem

In their research into sustainable supply chains, Pagell & Shevchenko (2014) discovered that around 90% of research papers published in the *Journal of Supply Chain Management* were not addressing sustainability and that majority of the literature was overlooking the effects of supply chain on environmental and social dimensions of sustainable development. Govindan & Hasanagic (2018) found that more recently there has been an increase in the number of research papers being published on these concepts and theories as well as their importance, as can be seen in Appendix 1, 2 and 3. Dubey, Gunasekaran, Papadopoulos, Childe, Shibin, & Wamba (2017), Malesios, De, Moursellas, Dey, & Evangelinos (2020), and Golicic & Smith (2013) found that the research into sustainability and sustainable supply chain management has been

increasing in recent years from both academics and business experts. This illustrates that over the past decade the importance of sustainability and sustainable practices are becoming increasing more relevant in academia.

Research articles by Heydari, Govindan & Basiri, (2020), Ajwani-Ramchandani, Figueira, de Oliveira, Jha, Ramchandani, and Schuricht (2021), de Vargas Mores, Finocchio, Barichello, and Pedrozo (2018), and Su, Heshmati, Geng, & Yu (2013) all highlight the importance of a green economy, green supply chain, and a circular economy.

Although there has been an increase in published papers in recent years, majority of sustainability and circular economy research is conducted in Asia, Europe, and North America, with little research focusing on African or South American countries (Golicic & Smith, 2013; Govindan & Hasanagic, 2018; Pagell & Shevchenko, 2014). Research into emerging markets has been encourage by some academics as it may shed light on alternative practices and assist in the development of literature of sustainability, circular economy, and sustainable supply chains (Golicic & Smith, 2013; Govindan & Hasanagic, 2018; Pagell & Shevchenko, 2014).

1.3. Research Aims

This research paper aims to conduct further research into Govindan & Hasanagic's (2018) proposed multi-perspective framework of the barriers, drivers, and practices towards a circular economy. The objective of this paper is to determine the barriers, drivers, and practices within the flexible packaging supply chain in South Africa as an emerging market.

This research is aimed towards gaining an understanding of the experiences of stakeholders in the flexible packaging supply chain on the topics and adoption of sustainability, the circular economy, and sustainable supply chains. The focus of this research will be on the organisations that are part of the supply chain of flexible packaging into and within South Africa. By focusing on South Africa, the researcher is hoping that new insights or ways of doing things differently may be uncovered as suggested by Pagell & Shevchenko (2014).

1.4. The Intended Contribution

This research hopes to contribute possible similarities in theory in a different setting that has not previously been explored in the current literature. The research also hopes to find potential areas of refinement and extension for the current academic literature and

discussions in relation to the drivers, barriers, and practices experienced by professionals in the flexible packaging supply chain in South Africa towards the adoption of sustainability, a circular economy, and a sustainable supply chain.

1.5. Research Questions

Three research questions have been developed from the below principal research question, which has determined the structure of the research's design. The research questions will be discussed in more detail in Chapter 3.

> ***What are the drivers, barriers, and practices towards the adaption of a sustainable supply chain and circular economy? Experience from South African flexible packaging industry.***

1.6. Report Overview

Chapter 1 introduces the reader to the research problem of sustainability and circular economy, the relevance of the research to business and to academia. The chapter continues by outlining the aims and introduces the research question that will be answered by the study. Chapter 2 is a review of current literature on sustainability, circular economy, sustainable supply chains, and the respective drivers, barriers, and practices in relation to sustainability and circular economy. Chapter 2 concludes with the adoption of a conceptual framework identified from the literature review and informs the research question in Chapter 3.

Chapter 4 outlines the methodology of the research by discussing the detail on the design and strategy. Chapter 4 describes the study population and sample through which the data was gathered for the study, as well as the data collection method. The methodology also details the research instrument and the analysis plan. The findings from the data gathering process are discussed in Chapter 5 in which the results are presented and discussed or analysis with-in and across the organisation groups identified in Chapter 4. A comparison of these findings and those in the literature review in Chapter 2 are detailed in Chapter 6.

The final chapter of the research study is Chapter 7, in which the conceptual framework, that was developed as a result of the research process is presented. The framework in Chapter 7 includes the areas of similarity found in Chapter 6, as well as the areas for potential refinement and extension to the current theory. The report concludes in Chapter 7 with the recommendations for managers and other relevant stakeholders, limitations of the research study, and concludes with opportunities for further research recommendations.

CHAPTER 2: LITERATURE REVIEW

2.1. Introduction

The following section of the paper is the literature review of the articles relating to the topic of sustainability, the circular economy, and of sustainable supply chain [management] and its effects on sustainability and the move towards a circular economy. Firstly, the researcher will explain the sourcing and background of the literature reviewed within this paper. The researcher will then provide a comparative analysis of the selected articles through highlighting the similarities and differences in the views of the authors. This will be followed by an evaluation of the discussion points of the authors to help gain an understanding of the topics. The section will conclude with a discussion of the research gap in the current literature and the need for this research into the topic.

2.2. Sources/Search Criteria.

Research into the topics of sustainability, sustainable or "green" supply chains, and the circular economy have been increasing in the past several years (Govindan & Hasanagic, 2018; Korhonen et al., 2018; Murray, Skene, & Haynes, 2017). This rise in published articles can also be seen through the search of "sustainability", "sustainable or 'green' supply chains", and "circular economy" on Scopus, see Appendices 1.2.3.

The search for the literature reviewed was conducted through a search of key words, namely "sustainability", "supply chains", "supply chain", "supply chain management", "sustainable supply chains", "sustainable supply chain management", "green economy", "circular economy", "drivers", "barriers", "practises", "emerging markets", "BRICS", "Africa", and "South Africa". Key word searches were conducted through Scopus, Publish or Perish, Emerald Insight, Science Direct, Wiley Interscience, JSTOR, and Google Scholar. To ensure that the published articles were relevant, a timeframe of the past 10 was used with any papers published prior to 2010 being deemed not relevant for the literature review.

The second criteria for the published articles were the quality of the journals in which they were published. Published articles were required to appear in various top-rated journals based on their ABS rating to ensure the quality of the article published. Articles that were not published in top-rated journals may not have been discarded completely, however they do not appear in this literature review. Journals that are included are *Ecological Economics, International Journal of Production Research, Journal of Business Ethics, Journal of Cleaner Production, Journal of Supply Chain Management,* and *Socio-*

Economic Planning Sciences. The researcher also utilised *Herzing's Publish or Perish* to establish the number of times an article had been citied.

During the literature review the research noted that some authors found that despite the increase in the number of articles and papers on sustainability, sustainable or "green" supply chains, and the circular economy, the definitions for each concept still remains vague and open to different interpretations (Korhonen, Honkasalo, & Seppälä, 2018; Murray et al., 2017).

2.3. Review on Sustainability

2.3.1. Description of Sustainability in Literature

A widely accepted definition of sustainability was developed by Brundtland (UN WCED, 1987. p. 43) as "development which meets the needs for the present without compromising the ability of future generations to meet their own needs". Murray et al. (2017) added that this definition indicates that the number of natural resources (raw materials) available are not infinite and that these need to be managed and utilised in a sustainable a way that will allow future generations to also have access to these natural resources. Golicic & Smith (2013) said that Brundtland's definition is the broadest conceptualisation of sustainability, and that sustainability has been incorporated into business and management research within corporate social responsibilities (CSR).

In their research into small and medium enterprises (SMEs), Malesios et al. (2020) found there was an increase in attention on sustainability and the balancing of the three pillars of CSR (economic, environmental, and social). According to the authors, organisations are only viewed as sustainable when the three aspects of CSR are combined in an integrated way as these aspects partial overlap when they are depicted graphically (Malesios et al., 2020). Their research found that SMEs generally try to be sustainable through the implementation of 'lean', 'green', or other sustainable practices (Malesios et al., 2020).

In their definition of sustainability, Malesios et al. (2020) stated that a practice is sustainable when it is aimed at supporting or achieving sustainable value, and a sustainable performance is when the performance of the company across all dimensions and drivers is that of CSR.

Murray et al. (2017. p. 373) also noticed that the aforementioned definition is also recognised and incorporated into the definition of the circular economy, which in its most basic form can be defined "*as one which balances economic development with*

environmental and resource protection, and in this form, it appears to be inseparable from industrial ecology, and close to the three pillars (economic, environmental, and social) of sustainable development…". The circular economy will be discussed separately in the following sections of the literature review.

2.3.2 Analysis of Literature on Sustainability

A comparative analysis of the academic literature on sustainability showed that the definition of sustainability is grounded on the broad conceptualisation of Brundtland's definition (Golicic & Smith, 2013; Murray et al., 2017). Golicic & Smith (2013) and Murray et al. (2017) agreed on this definition for sustainability and both also link this definition closely, if not directly, to the three pillars of CSR found in management.

Malesios et al. (2020) took a different view, as although they did agree that sustainability is linked to CSR, they disagreed with sustainability and the environmental aspects such eco-friendly and green activities as they found the term "green" is not necessarily defined as sustainable. Rather their research found that "green is… a combination of various strategies intended to achieve and improve environmental performance…" (Malesios et al., 2020. p. 6). The differentiation between the terms "sustainability" and "green" highlights that sustainability has become more than Brundtland's original definition which was more ground in environmental aspects. Malesios et al. (2020) showed that the definition of sustainability has grown to include economic and social dimensions, whilst the term "green" incorporates the practices and policies that assist organisations to achieve environmental sustainability.

All three articles stated that although sustainability is linked across all three CSR pillars, there is a growing interest in the environmental dimension of sustainability with the impact of operations and supply chains being more closely researched (Golicic & Smith, 2013; Malesios et al., 2020; Murray et al., 2017).

2.3.3 Concluding Remarks on Sustainability Literature

Upon conclusion of the literature review on sustainability literature, the definition of sustainability was identified as "*practices that are aimed at improving economic performance, whilst having no net impact on environmental and social dimensions and is directly linked to organisation's corporate social responsibilities to all stakeholders*.". The review also helped to identify the link between sustainability and the circular economy as both concepts are measured according to the three pillars of CSR.

The literature also highlighted that the term and concept of “green” (practices and policies) does not mean that something is completely sustainable, but rather a combination of strategies, policies, and practices that are aimed at helping organisations to achieve environmental sustainability. This does not mean that in being “green” that you are also being economically or socially sustainable.

2.4. Review and Discussion on the Circular Economy

2.4.1. Description of the Circular Economy in Literature

Murray et al. (2017. p. 371) defined a circular economy as an economy which has “no net impact on the environment” and achieves this through restoration of the environment to its original state following resource acquisition, all the while guarantying minimal waste generation during both production of a product and the products life history. They also extend the definition of the circular economy to an economic model which maximises the functioning of an ecosystem through processes and outputs across the various stages of a products life, from ideation to reprocessing (Murray et al., 2017).

According to (Murray et al., 2017) in its most basic form, a circular economy is defined as an economy which balances the economic development of the economy with environmental and resource protection. They also found that with this definition a circular economy is intrinsically linked to industrial ecology and forms part of the three CSR pillars in sustainable development (Murray et al., 2017).

The circular economy is seen as the successor to the current linear economy, which is defined by Murray et al. (2017) as an economic model that converts natural resources from the environment into waste through the production of products, with the removal of the natural resources harming and deteriorating the natural environmental, and production creating pollution.

In their literature review of articles relating to the circular economy, Govindan & Hasanagic (2018) found that there were two acclaimed ways in which researchers defined a circular economy; (1) a circular economy is represented by a closed flow and use of materials and energy through several phases, and (2) an economy that is based on a “spiral-loop system” which reduces the use of matter, energy, and the deterioration of the environment whilst not restricting current economic growth. The circular economy looks to reduce waste and decreases the need to new raw materials through monitoring the use of natural resources and by reusing existing materials (Govindan & Hasanagic, 2018). It is also applicable to multiple applications, such as supply chains, and has been found to have

positive impacts on supply chains as well as firm performance (Golicic & Smith, 2013; Govindan & Hasanagic, 2018).

Originally, 3R principles (reduction, reuse, and recycling) were introduced to the linear economy to create a more circular economy in relation to the use of materials and energy (Govindan & Hasanagic, 2018). However, in recent years an additional 3R principles (recover, redesign, and remanufacture) have been added to allow a circular economy to fully utilise the reusability of products and materials in an attempt to minimise waste and new resource extraction (Govindan & Hasanagic, 2018). The Ellen MacArthur Foundation expressed concerns over a circular economy and recommended that the circles (flows of material and energy) be tighter which will allow non-bio-nutrients, such as aluminium cans and flexible packaging, to remain in the circular economy for longer, thus minimising the creation of additional waste, see Figure 1 (Govindan & Hasanagic, 2018).

Govindan & Hasanagic's (2018) definition of a linear economy was one in which products are produced from natural resources to be sold and upon the completion of the product's life or usage it is deposed of as waste. This is defined as a "take-make-use-destroy" economy (Govindan & Hasanagic, 2018. p. 278). The authors added that this economic model does not take into consideration its impact has on environmental or social dimensions (Govindan & Hasanagic, 2018).

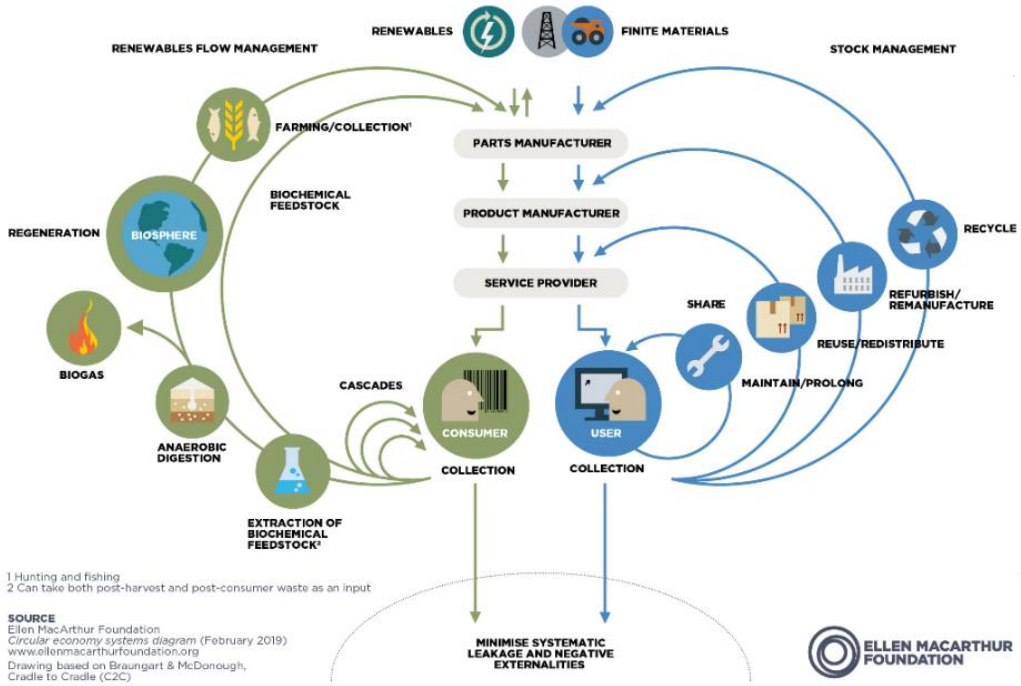

Figure 1: "The system diagram illustrates the continuous flow of technical (blue loop) and biological (green loop) materials through the 'value circle'" (Ellen MacArthur Foundation, 2019)

Source: Ellen MacArthur Foundation, *Circular economy systems diagram* (February 2019), www.ellenmacarthurfoundation.org

In the article by Korhonen et al. (2018.) the authors looked at the current proposed concepts and messages relating to the circular economy. The current concept discussed in their research found that it to be based loosely on a number of ideas from different scientific fields, for example, cleaner production, natural capitalism, industrial ecology, and reviews on the circular flows of materials within manufacturing systems (Korhonen et al., 2018). While these are some of these fields have made important contributions to the development of the circular economy concept, the authors found that little scientific research had been conducted into the links and contributions as the concept appears to be developed and led by business and policy makers (Korhonen et al., 2018)

In order to correct this, the authors developed a new definition through consideration of the concept of circular economy in terms of sustainable development and its three pillars. They suggest a possible new definition to be an economy that is structured by societies systems of production and consumption, and are aimed to maximise production from a linear material and energy throughput flow (Korhonen et al., 2018). The flow of materials will become cyclical, and the economy will utilise renewable energy, through a cascading

type flow (Korhonen et al., 2018). The success of the circular economy is its contribution to the three pillars of sustainable development, and limits throughputs to an amount that is tolerable by the natural environment (Korhonen et al., 2018).

Through operating within a linear economy humankind are depleting the natural environment (the system) in which we are operating (Korhonen et al., 2018). This will lead to the continual shrinking of the natural environment and natural resources, whilst the we find rising increases in human and livestock populations, product consumption, the rising of the sea level, and the expansion of desserts and deforestation (Korhonen et al., 2018). There is significant evidence that is showing that unless the economy moves to a circular economy we are on a collision course when the natural environment will be depleted and the ecosystem will become unsustainable (Korhonen et al., 2018).

2.4.2 Analysis of Literature on the Circular Economy

A comparative analysis of the literature reviewed showed a consensus amongst that authors that the current linear economy in which we are operating is unsustainable given the growth in human population and consumption (Govindan & Hasanagic, 2018; Korhonen et al., 2018; Murray et al., 2017). The authors of the literature reviewed (Govindan & Hasanagic, 2018; Korhonen et al., 2018; Murray et al., 2017) had similar definitions of the circular economy as a concept in which economic advancement should not come at the expense of the environment, but rather that the extraction of natural resources should be done is such a way that there are limited impacts on the natural environment.

All three articles also closely linked the circular economy to the three pillars (economic, environment, and social) of sustainable development (Govindan & Hasanagic, 2018; Korhonen et al., 2018; Murray et al., 2017). This shows again that the circular economy, sustainability, and sustainable development are interlinked in terms of academic research.

Govindan & Hasanagic's (2018) systematic review found that most research into the circular economy has been conducted in Asia, Europe, and North America, whereas there was little focus on the developments in the emerging economies in Africa and South America.

Korhonen et al. (2018) also concluded that the concept and basic logic behind the circular economy is that through utilising a material (resource) from nature and reusing it multiple times, you would be creating additional value without the need for additional materials (resources) to be extracted. Korhonen et al. (2018) added that in addition to multiple

reuses of materials and resources, that only materials that can be utilised by nature in its own ways should be allowed to flow back in nature. This belief is shared with the Ellen MacArthur foundation (Figure 1), who state that products that contain metals and plastics should be reused as much as possible through the 6Rs and stay in a circular (closed) loop for as long as possible in order to reduce the use of non-renewable materials and resources and avoid unnecessary possible pollution (Govindan & Hasanagic, 2018). Bio-nutrients, those which nature can handle, would be utilised in cascading loops dependant on the nutrients level of recyclability (Govindan & Hasanagic, 2018). This is what the authors talked about as “the desired human economy” (Korhonen et al., 2018. p. 45).

In addition to being in agreement on the importance of adopting a circular economy, Korhonen et al. (2018), Govindan & Hasanagic (2018) and Murray et al. (2017) also agreed that the concept and adoption of a circular economy is not without its barriers, challenges, and limitations. These factors range from physics to semantics but all are grounded in the economic, environmental, and social dimensions of sustainability. Govindan & Hasanagic (2018) identified 39 barriers to the adoption of a circular economy in their research alone.

Outside highlighting the importance of adopting a circular economy, Govindan & Hasanagic (2018) also identified that there are 13 drivers that would see the adoption of a circular economy.

Possible drivers, barriers, and practices towards the adoption of a circular economy will be included as sub-questions for future inclusions in this research.

2.4.3 Concluding Remarks on the Circular Economy Literature

Upon completion of the literature reviewed, literature stated that over the past years there has been an increased focus of business and in academic research. This fact highlights the importance of the adoption of a circular economy in order to improve long-term sustainability of humankind, our economies, and of the natural environment. It was identified that although the concept of circular economy is still in relatively early academic development that there appears to be a consensus on the definition of circular economy, with some additions and omissions.

To this point the researcher will define the circular economy, for this research, as;

> *“an economic model that is focused on reducing the impact of an economic system, such as production, operations, and supply chains, on the natural environment. This is achieved through the adoption of process and practices,*

such as restoration, reuse, remanufacturing, and repurposing of materials and resources, in a spiral-loop system to reduce environmental deterioration and the production of non-reusable energy and products."

While the literature review highlighted possible drivers, barriers (challenges and limitations), and practices towards the adoption of a circular economy, these will be included as sub-questions and will be included in future research submissions.

2.5. Review and Discussion on Sustainable Supply Chain Management

The next section of the literature review is related to the concept of a sustainable supply chain, or sustainable supply chain management as referred to in the literature. The following section reviews the definitions of a sustainable supply chain as supplied by authors who have conducted literature reviews on published articles on the concept (Dubey et al., 2017; Golicic & Smith, 2013; Pagell & Shevchenko, 2014) as well as a case study within an emerging market, Brazil (de Vargas Mores et al., 2018).

2.5.1. Description of Sustainable Supply Chains in Literature

A supply chain in the reviewed literature is defined as the organisation and coordination of conventional business practices, tactics, and functions of businesses within a supply chain, from supplier, shipper, and purchaser, with the goal of improving performance, with a long-term perspective, of the respective businesses within the supply chain and the supply chain as a whole (Golicic & Smith, 2013).

In their literature review relating to the concept of sustainable supply chains, Pagell & Shevchenko (2014) defined the concept of a sustainable supply chain as the design, organisation, coordination, and control placed on a supply chain to improve sustainability, causing no harm to environmental and social dimensions, whilst not impacting economic value. This definition of sustainability also included the terms, phrases, and labels of 'green', 'responsible', or 'ethical' supply chains (Pagell & Shevchenko, 2014).

A 'green' supply chain is defined as a supply chain that integrates environmental considerations and thinking into a supply chain (Golicic & Smith, 2013). This includes all processes from resource sourcing and selection, resource extraction, production, delivery, and the handling of the product upon completion of its 'useful life' (Golicic & Smith, 2013). According to Golicic & Smith (2013) practices that are environmentally focused are those that are taken to reduce the impact on the environment of the supply chain, including the aforementioned functions and processes.

Dubey et al. (2017) took the approach in defining a sustainable supply chain as a traditional supply chain however there is an emphasis on economic, environmental, and social stability with long-term sustainable progress and growth being guaranteed. The flow of capital, information, and materials or products are managed by participants, all stakeholders, within the supply chain to ensure profitability in accordance to requirements and competition (Dubey et al., 2017).

Research conducted by de Vargas Mores et al. (2018) into the supply chain of Brazil's green plastic supply chain found that a sustainable supply chain has characteristics of sustainability as well as those of a traditional supply chain as defined by the other articles above.

2.5.2 Analysis of Literature on Sustainable Supply Chains

Through a comparative analysis of the literature on the concept of a sustainable supply chain it is clear that there was a consensus on the definition of the concept. The research conducted by de Vargas Mores et al. (2018) and Pagell & Shevchenko (2014) both directly linked a sustainable supply chain to the three pillars of CSR, whilst the research conducted by Dubey et al. (2017) and Golicic & Smith (2013) merely alluded to the social aspect being a responsibility.

Pagell & Shevchenko (2014) commented in their article that they did not believe there is any future in the study of a sustainable supply chain, as they believed that it is imperative that all supply chains become sustainable in the future, thus removing the need to label them as sustainable supply chains. Supply chains that have become more sustainable have shown that these practices have a positive impact on organisational performance, thus highlighting the importance of adopting practices towards a sustainable supply chain in order to meet CSR requirements (Golicic & Smith, 2013). This illustrates the requirement in adopting sustainable supply chains, or at least movement towards more sustainable supply chains as a way to not only improve environmental aspects, but economic and social as well.

The analysis of the literature reviewed conducted by Dubey et al. (2017), Golicic & Smith (2013), and Pagell & Shevchenko (2014) highlighted the lack of research in emerging markets on the African and South American continents. For this reason, the research article by de Vargas Mores et al. (2018) was selected for the literature review, as it had the potential to offer new insights in the concept and development of a sustainable supply chain as recommended by Pagell & Shevchenko (2014).

The research by de Vargas Mores et al. (2018. p. 14) included the argument that an organisation, or stakeholder, should be responsible for enacting the role of the "focal organisation [or stakeholder]". The organisation would play a leading role in the facilitator and inducer of innovation with the supply chain in which they are a stakeholder in dictating the direction of the supply chain, and its stakeholders, towards a sustainable supply chain (de Vargas Mores et al., 2018).

Pagell & Shevchenko (2014) also questioned their findings that qualitative methods, such as case studies, were the main focus of supply chains, and due to the lack of quantitative research on the concept, could see findings dismissed. The addition of the focal organisation [stakeholder] as an inducer and leader towards a sustainable supply chain by de Vargas Mores et al. (2018) shows that there is still merit in conducting qualitative research into the adoption of sustainable supply chains.

This idea is backed by Pagell & Shevchenko (2014. p. 49) who suggested that possible ways forward in addressing the "norms, measurement, methods, and research questions" to deal with sustainable supply chains would be to focus on researching smaller supply chains and supply chains that operate in the "less developed parts of the world because these under-studied organisations could offer sources of inspiration for how to do things differently". This is in response to their findings that a majority of research studies have been trying to establish an understand and new ways of being more sustainable whilst researching larger supply chains which are unsustainable (Pagell & Shevchenko, 2014).

Therefore, research into supply chains that operate in smaller industries and emerging markets could uncover new concepts, drivers, barriers, and practices for the adoption of sustainable supply chains, which may be able to assist supply chains become more successful in adopting sustainability (Pagell & Shevchenko, 2014). The research conducted by de Vargas Mores et al. (2018. p. 14) in a supply chain in Brazil brought the concept of a "focal organisation [stakeholder]" to the discussion of the adoption of a sustainable supply chain, highlighting the need for a stakeholder within the supply chain to champion for the adoption of sustainability.

2.5.3 Concluding Remarks on Sustainable Supply Chains Literature

Completion of the literature review on sustainable supply chains found that there was a consensus on the definition of sustainable supply chains and the importance of adopting sustainable practices and processes by the respective organisations within the supply chain. Similarly, to research in the circular economy, the reviewed literature highlighted

the gap in research into sustainable supply chains, their practices, drivers, and barriers, in emerging countries (Dubey et al., 2017; Golicic & Smith, 2013; Pagell & Shevchenko, 2014).

de Vargas Mores et al. (2018. p. 14) was found to be an exception to this research gap and introduced the argument that it is important for a "focal organisation [stakeholder]" to act as "an inducer of innovation in the supply chain in which it belongs". Therefore, it is important to conduct research into different industry supply chains which are currently have not adopted sustainability processes or practices into their operational functions.

2.6 Review and Discussion on Drivers

This section of the literature review investigates the literature on the driving factors (drivers) towards sustainability, sustainable and green supply chains, and the circular economy. Various drivers have been identified and classified into either internal or external by authors who have investigate sustainability, supply chains, and the circular economy (Giunipero et al., 2012; Govindan, Diabet, & Shankar., 2015; Gustavo Jr, Pereira, Bond, Viegas, & Borchardt, 2018; Patwa, Sivarajah, Seetharaman, Sarkar, Maiti, & Hingorani, 2021; Tura, Hanski, Ahola, Ståhle, Piiparinen, & Valkokari, 2019) as well as conducted literature reviews on these research topics (Govindan & Hasanagic, 2018).

2.6.1 Description of Drivers in Literature

Giunipero et al. (2012) conducted research into sustainable supply chains and purchasing within the United States based on a Delphi analysis of 21 supply management executives in order to assist with the implementation of sustainable supply chains. Their research identified ten drivers of sustainability within the research sample, which using a Delphi analysis were then ranked high, medium, and low, based on their importance (Giunipero et al., 2012). The drivers identified in their research were: (1) top management initiatives, and (2) compliance with laws and regulations, (3) competitive advantage or differentiator, (4) savings on costs, (5) improve utilisation of resources, (6) customer requirements, (7) actions of competitors, (8) reducing the company's carbon footprint, (9) certification (ISO 14000), and (10) government incentives.

Research by Govindan et al. (2015) into green manufacturing process within Indian industries identified twelve common drivers based on assistance from experts, managers within the industries, and literature reviewed. The authors found that based on industry participants feedback that the drivers ranked as follows; (1) compliance with regulations, (2) stakeholders' ability to impact the company, (3) customer requirements, (4) financial

benefits, (5) actions of competitors, (6) trends within the market, (7) company brand image, (8) environmental conservation, (9) requirements within the supply chain, (10) green innovation, (11) internal motivations, and (12) demands of employees.

In a systematic review of circular economy literature, Govindan & Hasanagic (2018) identified thirteen drivers that motivated organisations towards the implementation and adoption of sustainability and the circular economy. The authors classified the identified drivers based in relation to the organisation's internal or external environments, and highlighted that each driver could be linked to multiple stakeholders (Govindan & Hasanagic, 2018). The drivers that were identified by the authors were; (1) compliance with laws and regulations, (2) economic growth through sustainability, (3) public health, (4) natural health, (5) climate change, (6) overconsumption of natural resources, (7) demand for renewable energy, (8) protection of future generations, (9) urbanisation, (10) potential job creation, (11) consumer awareness, (12) improved efficiencies, and (13) increased value add (Govindan & Hasanagic, 2018).

Research by Fehrer & Wieland (2021 and Ranta, Aarikka-Stenroos, Ritala, & Mäkinen, (2018) found that in the development of a recycling industry and circular economy lead to an increase in informal employment opportunities and the development of an entire informal waste industry. The researchers also found that the informal waste pickers planned an integral part in to sorting of waste at the initial sites and had a large impact on China's ability to recycle its post-consumer waste (Ranta et al., 2018). Research by Fehrer & Wieland (2021) even suggested that a further area of research would be how to get formal and informal actors to cooperate together to drive sustainability and circular economy.

In their research in a Brazilian retailer's move towards sustainable packaging redesign, Gustavo et al. (2018) identified that the greatest motivation for retailers and supermarkets is the potential economic gains that could be generated. The redesign of packaging could allow organisations to reduce the size of the packaging, thereby reducing not only the cost, through raw materials, transportation and storage, but also the amount of packaging waste that is generated (Gustavo et al., 2018).

Tura et al. (2019) developed a framework of drivers and barriers which would provide insights into unlocking circular business models and a circular economy. Their research found that 18 drivers; (1) resource constraints, (2) improved efficiencies, (3) new business development, (4) increased awareness in sustainability, (5) increase in health and job

creation, (6) regulations and standards, (7) incentives, subsidies, and taxation, (8) improving operations, (9) new technologies, (10) increased information sharing, (11) reduction on supply dependence and volatile pricing, (12) collaboration, (13) increased availability of resources and capabilities, (14) reverse networks and supply chains, (15) company brand, (16) increased understanding of sustainability demands, (17) integration of company strategy and goals, and (18) development of skills and capabilities for circular economy (Tura et al., 2019).

Lastly, research into the development of a circular economy in emerging economies identified six overall drivers towards the implementation of a circular economy (Patwa et al., 2021). The authors identified that; (1) extending the lifecycle of products, (2) ecological balance and protection, (3) big data and information flow, (4) governmental regulations, (5) governmental policies, and (6) consumer behaviour all directly influenced the adoption of extending the lifecycles of products, environmental protection, and circular economy (Patwa et al., 2021).

2.6.2. Analysis of Literature on Drivers

Through conducting a comparative analysis of the academic literature there appears to be an increase in the number of drivers that are being identified over the past decade, rising 10 as identified by Giunipero et al. (2012) to the 18 identified by Tura et al. (2019). Additionally, the more recent articles have also seen the drivers being categorised towards internal and external environments, as well as into different overarching categories or clusters such as *policy and economy, health, environmental protection, society, and product development* (Govindan & Hasanagic, 2018) compared to *environmental, economic, social, institutional, technological and informational, supply chain, and organisational* (Tura et al., 2019).

According to their research, Govindan & Hasanagic (2018) determined that of the 13 drivers that they identified in their literature review, that nine of the drivers were related to the external environment, and four existed within organisations themselves. Additionally, the authors also related the respective drivers to the relevant stakeholders and found that one related to the consumer, four were governmentally related, one to the organisation itself, three to society, and four were related to the combination of the organisation and its supply chain (Govindan & Hasanagic, 2018).

Although there is an overall general consensus in the findings of the drivers across the literature, the research conducted by Patwa et al. (2021) was the only article that

mentioned the impacts of big data, though Tura et al. (2019) could be alluding to big data through the drivers *new technologies* and *increased sharing of information*, though it is not explicitly mentioned.

In their research into the drivers of companies within the United States Giunipero et al. (2012) found that there was a lack of consensus among their sample of 21 executives as to the rankings of importance of the various drivers. The lack of consensus therefore provided support to the authors proposition that drivers of sustainability will differ across organisations (Giunipero et al., 2012). The lack of consensus as to the importance of the drivers also differs across the various stakeholders, with each stakeholder driving sustainability and circular economy in different ways (Govindan et al., 2015; Govindan & Hasanagic, 2018; Tura et al., 2019). Kirchherr et al. (2018) had similar findings in their research into the barriers hindering the adoption of sustainability and a circular economy. These findings will be addressed in the next section of the literature review.

Govindan & Hasanagic (2018) found that *potential job creation, abiding by laws and policies* and *climate change* were the most frequently researched within academic literature. Research conducted by Giunipero et al. (2012 and Govindan et al. (2015) also found that *compliance with laws and regulations* was the most important driver for organisations. The results from Patwa et al. (2021) also showed that government policies were highly influential in the adoption of circular economies, environmental balance and protection, and extended lifecycles in emerging economies.

2.6.3 Concluding Remarks on Drivers Literature

The literature review on drivers towards sustainability and the adoption of circular economy has identified a number of drivers that will be included in the framework for this research paper.

Based on the literature review the following drivers, internal and external, have been included in the framework that will be used in this research; (1) compliance with laws, regulations, and standards; (2) company brand; (3) internal company strategies; (4) production efficiencies and cost savings; (5) being ethical and responsible; (6) consumer awareness; (7) resource constraints (present and future); (8) job creation; (9) the actions of competition; and (10) media focus on sustainability.

Therefore, the framework for this research begins as follows.

Internal Drivers	External Drivers
Compliance with laws/standards/regulations	Consumer awareness
Company brand	Resource constraints
Internal company strategies	Job creation
Production efficiencies or cost savings	Actions of the competition
Being ethical and responsible	Media focus on sustainability

2.7 Review and Discussion on Barriers

The next section of the literature review addresses the barriers that are hindering the move to and adoption of sustainability, sustainable and green supply chains, and circular economy. Similar to the drivers, barriers appear to be found in the internal or external environments of an organisations (Govindan & Hasanagic, 2018), and have been identified in academic research which focuses on sustainability, supply chains, circular economy and business models, and flexible packaging (Bening, Pruess, & Blum, 2021; Chen, Kroell, Wickel, & Feil, 2021; Giunipero et al., 2012; Govindan & Hasanagic, 2018; Gustavo et al., 2018; Kirchherr, Piscicelli, Bour, Kostense-Smit, Muller, Huibrechtse-Truijens, & Hekkert, 2018; Pauer, Tacker, Gabriel, & Krauter, 2020; Tumpa, Ali, Rahman, Paul, Chowdhury, & Khan, 2019; Tura et al., 2019; Vermunt, Negro, Verweij, Kuppens, & Hekkert, 2019; Wang, Mathiyazhagan, Xu, & Diabat, 2016).

2.7.1 Description on Barriers in Literature

Research conducted by (Giunipero et al., 2012) identified 10 barriers that were hindering the adoption of sustainability amongst supply chains with high initial capital investment and economic uncertainty being the highest rated barriers. Their research also should that additional barriers were the difference between short and long term goals, lacking regulations and standards, poor support by management, lack of resources, and the difficulty in changing policies (Giunipero et al., 2012).

During the literature review in their research, Wang et al. (2016) found that there a number of obstacles that are hindering the adoption of sustainable and green supply chains, and highlighted that identifying the barriers is crucial if the industries are to move forward. The authors also stated that there has been limited research into the barriers which are hindering the adoption of sustainable practices and circular economies in developing countries or emerging markets, such as India and South Africa (Wang et al., 2016). The

authors identified 18 barriers, which are clustered into (1) outsourcing, (2) technology, (3) knowledge, (4) financial, and (5) involvement and support.

Their research found that lack of training, lack of customer awareness, lack of management involvement, and issues around environmental supplier for packaging were the biggest causation barriers (Wang et al., 2016). While the biggest effect barriers were the risk of hazardous materials inventory and waste disposal, high upfront investment and lower returns, difficulties in identifying third parties for recollect of used products, and the disbelief about environmental benefits for sustainable packaging (Wang et al., 2016).

Research by Kirchherr et al. (2018) stated that the lack of progress towards the circular economy is as a result of the barriers which have been identified within recent literature. They also warned that although interest and pressures towards sustainability and the circular economy have increased substantially in recent years, this does not mean that this will automatically materialise in the successful implementation of circular economy (Kirchherr et al., 2018). In their research, Kirchherr et al. (2018) found that 15 barriers from their research which were clustered into cultural (company and consumers), regulatory (legislation, regulations, and standards), market related (raw material and high investment), and technological (innovation, knowledge, and technology) .

The literature review conducted by Govindan & Hasanagic (2018) found 39 barriers across all stakeholders and, as with the drivers, clustered these into governmental, economic, technological, knowledge and skills, management, circular economy framework, cultural and social, and market issues. Of these barriers identified, 10 were related to the external environment, whilst 29 were internally related, and in terms of stakeholders, 21 barriers were related to the organisation and its suppliers (Govindan & Hasanagic, 2018).

The research by Gustavo et al. (2018) into the retailers pursuit of sustainable packaging found that most of the barriers were related to the increased costs of the sustainable materials due to the price-sensitive market in which retailers operate, the availability of sustainable packaging solutions, and the impact on sales due to uncertainty of the consumer's perception of the new brand packaging.

Whilst conducting research on the barriers to a green supply chain in an emerging economy, Tumpa et al. (2019) identified 15 barriers into the textile industry in Bangladesh. The authors identified barriers that were similar to those identified in the research of the other authors, such as lack of government regulations, financial constraints, lack of collaboration among supply chain partners, resistance to change, lack of promotion of

sustainable products, lack of third party collectors, and technological obstructions (Tumpa et al., 2019). The research also highlighted that there are some consensus barriers which are common amongst all firms in the industry as well as divergent barriers (Tumpa et al., 2019). These are similar findings to those of Kirchherr et al. (2018).

In the development of their framework to circular business, Tura et al. (2019) identified 18 barriers in their literature reviews, and of these 14 barriers were observed during their interviews of employees in four case companies from different industries. The barriers identified were categorised into either environment, economic, social, institutional, technological and informational, supply chain, and organisational (Tura et al., 2019). Their research found no environmental barriers, whilst economic, social, technological and informational, supply chain and organisational had three observed barriers each.

Research into the implementation of circular business models amongst 31 Dutch firms found 26 barriers which were then classified into internal clusters of financial, organisational, and technology and knowledge, and external clusters of supply chain, market, and hard or soft institutional barriers (Vermunt et al., 2019).

Research into flexible packaging, plastic and multi-layered, highlighted the difficulty in recycling such types of packaging due to the layers of this constructions being difficult to separate (Bening et al., 2021; Chen et al., 2021; Pauer et al., 2020). Due to multi-layered flexible packaging being difficult to separate, most of the packaging ends up in landfills or is incinerated (Bening et al., 2021; Chen et al., 2021; Pauer et al., 2020). An additional barrier that was identified as that due to multi-layered flexible packaging being used in the food, beverage, and pharmaceutical industries, the packaging is often “contaminated” by the product that the packaging is protecting (Bening et al., 2021; Chen et al., 2021; Pauer et al., 2020).

2.7.2 Analysis of Literature on Barriers

As literature into the barriers of sustainability and circular economy adoption has increased in recent years, so too has the identified number of barriers. As research has continued on sustainability, sustainable supply chains, and circular economy the number of barriers identified have increased in the reviewed literature from 10 (Giunipero et al., 2012) to 39 as identified by Govindan & Hasanagic (2018).

Amongst the authors reviewed, there appears to be a general, consensus surrounding the various barriers that have been found and developed over the past decade, with the existing barriers identified by Giunipero et al. (2012) being added to, rather than replaced.

There also appears to be consensus on the barriers across the various topics of sustainability in flexible packaging, sustainable supply chain, and circular economy and business models (Bening et al., 2021; Chen et al., 2021; Giunipero et al., 2012; Govindan & Soleimani, 2017; Gustavo et al., 2018; Kirchherr et al., 2018; Pauer et al., 2020; Tumpa et al., 2019; Tura et al., 2019; Vermunt et al., 2019; Wang et al., 2016).

In their research Kirchherr et al. (2018) noted that no technological barriers were ranked as the most pressing by their participants. This finding is interesting as according to the systematic analysis conducted by Govindan & Hasanagic (2018), technological limitations for tracking recycled materials was the second most frequent researched barrier.

The authors' research also found that barriers should not be seen in isolation, but rather that barriers can often influence or establish other barriers, as per cause and effect (Kirchherr et al., 2018). The authors give an example of how cultural barriers could let to regulation barriers (lack of regulation), which in turn will cause market barriers, and ultimately cause technological barriers (Kirchherr et al., 2018). Other literature reviewed in this section did not mention any similar findings.

In the literature pertaining to flexible packaging Vermunt et al. (2019) found two major internal barriers were the cost of changing machinery to be able to use sustainable materials and the difficulty in sourcing the sustainable resources due to a limited number of suppliers in the market.

Chen et al. (2021) found that most post-consumer multi-layer packaging ends up being incinerated or turned in low-quality products as a result of the inability to correctly sort these materials. The authors also found that due to lack of knowledge and technology valuable and recyclable mono-materials (single type of plastic) was been incorrectly classified thus reducing the amount of material being recycled (Chen et al., 2021).

In their research into the composition of these materials, the authors found that near-infrared spectroscopes could be successful in determining the different variants of multi-layered plastic packaging, however the ability to detect the substrates was limited when packaging was either very glossy, highly reflective, or had a metalised layer within its construction (Chen et al., 2021). This highlights future development areas at sorting plants and sites, which will allow for correct detection and sorting.

The research into the barriers of sustainable flexible packaging also highlighted the importance of these construction's properties, functional, decorative, and most importantly protective, in reducing the amount of food waste (Bening et al., 2021; Chen et al., 2021;

Pauer et al., 2020). Research by Pauer et al. (2020) found that although recycling of multi-layered packaging is a significant barrier, the environmental impact of primary packaging is estimated to only account for up to 4% of the total impact on the environment and greatly helps in the reduction of food waste (Gustavo et al., 2018).

The research by Gustavo et al. (2018) also found that it is possible to relate around 20-25% of household food waste to its packaging either being too big, difficult to empty, or due to the expiry of the product's "best before date". According to the authors, it is important for all stakeholders to understand the connection between the packaging design and the amount of food waste that is generated (Gustavo et al., 2018). To rectify this, they state the importance of collaboration amongst the stakeholders in the supply chain and working at addressing the barriers of information sharing and collaboration (Gustavo et al., 2018).

2.7.3 Concluding Remarks on Barriers Literature

In concluding the literature review on the barriers to sustainability, sustainable supply chains, flexible packaging, and circular economy and business models, a considerable number of barriers were identified.

Based on the findings of the literature review, the following barriers, internal and external, have been selected and included in the framework for this research; (1) high investment costs; (2) differences in short and long-term goals; (3) lack of management support; (4) lack of skills and technology; (5) high costs of sustainable resources; (6) lack of legislation, regulations, and standards; (7) lack of available sustainable or recycled resources; (8) lack of consumer awareness; (9) lack of recycling infrastructure; (10) lack of collaboration within the supply chain.

Therefore, the framework for this research begins as follows.

Internal Barriers	External Barriers
High investment costs	Lack of legislation, regulations, and standards
Differences in Short and Long-Term Goals	Lack of Available Sustainable or Recycled Resources
Lack of Management Support	Lack of Consumer Awareness
Lack of Skills and Technology	Lack of Recycling Infrastructure
High Costs of Sustainable Resources	Lack of Collaboration within the Supply Chain

2.8 Review and Discussion on Practices

The following literature section addresses the practices on how organisations should adopt sustainability, sustainable supply chains, and circular economy. As per the drivers and barriers towards sustainability, sustainable supply chains, and the circular economy, practices were placed into various categories based on their similarities, is linked to various stakeholders, and is either internal or external to the organisation (Govindan & Hasanagic, 2018)

2.8.1 Description of Practices in Literature

In their literature review, Govindan & Hasanagic, (2018) found 34 practices undertaken organisations within the supply chain towards a circular economy. They classified *the practices into internal and external environments as well as the following initiatives; governance initiatives, economic initiatives, cleaner production, product development, management support, infrastructure, knowledge,* and *social and cultural* (Govindan & Hasanagic, 2018).

The *governance* cluster includes practices that are related to laws, policies, pilot projects, performance measurements and indicators, the requirement for marketing about 6R products, and employment opportunities (Govindan & Hasanagic, 2018). *Economic initiatives* include practices that would increase environmental accounting, monitor taxation, develop the correct pricing, and reduce organisational risks through financial instruments (Govindan & Hasanagic, 2018). *Cleaner production* practices are stated at those the improve production, purchasing decisions, collaboration amongst organisations, and new logistical systems through environmental efficiencies (Govindan & Hasanagic, 2018).

Improvement in the durability of product design refers to the *product development*, while supportive practices and initiatives towards a circular economy from management relates to *management support* (Govindan & Hasanagic, 2018). *Infrastructure* relates to practices regarding the development of regional networks, infrastructure itself, and the development of effective information systems (Govindan & Hasanagic, 2018). Increasing consumer and society's awareness, education and training in the circular economy, and encouraging innovative thinking relates to *knowledge*, and *social and cultural* practices are those that shift society's attitude and beliefs regarding recycled and remanufactured products (Govindan & Hasanagic, 2018)

The authors also concluded that 15 practices were external to the organisation and 19 were internal, and two were consumer related, 12 related to government, five society related, 17 were a combination of the organisation and its suppliers, and only one related solely to the organisation (Govindan & Hasanagic, 2018).

Schulz, Hjaltadóttir, & Hild (2019) research states that practices should not be seen as the actions of an individual or organisation, rather they are repeated patterns amongst a collective and is defined by the authors as the result of interaction between actors (individuals and organisations) that influence and reinforce how things are done in society.

Similar practices to Govindan & Hasanagic (2018) were found in the research by Tumpa et al. (2019) such as reducing the generation of waste, consumption of resources such as water and electricity, and improving resource conservation, and recycling practices (Tumpa et al., 2019). The authors noted in their research that emerging economies tend to have a lack of awareness in environment issues, are slow to adopt sustainable practices within the supply chain and therefore pose a larger threat to the environment than more developed economies (Tumpa et al., 2019).

In their research in evolution of sustainability in purchasing and supply management, Giunipero et al. (2012) found that practices shifted from compliance with laws and regulations of government in the 1960s to seeing sustainability as a source of competitive advantage in the 1990s. Since 2000, the authors found that organisations and supply chains have been proactive in their approaches to sustainability and viewed sustainability as a strategic goal (Giunipero et al., 2012). The authors also found that sustainable practices provided a broader lens which recognised the importance in looking at the triple bottom line for organisations (Giunipero et al., 2012).

Patwa et al. (2021) found there was an increase in the number of practices relating to the 3Rs of the circular economy and a move away from “create-use-discard” towards “create-us-reuse”. Their research also showed that there was an increase in practices relating to the concept of product-as-a-service, extending the life cycle, in which products are provided as services and can be shared by society, thus increasing efficiencies and creating additional jobs for the newly developed markets (Patwa et al., 2021). Government legislation and regulations was found to have an important and strong effect on the practices of organisations through the compliance to and adoption of the legislation and regulations (Patwa et al., 2021).

Additionally their research highlighted the importance of improving customer awareness towards the benefits of sustainability and the circular economy (Patwa et al., 2021). According to the research by Govindan & Hasanagic (2018), this was the third most researched practice found in their literature review.

Changes in consumer behaviour and increased pressure towards sustainable and circular economy production was found to have a big impact on manufacturing in organisations (Vermeulen, 2015). The internet has also assisted in increasing the speed of connection making and information sharing amongst society which is leading to the adoption of sustainable practices by organisations (Vermeulen, 2015) . The author also found that organisations were also starting to work directly with their supply chains to address sustainability within the supply chain and were developing measurements for sustainability, which would often be reported in various reports (Vermeulen, 2015).

Research conducted by Gustavo et al. (2018) also found practices that were aimed towards the stakeholders in the supply chain, which would assist in managing sustainability beyond the boundaries of the organisation. The authors research aslo found that through dealing with stakeholders outside the organisation, it was possible to convince both suppliers and consumers to change packaging that was currently being supplied and purchased (Gustavo et al., 2018). Additionally, the authors found that better management practices assisted in the adaption of sustainable packaging, and therfore adoption of sustainability and circular economy (Gustavo et al., 2018).

2.8.2 Analysis of Literature on Practices

The systematic literature review by Govindan & Hasanagic (2018) had the most comprehensive list of practices identified in the reviewed literature. This was to be

expected as they reviewed a final sample of 60 articles, whereas the works of the other authors was related to more specific areas of research.

In their research, Govindan & Hasanagic (2018) analysed the number of times that a specific practice makes an appearance within an academic article. The most prominent practice is “to design of a product in such a way that it can be remanufactured again; with 16 occurrences” (Govindan & Hasanagic, 2018. pp. 295). The authors point out that this is the leading practice found in their literature review, with the establishment of laws and policies that would encourage organisations and supply chains to adopt sustainability and the circular economy being second (Govindan & Hasanagic, 2018. pp. 295). The next two significantly prominent practices are to make adopting circular economy more attractive to consumers and producers and increase eco-efficiency during production (Govindan & Hasanagic, 2018).

Schulz et al. (2019) found that although the concept of and research into circular economy has grown in momentum in literature, most of the articles were focused on technical, fiscal, and managerial aspects, with little socio-political consequences being addressed. The authors found that although the concepts of circular economy and sustainability were currently being debated by politicians, the approaches currently being adopted in countries did not look at the demand for the circular economy, current consumption patterns, inequalities around the world, or the negative consequences of adoption (Schulz et al., 2019).

As such the authors argue that rather than focusing on economic advantageous practices, governments and organisations should focus on practices that would be socially desirable and incentivise those practices (Schulz et al., 2019). In their review of literature into the 3R principle, the authors found that recycling was predominately mentioned as the main construct, with the concept of “reduce” having a low priority (Schulz et al., 2019). The authors argue that this is as a result of focus being more on the technological and economic aspects, with the broader sociocultural being deprioritised and that discussions around circular economy were not suggested a new paradigm, but rather amendments to the capitalist model (Schulz et al., 2019).

The research by Tumpa et al. (2019) found that emerging economies were often lacking in awareness, and policies, towards sustainability and environmental issue. As a result, these economies were often slow in adopting and implementing sustainable practices

within supply chains and a result could do more harm to the environment than their counterparts in the more developed economies (Tumpa et al., 2019).

Additionally, as emerging economies often experienced rapid growth in their industries, trade with other countries, and an influx of multinational organisations coming into the country due to low manufacturing costs (Tumpa et al., 2019). This puts added pressure on governments and organisations within emerging economies to adopt sustainable and circular economy practises, such as legislation and certification, to limit the impact on the environment (Tumpa et al., 2019). The authors also highlighted the need to improve the knowledge and understanding of the benefits of sustainable products amongst consumers, who in emerging economies, are primarily focused on the cost, quality, and endurance of the product, and seem less interested in sustainable features (Tumpa et al., 2019).

Research into leading supply chain managers in the United States showed that the most important practices in driving sustainability efforts in organisations was initiatives and support from top managers and government laws and regulations (Giunipero et al., 2012). The authors also found that practices have evolved over the past six decades from practices aimed at addressing government regulations in the 1960s to more proactive approaches in sustainability and circular economy following the understanding of the value add of sustainability within the supply chain (Giunipero et al., 2012).

The authors also noted the increase in the adoption by governments around the world towards legislation and regulations aimed at taxing or fining organisations that do not comply (Giunipero et al., 2012). These practices by government were found to have one of the biggest impacts on the practices of organisations (Giunipero et al., 2012). In addition to increases in government legislation, the adoption of standards and certifications, such as ISO 14000, has also been increasing in recent years (Giunipero et al., 2012). These standards and certifications have placed additional emphasis on supply chains to make decisions around and adopt practices to relook at product design, processes utilised in manufacturing as well as purchasing (Giunipero et al., 2012).

Gustavo et al. (2018) found that organisations, in particular retailers, where focused on practices that reduced waste, costs, and the overall carbon footprint of the product or packaging. Through redesigning the packaging for their products, the retailers, and suppliers, were able to reduce amount of packaging required, the amount of waste generated during production, whilst still providing effective protection for the actual

products (Gustavo et al., 2018). The retailers and suppliers both benefited from the improvements per unit in both cost reduction, customer satisfaction, and reduced impact on the environment. The practices found in the research showed that organisations are looking for solutions that impacts the triple bottom line and helps them to achieve the CSR (Gustavo et al., 2018).

Patwa et al. (2021, pp.725) found that it was important that organisations "*mimic nature's efficiency in resource production and consumption*" aligning with *cleaner production* discussed by Govindan & Hasanagic (2018). In testing their hypotheses on circular economy adoption in emerging economies, the authors found that through collaboration society would adopt sustainable practices and ways of thinking that would promote the circular economy. Their research that government policies and incentives strongly supported the adoption on sustainable activities (Patwa et al., 2021). Evidence also proved that practices relating to the use of big data and information flow in emerging economies were influential in the adoption of sustainability and circular economy (Patwa et al., 2021).

The authors found that the practices aimed at the 3Rs were growing in importance amongst literature, business, and consumers, and therefore it is important that organisations, consumers, and government implement practices and measurements in line with circular economy principles (Patwa et al., 2021).

2.8.3 Concluding Remarks on Practices Literature

The literature review on the practices identified a number of different practices aimed at addressing sustainability, sustainable supply chains, flexible packaging, and circular economy and business models.

Following the literature review, the following practices, internal and external, have been selected and included in the framework for this research; (1) increasing eco-efficiencies in production; (2) cooperating with other organisations within the supply chain; (3) support and initiatives from top management; (4) education on the 3Rs within the supply chain and organisation; (5) shifting from a linear model to a circular model; (6) the establishment of legislation, policies, and regulations; (7) incentives and taxation to enforce compliance; (8) improving awareness and attractiveness of 3R products and circular economy; (9) changing cultural and societal behaviours; and (10) improving infrastructure to better deal with a circular economy.

Therefore, the framework for this research begins as follows.

Internal Practices	External Practices
Increasing Eco-Efficiencies in Production	The establishment of legislation, policies, and regulations
Cooperating with other organisations within the supply chain	Incentives and taxation to enforce compliance
Support and initiatives from top management	Improving awareness and attractiveness of 3r products and circular economy
Education on the 3Rs within the supply chain and organisation	Changing cultural and societal behaviours
Shifting from a linear model to a circular model	Improving infrastructure to better deal with a circular economy

2.9. Conclusion

This chapter of the research reviewed the literature on the sustainability, circular economy, sustainable supply chains, as well as the drivers, barriers, and practices towards adoption of the aforementioned concepts. Each subsection reviewed and discussed the relevant literature pertaining to the six concepts, highlighting similarities, differences, insights, and research gaps.

The literature reviewed showed the connection between the concepts of sustainability, circular economy, and sustainable supply chains and their importance in assisting organisations to improve their performance and ability to meet their CSR goals. The literature review also stated the respective drivers, barriers, and practices towards the adoption of sustainability, sustainable supply chains and a circular economy.

Additionally, the literature showed that there is an increase in the research pertaining to sustainability, circular economy, and sustainable supply chains, as well as the drivers, barriers, and practices towards the adoption of these concepts. Despite the increase in research into these topics there appears to be a lack of research being on organisations within emerging economies and smaller industries in Africa and South America. The lack of research into emerging economies in Africa and South America is highlighted across the three topics and the authors recommend future research into these economies as there is the potential to gain new knowledge and understanding in respect of sustainability, the circular economy, and sustainable supply chains.

In concluding the literature review into these concepts as well as the drivers, barriers, and practices towards their adoption, the following framework has been developed and adopted for this research.

2.10. Conceptual Framework

The literature reviewed in Chapter 2 identified internal and external drivers, barriers, and practices towards sustainability and circular economy. These identified drivers, barriers, and practices have been incorporated in the conceptual framework as shown in Table 1.

Table 1: Conceptual framework

Internal Drivers	**External Drivers**
Compliance with laws/standards/regulations	Consumer awareness
Company brand	Resource constraints
Internal company strategies	Job creation
Production efficiencies or cost savings	Actions of the competition
Being ethical and responsible	Media focus on sustainability
Internal Barriers	**External Barriers**
High investment costs	Lack of legislation, regulations, and standards
Differences in Short and Long-Term Goals	Lack of Available Sustainable or Recycled Resources
Lack of Management Support	Lack of Consumer Awareness
Lack of Skills and Technology	Lack of Recycling Infrastructure
High Costs of Sustainable Resources	Lack of Collaboration within the Supply Chain
Internal Practices	**External Practices**
Increasing Eco-Efficiencies in Production	The establishment of legislation, policies, and regulations
Cooperating with other organisations within the supply chain	Incentives and taxation to enforce compliance
Support and initiatives from top management	Improving awareness and attractiveness of 3r products and circular economy
Education on the 3Rs within the supply chain and organisation	Changing cultural and societal behaviours
Shifting from a linear model to a circular model	Improving infrastructure to better deal with a circular economy

CHAPTER 3: RESEARCH QUESTION

This section looked to address specific questions developed from the preceding two chapters. The Consistency Matrix in the Appendix 4, provides a summary on the potential research gaps identified during the literature review of the three concepts and hoped to achieve an integrated research question that has potential to contribute to the academic discussion surrounding the sustainability, circular economy, and sustainable supply chains.

The research study focused on organisations that are operating within the flexible packaging supply chain within South Africa. The research sought to understand the adaption of sustainability, the circular economy, and a sustainable supply chain within the industry, whilst also gaining insight into the drivers, barriers, and practices that are currently being experienced by stakeholders in the industry. The research questions looked to build on the invitations identified in the literature for additional studies into the drivers, barriers, and practices in emerging economies and different industries (Govindan & Hasanagic, 2018).

What are the drivers, barriers, and practices towards the adaption of a sustainable supply chain and circular economy? Experience from South African flexible packaging industry.

Research Question 1: What are the drivers towards sustainability, sustainable supply chain, and circular economy?

The aim was to gain an understand of the drivers towards a sustainable supply chain in the South African flexible packaging supply chain based on the experience of the stakeholder organisations. Insight into these drivers is important for the supply chain to gain traction in its progression towards sustainability and a circular economy.

Research Question 2: What are the barriers towards the adoption of sustainability, a sustainable supply chain, and circular economy?

Question two was designed to gain insights into the factors that are currently limiting the progression towards sustainability and circular economy. The experiences of the stakeholders will highlight what is hindering the supply chain from becoming more sustainable. It is necessary to identify these factors in order to for organisations to be able to progress further in becoming sustainable.

Research Question 3: What practices are necessary for improvement of, or are currently hindering, the adoption of sustainability, a sustainable supply chain and circular economy?

The aim of research question three was to understand the practices that would assist or hinder the adoption of sustainability and circular economy. The experience of stakeholders will be able to indicate what practices are crucial to assist or hinder the organisations' adoption of sustainability and a circular economy.

CHAPTER 4: RESEARCH METHODOLOGY

4.1. Introduction

Chapter 4 discusses the research methodology adopted for this research. The literature review in Chapter 2 identified an opportunity for further research into understanding the drivers, barriers, and practices within organisations and supply chains towards sustainability and circular economy. This research study is a qualitative research design an is exploratory in nature.

4.2. Research Methodology and Design

4.2.1. Philosophy

The research adopted a case study method, which is qualitative in nature, as the selected method for the research as this approach allows for exploration of a events through a variety of lenses or experiences which allows for possible multiple insights to be revealed (Baxter & Jack, 2008). Case studies are also aimed at understanding the various dynamics and constructs that are present within a certain setting (Eisenhardt, 1989). Case studies provide the researcher with data that is rich, contextual, and can be from multiple sources (Smith, 2018). Furthermore, case studies allow the researcher to conduct multiple levels of analysis within a single study (Eisenhardt, 1989).

Govindan & Hasanagic (2018) found that the two most common research methods used in literature on the green and circular economies were theoretical and conceptual papers and case studies. Furthermore, over the two year period from 2015 to 2016, they saw an increase number of case studies relating to the circular economy (Govindan & Hasanagic, 2018). Finally, case studies (including a single case study) can be used to test or refine theories and generate new theories and/or insights through evidence collected through a case study (Bansal et al., 2018; Eisenhardt, 1989). Crane et al. (2016) state that country studies have the ability to make contributions to new or existing theories through their ability to either develop, refine, or test the theories in a new context.

An interpretivist philosophy has been selected as the researcher hopes to study the respective stakeholders in their natural environment (the supply chain of the industry) in order to gain an understanding as to their experiences in the development of a green supply chain and circular economy (Saunders & Lewis, 2018). An interpretivist philosophy is a natural approach to gaining and understanding knowledge are social constructs and that the core value is the realistic and truthful representation of people's perceptions of their lived experiences and interactions with the world around them (Eisenhardt,

Graebner, & Scott, 2016). An interpretivist approach is generally used to capture the relevant aspects of a focal phenomenon and assists in highlighting relationships among constructs and the develop of a deeper understanding of the processes (Eisenhardt et al., 2016). This approach will allow the research to understand the experiences of those currently employed in the industry and what the potential drivers and barriers are towards a sustainable supply chain and circular economy.

Alternative philosophies were reviews to determine the best approach. Positivism is focused on the gathering of the truth through facts and figures, and requires strong measurements (Eisenhardt et al., 2016). This approach is not compatible with understanding stakeholders within their natural environments (the supply chain of the industry), as it does not allow for the experiences of the participants to be shared and understood which allows for deeper and more realistic insights to be shared (Eisenhardt et al., 2016).

4.2.2. Approach and Role of Theory

According to Bansal, Smith, & Varra (2018), qualitative research approach assist in the development of knowledge and understanding real-world phenomena and also aid in the development of future research. Qualitative research was selected for this research as researcher aims to understand, from the experience of the stakeholders, what the current drivers, barriers, and practices are within the flexible packaging supply chain towards the adoption of sustainability, circular economy, and a sustainable supply chain.

The research question for this paper is exploratory in nature, with the view to gain insights into the barriers, drivers, and practices within the industry's supply chain. The research also looks at potential to assist in the theoretical development or refinement of Govindan and Hasanagic's (2018) proposed multi-perspective framework. An explorative approach is also aligned with the works of Ajwani-Ramchandani et al (2021) and de Vargas Mores et al (2018) as they attempted to gain understanding of the phenomenon they were analysing in India and Brazil respectively. The proposed research is aimed at understanding the phenomenon within the South African flexible packaging industry's supply chain. The research is designed to gain understanding through the experiences of the stakeholders and hopes to add to academic literature from a South Africa perspective.

An inductive approach to theory building will be followed as the research is aimed at refining the theory around the multi-perspective framework proposed by Govindan & Hasanagic (2018). According to Crane, Henriques, Husted, & Matten (2016), refining

theories are generally focused on the adaptation or refinement of theories that have been developed in economies that are Anglo-Saxon in nature. Crane et al. (2016) found by refining and adapting existing or proposed theories in different countries there was a potential to bring new information into the academic field, could assist in the understanding of how national cultures and beliefs, which underlie societies, and that country specific studies, can help refine the understanding of theory through different institutional scenarios.

According to Eisenhardt et al (2016), inductive methods enable the researcher to identify and measure difficult-to-measure constructs, especially those that relate to perceptions (and experiences) of environments and situations that could influence how individuals and organisations act within specific contexts. An inductive approach to research is appropriate in both the development, refinement of, or contribution to new theories or developing theories (Crane et al., 2016). As the body of literature and academic research papers on sustainable supply chains, the circular economy, and sustainability are in development an inductive approach is the more applicable for this research paper (Korhonen et al., 2018; Murray et al., 2017). Bansal et al (2018) define “inductive theorising as a cornerstone of the qualitative research”.

4.2.3. Methodological Choices

Mono-method qualitative research methodology has been selected for the research approach for this paper (Saunders & Lewis, 2018). A criticism of qualitative research has been that everything is accept and is often seen by scholars as not being based in reality in comparison to quantitative research (Braun & Clarke, 2006). It has been noted however, that although qualitative cannot be compared at the same level of criteria as quantitative research, qualitative research does have and provide existing methods of data collection and analysis (Braun & Clarke, 2006). Saunders & Lewis (2018) also highlight that there is a need for qualitative and exploratory research as the process allows for new and unsolved areas of research and insight to be found within an area of study.

An exploratory qualitative study has also been found to allow a researcher to discover information regarding an area of study that was previously unknown or understood (Saunders & Lewis, 2018). As research is bound by time, the research will be a cross-sectional piece, which aims to provide a ‘snapshot’ of the perspectives of stakeholders currently working in the supply chain of the industry at the time of the study (Saunders & Lewis, 2018). An explorative study also allows for participants to show uncertainty in their

responses to questions to the questions posed during the interview process, which could provide new insights into the area of study (Saunders & Lewis, 2018). Qualitative research methodologies have also been found to be an effective research method in the development of new ways of seeing and understanding phenomenon (Bansal et al., 2018).

4.2.4. Strategy

The adoption of a case study research design, allowed the researcher to gather data through multiple resources (participants) within the industry and gain insights into various experiences of organisations within the supply chain (Baxter & Jack, 2008). Case studies were also found to be appropriate for research that is exploratory in nature and seek to gain insights about current events which are outside of a researcher's control (Smith, 2018)

As research is bound by time and place, the research will be a cross-sectional piece, which aims to provide a 'snapshot' of the perspectives of stakeholders currently working in the supply chain of the industry at the time of the study (Saunders & Lewis, 2018). Case study has been selected as it is a research strategy that is aimed at understanding the various dynamics and constructs that are present within a certain setting (Eisenhardt, 1989). Case studies provide the researcher with data that is rich, contextual, and can be from multiple sources (Smith, 2018). Furthermore, case studies allow the researcher to conduct multiple levels of analysis within a single study (Eisenhardt, 1989).

Govindan & Hasanagic (2018) found that the two most common research methods used in literature on the green and circular economies were theoretical and conceptual papers and case studies. Furthermore, over the two year period from 2015 to 2016, they saw an increase number of case studies relating to the circular economy (Govindan & Hasanagic, 2018). Finally, case studies (including a single case study) can be used to test or refine theories and generate new theories and/or insights through evidence collected through a case study (Bansal et al., 2018; Eisenhardt, 1989). Crane et al. (2016) state that country studies have the ability to make contributions to new or existing theories through their ability to either develop, refine, or test the theories in a new context.

4.3. Research Design

4.3.1 Population and Sample

Eisenhardt (1989) states that “the concept of population is crucial, because the population defines the set of entities from which the research sample is to be drawn”. The population is defined by Saunders & Lewis (2018) as “a complete set of group members” but is not limited to people or employees, but could also include organisations. The sample is defined as “a sub-group of all the group members or the whole population” (Saunders & Lewis, 2018). The population relevant for this research has been defined as organisations and individuals that are currently operating, interact with, or are employed in the supply chain of the flexible packaging in South Africa. This is done to ensure the data collected from the participants would reflect the current experience of those with knowledge of the flexible packaging supply chain. The population of flexible packaging selected is defined as a package, or part of a package, that’s form, or shape can be manipulated with easy. This includes materials such as paper, plastic films, aluminium foils, coated or treated papers and films, or a variety of combinations (such as laminates) of these materials (Flexible Packaging Association, 2016). The flexible packaging was selected on the difficulty in recycling this materials (Confederation of Paper Industries Ltd, 2020).

The 12 participants from the population sample that were interviewed in the researched working only within organisations within the flexible packaging supply chain, either locally in South Africa or as suppliers into South Africa. No other industries or organisations were considered for this research study. The organisations interviewed varied in terms of their size of the organisation as well as being South African based organisation, internationally based organisation, and multinational organisations. The categorisation of the organisations is depicted in Table 2, with the categories of organisations allowing for triangulation of data for both in-case and cross-case analysis.

Table 2: Categorisation of Organisation

Participant	Role in Supply Chain	Multinational	International	Local
Part_1	Convertor			X
Part_2	Brand Owner			X
Part_3	Producer	X		
Part_4	Brand Owner			X
Part_5	Supplier			X
Part_6	Producer	X		
~~Part_7~~	~~Supplier~~			~~X~~
Part_8	Supplier		X	
Part_9	Producer	X		
Part_10	Supplier		X	
Part_11	Convertor	X		
Pat_12	Brand Owner			X

Source: Researcher's Own

Organisations were divided into four organisation categories based on their respective roles in the supply chain, summarised into "brand owners, convertors, suppliers, and producers". The dividing of the organisations allowed the researcher to triangulate data from the various organisation group through in-case and cross-case analysis. Due to the limited amount of local production facilities within South Africa, internal suppliers and local agents (classified as suppliers) who supplied flexible packaging into South Africa were included in the research.

All participants within the research held lead or managerial roles within their organisations and were directly involved in their organisation's procurement or sales activities. The various roles of the participants are shown in Table 3 below.

Table 3: Participant's roles in organisations

Participant	Role in Supply Chain	Role in Organisation
Part_1	Convertor	Division Director
Part_2	Brand Owner	Division Head
Part_3	Producer	Local Managing Director
Part_4	Brand Owner	Division Head
Part_5	Supplier	Owner
Part_6	Producer	Division Head
~~Part_7~~	~~Supplier~~	~~Owner~~
Part_8	Supplier	Owner
Part_9	Producer	Manager
Part_10	Supplier	Owner
Part_11	Convertor	Division Head
Pat_12	Brand Owner	Manager

Source: Researcher's Own

4.4. Unit of analysis

According to Baxter & Jack (2008) it is important that while a researcher is considering the research question for the study, that the researcher also pay consideration to the unit of analysis to be used, as this is an important factor for the researcher.

Determining a unit of analysis is a fundamental factor in determining what they will be for research, and it may prove difficult to determine what exactly is the unit of analysis. The unit of analysis for this research was the experiences of the participants (bound by time and place) as to the current barriers, drivers, and practices within the supply chain towards sustainability, a circular economy, and sustainable supply chains within the supply chain of flexible packaging into South Africa.

4.5. Data Collection Tool

The research instrument (Table 4) was a set of open-ended questions that was used to guide the conversation with the participants. The structure of the questionnaire was designed to give structure to the conversation and ensure that information regarding the participants experiences relating to the drivers, barriers, and practices of sustainability and circular economy would be expressed during the conversation. The research instrument (Table 4) shows the three overarching research questions from Chapter 3, and the various sub-questions which were structured around the three research questions.

Table 4: Research Instrument

	Questions		**Interview Questions**
	Baseline Questions	1	Please could you tell me about your role in the organisation?
		2	How is your organisation and its supply chain moving towards sustainability?
		3	How is your organisation and its supply chain moving towards a circular economy?
		4	How is the supply chain of your organisation being sustainable?
RQ1	What are the drivers towards sustainability, sustainable supply chain, and circular economy	1	In your experience, what are the external drivers/factors that are moving you towards sustainability within your organisation?
		2	In your experience, what are the internal drivers/factors that are moving you towards sustainability within your organisation and supply chain?
RQ2	What are the barriers towards the adoption of sustainability, a sustainable supply chain, and circular economy	1	In your experience, what are the external barriers/challenges that are hindering sustainability within your organisation and its supply chain?
		2	In your experience, what are the internal barriers/challenges that are hindering sustainability within your organisation and its supply chain?
RQ3	What practices are necessary for improvement of, or are currently hindering, the adoption of sustainability, a sustainable supply chain and circular economy?	1	How do your organisational practices help you to address the drivers and challenges (mentioned previously)?
		2	Please tell me about the practices within your organisation that address sustainability.
		7	In your experience, what are the practices within your supply chain that are related to sustainability and/or the circular economy?
	Closing Question		How do you see this developing into the future?

The first question was aimed at establishing the participant's role within the organisation to ensure that they would have sufficient experience within their organisation and the supply chain of flexible packaging. The baseline questions were designed to stimulate the participants to think about how their organisation was currently looking at sustainability and circular economy to assist with the openness in their responses for the questions relating to the three questions. The closing question was designed to provide a final question to tie off the interview and also provide the opportunity for the participants to provide additional experiences that may have not been uncovered in the previous questions.

The questions in the research instrument relating to the three research questions were designed open-ended and asked the participants as to what the external and internal drivers, barriers, and practices were based on their experiences within their organisation and its supply chain. The research instrument was designed to have a conversation flow from one question to the next to stimulate a natural conversation between the researcher and the participant. In instances when the conversation flowed naturally between the questions without any prompt by the researcher, the questions were marked off and the interview would continue with the next relevant question from the research instrument.

4.6. Data Collection

Data was collected through semi-structured interviews in which the researcher asked participants open-ended questions. The researcher allowed participants to continue the conversation until a prompt was required so as to not interrupt the participants chain of thought. The data collection process was guided by Smith (2018) for data collection within a case study. Upon being granted ethical clearance on 19 July 2021 (Appendix 5), the interview process commenced on 8th August 2021. Seven out of the 12 participants were accessed through the researcher's professional network, three participants were accessed through a snowballing approach as two participants provided connections with possible participants for the research. One participant was connected with the researcher through the researcher's personal connection established at the Gordan Institute for Business Science (GIBS). Access to additional identified participants was hindered by the civil unrest in South Africa that erupted in towards the end of July 2021, which saw a number of organisations within the flexible supply chain be severely affected by the riots and were raised to the ground (Harding, 2021).

In total, 12 interviews were conducted for this research, however during one interview the participant requested to withdraw and was granted permission to do so.

All participants were required to sign an informed consent form prior to the commencement of the interview. Interviews lasted an average of 37 minutes and 10 seconds, with the longest interview being 55 minutes and 31 seconds, and the shortest interview being 23 minutes and 23 seconds.

Due to the Covid-19 pandemic, all interviews were conducted and recorded using teleconference software offered by “Zoom Meetings” and “Microsoft Teams” and were uploaded onto a private Google cloud share drive. Transcriptions were done through online transcription software “Otter.ai” with the researcher amending the transcriptions were necessary.

Nine out of the 11 participants represented local firms in South Africa that were either a small medium enterprise (SMMEs), formed part of a locally listed corporation, or were the local organisation for a multinational organisation. Two of the participants represented international organisation out Europe and the UK.

4.7. Data Preparation

Following each interview, the researcher would upload the audio file onto “Otter.ai” for transcription, and upon completion of the transcription the researcher would work through the transcription and audio file to ensure that the conversation was correctly captured. There were instances when the South Africa accent led to incorrect transcription and required the researcher to correct this based on the audio file. The data preparation commenced on 8 August 2021, would occur immediately after the completion of the interviews. Once the transcripts had been cleared and were aligned with the audio files, the transcripts were uploaded onto Atlas.it, a Computer-Assisted Qualitative Data Analysis Software (CAQDAS). The researcher followed the thematic analysis approach as suggested by Braun & Clarke (2006), Eisenhardt et al. (2016), and Smith (2018) as this allowed the researcher to “identifying, analysing, and reporting [on] patterns (themes) within the data. It minimally organises and describes your data set in (rich) detail” (Braun & Clarke, 2006. p. 79). Through the conducting the interviews and working through the transcriptions the researcher familiarised themselves with the data gather as per the first recommend step by Braun & Clarke (2006).

4.8. Method of Analysis

The researcher began with an inductive approach to coding as it is described as a “bottom-up” approach to theory development (Braun & Clarke, 2006; Saunders & Lewis, 2018). During the second step of the data analysis, the researcher created first-order codes through inductive reasoning from the evidence provided within the data (Braun & Clarke, 2006). Once all the transcripts had been coded, the researcher re-examined the codes generated in the second step of the analysis and identify themes that could be related to the codes (Braun & Clarke, 2006). The initial analysis and coding of the data generated 358 codes through an inductive approach (Appendix 6). The researcher then created first-order categories which grouped and labelled codes based on similarities between the first-order codes identified during the second step of the data analysis. Following categorising and grouping the first-order codes, 55 first-order categories were developed (Appendix 7).

The researcher had to this point being following an inductive approach to analysing the data. Following the initial steps of the data analysis, the research then made a “conceptual leap” from an inductive approach to a deductive approach as described by Klag & Langley (2013). The leap from inductive to deductive was done as the research is aimed at investigating the themes of drivers, barriers, and practices within the supply chain, and therefore the themes were already present during the analysis. Through the application of deductive reasoning the researcher looked at the themes generated from the literature in Chapter 2 and worked “top-down” from the identified themes, to sub-themes of internal and external, to find probable ways that the themes would be connected to and generated from the first-order categories and codes (Saunders & Lewis, 2018). Following the deductive approach, the researcher split the three main themes of drivers, barriers, and practices into 6 sub-themes, internal and external drivers, internal and external barriers, and internal and external practices. Following the steps of Braun & Clarke (2006), the categories where placed into the identified sub-themes that would assist in answering the research questions from Chapter 3.

Upon completion of the data analysis, it was evident that after the twelfth interview that data saturation had been reached as the interview only produced one new code. Additionally, interviews nine through eleven only produced six new codes each.

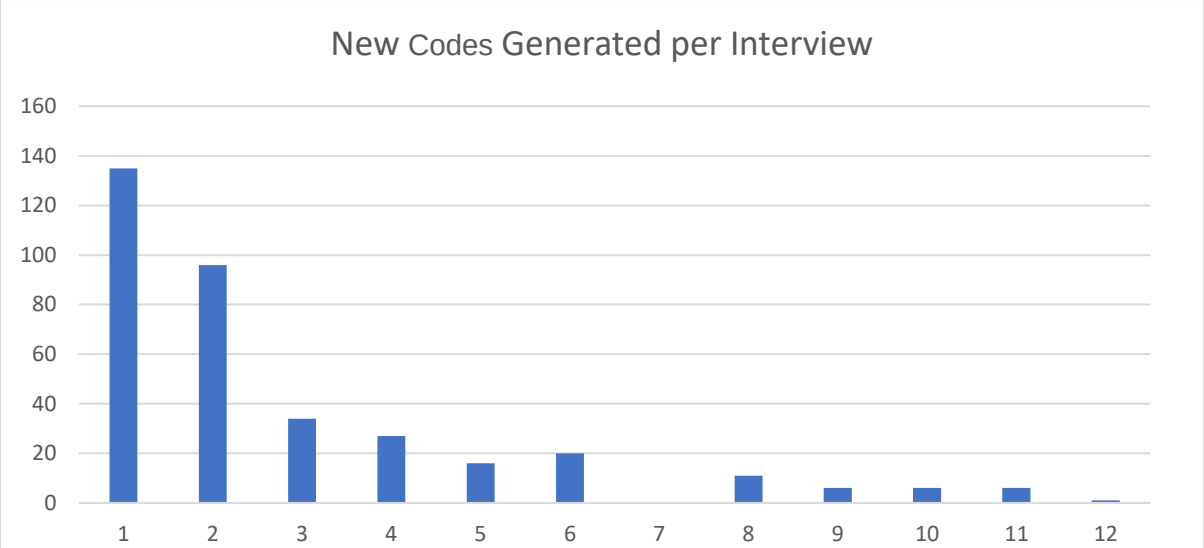

Figure 2: Data Saturation

4.9. Data Validity and Reliability

In order to ensure that the researcher controlled for bias, as well as the validity and reliability of the data, precautions were taken by the researcher. The limits, or boundaries, of the research as focused solely on the supply chain of flexibles packaging into South Africa, and the sample of the population interviewed in the research was limited was only participants who met specific criteria, as discussed in Section 4.3.1. All interviews were conducted in private and the participants identity and that of their organisation was kept confidential within the report. All participants were asked the same set of questions during the interview process and in the same manner to improve the consistency in the data. In order to ensure anonymity of the participants and their organisation all interviews conducted in private, thus granting the participant freedom to give their honest experiences to the researcher.

As a notice, the researcher followed the key elements identified by Baxter & Jack (2008) in order to improve the quality of the study as well as its rigor and trustworthiness. The researcher clearly articulated the research question or case in Chapter 3 and substantiated the research questions based on the invitation identified in the literature reviewed in Chapter 2. (Baxter & Jack, 2008). Sampling was done through a purposeful approach in order to ensure that all participants met the required criteria as stipulated in Section 4.3.1. and the data was gathered and manged systematically to ensure little

variance (Baxter & Jack, 2008). Finally the research analysed the data systematically through an inductive and deductive approach as mentioned in Section 4.8.

4.15. Limitations

The researcher is aware that they are a novice researcher and therefore the researcher may be prone to be less rigorous when compared to the authors mentioned throughout the literature. To mitigate this, the researcher worked closely with their supervisor in order to gain additional knowledge and advice. The researcher also followed the steps provided in (Baxter & Jack, 2008) to assist in improving reliability and rigor of this research.

A second limitation of the research is the physical boundaries of the population that was selected for the research. The research was restricted to the supply chain of flexible packaging into South Africa and focused solely on the organisations that operated as either brand owners, convertors, suppliers, or producers. Organisations outside of these categories, such as recycling operations, Producer Responsibility Organisations (PROs), or government, were excluded.

The researcher was also confronted by a limitation as to the availability of identified participants as a result of the riots in Kwa-Zulu Natal (KZN) which resulted in some of the organisations within the flexible packaging supply chain being raised to the ground(Harding, 2021). As a result, participants identified from these organisations were unable to form part of this research. In addition to this, other organisations within the supply chain were unavailable to take part in the research as they were operating at full capacity due to the loss in supply from the organisations directly impacted by the riots.

CHAPTER 5: RESULTS

5.1. Presentation of Findings

The following section presents the results from the analysis of the data that was conducted in the research, as discussed in the methodology section, see Chapter 4. The results from the data are presented in a format that is structured around the research questions as set out in Table 4 in Chapter 3.

During the data analysis phase, the researcher followed the steps provided by Braun & Clarke (2006) in which the researcher familiarised themselves with the data by editing the transcriptions. The data gathered from the semi-structured interviews was then coded through an inductive process based on the language used within the interviews. The codes generated during the initial coding process, the first level codes, were then categorised through inductively into categories based on the data gathered during the semi-structured interviews. The researcher then applied the framework defined in Literature Review as a conceptual lens, which determined the themes for this research.

The themes identified were then evaluated based on the number of mentions by each participant based on their organisation's position within the supply chain to those in similar positions (in-case) as well as those who represent organisations in different roles in the supply chain (cross-case). As the research conducted was a qualitative study the researcher notes there is no importance to the number or the frequency in the mention and this do not guarantee, or should it add, statistically value or weight to the code determined through the inductive process. Additionally, codes that were mentioned less frequently are considered as important or significant as codes with higher frequency of mentions.

The data and insights of the sample gathered from the semi-structured interviews, as set out in Chapter 4, was coded through an inductive process, and the following coding was categorised.

It is also important to note that the supplier organisational category is the only group of participants to comprise of both local and international participants. This is of significance as South Africa predominately imports majority of its flexible packaging, with international organisations often using local agencies to sell their products into the South African market.

Use of Agencies
- Part_5:Supplier (L)
"And so, we fortunately have got, you know, agency agreements to being in those specific grades".
"I'm engaging with and signing new NDAs and agreements with, with new suppliers…".
- Part_8:Supplier (I)
"We, whether we use, if you like, sub-agents or agents, is dependent on the marketing circumstances and the requirements of the market".

5.2 Internal Drivers towards Sustainability and Circular Economy

The first sub-theme discussed relates to the internal drivers towards sustainability and circular economy. During the interview process the participants were asked based on their experiences what were the internal drivers or factors that were moving their organisation towards sustainability and circular economy. Based on the first order categories shown in Table 5, the most frequently mentioned were compliance with government legislation, regulations, and standards, the internal company strategies towards sustainability, and being ethical and responsible. Almost all of the organisational categories mentioned internal drivers, the convertors did not mention production efficiencies and cost savings during the interview process. Additionally, the researcher noticed that there is a difference in the frequency between internal drivers which varied between the different organisational categories, as shown in the heat map in Table 5.

Table 5: Heat map of internal drivers

	Brand Owners	Convertors	Producer	Supplier	Totals
Company brand	7	1	2	3	13
Cost savings for organisation	2	2	3	3	10
Ethical	14	10	16	2	42
Government legislation	14	7	20	18	59
Internal organisational goals	14	6	20	9	49
Production Efficiencies	4	2	11	12	29
Totals	55	28	72	47	202

Interestingly, despite all drivers being mentioned by the organisational categories, excluding convertors the production efficiencies category, there is little consistency in the dataset, with most categories showing signs of deviation.

In order to develop a deeper understanding within and across the respective organisation categories, the research will conduct an in-case and cross-case analysis of the participants responses to enable data triangulation.

5.2.1. Evidence of Internal Drivers

Company Brand

Company brands was one to the internal drivers that impacted organisational decisions towards becoming more sustainable and was mentioned across the four organisation groups. The category was most frequently mentioned amongst brand owners, due to the packaging being seen as part of the organisation itself, as stated by Part_4:Brand Owner. The researcher noted that there was little deviation in frequency, but also noted there was lower frequency in mentions compared to other categories. Whilst frequency of mention does not denote level of importance, the researcher noted that the brand owners recorded the highest mentions for company brand being an internal driver. The researcher also noted participants commented that consumers were becoming more aware of what the organisations were doing through social media and that this would have an impact on how organisations were seen in comparison to their competition. There were also two comments by brand owners and suppliers that stated that the packaging of an organisation's product was an important factor for sales.

Company Brand
- Part_1:Convertor
"So, if their [the retailers] sales drop by 5 percent, they will change back to old packaging. I guarantee you that."
- Part_2:Brand Owner
"One of my personal hats [in the organisation] is about a brand owners' responsibility towards sustainability and packaging. And I think it sist squarely and firmly with the brand owner. We make the decisions about packaging."
Talking about packaging: *"Packaging is the silent salesman. When you're not there to promote your product packaging must shout out "Buy me!"*
- Part_4:Brand Owner
"You know, we have a lot of snacks packaging for example, and we know it's not well recycled in the South African market. Now, we see, you know it's brand threatening…"
- Part_5:Supplier (L)
"What are the solutions? What could we do to find a solution? Because that will have a massive impact on my business, if the market switches and changes tomorrow. So, 'I'm very conscious of it, for my own business's sustainability in the next five to ten years."
- Part_6: Producer

"The social media is becoming more and more aware of what you do to differentiate yourself from your competitors."
- Part_12:Brand Owner
Speaking on internal drivers: *"I would say it's corporate, improving corporate reputation is one"*

Compliance with Legislation, Regulations, and Standards

Compliance with legislation, regulations, and standards was the most frequently mentioned internal driver across the four organisation groups. It was noted that there was deviation across the groups of producer and supplier compared to the brand owner and convertor. The researcher does note that the level of frequency does not signify level of importance and is purely used to assist in analysis. Compliance with legislation, regulation, and standards was mentioned across all the organisations in accordance with either legislation, regulations, or the standards such as FSC and ISO being mentioned by participants.

Compliance with legislation, regulations, and standards
- Part_1:Convertor
"And I think I suppose some of the practices is that because we are a listed company, we do get these questionnaires and charges where, what's our sustainability plan? You know, when you start getting asked those questions, yeah sure well we got to do something about you know, we can't be seen to be doing nothing."
"Yeah, so we will be looking at going ISO 14000 now, along with all the other different certifications. We should have been already by now, but… there's a lot that you got to get".
- Part_5:Supplier (L)
"We haven't written proper legislation, but I have letters on my desk that I need to address which is from suppliers [producers], asking us about the EPR. So, I'm aware that we have to put in some compliance systems there".
- Part_8:Supplier (I)
"Well, I mean, the number on is government".
"I do not know the similar regulations in place in South Africa".
Part_9:Producer (L)
"You are familiar with the EPR? So, with that coming into law into November, it'll basically force the entire supply chain to hold each other accountable".

"And I think from a global perspective is that the consumer and environmental laws and legislation at a government level are pushing as the main driver".
- Part_10:Supplier (I)
"So, if the legislation foes towards that ledge that, towards a certain point, then the industry must follow".
"I think that we are doing what the market is requiring… and the market, as I said, is driven either by the sensibility of everybody. Everybody or the legislation".
- Part_11:Convertor
"Well, I think if you look at the current legislation and the way it's rolling up with the IPOs. I think it's, it's basically a five-year plan. So, every year, they're looking for a higher percentage, recycled, whatever is a target, they are target set for industry. So, I think it's going to be driven and has to go…".
- Part_12:Brand Owner
"If you look at the overall organisation there is a lot of pressure, in terms of it, and it applies in a lot of countries. There's a lot of pressure from local governments, in many countries, in this country as well, for manufacturers to be more responsible in manufacturing practices."

Cost Savings to the Organisation

All groups made mention of cost savings to their organisation through adopting sustainability and circular economy. It was noted however that the brand owners had differing views on cost savings experienced by their organisations. Only Part_12:Brand Owner stated that recycled materials were more cost effective, whereas the other brand owners found that the increased costs of sustainable products as a major internal barrier, as they would be required to pass these onto the consumer, which would have an impact on sales. Internal barriers will be discussed in section 5.4.1. The researcher noted there was some deviation in the examples given for cost savings to organisation, which varied from reducing the size of the packaging to collecting consumable waste from the market to be reused.

Cost Savings to the Organisation
- Part_1:Convertor
"So, if you think smart you can afford to pay the little bit better [higher] price for the [sustainable] packaging. But then you offset it through going a little bit smaller [in the packaging size]."
- Part_3:Producer

"So, we are recovering all out consumable packaging, so there's a big cost every month on pallets, inboard, cores, bungs, and metal pieces. So, we've now got a little business, not [ones] we've set up, but that we support them around the market collecting all of our consumable waste and returning it to us where we can clean it, or wash it, or reuse it, and put it back into the system".
- Part_6:Producer
"So in our organisation, specifically for the manufacture of [our product]. Okay, we are able to most certainly use our virgin [material] back into the production of the [product]. We do that. From waste to straight back in. So, we do not generate waste."
- Part_10: Supplier (I)
"And then of course, the industry saw, in the flexible packaging, that going thinner meant also going cheaper. They said, we're going cheaper, so we're going thinner, and at the same time, we are more ecological, because we are using less material."
- Part_11:Convertor
"Again, so what you're going to find, I think, maybe, is packs will get smaller. And a lot of the move from rigid kind of packs to pouches [flexible packaging].
- Part_12:Brand Owner
"The other one would be costs. Recyclable materials are most cost effective, as opposed to using virgin whiteboard, and the same applies to flexible packaging.

Ethics and Responsibility

Other than the suppliers, there was little deviation in mentions as to ethics and responsibility being an internal driver. The researcher noted that the mentions by the suppliers were when questioned about the internal barriers, however the response being *"…but we understand, we have to do it*" indicates to the researcher that the organisation was being responsible and ethical by abiding by legislation and requirements. It was also noted that there were only slight deviations across the other three organisation groups, with the three organisations taking initiative in being responsible for the packaging that is used throughout their supply chain. Data gathered during the interview process showed that there were similarities across the groups and that the participants' organisations believed in being responsible in their procurement and production of sustainable packaging.

Ethics and Responsibility
- Part_1: Convertor
"So, we are very aware of sustainability. So, the first thing is to make sure we are procuring from the right suppliers. So, especially on the paper side, or the FSC, to me, that's a no brainer, just to make sure you are sourcing correctly and ethically".
"You know, ultimately, I think that's what we believe in. And that's, that's our morals and our ethics".
- Part_2:Brand Owner

"One of my personal hats is about a brand owners' responsibility towards sustainability and packaging, and I think it sits squarely and firmly with the brand owner. We make decisions about packaging; our product developers develop a new product, and we decide what packaging it is going to be in. So, it must sit with us as a brand owners".
"We were starting think about it [sustainability] in 2007, and we called it the GBJ, our Good Business Journal. And our GBJ, encompasses packaging, and the food we use, what we sell and what we don't sell".
- Part_3:Producer
"Responsibility. You got to have responsibility to show that you're on board in terms of reducing the carbon footprint throughout the globe. You have to show the responsibility in reducing global warming."
- Part_4: Brand Owner
"As I said to you, the challenges we face around commercial and supply are something that they would like us to risk mitigate as much as possible, but there is a clear focus in the direction that we would need to do this. From an environmental perspective and from a goodwill perspective, and from a planetary perspective".
- Part_9:Producer
"So, from an internal perspective, obviously we have our environmental policies. So, I would think that in terms of, from an internal perspective, from a driver, I will give you an accountability and targets based on goals, missions, and objectives, which it has been, I suppose, the hierarchical aspect in terms of where our organisation is set that it comes down on to objectives.
- Part_10:Supplier (I)
"People understand that we need it. We don't want to do it because it's expensive, but we understand we have to do it."
- Part_12: Brand Owner
But the key driver was mostly driven by the sentiment is that globally, the world needs to move forward to a more responsible way of manufacturing and disposal of waste, and to look at the way, how do we manufacture and produce more material that is more recyclable and can be recycled back into the economy"."

Internal Organisation Goals and Policies

The organisations from the brand owners, convertors, and producers all referred to their organisation's goals, policies, and targets as being an internal driver towards

sustainability. Internal goals, policies, and targets were seen to be a result of the organisations being part of listed corporations. The goals, policies, and targets were all aimed at improving sustainability either through reduced waste generation or water and energy consumption to sustainable and circular economy procurement of packaging materials. Based on the responses from the participants during the analysis phase, it was also noted that some goals, policies, and targets had specific dates whilst others did not.

Internal Organisational Goals and Policies
- Part_1:Convertor
"We are part of a corporate, so there are some pressures there that we got to improve our carbon footprint, which we are sort of undertaking as a research analysis."
"So, you know we went FSC about six years ago and for five years we were the only label printer that was FSC."
- Part_2: Brand Owner
"Internally, we say, these are our targets. This is what we want to do and achieve by then".
"We've also got a target that by December 2022 all our packaging needs to be recyclable. So, over and above of moving and finding solutions for flexible packaging specifically, we also need to find that by December 2022."
- Part_6:Producer
"It's a very broad question [about internal drivers] because internally, obviously you're talking power. You're talking what are we doing in terms of our, shall we say, natural resources, such as power, such as water. And then you have the softer ones, such as efficiency and so forth."
"So, reduced talk, specifically around environmental sustainability, well then there are a couple of projects that we are working on internally that would drive down our requirements on power. That would driver down our carbon footprint. That would drive down our use of municipal water. So, try and find a way to reuse our water that we do use. That would also then harvest water. And also, then harvest power of the sun to give us power. So, we have an number of initiatives that are good… at doing all of that internally."
- Part_9:Producer
"So, from an internal perspective, obviously we have our environmental policies. So, I would think that in terms of what is in, from an internal perspective, from a driver, I will give you accountability and targets based on goals, missions, and objectives."

"And those objectives that are set in, would actually be, you know… I will say that they'll be able to meet that and in terms of reduction of waste, in terms of more greenhouse solutions etc. That is the objectives that are set at a management level will be the internal drivers."
- Part 11_Convertor
"Internal drivers? Yeah, internally, I guess it's a company strategy that's a pull for us. Certainly, from our point of view, our bonus targets are all set internally, and we have to meet certain targets in order to achieve your yearly bonus."
- Part_12:Brand Owner
"About a year ago, there's been a lot of traction [towards sustainability and circular economy]. It's been sort of mandated from the global c-suite to be fully recyclable material by 2025."

Improving Production Efficiencies

The category of improving production efficiencies was noted to only be positively mentioned by the suppliers and producers and was negatively mentioned by two of the brand owners. The reduction of waste, through reuse of the waste in the manufacturing process was mentioned by the producers as an example of their organisations improving efficiencies within production. Another area of focus and improvement in production efficiencies was the reduction in the use of municipal water, through reuse or harvesting, and reduction in electricity usage, either through improved machinery or switching to renewable sources. It was also noted that through striving to be more sustainable, organisations have reduced the amount of chemicals, inks, and solvents being used through the production and printing processes, thus improving efficiencies.

Improving Production Efficiencies
- Part_2:Brand Owner
Talking about the shift from paper laminates to mono-polymer structures (single plastic) for packaging slowing down current packaging lines: *"So, the machine cannot run so fast anymore, so you effect production inefficiencies."*
- Part_3:Producer
"You have to also accept that there is a cost benefit in becoming sustainable and using up more of your waste."

"In the printing process, there's a trend to reduce from eight colour to a four colour type print, using the four colours to make up the eight colours. There's less solvents being used in the markets."
"So, you know we went FSC about six years ago and for five years we were the only label printer that was FSC."
- Part_6:Producer
"So, yeah, there's an internal drive, most certainly, to producing products that are more sustainable, to producing the products we produce more sustainably, in terms of energy and water."
"Okay, so we are able to most certainly use our virgin material back into the production of our product, we do that, from waste to going straight back in."
- Part_8:Supplier (I)
"Energy is another subject altogether. Energy is required to produce these materials. If you can find ways of, if a manufacturer can find ways of reducing its energy cost, then that's probably the second highest cost within that particular industry."
Talking about costs being an internal barrier: *"So, I would say that most manufacturers are continuously looking at that because it benefits them to reduce their production costs."*
"So, I think the issues of production efficiencies is an ongoing topic, and in fact, probably a never-ending topic."
- Part_9:Producer
"And those objectives that are set in, would actually be, you know… I will say that they'll be able to meet that and in terms of reduction of waste, in terms of more greenhouse solutions etc. That is the objectives that are set at a management level will be the internal drivers."
Part_10:Supplier (I)
"So, the production process has changed… so many things have changed".
"In the years I've seen a lot of these changes. So many chemicals are not there anymore. We are, for example, in the formulation of paper, we are using less ingredients."

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5.2.2. Cross Case and In-Case Analysis of Internal Drivers

Company Brand

The researcher noted that there was little deviation in frequency across the organisation groups, but also noted there was lower frequency in mentions compared to other categories. Whilst frequency of mention does not denote level of importance, the researcher noted that the brand owners recorded the highest mentions for company brand being an internal driver. Brand owners expressed the highest frequency of the company's brand as a driver, as the brand owners represented organisations that sell commodity goods into the market. The brand owners highlighted the importance of the products being seen as sustainable and recyclable as consumers in South Africa would identify packaging waste with the organisations, which placed additional pressures on the organisation to move towards sustainability and circular economy. All four organisation groups mentioned that their organisation's company brand was a driver in the adoption of sustainability and circular economy. The researcher also noted that consumers were becoming more aware of what the organisations were doing through social media and that this would have an impact on how organisations were seen in comparison to their competition. There were also two comments by brand owners and suppliers that stated that the packaging of an organisation's product was an important to sales.

Compliance with Legislation, Regulations, and Standards

All organisation groups had similarities relating to the category of compliance with legislation, regulations, and standards. Despite there being deviance in frequency, all groups emphasised that compliance was an internal driver towards adopting sustainability and circular economy. Whilst Part_11:Convertor mentioned the EPR, Part_1:Convertor was noted to not mention the EPR legislation, however they did mention they had and were adopting international sustainability standards, such as FSC and ISO. It was also noted that as a listed organisation, the convertors were required to comply with regulations and standards as a result of being listed. International suppliers similarly mentioned the various legislation being implemented throughout Europe and stated that legislation was the dominate driver for organisations towards sustainability. In comparison, the local suppliers stated that the implementation of the EPR legislation and pressures from producers was forcing them to become more compliant with the legislation. It was also noted that the international suppliers had limited knowledge of the ERP legislation that is about to be implemented in South Africa.

Cost Savings to the Organisation

The researcher noted that the brand owners made no mention of costs savings being an internal driver towards sustainability or circular economy. The convertors found that cost savings would be a driver towards sustainability through the reduction in the size of packaging. The reduction in packaging size would allow for organisation to adopt sustainable and circular economy packaging by offsetting the additional costs of the alternative materials as these options would be more feasible. The suppliers and convertors also had similar experiences in cost savings through the development of thinner packaging materials, which allowed for cost savings through the use of less materials in production. The producers mentioned that cost savings in sustainability and circular economy would be found in the recollecting of consumable packaging from the market for reuse and the reuse of virgin or uncontaminated materials back into the production process. Producers also found cost savings through adopting circular economy practices in their water and electricity usage through harvesting and reusing water and focusing on renewable energy to power their production.

Ethics and Responsibilities

Brand owners had a high frequency in mentions relating to ethics and responsibilities which could be related to the points mentioned by the participants that they are responsible for the packaging that is used throughout the supply chain. The researcher also noted that the suppliers, given their role as described in section 5.1., have little direct impact in relation to the packaging used, however understand that it is ethical and responsible to be sustainable and to source sustainable solutions. The researcher also noted that one of the brand owners commented that their organisation had been looking at sustainability for over a decade and that sustainability was a core value of the organisation itself. Despite there being slight deviations between the other organisation groups, all of them had similarities in that becoming more sustainable and supplying sustainable products was the right thing to do. The researcher also noted that one of the convertors had undertaken a project with a retailer in which the convertor's organisation was carrying the additional costs due to their beliefs.

It was noted that the producer participants also had a high frequency of mention relating to being ethical and responsible as an internal driver within their organisations. Emphasis was placed on organisations being to be on board and striving towards reducing their carbon footprint. The producer group also commented that organisations who sold the packaging were being held responsible for collecting their own packaging, though they did not believe that this was the solution.

Internal Organisational Goals and Policies

There was significant deviation in mention between the producer group and the three remaining organisation groups noted by the researcher. Whilst this does not mean significance in the data, it was noted due to the deviation. All the producer participants mentioned their organisation's internal strategies as being a driver in sustainability, with the organisation setting targets and goals that production would need to aim at achieving. The producer organisations were also multinational corporations that were listed on international stock exchanges and therefore were required to have internal policies and strategies that were reported on and audited.

The brand owners emphasised the role of internal organisational strategies, though the brand owners differed in terms of the amount of drive that these goals and policies. It was noted that the differences were as a result of the organisation's ability to effectively drive change as multinational organisations, whilst the organisations were unable to do so and therefore adopted a "follower" role. The convertors mentioned on several instances the role of internal organisational strategies as drivers towards sustainability. The convertor group formed part of larger corporations, with the head offices, either local or internal, setting the overall organisational strategies for the corporation in general. Notwithstanding, it was noted that the convertors both stated that they have their own internal goals and strategies within their organisations.

The suppliers also frequently mentioned the importance of internal organisation strategies as being drivers, though they did mention that they did not officially have strategies in place, rather their organisational strategies were informally adopted. This is most likely as a result of the supplier organisations being smaller than the other organisation groups and not requiring official practices and policies similar to those found in the corporations mentioned by the convertors, who were either multinational or listed corporations.

Production Efficiencies

It was noted that there was significant deviation between the two groups of brand owners and convertors and producers and suppliers when discussing production efficiencies. The brand owners only mentioned production efficiency in the negative, stating that changes in the material used in packaging would lead to production inefficiencies on the current machinery and the packing speeds would need to decrease. The convertors only commented on production efficiencies, through cost reduction that would be realised by reducing the size of packaging for each product, with crisp packets being an example.

Producers focused on how through increasing sustainability within their organisations they were able to reduce waste, by reusing waste in their production processes. The producers were also able be become more efficient by reducing their use of municipal water, by harvesting water and through reuse, as well adopting the use of renewable energy sources to run productions. It was also noted that the producers were improving efficiencies by partnering with local organisations to recollect consumable waste from their products which would be cleaned and reused for new deliveries.

The suppliers group made mention of production efficiencies based on their dealings with the producers. According to the suppliers, producers were constantly looking for ways to improve efficiencies and drive down costs.

5.2.3. Conclusion on Internal Drivers

In this section the researcher analysed the data gathered during the interviews as to the internal drivers that the participants had experienced towards the adoption of sustainability and circular economy within the supply chain. The data analysis identified six major categories, or internal drivers, within the sub-theme of drivers. Through conducting an in-case and cross-case analysis the researcher was able to triangulate the data between the four organisation groups. Evidence from the data highlighted that the internal drivers were company brand, cost savings for the organisation, being ethical and responsible, compliance with legislation, regulations, and standards, the internal organisational policies, strategies, and targets, and production efficiencies. The researcher did note that there were differences in the frequency of mentions across the organisation groups, and that the convertors did not discuss production efficiencies as being an internal driver. The researcher notes that this does not mean production efficiencies are not internal drivers for convertors, rather that there was no mention.

In conclusion, through triangulating the data gathered across the four organisation groups the all the internal drivers found will be carried forward for analysis in Chapter 6; (1) company brand, (2) cost savings for the organisation, (3) being ethical and responsible, (4) compliance with legislation, regulations, and standards, (5) internal organisational policies, strategies, and targets, and (6) production efficiencies. In closing, the researcher noted that the literature discussed costs savings and production efficiencies as a single driver. Therefore, the researcher will combine these two categories into one to align with the conceptual framework created from the literature review.

Table 6: Internal drivers from findings

Internal Drivers
(1) Company brand
(2) Cost savings for the organisation
(3) Being ethical and responsible
(4) Compliance with legislation, regulations, and standards
(5) Internal organisational policies, strategies, and targets
(6) Production efficiencies

5.3. External Drivers towards Sustainability and Circular Economy

The second sub-theme discussed focused on the external drivers towards sustainability and circular economy. Participants were questioned, based on their experience, on the external drivers that were moving their organisations to becoming more sustainable and the circular economy.

During the interview process the participants were asked a question as to what were the external drivers or factors that were moving their organisation towards sustainability and circular economy based on their experience. Based on the first order categories shown in Table 7, the most frequently mentioned categories were compliance with government legislation, regulations, and standards, and increased consumer awareness. As with the categories relating to internal drivers, the researcher noted that there was variance in the frequency in which the categories were mentioned by the respective organisational categories (Table 7).

Table 7: Heat map of external drivers

	Brand Owners	Convertors	Producers	Suppliers	Totals
Availability of resources	11	7	8	13	39
Competitors in the industry	8	5	1	4	18
Consumer Awareness	13	10	7	22	52
Government legislation	10	7	20	18	55
New Industry and Job Creation	4	4	7	3	18
Totals	46	33	43	60	182

The gain insights as to the thoughts of the participants experiences relating to the respective categories the researcher will investigate the respective codes associated with the categories and conduct an in-case and cross-case analysis to assist in data triangulation.

5.3.1. Evidence of External Drivers

Availability of Resources

The first order category of availability of resources was mentioned on multiple occasions by the various organisation groups and was found to have one of the lowest deviations. A frustration noted by all organisation categories was that the more sustainable products did carry higher costs than non-sustainable solutions due to supply and demand. However, it was noted that as the demand for these solutions increased, they would become more available, and the economies of scale would lead to decreases in the products cost. An additional observation from the participants was the impact of the global supply chain disruptions that resulted due to the Covid-19 pandemic. The disruptions have meant that organisations are struggling to source their regular products. This will be covered more in the subsequent section dealing with the external barrier sub-theme.

Availability of Resources
- Part_1:Convertor
"So, there's a lot of materials available, but each one fits a different purpose."
- Part_2:Brand Owner
Talking about responsibilities in the organisation: *"We make decisions about packaging, our product developers develop a new product, and we decide what packaging it is going to be in".*
- Part_4:Brand Owner
"We need to follow suit in terms of material that we currently utilize may naturally over the next few years, periodically become less available."
- Part_8:Supplier (I)
"There are materials available at the moment in polyester that can have a 90% PCR content, a Post Consumer Recycled content. Up to 90%."
- Part_11:Convertor
"We are having a lot of trouble trying to get raw materials. And to get such chemicals and substrates to South Africa even with the shortage of containers, the poor shipping, and the issues in our ports."
Economies of Scale
- Part_8: Supplier (I)
"And it could be that as time passes by, the methods and the availability of recycled content materials does improve, and purely on economies of scale, that means the costs will come down."
- Part_9:Producer
"And I think paper the paper side, all the things that doesn't become biodegradable, compostable, or alternatives, and in pushing back to the inbound [supply to

organisation], I'll even go source these products, because the more demand you create, then you're getting economies of scale and bringing down the costs…"

Actions of the Competition

There were evident deviations in frequency within this category particularly amongst the brand owner and producer groups in terms of relevance of the actions of the competition being a driver. Sustainability was seen by some participants as a source of competitive advantage and something that is necessary for their organisation to remain relevant. It was noted that driving sustainability could also be a disadvantage especially when selling commodity products in a price sensitive market, as becoming more sustainable, and therefore increasing costs, could lead to loss of sales. The contradiction in terms of competitive advantage illustrates the importance of understanding the consumer of the respective organisation as well as the actions of the competition in relation to their adoption of sustainability and circular economy. A unique point was raised by a participant from producers as they mentioned during their interview that social media, and therefore the consumers, were becoming more aware of what organisations do to differentiate themselves from the competition.

Actions of Competition
- Part_1:Convertor
"So, and you know, your competitors are also trying to use that [sustainability] as a competitive advantage. Can I do this better or get this more environmentally friendly?."
- Part_2:Brand Owner
"Internally, there's this need and want to be the best. We are always wanting to be the best. Thirdly, we look for the difference. We look for those areas where we can get into that nobody else is in and make a difference."
- Part_5:Supplier (L)
"For me, as a business owner, if I don't adapt to change, I won't have a business in a few years' time"
- Part_12:Brand Owner
"And a lot of our competitors, our fellow industry companies is moving in that very same direction. Definitely."
Competitive Disadvantage
- Part_2:Brand Owner
"And then there's the financial side of it. Sometime, recyclable packaging is expensive, and you're packing a commodity product, and you need to look at and say, if I put it in this recyclable packaging, I'm going to be uncompetitive in the market. Everybody else in this field is in non-recyclables…
- Part_4:Brand Owner
The second major hurdle is obviously, as I touched on is the commercial aspect of it. It is very difficult in the in a segment where you are participating in commodity FMCG goods to pass on significant increases when you see a market not moving, the competitor not moving, there is a reluctancy to want to move first and take the on cost, because not this is where you have to say, listen, I've moved. I've done the right thing

for the environment. I've done the right thing from a sustainability approach, but will I sell more product."
Impact of Social Media on Competitive Advantage
- Part_6:Producer
" The social media is becoming more and more aware of what you do to differentiate yourself from the competitors".

Consumer Awareness

Consumer awareness was the second most frequently mentioned category within the external drivers and had relatively little deviation in frequency across the four organisation categories, though it was noted that the supplier group had more mentions and was the source of deviation. There was general consensus amongst the participates that the consumer has become more aware about the packaging used in the flexible packaging industry. It was also noted that consumers are very aware of the packaging used and changes in the packaging or design of the packaging which can impact the number of sales. Some participants across the organisation categories also commented about the negative publicity that has been given to packaging within the media and society. There were also similarities noted in that the media also plays a role in increasing consumer awareness, with the documentaries by Sir David Attenborough being quoted on two separate occasions by participants from different groups. Social media was also found to influence the awareness in consumers as to how companies were being sustainable and differentiating themselves from others.

Consumer Awareness
- Part_1:Convertor
"Externally its customers."
- Part_2:Brand Owner
"Okay, so it's, we've got what we call the VOC, the voice of the consumer. So, more and more consumer are becoming environmentally conscious and aware of [sustainability and recycling]. You know?"
"The youngsters are saying "noet man, no" (no man). Hold it. Look what's happening. Look at climate change. Climate change is driven by the industry, what is the industry doing?"
- Part_3:Producer
"Public pressure, public pressure mainly emanating from the first world countries filtering through to the African countries is obviously driving it"
Competitive Disadvantage
- Part_5:Supplier (L)
"So those external drivers are driving behaviour in all of my customers and their customers…"
Impact of Media on Consumer Awareness
- Part_2:Brand Owner

"The other thing was Sir David Attenborough brought that thing called Blue Planet. When he brought up Blue Planet Two, people started having an emotional attachment to the way that David Attenborough described the ocean, and what is happening to our ocean, and our global warming, and our plastic was affecting it".
- Part_4:Brand Owner
"Obviously other parameters from consumers themselves. You know if your customer is putting pressure on you consistently though web streams and in social media to say listen, what are you guys doing with a certain packaging? Why is it still using X material? Why is it using so much packaging? For example."
- Part_6:Producer
" The social media is becoming more and more aware of what you do to differentiate yourself from the competitors".
- Part_8:Supplier
"You know, there's plenty of publicity on the television, and newspapers about plastic bottles being washed up ashore on, on beaches all around the world."
"And I think that one of the biggest issues is, and I do believe, that the medial have a much better responsibility for understanding what the advantages are of plastic packaging, as well as saying the disadvantages."
- Part_12:Brand Owner
"I think, customer awareness will be much more intrinsically embedded with them, in terms of packaging."

Legislation, Regulations, and Standards

Legislation, regulations, and standards was the most frequently mentioned external driver amongst all of the participate, and there was little deviation across the four organisational categories in frequency of mention in comparison to the other external drivers. The imminent implementation of the EPR legislation by the South African government was the most frequently mentioned external driver across the organisation groups. All the participants mentioned that their organisations were responsible to legislation, regulations, or standards through either government legislation or regulations for being a listed corporation. The EPR legislation is aimed at reducing the amount of packaging that is not suited for circular economy and will impose a fee/levy on organisations that do not comply, however despite facing possible fees or levies, organisations are still hesitant in adopting sustainable packaging. It was noted that the international suppliers were not actively aware of the EPR legislation coming into effect in South Africa as of November, though legislation from other countries was recorded.

Legislation, Regulations, and Standards.
- Part_1:Convertor
"… we are a listed company. We do get these questionnaires and charges where, what's our sustainability plan. You know? When you start getting asked those questions, year sure well, we got to do something about, you know, we can't be seen to be doing nothing.."

- Part_2:Brand Owner
Talking about EPR: *"It is now law. You have to be responsible about the packaging that you use. All brand owners have to be, and they will pay fees based on the volume they use and how recyclable it is."*
- Part_4:Brand Owner
"The external driver's really government regulations coming into play. The Extended Producer Regulations that come into play, towards early November… is one of the clear paths that, that is driving some of our change in our behaviour, as well as our though processes into, within our development and our sourcing strategy."
- Part_9:Producer
"You are familiar with the EPR? So, with that coming into law into November, it'll basically force the entire supply chain to hold each other accountable".
- Part_5:Supplier (L)
Talking about EPR as a driver: *"So those external drivers are driving behaviour in all of my customers and their customers. And also, our suppliers, it's driving their behaviour and we're driving, pushing pack on our suppliers and that's the solution we're looking for."*
- Part_11:Convertor
"It's very difficult at the moment. We've done a lot of trials with customers, and we've had a lot of acceptance for our structures, but there's no commitment to actually giving orders at this stage. They are all sitting on the fence waiting for the legislation to hit and to see what the cost of that legislation means, if you don't comply."
- Part_12:Convertor
"If you look at the overall organization there is a lot of pressure, in terms of it, and it applies in a lot of countries, there's a lot of pressure from local governments, in many countries, in this country as well for manufacturers to be more responsible in manufacturing practices."
Limited Awareness on EPR by International Suppliers
- Part_8:Supplier (I)
"Well, I mean, the number on is government [internationally speaking]".
"I do not know the similar regulations in place in South Africa".

Job Creation

The final category within external drivers is job creation, which was the least frequently mentioned category within the sub-theme. Whilst all organisation categories did mention job creation, there was some deviation in terms of frequency between the producers and the other three organisation categories. Job creation in South Africa through recycling is currently done through informal employment as highlighted by participants within the convertor, brand owner, and producers. One participant added that the informal employment has only been created due to the potential financial gains from collecting particular waste, and not due to the collectors being environmentally consciouses. Another participant commented that by job creation within the recycling stream could be furthered through placing a value on all types of waste in South Africa for collection. The participants

also highlighted that the implementation of the EPR legislation would assist in the development of the recycling stream and create new employment opportunities.

Job Creation
- Part_1:Convertor
"You know, because we've got informal collectors, which I think there are plus minus 30,000 of them".
- Part_2:Brand Owner
"In South Africa, we leaders in the world for collecting cans for two reasons. One because it's good infrastructure, good buy back. And two, because it's aluminium and its valuable. So, the guy that collects it and picks it up from the street and take it to a buyback centre, he crushes it together and he says, [person's name], thank you for collecting cans today. Here's your five Rand for every kilogram, that you collected, we see that you collected 100 kilograms. Here's your 500 Rand for the day.."
- Part_3:Producer
"Put a 50 cent deposit back on a bottle, and there will not be one two litre bottle of empty Coca Cola lying anywhere in South Africa. You'll create employment. You'll create an industry of recycling."
"A recycling and sustainability type industry in South Africa can employ up to two million people. Collecting bottles, collecting chip[packets, collecting rice bags, collecting whatever."
- Part_10:Supplier (I)
"Don't forget that all environment, and green, and whatever it is we have today, this is creating a lot, a lot of business positions, a lot of new jobs that were not there before."
- Part_11:Convertor
"So what industry is really trying to do is trying to put the structure together and to become members of that structure to ensure that, first of all, it does stimulate job creation."
Job Creation through Incentives on Recycling
- Part_3:Producer
"The answer is to put a value onto that packaging [any waste] so that people actively go out and collect it and take it to various recycling centres in South Africa. There's a whole industry waiting to crack open out there.

5.3.2. Cross Case and In-Case Analysis of External Drivers

Availability of Resources

While there were similarities across the organisation groups, participants from brand owners emphasised the importance of ensuring consistent supply of packaging as an external driver for sustainability as products that are currently being supplied within their supply chain may be discontinued in the future. In addition, brand owners are responsible for determining what packaging is used for their products, and therefore it is important that there are resources available. As participants from convertors and suppliers highlighted that there was an increase in the availability of alternative sustainable packaging in the market and organisations along the supply chain were offering more of these solutions in

the market. It was also noted that economies of scale will play a key role in reducing the price and increasing the availability of sustainable resources in the future.

Actions of the Competition

There were similarities amongst the participants as based on their experience the actions of the competition would either see the organisation move towards sustainability or not. Participants from the brand owners focus on the actions of the competition were related to whether driving sustainability would be seen as a source of competitive advantage or as a disadvantage given that they sold commodity products which had little differentiation and consumers being price sensitive. The convertors mentioned that sustainability could be a source of competitive advantage amongst organisations with the supply chain, whereas suppliers identified the need to be sustainable along with the competition or they would run the risk of being unsustainable and loss business as a result. It was also noted that organisations understood the impact of media on raising the awareness in consumers as to the how organisations were differentiating themselves from their competition.

Consumer Awareness

Brand owners had similar experiences with consumers, through the “voice of the consumer”, questioning the organisations packaging, with plastics in particular being targeted. There were similarities in experience amongst the convertors, suppliers, and producers, as to increased awareness, however the pressures appeared to come from the end consumers and filter back through the supply chain from the brand owners. The role of traditional and social media was also noted to be similar with all the organisation groups. The increased attention of both traditional and social media has increased the level of consumer awareness as well as communication from consumers to organisations. Participants amongst the suppliers and convertors also queried the way in which the media was raising awareness and highlighting packaging as being the source of the issue. Additionally, it was noted that the media’s focus was on the negative aspects of packaging used, such as plastic waste, rather than the benefits such as extended shelf-life and a reduction in food waste.

Legislation, Regulations, and Standards

All the organisation groups had similarities in their experiences, and all agreed that their organisation needs to comply with legislation, regulations, and standards which were developed and implemented outside of the organisation and supply chain. There were similar findings amongst the international suppliers in their home countries, despite them

not being aware of the EPR legislation in South Africa. The adoption of the EPR legislation by the South African government is seen as a driver within the organisations to find sustainable and alternative solutions in order to improve sustainability and develop circular economy. The participants had similar experiences in the increase in the frequency of questions from customers, both consumers and organisations, into what their organisation was doing in terms of compliance with the various legislation, regulations, and standards, as a result of increased consumer awareness.

Job Creation

There were similarities amongst the organisation groups with participants highlighting informal employment for waste pickers (WastePreneurs) in South Africa. There were also similarities between participants of the brand owners and producers in their comments that the informal employment of waste picking was generated due to the financial incentives for collection of certain types of packaging. A participant from the producer category believes that through placing a value on all types of waste in South Africa, from plastic bottles to bread bags, that you would be able to generate additional incentives, job opportunities, and a new industry for recycling. It was noted that all participants believed that the EPR legislation would assist in the development of recycling streams, infrastructures, and a new recycling industry in South Africa which would lead to additional employment opportunities.

5.3.3. Conclusion on External Drivers

This section examined and contrasted the data gathered relating to the external drivers towards sustainability and circular economy based on the experiences of the participants. Analysis of the data found there to be five categories of external drivers identified across the four organisation groups. In-case and cross-case analysis allowed the research to triangulate the data within and across the four groups. The evidence from the analysis found the external drivers to be the availability of resources, actions of the competition, consumer awareness, legislation, regulations, and standards, and job creation. Of the external drivers, the two most frequently mentioned and discussed were consumer awareness and legislation, regulations, and standards. Though frequency of mention does not note level of importance, these two categories were emphasised the most across the four groups. The implementation of the EPR legislation in South Africa has seen as a driver within organisations to begin to look for alternative solutions, even if they have not yet been adopted or implemented. Though this category is similar to the internal drive of compliance with legislation, regulations, and standards, most of these are generated

outside of the organisations and the supply chain, and therefore are classified as external. The category of consumer awareness was also prevalent in the participants responses as being a driver, with several participants across the groups mentioning media's increased role in raising awareness.

In conclusion, following the data analysis and triangulation across the four organisation groups the following externa drivers will be carried forward for analysis in Chapter 6; (1) availability of resources, (2) actions of the competition, (3) consumer awareness, (4) legislation, regulations, and standards, and (5) job creation.

Table 8: External drivers from findings

External Drivers
(1) Availability of resources
(2) Actions of the competition
(3) Consumer awareness
(4) Legislation, regulations, and standards
(5) Job creation

5.4. Internal Barriers towards Sustainability and Circular Economy

The third sub-theme discussed focused on the internal barriers that were hindering organisations to move towards sustainability and circular economy. Participants were questioned, based on their experience, on what where the barriers or factors that were limiting or hindering their organisation's more towards and adoption of sustainable practices and circular economy.

During the interview process the participants were asked a question as to what were the internal drivers or factors that were moving their organisation towards sustainability and circular economy based on their experience. Table 9 is illustrating through a heat map the frequency of the first order categories with the costs of sustainable or alternative resources being the most mentioned. As with the categories relating to internal drivers, the researcher noted that there was variance in the frequency in which the categories were mentioned by the respective organisational categories (Table 9).

Table 9:Heat map of internal barriers

	Brand Owners	Convertors	Producers	Suppliers	Totals
Upfront investment costs	3	0	6	7	16
Lack of management support	0	0	0	0	0
Other factors more important	6	1	7	9	23
Resource costs hindering adoption	7	11	8	20	46
Lack of Technology and Skills as a Barrier	3	3	8	6	20
Totals	19	15	29	42	105

To understand the responses of the participants experiences relating to their perceived internal barriers, the researcher will undertake and analysis, both in-case and cross-case, to assist in building integrity of the data through triangulation.

5.4.1. Evidence of Internal Barriers

Upfront Investment Costs

The researcher noted that there was relative consensus amongst three of the organisation categories that the high costs of upfront investment and R&D was an internal barrier towards sustainability. This category was not mentioned by the convertor group during the interview process; however, they were mentioned by a participant from the suppliers group. However, as the convertors did not mention this category themselves, no codes from the category were applied to the group. There were frequent mentions amongst three organisation groups towards upfront investment costs being a barrier, despite having the support from management and organisational targets towards sustainability, with suppliers being the exception for this.

Upfront Investment Costs
- Part_2:Brand Owner
"So now the shift is to get to what they call mono-polymer structures… have one type of plastic… But the moment you start doing that, you need to consider the filling machine".
- Part_5:Supplier (L)
"So, I have a solution that suits them, but they do not necessarily have the equipment. They're highly invested in other technologies, and for them to change has a negative effect on their business. So, they don't necessarily push those solutions onto brand owners because it doesn't suit their business."

- Part_9:Producer
“But from a CAPEX and capital and being positioned in South Africa, that old balance of cost of economy. And because of the consumption versus a big capital investment revenue. We have to ratio it in terms of the speed to get there.”
- Part_10:Supplier (I)
“If you’re looking at the negative aspects and negative drives. I think certainly number one is economics, in terms of the system. So, the system is not reacting positively, is reacting against these new things because the system has a lot to add, a little bit to gain. And the gain will be in the future. The loss is not.”

Lack of Management Support

As all the participants held leadership roles within their organisations, mentions of management by the participates emphasised those in executive-level managers, the boards of the organisation, as well as the international head offices of the multinational corporations.

Level of Management
- Part_1:Convertor
“Ethically we, just our management at our organisation, never mind the bigger corporate….”
- Part_2:Brand Owner
“And you’ll see recently, the CEO said…”
- Part_6:Procuder
“So, for the entire organisational because it’s a multinational….”
“And those initiatives are most certainly driven by Head Office.”
- Part_11: Convertor
“Okay, so we’re global, obviously, and it’s driven by our global strategy…”

The researcher noted that there was no mentioned of the lack of management support being a barrier or hindering factor towards sustainability and circular economy. All mentions relating to management support was positive by nature.

Lack of Management Support
- Part_4:Brand Owner
“Look, I think we are quite a lean manufacturing operation, and they give us quite a lot of flexibilities in terms of move. So, there’s clear support from the top to the bottom, that is something that we need to do.”
- Part_9:Producer
In our organisation, currently, I think there is no barriers in terms of solutions. I think the support is there. .”
- Part_10:Supplier (I)
“If you’re looking at the negative aspects and negative drives. I think certainly number one is economics, in terms of the system. So, the system is not reacting positively, is reacting against these new things because the system has a lot to add, a little bit to gain. And the gain will be in the future. The loss is not.”

Despite there being no mentioned of lack of management support directly from the participates, it is important to note that although the support by management is there, all of the participants mentioned high investment costs, high costs of sustainable resources, and lack of technology and skills as internal barriers. Investments into solutions to deal with these barriers is made at upper management level, thus indicating while there appears to be support from management, the support could in fact be limited or lacking. As the researcher is unable to verify this through the data gathered, the researcher will be taking the information gathered at face value.

Shift in Focus to Other Factors

Other factors, such as human health and impacts on finances, are mentioned frequently amongst the Brand Owners, Suppliers, and Producers and there was little deviation between the three organisation groups. Deviation in mention frequency between the three organisation groups and the Converters was significant and noted by the researcher. The impact of the Covid-19 pandemic has impacted various organisations and the drive towards sustainability. The impact of the pandemic not only affected human health, the performance of companies through production and sales, but also severely impacted the global supply chain. As a result of the disruptions in the supply chain, the availability of raw materials and consistency of supply have been negatively impacted, thus placing pressures on organisations.

Shift in Focus to Other Factors
- Part_4:Brand Owner
"It has been relatively slow in our opinion, in my opinion largely due to numerous factors. Covid has played a big part in this change, as well as some financial implications, not necessarily are the sustainable materials more competitive and playing in a business that is really dealing with commodity type of products in some cases".
"The other barrier internally is really, again, we deal with a lot of sales and business people in our business. And ultimately at the end of the day, you if it doesn't make a sale… That's the reality in our marketplace we are here to make money…"
- Part_6:Producer
"Then enter Covid and the entire thing [focus on sustainability] changes all over again, because were seeing sustainability for the environment is almost taking second place now to sustainability for humas."
"I do think that the global disruption of Covid and the supply chain mismatch in terms of shipping is most certainly hindering what you want to do".
- Part_10:Supplier (I)
"*the companies didn't really go after that (alternative solutions) because it's not the right time to do that. Right. I would say the right economic time due to the pandemic*."
- Part_11:Producer
"Now with the additional work, we are working on a four-shift system. And to be honest we actually just don't have the time, and we don't have the resources because the resources are all being positioned."

High Costs of Sustainable Resources

The most frequently mentioned internal barrier across all organisation groups was the high costs of sustainable resources. The researcher also found that this category had the smallest deviations levels across the four organisation groups, although it was noted that the suppliers had the most frequent mentions of this category. Despite there being a global drive towards alternative solutions for more sustainable products, the supply and demand for such solutions are still relatively limited, resulting in low economies of scale in production, therefore resulting in higher prices.

High Costs of Sustainable Resources
- Part_1:Convertor
"A big factor in South Africa is a lot is available, but it's the cost."
"Because it is more expensive there is a cost to it. And that is, we can't get away from it. There is a cost to that, it just is what it is."
- Part_2:Brand Owner
"Sometimes, recyclable packaging is expensive, and you're packing a commodity product. You need to look at it and say, if I put it in this recyclable packaging, I'm going to be uncompetitive in the market..."
- Part_4:Brand Owner
"The second major hurdle is obviously, as I touched on, is the commercial aspect of it. It is very difficult in a segment where you are participating in commodity FMCG goods to pass on significant increases when you see a market not moving…"
- Part_5:Supplier (L)
"External barrier, I would say, is price sensitivity. So, a lot of brand owners are price sensitive."
- Part_8:Supplier (I)
"External barriers. Number one is cost, without a shadow of a doubt."
- Part_9:Producer
"To be honest, you know, now after this time, procurement was all about price, price, price."
- Part_11:Convertor
"External barriers, very much is cost. Anything sustainable is going to be a lot more expensive. And that's just the reality."

Lack of Skills and Technology

The final internal barrier to be explored is the lack of skills and technology within the organisation in the supply chain. All organisation groups mentioned the lack of skills and technology as an internal barrier, as well as an external barrier by a brand owner. This category had some deviation in the frequency between the groups of Brand Owners and Convertors and Producers and Suppliers. The researcher also noted that there were similarities in the data in the brand owners, convertors, and producers based in South Africa as the organisations did not have the capabilities, either technologically or

financially, to develop the necessary skills and technology. As a result, these organisations were reliant on other organisations within the supply chain to develop solutions and alternatives.

Lack of Skills and Technology
- Part_1:Convertor
"Yeah, I mean, we can't go invent. We don't have the size and the R&D to go and invent our own product or our own material".
- Part_4:Brand Owner
"So we probably don't have the development and the skill that would, that will develop these new materials."
"As I say, we are not going to go and invest in R&D."
- Part_8:Supplier (I)
"But the cost of research and development of sustainable products is not cheap. It's not cheap at all."
- Part_9:Producer
"And I think it's the lack of, the cost is one thing and in borrowing technology from abroad…"
"So, because also we don't have accessibility to home solutions, and we are borrowing…"
- Part_12:Brand Owner
"I would say, if you look at South Africa as a whole, from a technological point of view, there are external barriers that prevent it. I don't think that we are on the same level at the level that most developed countries are at the moment."

5.4.2. Cross Case and In-Case Analysis of Internal Barriers

Upfront Investment Costs

Data gathered during the interviews had three organisation groups mentioning that the high investment costs required to update technology or conduct R&D was a barrier to organisations within the supply chain becoming more sustainable. Producers noted that despite the organisation's drive towards sustainability and circular economy being located in South Africa meant that the organisation had to balance a big upfront capital investment and the size of the South African market and how long it would take them to recuperate the cost. While the suppliers do not require investment in technology due to the nature of their business, the participants from the suppliers did mention that other organisations within the supply chain were reluctant to invest as organisations. Reasons for this was the organisations having already invested heavily in their current technology as well as investments costing capital now, whilst returns would only be found in the future.

Lack of Management Support

Participants across all organisations did not mention that lack of management support was an internal barrier within their organisations. Though, when analysing the other

internal barriers, such as high upfront investment costs, high costs of alternative resources, and the lack of skills and technology were mentioned as barriers. All participants across the organisation mainly commented on management support as being an internal driver, as all management were supportive and had implemented initiatives and practices within their organisations.

Shift in Focus to Other Factors

Participants across the brand owner, supplier, and producers found that due to recent global events, such as the Covid-19 pandemic. The pandemic was found to have a profound negative impact on the global supply chain, leading to long delays in shipments due to mismatches in supply and demand, reduction in sales due to government-imposed lockdowns, focus shifting away from alternative solutions. In addition to the Covid-19 pandemic, during 2021 South Africa had nationwide civil unrest, through riots and looting, which negatively impacted a number of organisations, including some in the flexible packaging supply chain. With a major organisation in South Africa being raised to the ground, other convertors were required to supply the missing quantities, which shifted their focus from conducting trials on sustainable options to producing packaging to meet brand owners and retailers' requirements.

High Costs of Sustainable Resources

There were similarities across the organisation groups with the higher costs of sustainable researchers being the most frequently mentioned category. The higher costs meant that all organisations were impacted on a commercial side and by procuring higher costs materials, organisations were running the risk of losing business to other organisations. This was most prominent amongst the brand owner organisations who were supplying commodity goods into the market. An interesting note was the difference between the suppliers and one Convertor participant, and the other organisation groups, as the suppliers viewed the higher costs of sustainable resources as an external barrier, whilst the others saw the higher costs as internal barriers. For this research high costs of sustainable resources have been categorised as an internal barrier and therefore will be treated as such.

Lack of Skills and Technology

Locally based organisations, across the organisation groups, found that they were dependant on other organisations within the supply chain, mostly international, to develop alternative solutions as the organisations themselves lack either the

technological or financial capabilities to do so themselves. This was evident amongst the participants within the convertor group where they lacked the R&D capabilities locally, and either relied on their global units or the supply chain to provide solutions. This was similar to the experience of one of the brand owner participants whose organisation does not have the R&D and skill to develop new products, and as a result the organisation has adopted a follower role within the supply chain. The suppliers group also mentioned that the cost of R&D as being a high and therefore it acts as a barrier. The producers group relied on borrowing technology from abroad, either through the supply chain or from their international compatriot organisations, due to the lack of skills and technology available locally in South Africa.

5.4.3. Conclusion on Internal Barriers

This section analysed the data gathered from the participants focuses on the internal barriers that were hindering adoption of sustainability and circular economy based on the experiences of the participants. Analysis of the data identified five categories of internal barriers across the four organisation groups, namely; upfront investment costs, shift in focus to other factors, high costs of sustainable resources, and lack of skills in technology. The researcher noted that there were some deviants between the converters and the other groups in relation to the categories of upfront investment costs and shift in focus to other factors.

The other three groups mentioned that the impacts of Covid-19 on human health and global supply chain and the recent civil unrest around South Africa all of which have slowed the sustainability agenda and switched focus slightly away from sustainability and circular economy. The evidence also showed that the industry in South Africa lacks skills and technology to quickly adopt sustainability, and the organisations rely heavily on developments from overseas. There was little deviation noted amongst the other categories across the four groups. As with the previous sections within Chapter 5, in-case and cross-case analysis allowed for data triangulation.

In concluding this section the following internal barriers were identified and will be carried forward for analysis in Chapter 6; (1) upfront investment costs, (2) shift in focus to other focus, (3) high costs of sustainable resources, and (4) lack of skills and technology.

Table 10: Internal barriers from findings

Internal Barriers
(1) Upfront investment costs
(2) Shift in focus to other factors
(3) High costs of sustainable resources
(4) Lack of skills and technology
~~***(5) Lack of management support***~~

5.5. External Barriers towards Sustainability and Circular Economy

The following discussion is focused on the fourth sub-theme of external barriers currently being experienced by the participants within the South African supply chain. The question was designed to uncover insights, based on participants' experience, to the external barriers that were impacting their respective organisations adoption of sustainability and circular economy. The heat map in Table 11 shows the frequency of the first order categories mentioned by the participants during the interviews. As with the categories relating to internal drivers, the researcher noted that there was difference in the frequency in which the categories were mentioned by the respective organisational categories (Table 11).

Table 11: Heat map of external barriers

	Brand Owners	Convertors	Producers	Suppliers	Totals
Enforcement of legislation is important	1	0	5	9	15
Availability of Alternative Resources	8	4	6	15	33
Lack of ability to recycle	15	7	14	10	46
Lack of Collaboration in Supply chain	16	9	23	10	58
Lack of knowledge about sustainability	15	12	22	13	62
Totals	55	32	70	57	214

To understand the responses of the participants experiences relating to their perceived external barriers, the researcher will undertake and analyse, both in-case and cross-case at paragraph 5.5.2., to assist in building integrity of the data through triangulation.

5.5.1. Evidence of External Barriers

Enforcement of Legislation, Regulations, and Standards

With the imminent implementation of the EPR legislation in South Africa by government, there were similarities between three of the four organisation groups with only the convertors having no mention of the enforcement of legislation. It was noted that while types of enforcement of legislation, such as costs due to levies or fees, were mentioned on several occasion by participants, the mentions were predominately about the implementation itself rather than enforcement being a current barrier. It was noted that there were questions raised as to how the EPR regulations would be monitored and enforced, however there was mentions that the EPR will be an external barrier on organisations if not enforced and implemented effectively. Participant's responses relating to enforcement of legislation, had focus being on the future enforcement of the EPR, rather than current enforcement. Examples from enforcement from the UK were given as an example by one participant.

Enforcement of Legislation, Regulations, and Standards
- Part_4:Brand Owner
"The million dollar question I think you are probably alluding to is how long would this take?... It'll all be dependent on how our brand owners own up to this. How well the regulations are policed?"
- Part_8:Supplier (I)
"Government's influence on what happens. They can, and have for example in the UK, taking action to force people into making some changes. And how have they done that? They put a tax on plastic of X amount per ton of film you process."
- Part_9:Producter
"So with that (EPR) coming into law into November, it'll basically force the entire supply chain to basically hold each other accountable. So that is basically what's going to happen."
In talking about implementation of EPR. *"But some of the sustainability will also exclude some of what is happening now. And I think that is a threat, in my opinion. That's going to slow down and be a barrier for us to move faster."*
- Part_11:Convertor
"This [EPR] was supposed to be legislated two years ago. That the legislation is just so poorly put together, and it's very dictatorial. The government's not being very consultative."
"So I think it's going to be driven and has to go, but I think there's going to a lot of resistance."
"But there is no commitment to actually giving orders at this stage. They [customers] are all sitting on the fence waiting for the legislation to hit and see what the cost of the legislation means if you don't comply".

Availability of Alternative Resources

All participants had similarities in their responses regarding the limited availability of alternative, sustainable or recycled, resources. This is evident in the higher costs of

sustainable resources and lack of economies of scales as discussed in sections 5.4.1. and 5.4.2. Despite the drive towards sustainability within the various organisations in the supply chain, the recent Covid-19 pandemic and disruptions in the global supply chain appear to have impacted the pace through which organisations are becoming more environmentally sustainable as availability of resources have been impacted due to disruption in the global supply chain. It was also noted that the availability of recycled material for production in a circular economy is restricted due to geographical limitations and the additional costs to ship recycled material back to producers.

Availability of Alternative Resources
- Part_4:Brand Owner
"I think the main one is really this, the supply of materials that, that are conducive to sustainability. You know in areas where we would like to proceed with change in material substrate, access to that material is limited."
- Part_5:Supplier (L)
"I'm very aware of some of the products we bring in that are not currently recyclable or compostable, and they are very, very difficult products to find solutions for… ."
- Part_8:Supplier (I)
"But the geographical issue is how do you then get that material [recycled] back to the very first level of the supply chain, which is the resin manufacturer? If the resin is coming from, well it could come from anywhere, from the Middle East… then you're creating extra costs within the supply chain of returning it."
- Part_9:Producer
Talking about external barriers; *"And I think the cost is one thing and in borrowing technology from abroad and the availability of alternative solutions in the African or the Southern African [continent]."*
- Part_11:Convertor
"We are having a lot of trouble trying to get raw materials, and to get such chemicals and substances to South Africa."
"And the cost of doing business at the moment in South Africa is escalating and that's just before we even start talking about sustainable solutions."

Lack of Recycling Infrastructure

The category has strong similarity and frequency amongst the participates regarding the lack of sufficient recycling infrastructure in South Africa, as well as globally as mentioned by Part_8:Supplier (I). The lack of an adequate recycling infrastructure directly limits the adoption of a circular economy, which is the goal of the EPR legislation. As mentioned by numerous participants, even if material is recyclable and sustainable, if the infrastructure is unable to deal or cope with the recyclable waste, it will still end in landfill. The brand owners also commented that it was difficult to make certain packaging recyclable due to different substrates being used in the packaging.

The researcher also noted that there was little to no deviation with regards to this external barrier.

Lack of Recycling Infrastructure
- Part_1:Convertor
"if you don't have the infrastructure to prevent the litter getting into rivers and stream and that, it's still going to happen."
- Part_2:Brand Owner
"But recycling flexible packaging is a huge challenge, even it if is recyclable. Of all the bread bags produced annually, probably only 20% of it is being recycled. It's fully recyclable, but the infrastructure is lacking."
- Part_3:Producer
"That lack of infrastructure in South Africa. Infrastructure being collection points, recycling plants, distribution plants that recycled, downstream manufacturing operations that do something to the recycled material."
- Part_4:Brand Owner
"We noticed that there may be a lot of sustainable materials that may come into the country, but we are not geared up from a waste stream perspective."
- Part_5:Supplier (L)
"I think the other limitations is that, certainly in South Africa, we don't have a strong enough recyclable industry or recyclability industry that can manage the waste."
- Part_6:Producer
"The challenge in South Africa is we don't have the correct recycling streams...."
- Part_8:Supplier (I)
"So the infrastructure to create the recyclable process is also a major factor in my opinion".
Talking globally: *"It's like I said, there is no infrastructure in place yet to fully recycle those kinds of products."*
- Part_9:Producer
"So, where we are, in South Africa, is that we don't have a collection system or it is immature."
- Part_11:Convertor
"Okay the objective really is to make everything recyclable at least or recycle ready, is the buzzword currently, because we don't have the capacities yet in our recycle structures in the country to handle all these things."
- Part_12:Brand Owner
"Primary packaging [in direct contact with the product] is a bit more complex to get to recyclable levels."
Speaking on multi-layered constructions: *"So, it's very difficult to make those four layers 100% recyclable. So, we are looking at options to remove, perhaps the aluminium barrier laminate."*

Lack of Collaboration within the Supply Chain

There were general similarities in the responses of the participants against there being a lack of collaboration within the supply chain, with collaboration amongst organisations

within the supply chain being frequent. There was some deviation in the frequency of mentions of this category across the organisations. Analysis of the data within this category shows that the organisations have been working together with other organisations within the supply chain and were driving sustainability together. It was noted that one organisation, although they were supplying sustainable products to the retailers, would hand over responsibility to the retailer in relation to the lifecycle of the product.

Lack of Collaboration within the Supply Chain
- Part_1:Convertor
"So, what we've done is we've partnered with one of the global guys. We get the backing paper, when we deliver, we collect the backing paper. We compact it, we send it off to X when they deliver to us. So, we have carbon neutral transport structure."
- Part_2:Brand Owner
"We are founding members of the South African Alliance to end plastic waste. We join all the PROs (Producer Responsibility Organisations) for various plastics. We contribute and sit on those platforms."
"And also, we'll see our supply chain coming forward with solutions, always greener solutions."
- Part_3:Producer
"We did a project with a local convertor, because just before Covid-19, that was two years ago, where we put up waste collection points within the local communities. We then collected the waste. We had it recycled. We made it into school furniture…"
- Part_4:Brand Owner
"Having said that we would adopt a follower strategy within the partnership with our supplier, who are taking the active lead in the development of these type of materials."
- Part_5:Supplier (L)
"So, those are the external drivers that are driving behaviour in my customers, and their customers, and also our suppliers. It's driving their behaviour, and we're driving, pushing back on our suppliers and that's the solution we're looking for."
- Part_8:Supplier (I)
"So, that again, you work with your machinery suppliers, for them to provide equipment that uses less energy to produce the same amount of material."
- Part_9:Producer
"So, in terms of the outcomes. What I'm anticipating that our procurement of raw material, will put back pressure on suppliers, and it'll be a domino effect of what they need to do, to contribute to the circular economy and green up and be more accountable for what they supply us."
- Part_10:Supplier (I)
"So, we also have to change the way we're doing things and helping customers (convertors) that were manufacturing those products in finding different solutions."
- Part_11:Convertor
"But the other thing that's also very interesting and quite unique effect in this country is that we work as a network within our competitors, and our suppliers. And to be honest, there's a lot of flexibility in the supply chain and there's a lot of networking…"
- Part_12:Brand Owner
"We do highlight to the retailers that look, even though we are supplying the recyclable packaging, please note that the ownership is on them to recycle it further, and ensuring the circular economy is effectively their responsibility."

Lack of Knowledge about Sustainability and Circular Economy

This category was the most frequently mentioned category in this research. Although the amount of frequency is not seen as a measure of importance, the number of mentions is useful as a guide when analysing key insight, and highlights that this was an area of similarity. The lack of knowledge about sustainability and circular economy is seen as an important external barrier towards the circular economy and is something that the participants of this research agreed was a key area to address. The data analysis showed that the lack of knowledge was not only limited to consumers, but to organisations within the supply chain as well. The lack of knowledge found in the data ranged from consumer's lack of understanding of the types of packaging used, the difficulties in recycling multi-layered packaging, to the lack of consensus as to what sustainability is.

Lack of Knowledge about Sustainability and Circular Economy
- Part_1:Convertor
"So, the biggest challenge for me is that lack of knowledge within the consumer".
Talking about multi-substrates: *"I mean the biggest barrier for us is, you know, I mean you'll get a customer that will put a biodegradable label on a glass bottle."*
- Part_2:Brand Owner
"The ordinary man on the street doesn't know polyester from polyamide, from foil, from propylene. They don't know, it's complex. Into landfill."
"I still try and explain to people that the little triangle that you see on a pack with a number in the middle, that people so regularly call a recycling code. It's not the recycling. It's a material identification code, it merely identifies what kind of material that pack is made of."
- Part_3:Producer
"I must point out that there is some ignorance in the market in terms of what is sustainable and what is not sustainable. What is recyclable and what is not recyclable."
"You know, sustainability can increase the carbon footprint. If you have to go through various processes. People are not aware of that."
- Part_5:Supplier (L)
"In our markets in Southern Africa and especially in Africa, there are a lot of illiterate people. So, any changes to the brand, there's a lot of brand sensitivity. So, the smallest change can make an impact on someone's sales…"
- Part_6:Producer
"In my opinion, the industry is quite confused [about the definition of sustainability]… It is immensely broad, the word sustainability."
- Part_8:Supplier (I)
"I think that the ultimate outcome, from my own personal point of view, and is I think is consumer education on recyclability…"
- Part_9:Producer
"Even in the flexible packaging market, whatever you're going to be doing, the flexible marketing, the clarity of label, and the education and the communication is not there. It's going to fail, it's going to fail."
- Part_12:Brand Owner

"Bu a large proportion of the consumer base in South Africa, may not be aware [of a products recyclability]. For them it's wherever they dispose of it, is where they dispose of it. So that is also an external barrier that might hamper us to get there."

5.5.2. Cross Case and In-Case Analysis of External Drivers

Enforcement of Legislation, Regulations, and Standards

The Convertor group placed emphasis on the potential issues forcing the enforcement of the EPR legislation once it is implemented into law and cast doubt on whether organisations within the supply chain will actually comply. The Brand Owners appear to have similar views regarding the uncertainty of how effectively the legislation will be adopted by organisations and enforced by government. Participants from the Suppliers, have the belief that there will be increased levels of accountability across the supply chain with different organisations holding one another accountable.

An interesting insight from Part_12:Brand Owner was that their organisation believed that responsibility of a product passed onto the new stakeholder, the next organisation down the supply chain, once the product had been sold. Whilst the organisation itself could comply with legislation; the passing of ownership also goes against organisations holding each other accountable as mentioned by other participants. Additionally, although responsibility has been passed onto the retailer, the packaging still would be directly linked to the brand owner organisation and not the retailer.

Availability of Alternative Resources

The Brand Owner and Convertor groups had similarities in response as they pointed out that outside the limited availability of alternative resources, Covid-19 and the global supply chain disruptions has led to resource availability being limited in general. Additionally, the limited availability and increased shipping costs has led to the costs of business in South Africa rising significantly, even before the additional costs of sustainable resources are included. The Supplier and Producer groups had similar discussion points regarding the availability of sustainable resources being limited due to geographical reasons, ranging from availability of recycled content for production or the general availability of alternative solutions in South Africa. The researcher did note however, that there were similarities in the participants responses, that the availability of alterative resources was an external barrier that hindered the ability of organisations to become more sustainable and adopt a circular economy.

Lack of Recycling Infrastructure

The researcher also noted that this concept was found to have the least deviations so far out of all the previously discussed concepts or categories. All organisation groups had similarities in their experience that South Africa currently lacked infrastructure to recycle material that was generated within the market. While the EPR legislation is designed to address this issue, the current lack of infrastructure means that although there are sustainable or recyclable options currently available within the supply chain, these materials would ultimately still end of in landfills or as pollution on land or in the rivers and oceans. Part_8:Supplier (I) commented that there was a lack of infrastructure globally to fully recycle materials back into the system.

Lack of Collaboration within the Supply Chain

Predominantly the researcher found similarities across all participants and organisation groups within the research. From the data analysis, it was found that organisations in South Africa frequently cooperate with other organisations within the supply chain to not only drive sustainability, but also ensure availability of material to supply, as shown by the experiences of Part_11:Convertor. The one difference that was noted was the experiences of Part_12:Brand Owner, whose organisation was of the opinion that once a product is sold to a retailer all responsibility relating to recycling and circular economy passes onto the buyer. This is the complete opposite to the practices being implement by Part_1:Convetor's and Part_3:Producer's organisation, who are working with their suppliers and customer to have material returned through the system so that it could be manufactured into a new product and supplied back into the community.

Lack of Knowledge about Sustainability and Circular Economy

Participants across all the organisation groups mentioned the importance of improving the knowledge about sustainability and circular economy as a key point that required addressing in order for a circular economy to be successful in South Africa. Part_1:Convertor highlighted that there have been occasions where organisations have placed sustainable labels on a different substrate (glass), which requires separation, otherwise it is seen as unrecyclable or effects the biodegradability. This point links back to the difficulty in recycling multi-substrate packaging. The point by Part_2:Brand Owner regarding the product identification code was noted by the researcher as this, as stated by Part_2:Brand Owner, would lead to the packaging been viewed as recyclable when the packaging is not and is a source of confusion amongst consumers. As a result these

types of packaging to be incorrectly thrown away, resulting in complexities at recycling. A final point noted was the lack of definition amongst organisations mentioned by Part_6:Producer as to the meaning of sustainability, as different organisations defined sustainability in different ways, with recyclability and carbon footprint being used as examples.

5.5.3. Conclusion on External Barriers

This section analysed the data gathered based on the experiences of the participants as to the external barriers that were hindering the adoption of sustainability and circular economy within the supply chain. The data analysis looked at the five main categories, or external barriers, across the sub-theme of barriers. According to the evidence the major barriers outside the supply chain were found to be the lack of knowledge about sustainability, both amongst consumers and organisations, the availability of alternative resources, lack of ability to recycle, and the enforcement of legislation. It was noted that there did not appear to be a lack of collaboration in the supply chain from the experiences of the participants, with only organisation showing decreased levels of collaboration.

Therefore, through triangulating the data across the four organisation groups the following external barriers will be carried forward for analysis in Chapter 6; (1) lack of knowledge about sustainability, (2) the lack of availability of alternative resources, (3) lack of ability to recycle, and (4) enforcement of legislation. Based on the evidence found within the data analysis, the researcher will remove lack of collaboration as a barrier to sustainability and circular economy.

Table 12: External barriers from findings

External Barriers
(1) Lack of knowledge about sustainability
(2) Lack of availability of alternative resources
(3) Lack of ability to recycle
(4) Enforcement of legislation
~~**(5) Lack of collaboration within the supply chain**~~

5.6. Internal Practices Towards Sustainability and Circular Economy

The penultimate sub-theme discussed focused on the internal practices within the organisations and their supply chains that were aimed at addressing the various drivers

and barriers discussed during the interview process. The participants of the research were asked as to the practices that they experienced internally.

The frequency of the first order categories is illustrated in the heat map as seen in Table 13. The producers' group had the highest level of mentions relating to internal practices while practices aimed at shifting from a linear to circular economy where the most frequently mentioned across all organisation groups and had the least deviations.

Table 13: Heat map of internal practices

	Brand Owners	Convertors	Producers	Suppliers	Totals
Cooperation with other organisations	14	10	19	8	51
Knowledge and education about sustainability/3Rs	7	12	21	13	53
Production Eco-Efficiencies	15	14	28	26	83
Shift from Linear to Circular	23	21	23	30	97
Support and Initiatives from Management	2	4	8	6	20
Totals	61	61	99	83	304

To understand the insights of the participants experiences in relation to the categories of this sub-theme, the researcher conducted an in-case and cross-case analysis of the categories mentioned by the organisation groups to assist in data triangulation.

5.6.1. Evidence of Internal Practices

Eco-Efficiencies in Production

All organisation categories referred to practices that were aimed at not only improving production efficiencies but also through ecological and sustainable means. Practices relating to improving eco-efficiencies was the repeatedly mentioned by the participants and showed only a small amount of deviation in mentions. The eco-efficiencies mentioned by participants did however vary as to how each organisation group was able to or was looking into improving efficiencies.

Increasing Eco-Efficiencies in Production
- Part_1:Convertor
"So, the global raw material guys that we, 80% of our own supply is from them. They have obviously got massive targets."
Talking about sustainable solutions in packaging and reducing packaging size*. "Yes, this packaging is going to be a little more expensive. But maybe we don't have to have 100mm (millimetres) by 100mm. Let us maybe have it 80 by 80."*
"Yeah so we will be looking at going ISO 14000 now, along with all the other different certifications. We should have been it already by now, but I mean with ISO 1000, ISO 22000, FEC, there's a lot that you got to get".
- Part_2:Brand Owner
"We've got a target that by December 2022 all our packaging needs to be recyclable. So, over and above of moving and finding solutions for flexible packaging specifically, we also need to find that by December 2022."
- Part_3:Producer
"In terms of the manufacturing process, it is already sustainable. So for instance, when BOPP is being made, part of the process involves trimming the jumbo reels which are eight and a half meters wide. And that trim goes straight back through a regrinder and back into the process.."
So, in terms of receiving raw materials, the raw material granules, or pellets. They are now all packed in recyclable type bags, or reusable type bags that previously were non-existent.
"In the printing process, there's a trend to reduce from eight-colour to a four-colour type print, using four colours to make up eight colours."
- Part_6:Producer
"Well then, there's a couple of projects that we are working on internally that would drive down our requirements power. That would reduce our carbon footprint. That would drive down our use of municipal water."
- Part_8:Supplier (I)
"So, you know, there are continuous research going on to see what, if anything, hey can do to contribute towards the inclusion of recyclable material."
"So, I think the issue of production efficiencies, is an ongoing topic. And in fact, probably a never-ending topic."
"So that again, you work with your machinery suppliers, for them to provide equipment that uses less energy to produce the same amount of material."
- Part_11:Convertor
"Again, so what you're going to find I think, maybe, is packaging will get smaller… the pack is like five grams smaller and the customer doesn't really know.."

Cooperating with Other Organisations Within the Supply Chain

Participants from the organisations interviewed during the interview process all had similar comments in relation to the practices dealing with cooperating with other organisations within their supply chain. This practice was mentioned regularly frequently across the various organisation groups, with the level of frequencies being relatively consistent. Data gathered from the interviews showed that organisations within the supply chain have begun cooperating with other organisations within the supply chain to improve the level of sustainability and practices towards a circular economy.

Cooperating with Other Organisations Within the Supply Chain
- Part_1:Convertor
"And we will say that we are the first company in South Africa to recycle the backing paper. So, what we've done is we've partnered with one of the global guys. We get the backing paper and when we deliver, we collect the [used] backing paper. We compact it, and we send it off to (our supplier) when they deliver to us."
"So, we've undertaken initiative now with one of our retailers, where we are absorbing the costs, because we think it is the right thing to do. Whereas, if the guy doesn't care about it, I'm not going to be the nice guy who becomes a little bit more scrutinised."
- Part_2:Brand Owner
"We have joined all the PROs (producer responsible organisations) for various plastics. We contribute and we sit on those platforms and those meetings, and those organisations where we can make a difference."
"So, suppliers will always offer you the bad one, but will always say to you, we've got this one. This one is made of this, this, and this, and then that. And so, we'll see our supply chains coming forward with solutions, always greener solutions."
- Part_3:Producer
"We did a project with AMCOR. Because, just before Covid, which was two years ago, where we put up waste collection points within the local community."
"so we've now got little businesses that, not (ones) we've set up, but that we support them around the market collecting all of our consumable waste and returning it to us where we then clean it, or wash it, or reuse it, and put it back in the system."
- Part_4:BrandOwner
"There is a strategy we have put into place now to say, listen, we will go work with people and organisations, and suppliers that have much more knowledge and development platforms, and we will leverage off that, and that is our strategy."
- Part_5:Supplier (L)
"I'm engaging with and signing new NDAs and agreements with new suppliers that have solutions that can replace non-recyclable packaging solutions."
- Part_6:Producer
"In my opinion, the industry is quite confused [about the definition of sustainability]… It is immensely broad, the word sustainability."
- Part_8:Supplier (I)
"So that again, you work with your machinery suppliers, for them to provide equipment that uses less energy to produce the same amount of material."
- Part_9:Producer
"So, in terms of the outcomes, what I'm anticipating is that our procurement of raw material will put back pressures on suppliers, and it'll be a domino effect on what they need to do to contribute to the circular economy…"
- Part_11:Convertor
"By the other thing that's also very interesting, and quite unique in this country, is we work as a network with our competitors, and our suppliers, and to be honest, there's a lot of flexibility in the supply chain and there's a lot of networking."

Top Management Support and Initiatives

From data gathered within the interviews, there is an apparent similarity amongst organisations within the supply chain that there is support from the management within their organisations, be those international or South Africa based. Although it was noted

that this was not the most mentioned amongst the participants, there was very little differentiation in frequency across the organisation groups.

Top Management Support and Initiatives
- Part_1:Convertor
"But ethically, we, just our management at our organisation, never mind the bigger corporate, we believe it's the right thing to do…"
- Part_2:Brand Owner
"And you'll see recently, our CEO said that by 2040 we will be a carbon neutral retailer. By 2030, I'm going to have to halve the greenhouse gas emissions.
"Okay, so, I'll tell you we recently added targets that ended in December 2020, that means whenever we use paperboard, wood, or forest products, it needed to be sustainable sourced and certified."
"The organisation has a two-prong approach to it, which I have to conform to."
- Part_4:Brand Owner
"There's a clear direction from our regulation and our business and our marketing that we will do this. But there's clear support. ."
- Part_5:Supplier (L)
"I'm doing a lot of research on what is sustainable solutions. I'm engaging with and signing new NDSs and agreements…"
- Part_6:Producer
"And those initiatives are most certainly driven by Head Office."
- Part_11:Convertor
"Okay, so we're global obviously, and it's driven by our global strategy which aims to have everything mostly sustainable by 2025."
- Part_12:Brand Owner
"It's been sort of a mandate from the global c-suite to be fully recyclable by 2025."

Education on the 3Rs within the Supply Chain and Organisation

Evidence from the research found that multiple practices across the organisation groups towards educating people within their respective organisations and supply chains on the 3Rs of circular economy. As pointed out in the external barriers section this chapter, the participants found that there was a general lack of knowledge and understanding about sustainability. As a result, the participants made several mentions of their organisations taking it upon themselves to educate their employees and customers on sustainability and the 3Rs of circular economy. A participant from the brand owners as mentioned that there is a drive to raise awareness by including logos that highlight recyclability on packaging in the future.

Education on the 3Rs within the Supply Chain and Organisation
- Part_1:Convertor
"You know, just try and stay on forefront, and try and educate the customers. And the retailers know quite a bit, but then the smaller businesses, they're naïve to what is actually correct or not correct."

Talking about multi-substrates: *"I mean the biggest barrier for us is, you know, I mean you'll get a customer that will put a biodegradable label on a glass bottle."*
- Part_2:Brand Owner
"So more and more I spend time educating and aligning customers. I phone them up when they complain [about the sustainability of a product]."
"I still try and explain to people that the little triangle that you see on a pack with a number in the middle, that people so regularly call a recycling code. It's not the recycling. It's a material identification code, it merely identifies what kind of material that pack is made of."
- Part_3:Producer
"Do education roadshows when you go around to [pauses]. It's basically kids we try to educate. If you start getting awareness in kids it'll filter through. Then there's also the education of the various retailers so they understand what is sustainable, what is not sustainable"
- Part_4:Brand Owner
"Once we create a platform for our technologists to understand that every time they developed new product, let's try and make sure that they have access to the materials that have been now certified within the recyclable stream and within the circular economy that it is approved."
- Part_8:Supplier (I)
"And accordingly, you know, there has to be some real education at every step of the way to actually improve the environment."
- Part_9:Producer
"And then on a technical level, supporting sales and the customer base from a technical aspect in terms of legislation, and also to answer questions and to basically do a transfer of knowledge."
- Part_12:Brand Owner
"I think the new drive is going to be, there's going to be more FSC logos. You're going to see more on recyclable packaging."

Shifting from a Linear Economy to a Circular Economy

Results from the interviews showed that all of the participant's' organisations had similarities in their responses to the importance of developing sustainable a circular economy practices. The results showed that through different practices across the organisations that each organisation was adopting different practices to help them become more circular in their operations, be it through working with customers and suppliers, or the reusing of waste within their production.

Shifting from a Linear Economy to a Circular Economy
- Part_1:Convertor
"So, what we've done is we've partnered with one of the global guys, we get the backing paper, when we deliver, we collect the backing paper we compacted we send it off to Avery when they deliver to us so we have a carbon neutral transport infrastructure".
- Part_2:Brand Owner
"We've also got a target that by December 2022 all our packaging needs to be recyclable. So, over, and above of moving and finding solutions for flexible packaging specifically, we also need to find that by December 2022."

- Part_3:Producer
“In terms of the manufacturing process, it is already sustainable. So, for instance, when BOPP is being made, part of the process involves trimming the jumbo reels… and that trim goes straight back through a regrinder and back into the process.”
- Part_4:Brand Owner
“There is a strong momentum to reduce plastics, for example, and reduce the material usage and that has been a key start for now. “
- Part_5:Supplier (L)
I’m constantly looking and asking questions with my suppliers and even with customers, and people in R&D. What are the solutions? What could we do to find a solution?”
- Part_6:Producer
“we've had projects with Amcor, PepsiCo and us, where we have jointly agreed and copied fully printed the film, laminated the film and sent the film off to PepsiCo. PepsiCo made a whole bunch of chip packets out of that stuff. And those chip packs went out into the market, a whole bunch of those chip packets were brought back. Okay, was cleaned was put to a recycling system, and we made a whole bunch of educational tables for schools, so it can all be done.…”
- Part_9:Producer
“He said (CEO) we have to align production, procurement, as well as the product we put out [into the market] and take the responsibility and accountability to be answerable and have a lifecycle analysis of all our processes.”
- Part_11:Convertor
“The detail, the devil’s in the details. The details are slightly different, but I think it’s the same targets for everybody and our company is extremely focuses on.”

5.6.2. Cross Case and In-Case Analysis of Internal Practices

Increasing Eco-Efficiencies in Production

The analysis of the data found similarities amongst the different organisations the emphasised practices within their own industries or others towards improving eco-efficiencies during the production process across the various stages in the supply chain. Producers emphasised the increase in sustainable energy and water usage, through harvesting or reuse, as well as recycling waste trim back into the production process when possible. Similarities were also found amongst the suppliers, who represent a number of international producers into the South African market. The researcher did note that the convertors suggestions towards increasing eco-efficiencies was related to the size of the packaging currently being supplied in the market. Additionally, Part_1:Convertor has noted for being the only participant to state that their organisation was implementing practices within the organisation that would certify them in accordance with the International Organisation for Standardisation (ISO) for sustainability through ISO 14000. Although the brand owners did not necessarily have production or packing facilities of their own, their practices towards increasing sustainability has impacted the convertors, suppliers, and producers towards improving their own eco-efficiencies.

Cooperating with Other Organisations Within the Supply Chain

During the processing of the data from the interviews the researcher noted similarities in cooperation amongst organisations within the supply chain, though in differing ways. The Convertors and suppliers are partnering together to improve circular economy practices, whilst one convertor commented that they have established a unique network within South Africa amongst themselves and their competition to assist one another. The researcher did note that this was in relation to the availability of supply of raw material into South Africa, but also noted this could be expanded into the supply and availability of sustainable raw materials. Producers appear to be partnering with other organisations to improve waste collection for recycling, remanufacturing, or reusing materials within their organisation. Following analysis of the data gathered a major similarity that was found was that the various organisations across the supply chain would experience both a push and pull factor between their suppliers and customers. This was noted during the interview with Part_5:Supplier (L) who commented;

> *"So, I'm finding that part of the solution for us is to somehow combine push and pull strategy. So, pushing our solutions to brand owners, behind the scenes. And then also, while pushing it onto our printers [convertors], for example, and then pulling it through the brand owners and making them aware of the solutions."*

A possible unique point raised by Part_11:Convertor, was the mention that their organisation would work with their competition, and suppliers, within South Africa through a network to ensure the continuity of supply. The researcher notes this as a unique insight to be discussed further.

Top Management Support and Initiatives

During the analysis of the data, it was noted that there were similarities amongst and across the organisation groups in the initiatives of management to address sustainability. The convertors stated that although there was large support and drive within their larger organisations, either local or international, the management within their direct organisations were also actively involved themselves in driving sustainability. Producer participants also stated that their organisation had management support and that initiatives were implemented through the global head office. Brand owners also showed the organisation's support through the targets relating to procurement that had been set by management, as per the declaration of their CEO. While suppliers were largely reliant on the initiatives of other organisations within the supply chain to develop more circular

economy products, they too were found to be looking a new sources for alternative solutions, as mentioned by Part_5:Supplier(L).

Education on the 3Rs within the Supply Chain and the Organisation

There were similarities amongst the various organisation groups with all groups stating their actions towards assisting in educating their employees and customers. An international participant within the suppliers noted that education on the 3Rs was required across the supply chain in order to be successful in improving the environment and people's behaviours. Participants from the convertors and brand owners stated that they found that their customers were naïve as to what is actually correct or not correct with regards to sustainable practices. Another brand owner participant detailed that every time their organisation developed a new product their specialists would use a platform to understand the changes required in procurement which would work within the recycling stream and within the circular economy. A participant from the producers' role within the organisation was to support sales and their customers from a technical perspective by answering questions and transferring knowledge to the various stakeholders.

Shifting from a Linear Economy to a Circular Economy

The data gathered for the participants showed similarities both within and across the organisation groups towards adopting practices aimed at improving sustainability and moving towards a circular economy. There are similarities amongst the brand owner organisations as their focus is on removing procurement of unsustainable materials. The practices adopted by the producers were aimed at improving eco-efficiencies within their production processes by reusing trim waste and returning it back into production. Additionally, producers have partnered with other organisations within the supply chain to collect packaging from the market and remanufacture the packaging into other products which are then supplied back into the market. As brand owners determine the packaging used for their products and suppliers do not produce the material themselves, their practice is working together with their suppliers and customers to bring in sustainable packaging.

5.6.3. Conclusion on Internal Practices

This section concludes following with the analysis of the data gathered and triangulated both in-case and cross-case with the four organisation groups. Following the analysis on the internal practices that organisations are adopting to drive sustainability and reduce the barriers. Analysis of data identified five categories relating to internal practices, eco-efficiencies in production, cooperating with other organisations within the supply chain,

top management support and initiatives, education on 3Rs within organisation and the supply chain, shifting from a linear economy to a circular economy. This category was also noted as the most frequently mentioned. Practices aimed at shifting between the linear and circular had the least deviations amongst the four groups indicating that the all the groups were looking at adopting sustainability and circular economy. The researcher also noted that there were deviations between the brand owner and converter groups and the producer and supplier groups in relation to the production eco-efficiencies and support and initiatives from management. These deviations could be related to the position of the organisations within the supply chain. Further analysis will be done in Chapter 6 of this research.

Following the data analysis and triangulation for this section on internal practices, the following internal practices have been identified to be carried forward for further analysis in Chapter 6; (1) increasing eco-efficiencies, (2) cooperation with other organisations within the supply chain, (3) top management support and initiatives, and (4) education on the 3Rs within the organisation and supply chain, (5) Shifting from a linear economy to a circular economy.

Table 14: Internal practices from findings

Internal Practices
(1) Increasing eco-efficiencies
(2) Cooperation with other organisation within the supply chain
(3) Top management support and initiatives
(4) Education on the 3Rs within the organisation and supply chain
(5) Shifting from a linear economy to circular economy

5.7. External Practices Towards Sustainability and Circular Economy

5.7.1. Evidence of External Practices

The final sub-theme to be analysed is the external practices that were experienced by the participants in the development towards and adoption of sustainability and circular economy. During the interview process, the participants were asked about the practices they had experienced outside of their organisation and its supply chain. The data gathered from this question showed that there were some degrees of similarities across the responses of the different organisation groups, and that there were several occasions were deviations in frequency of mentions was noted.

The frequency of mentions for the external practices identified during the interview process are shown in the heat map in Table 15 below. Based on the responses from the participants the two most frequently mentioned external practices focused on consumer awareness and improving circular economy infrastructure. Bringing in the insights found in the external barriers, these two areas were mentioned as the two that needed to be addressed.

Table 15: Heat map of external practices

	Brand Owners	Convertors	Producers	Suppliers	Totals
Consumer Awareness	13	10	7	22	52
Establishment of Legislation, Policies, and Regulations	5	3	12	16	36
Improving Circular Economy Infrastructure	14	6	22	11	53
Incentives and Taxation to Enforce Legislation	5	3	12	16	36
Practices to Change Behaviour	4	5	7	9	25
Totals	41	27	60	74	202

Establishment of Legislation, Policies, and Regulations

Similarity was evident amongst all the participants in their comments relating to the establishment of legislation. This is likely due to the imminent implementation of the EPR legislation by the South African government, which is aimed at reducing the amount of non-circular economy and improving the circular economy infrastructure. It was noted that the implementation of the EPR legislation would drive organisations within the supply change their practices towards more sustainable and circular economy solutions.

Establishment of Legislation, Policies, and Regulations
- Part_2:Brand Owner
"I think the big thing that happened in South Africa is the introduction of a legislated extended producer responsibility (EPR) scheme that the government put in. It is now law."
- Part_4:Brand Owner
Talking about the implementation of EPR: *"I think, the fifth of November, if I remember clearly, is one of the clear paths that that is driving some of our change in our behavior as well as our thought process into within our development and our sourcing strategy."*

- Part_5:Supplier (L)
"The other buzzword that everyone talks about is EPR. And I'm getting letters from customers saying what are you doing about EPR?"
- Part_8:Supplier (I)
"And I think from an external, we would go to external again, the outcome is being driven by governments forcing the major food companies, the FCGs of this world, you know, big brands. You know, forcing them to look at these kinds of things."
- Part_9:Producer
"So, with that (EPR) coming into law in November, it'll basically force the entire supply chain to basically hold each other accountable."
- Part_11:Convertor
"I think it's basically a five-year plan. So, every year they're looking for a higher percentage of recycled, whatever the target is. They are targets set for industry. So, I think it's going to be drive and has to, but I think there's going to be a lot of resistance."

Incentives and Taxation to Enforce Compliance

Enforcement of legislation, policies, and regulations through incentives or taxation showed some deviation in terms of mentions between the various organisation groups. Producers and suppliers mentioned this practice more than the brand owners and convertors, which the researcher noted as the brand owners are responsible for determining the type of packaging that is used in their products. According to the experiences and knowledge of the participants the government is using taxations as the enforcement method towards the EPR legislation, with no incentives being mentioned in the interviews.

Incentives and Taxations to Enforce Compliance
- Part_2:Brand Owner
"You have to be responsible about the packaging that you use. All brand owners have to be, and they will pay fees based on the volume of packaging they use, and how recyclable is it. So, that is much needed. So, it's going to hurt brand owners and retailers."
- Part_4:Brand Owner
"And that's why, for me personally, I think the EPR regulations is needed and warranted and, unfortunately, these levies need to be mandated, because that's the only way these streams can be continually developed."
"There's a lot of questions that I said in some of these sessions with the CGSC for example. A lot of questions a smaller brand owner would ask. But you know, I would pay the levy, but you know my competitor may not be. How will you guys address that?"
- Part_5:Supplier (L)
"I have letters on my desk which I need to address, which is from suppliers, asking us about the EPR. So, I'm aware that we have to put in some compliance systems there."
- Part_8:Supplier (I)
"Government's influence on what happens. They can, and have for example in the UK, taken action to force people into making some changes. And how have they done that? They put a tax on plastic of X amount per ton of film that you process."
- Part_10:Supplier (I)
"…the industries didn't go themselves towards starch shopping bag, but the legislation was the drive."

- Part_11:Convertor
“I think it’s basic. So, every year they’re looking for higher percentage, recycled, whatever is a target. They are a target set for industry.

Changing Cultural and Societal Behaviours

All organisation groups noted the need for change within consumers, and society at large, in order to improve the circular economy within South Africa. There were few deviations across the organisation groups for this category noted by the researcher. When questioned on the external practices, Part_1:Convertor and Part_3:Producer has similar comments that currently it was unlikely that the a large part of the South African population would throw their waste into different bins like it is currently being done in countries such as Italy. Part_10:Supplier (I) noted that it was easy to throw all waste into a single bin, and that changing the behaviour is difficult and hinders a circular economy. Part_8:Supplier (I) commented that more publicity is being given to the waste in the oceans rather than the people who are littering.

Changing Cultural and Societal Behaviours
- Part_1:Convertor
“Whereas here, we don’t have any bins. We have one bin but then it gets sorted on the landfill.”.
“But, and I think it was this article, they said that less packaging means that doesn’t means that people that litter are still going to litter.”
- Part_2:Brand Owner
“The other thing was Sir David Attenborough brought that thing called Blue Planet. When he brought up Blue Planet Two, people started having an emotional attachment to the way, that David Attenborough described the ocean, and what is happening to our oceans, and global warming, and our plastic was affecting it. So, people have this attachment to it. That, you know, something needs to be done about it.”
- Part_3:Producer
“You know half our people [in South Africa] live in townships, and can you see the township people putting their waste in different coloured bins? It’s never going to happen.”
- Part_8:Supplier (I)
“And at the end of the day, you know, there is a massive amount of responsibility on the general public to improve recycling options. But to improve the end-of-life packaging disposal.”
“You know, there's plenty of publicity on the television, and newspapers about plastic bottles being washed up ashore on, on, beaches all around the world. And they seem to blame the plastic bottle rather than the person who put it in the ocean in the first place.”
- Part_9:Producer
“So, whether it's a Woolworths or whether it's a Checkers trying to get the burger interleaves, or the burger box, and if it's going to be collected, or the bottle, the plant bottle, and it was not labelled or etc, it's going to fail, it's going to fail if we don't get the entire process flow, the supply chain or collection separation and education and labelling.”
- Part_10:Supplier (I)

"It happens to me to visit countries where, even today, everything is thrown, every waste is thrown into the same basket [bin]. And this is very easy to do. So, to change this habit, it's certainly something that is preventing because it's more difficult. And then, for example to me that I'm used to separate the different things when I go to one of those countries."

Improving Infrastructure to Better Deal with a Circular Economy

There were some small deviations across the organisation groups, particularly between the producer group and the remaining three. The experiences of the participants in general highlighted that South Africa did not have adequate infrastructure currently to deal with waste and become a circular economy. It was noted that some participants did mention a number of small-scale projects that had been developed creating small-scale circular economies. Part_2:Brand Owner also highlighted that fees raised through the EPR legislation was not going to government, but rather would be paid to other organisational bodies to help to develop circular economy infrastructure and improve the waste management streams in South Africa.

Improving Infrastructure to Better Deal with a Circular Economy
- Part_2:Brand Owner
"Okay, I was talking about the Wildlands Trust, an NGO in KZN that has a small pyrolysis plant in operation to take packaging back into diesel. The make diesel out of it. And they put a charred brick or something that they make bricks for fires and things like that. But the diesel they use for the trucks for collecting packaging waste, for delivering various kinds of things.
"The nice thing about the EPR regulatory fees is not going to the government Fiscus, the government does not harvest it and therefore it's not called a tax, because the government is allowed to tax ordinary citizens, it's called a fee, and the fee will be paid to bodies that will ensure recycling infrastructure will be driven, buy back centres, and better management of waste will happen in South Africa."
- Part_3:Producer
"Africa doesn't have the infrastructure for that. So, if your question is purely around South Africa? I don't see it happening for many years. I see people dabbling in it, getting involved in, on a small-scale basis."
- Part_4:Brand Owner
"Obviously there's a long journey and there's a lot of investment in the waste streams that needs to be done."
- Part_6:Producer
"South Africa is nowhere near ready for that. It isn't going to happen here for a very, very long time because again you got multiple problems between the product leaving the shelf, and the product coming back to a recycler or to somebody who is scientifically able to engineer the form into a recycler, that can be used again."
- Part_9:Producer
"So in my opinion, and how I see it is that, and I see already happening, and we've experienced that already, is that technology that has been used traditionally for print is going to become, where they're going to seek technology to add functional coatings to take the substrate to, for it to become, to enter the circular economy in a way that it can be recovered, reused or recycled, biodegrade or biodegradable, or compostable for that matter."

5.7.2. Cross Case and In-Case Analysis of External Practices

Establishment of Legislation, Policies, and Regulations

Responses from the participants were similar both within and across organisational groups which is a result of the South African government's implementation of the EPR in November. The international suppliers also had similar statements relating to governments establishment of legislation, policies, and regulations as both the Italian and UK governments have implemented legislation aimed at addressing sustainability and the move towards circular economic practices. The researcher noted that although Part_11:Convertor agreed that the EPR legislation will be and has to be driven, that it could meet a lot of resistance. Additionally, the participant also commented that the EPR legislation was also drawn together will little consultation or input from the industry that is expected to drive and adopt the legislation.

- Part_11:Convertor
"This was supposed to be legislated two years ago, but the legislation is just so poorly put together, and it's very dictatorial. The government's not being very consultative. That the industry has had to drive from the industry side to try and make the legislation workable, to be honest."

Incentives and Taxation to Enforce Compliance

The researcher noted a deviation in the frequency of mentions between the producers and suppliers and the brand owners and convertors groups. Though the frequency of mentions does not indicate significance, it was noted due to brand owners being responsible for determining the packaging that is used in their products. The participants also indicated that legislation was focused more on taxation or levies than on incentives to enforce compliance of the legislations, policies, or regulations. In terms of incentives, the researcher noted that there was no mention of any incentives being unitised by government to enforce or encourage compliance. While The brand owners group did agree that the levies were necessary to further invest into and develop the circular economy streams, such as the recycling infrastructure within South Africa, it was noted that Part_2:Brand Owner did make mention that the EPR legislation would hurt brand owners and retailers.

Changing Cultural and Societal Behaviours

All organisation groups had similar experiences towards the need to change how society and consumers behaved in relation to waste of packaging. Part_8:Supplier (I) put

particular emphasis on the amount of responsibility that consumers held in the disposal of waste, with most of the media attention being focus on the packaging waste rather than consumers not correctly disposing it. While international countries have adopted different bins for the different types of waste, as mentioned by Part_10:Supplier (I), local participants from the convertor and producer groups said in their experience that such a solution would be unlikely to succeed. Their comments could allude to the experience of Part_10:Supplier (I) who noted that changing the behaviour in consumers was difficult. Without a change in behaviour within society, the development of a circular economy will be hindered and slowed.

Improving Infrastructure to Better Deal with a Circular Economy

As stated in the discussion of external barriers, there was similarities across the groups that South Africa currently lacked the infrastructure required for a circular economy. It was noted within the brand owner and producer groups that there were small-scale operations that had development circular economy practices and were reusing or remanufacturing waste. Although all organisation groups have knowledge of the EPR legislation, the researcher noted that only the brand owners mentioned that the fees generated from the legislation would be used by non-government organisations to further develop circular economy infrastructure in South Africa.

5.7.3. Conclusions on External Practices

This above section analysed the data gathered based on the experiences of the participants as to the external practices that were aimed at assisting in the adoption of sustainability and circular economy within the supply chain. According to the evidence, the major practices outside the supply chain practices aiming to improve recycling and circular economy infrastructure. It was noted that there did not appear to be a lack of collaboration in the supply chain from the experiences of the participants, with only one organisation passing on responsibility along the supply chain instead of collaborating. Therefore, through triangulating the data across the four organisation groups the following external barriers will be carried forward for analysis in Chapter 6; (1) lack of knowledge about sustainability, (2) the lack of availability of alternative resources, (3) lack of ability to recycle, and (4) enforcement of legislation. Based on the evidence found within the data analysis, the researcher will remove lack of collaboration as a barrier to sustainability and circular economy.

Table 16: External practices from findings

External Practices
(1) Establishment of legislation, regulations, and standards
(2) Improving circular economy infrastructure
(3) Incentives and taxation for compliance
(4) Practices to change behaviour

5.8. Concluding Remarks on Findings

In concluding this chapter, the findings and insights collected during the 11 in-depth, semi-structured interviews were detailed and presented. The below table provides details into the data structure and the progression of coding to first order categories through an inductive approach as well as the progression from the themes of drivers, barriers, and practices, to the second order themes through deductive mapping as described in Section 4.8 of this report.

The findings relating to the drivers, barriers, and practices, internal and external, from the participants were analysed through both in-case and cross-case to achieve data triangulation and culminated in the below categories being identified;

Table 17: All factors to consider

	Internal	External
Drivers	- Company brand - Costing savings for the organisation - Being ethical and responsible - Compliance with legislation, regulations, and standards - Internal organisational policies, strategies, and targets - Production efficiencies	- Availability of resources in the future - Actions of the competition - Consumer awareness - Legislation, regulations, and standards - Job creation
Barriers	- Upfront investment costs - Shift in focus to other factors - High costs of sustainable resources - Lack of skills and technology	- Lack of knowledge about sustainability - Lack of availability of alternative resources - Lack of ability to recycle - Enforcement of legislation
Practices	- Increasing eco-efficiencies - Cooperation with other organisations within the supply chain - Top management support and initiatives - Shifting from a linear economy to a circular economy	- Establishment of legislation, policies, and regulations. - Enforcement of legislation - Improving circular economy infrastructure - Practices to change behaviour

The categories illustrated in Table 17 will be discussed further in Chapter 6 where the researcher will determine areas of similarities (refinements) as well as possible areas of difference (extensions) with the current literature that was reviewed in Chapter 2 of this research.

This chapter showed the detailed findings and insights gathered during the 11 semi-structured interviews conducted and described throughout Chapter 5. As discussed in Section 4.8, the researcher progressed from the descriptive codes used in the initial data analysis and first-order categories to the second-order themes and the theoretical constructs from Chapter 2.

The findings in this section as detailed in the conclusions of the sub-sections will be brought forward into Chapter 6. Further discussion and analysis in comparison to the findings in the articles of the authors discussed in Chapter 2 will allow for similarities and differences in the findings to be identified and if necessary, refined.

CHAPTER 6: DISCUSSION OF RESULTS

6.1. Introduction

This chapter will take the findings from the Chapter 5 and discuss them in relation to the literature reviewed within Chapter 2. The structure for Chapter 6 will follow the same structure as conducted in Chapter 5 and review the findings of Chapter 5 against the literature reviewed in Chapter 2 relating to sustainability and the circular economy.

Chapter 6 will compare the findings that were discussed and highlighted in Chapter 2, and will seek to confirm similarities and differences, or new insights, found in Chapter 5. The researcher will following the below steps to determine areas of similarity and difference:

1. The researcher will first discuss the similarities between the findings and literature reviewed in Chapter 2.
2. Differences that emerged from the findings in Chapter 5 will be compared to the literature from Chapter 2.
3. Should no similarities be found in Chapter 2, the researcher will then conduct a word search on three articles that were reviewed in Chapter 2 to determine whether any similarities could be identified.
4. Following this step, if differences are still present the researched will conduct a specific word search in other articles written by authors reviewed in Chapter 2.

This chapter will conclude in an adapted framework which will encompass the areas on similarities as well as the areas of difference found by the researcher.

6.2. Internal Drivers to Sustainability and Circular Economy

The following section for the second-order theme of internal drivers will discuss the similarities and differences from the findings in section 5.2. to the literature reviewed in Section 2.6 of the report. The researcher will first discuss the areas of similarity (refinement) between the findings and the literature reviewed and advise on possible areas of difference (extension) to the literature. Upon completing the discussion on the similarities, the researcher will then determine whether the differences are true differences through the steps mentioned in Section 6.1 of this research.

6.2.1 Areas of Commonality and Difference Between Findings and Literature

Table 7 shows the categories identified within the findings from Section 5.2. relating to internal drivers experienced within organisations towards sustainability and circular economy. Areas of similarities between the findings in Chapter 5 and the literature review will be discussed first.

Table 6: Internal drivers from findings

Internal Drivers
(1) Company brand
(2) Cost savings for the organisation
(3) Being ethical and responsible
(4) Compliance with legislation, regulations, and standards
(5) Internal organisational policies, strategies, and targets
(6) Production efficiencies

The findings from the Section 5.2. found that company brand was an internal driver across all of the organisations and that the organisations were aware that their company brand could be positively or negatively through being sustainable. Company brand was seen to have an impact on how the organisation performed in their ability to do business. Company brand was also identified as a driver in the works of Govindan et al. (2015), Govindan & Hasanagic (2018), Gustavo et al. (2018), and Tura et al. (2019). In their research into the analysis of drives of green manufacturing Govindan et al. (2015) found that company brand was a significant driver within organisations. Research by Tura et al. (2019) into unlocking circular business found that companies were able to achieve brand benefits through being more sustainable.

The second category from the findings of Section 5.2 was cost savings for the organisation which was achieved by organisations through either reducing packaging size, moving to thinner materials, or through reducing water and energy consumption through sustainable sources. These findings are similar to the literature by Gustavo et al. (2018) in their research into the drivers for retailers in their pursuit of alternative packaging design in Brazil. The systematic literature review by Govindan & Hasanagic (2018) also found that by adopting sustainable and circular economy, organisations were able to improve efficiencies of materials as well as reduce energy use. The researcher notes that as a driver cost savings is often associated with production efficiencies in the literature review in Chapter 2 as seen in the works of Govindan & Hasanagic (2018) and Tura et al. (2019). As a result, these two categories will be combined into one, cost savings and production efficiencies.

Being ethical and responsible was found to be a strong internal driver amongst the organisations in the finding in Section 5.2. Organisations within the supply chain believed

that it was their responsibility to become more sustainable and adopt circular economy practices as it was the right thing to do, rather than just complying with legislations or customer demands. Giunipero et al. (2012) had similar findings that ethical concerns were a motivation of organisations to becoming more sustainable. Research by Vermeulen (2015) also found that a driver for organisations was to be responsible and go do more than what is expected in their paper on sustainable global supply chains.

Compliance with legislation, regulation, and standards, was also found to be an internal driver across all the organisation groups and was largely linked to the imminent implementation of the EPR legislation in South Africa. Research conducted by Giunipero et al. (2012), Govindan et al. (2015), Govindan & Hasanagic (2018), Tura et al. (2019), and Vermunt et al. (2019) all found that compliance with government legislation, regulations and standards served as a driver for organisations.

The final internal driver found in Section 5.2. was that organisations were driven towards sustainability and circular economy by their internal organisational policies, standards, and targets. The findings from Section 5.2 found that these policies, strategies, and targets were generally determined by the top level of management within the organisations, both internationally and locally. This category was also defined as a driver in the literature by (Giunipero et al., 2012; Govindan et al., 2015; Tura et al., 2019) through the integrating of company goals and strategies, top management initiatives, and internal motivations.

6.2.2. Conclusion

In conclusion, for this section the findings for Chapter 5 identified that all organisation groups understood and were aligned as to the respective internal drivers discussed in this section. Comparison with the literature reviewed in Chapter 2 found that all categories from Section 5.2. had areas of similarities with the literature. The internal drivers found in Section 5.2 and Chapter 2 indicate that the supply chain of flexible packaging in South Africa has similar experiences as to the internal drivers of organisations towards sustainability and circular economy. The researcher noted that no areas of difference and new debates were found in the research in regard to this sub-theme.

6.3. External Drivers to Sustainability and Circular Economy

This section looks at the categories identified within the sub-them of internal drivers and compares the findings from Section 5.3 to the literature reviewed in Section 2.6. This section will comprise of the researcher discussing the similarities between the findings of Section 5.3 and the reviewed literature and advise on areas of refinement to the literature.

The researcher will then determine whether the differences identified in Section 5.3 are true difference and therefore are areas of extension to the literature.

6.3.1. Areas of Commonality and Difference Between Findings and Literature

The identified first-order categories that related to external drivers based on the experience of the participants within the findings are shown in Table 8. The researcher will first look at the areas of similarity between the findings and the literature reviewed in Chapter 2.

Table 8: External drivers from findings

External Drivers
(1) Availability of resources
(2) Actions of the competition
(3) Consumer awareness
(4) Legislation, regulations, and standards
(5) Job creation

The actions of an organisation's competition were found to be an external driver by all organisation groups as it impacted the organisations competitive advantage, either positively or negatively. Participants stated an organisation could be seen as competitive by adopting sustainability and circular economy by the consumer due to the organisation being sustainable. Additionally, it was noted that organisation that do become more sustainable could be disadvantage due to higher costs if their competition does not do the same. Literature by de Vargas Mores et al. (2018), Giunipero et al. (2012), Govindan et al. (2015), Gustavo et al. (2018), and Tumpa et al. (2019) all found that the actions of the competition would drive organisations to be more sustainable and adopt circular economy practices. In contrast, research by Vermunt et al. (2019) found that becoming sustainable could place addition burdens on organisations which increased the risk of becoming uncompetitive.

It was also found that across the organisation groups that the increase in consumer awareness was an external driver towards sustainability and circular economy. Consumers were asking more questions about what the organisations were doing in terms of improving the sustainability of their packaging, though this focus was more on brand owners, who would then push back on suppliers within the supply chain. It was also noted

that consumer awareness was increasing due to the traditional and social media increasing exposure to waste and packaging. Literature reviewed found areas of similarities in the literature by Giunipero et al. (2012), Govindan et al. (2015), Govindan & Hasanagic (2018), Patwa et al. (2021), and Tura et al. (2019) in which consumers are becoming more aware of the impact of unsustainability on the environment, particularly in packaging.

Legislation, regulations, and standards were found to be external drivers across the various organisations in Chapter 5. The implementation of the EPR legislation by the South African government was identified as a driver across the organisation groups as an important driver. It was also noted that while the international suppliers were not aware of South Africa's EPR legislation, they had experienced similar legislation within Europe and the UK. Implementation of government legislation was found to have an impact in the number of queries by consumers and customers as to how organisations were going to address the legislation. Giunipero et al. (2012), Govindan et al. (2015), Govindan & Hasanagic (2018), Patwa et al. (2021), and Tura et al. (2019) all found in their research that legislation, regulations, and standards were an external driver that drove organisations towards sustainability and circular economy.

The final area of similarities between the findings in Chapter 5 and the literature review conducted in Chapter 2 is the category of job creation. All organisation groups mentioned the informal employment of waste collection in South Africa as an informal industry that provided jobs. It was noted that this informal industry was developed based on incentives for collecting particular types of waste and returning these to waste distribution centres for payment. It was also noted that the implementation of the EPR legislation would assist in the development of a recycling and circular economy industry, which would lead to the creation of jobs. Evidence for job creation and new skills development was found in the literature review in the works of Govindan & Hasanagic (2018), Ranta et al. (2018), Tura et al. (2019), and Fehrer & Wieland (2021). Ranta et al. (2018) found that in China there was combined waste recycling system which included by formal and informal sectors. Their research found that the informal sector played a major role in areas where the recycling infrastructure is still developed of underdeveloped. The researcher by Fehrer & Wieland (2021) found that a large proportion of sustainability actions within society happens in informal ways and questioned future research to understand how a collective set of actors from both formal and informal sectors could collaborate and drive sustainability and circular economy goals.

The organisation groups in the research identified that the availability of resources as being an external driver, though responses were noted to be two-fold. Firstly, the availability of resources was seen as that as sustainability was driven there was an increase in the availability of alternative sustainable resources. Secondly, participants from the converter and brand owner, noted that the current availability of non-sustainable or recyclable resources was being affected as producers within the supply chain could remove products from production if and when necessary. Comparison with the literature reviewed showed that this was a potential area of difference as the literature review did not show signs of increases in the availability of alternative resources or the discontinuation of current resources as being drivers.

In order to further assess whether this category was an area of difference the researched conducted a word search across the literature reviewed in Chapter 2, using the terms “availability, “lack of”, and “raw material”. The search of the research only found that the lack of availability of sustainable resources was an external barrier to organisations (Bening et al., 2021; Kirchherr et al., 2018; Tumpa et al., 2019; Tura et al., 2019; Vermunt et al., 2019). There was also no mentioned of products and raw materials becoming unavailable due to decisions by the producers, rather only the limited availability of natural resources was quoted by the authors in the literature (Govindan et al., 2014; Govindan & Hasanagic, 2018; Tura et al., 2019; Vermunt et al., 2019). As a final search into the authors as to whether this was an area of difference, the researcher conducted the same word search for the authors Govindan, Giunipero, Kirchherr, Tura, and Vermunt on the electronic databases Business Source Complete (EBSCOhost) and JSTOR. The researcher found that the search results across these fields did not yield any results and therefore this is a potential area of difference (extension) to the literature.

6.3.2. Conclusion

In conclusion for this section the findings for Chapter 5 identified that all organisation groups understood and were aligned as to the respective external drivers discussed in this section. Comparison with the literature reviewed in Chapter 2 found that all categories from Section 5.3. had areas of similarities with the literature. The external drivers found in Section 5.3 and Chapter 2 indicate that the supply chain of flexible packaging in South Africa has similar experiences as to the external drivers of organisations towards sustainability and circular economy.

The category of availability of resources was found to be an area of difference as the organisation groups within this research experienced the availability of sustainable

resources as an external driver along with the possible unavailability of current resources being used. The researcher did not find any evidence in the literature review, word search of literature reviewed, or in the word search conducted into the authors and their other work. Based on the search of the literature on the circular economy it is concluded that the outcomes from this study indicate that 'the availability of sustainable resources' may be considered as an external driver. This appears to be a potential new insight given that this analysis did not identify this external driver in the current literature on circular economy.

This insight will therefore be shown as a potential new theme in the amended framework in Table 18 at the end of this chapter.

6.4. Internal Barriers to Sustainability and Circular Economy

The categories of internal barriers found in the researcher in Chapter 5 sought to determine the internal barriers that were hindering the adoption of sustainability and circular economy in the experience of the participants. The following section will analyse and compare the findings of Section 5.5 and will seek to identify areas of similarities and difference to the findings in the literature reviewed in Section 2.7 of this report. The researcher will first discuss the areas of similarity, followed by potential areas of difference. Should differences be identified they will be examined and discussed as per the process outlined in section 6.1.

6.4.1 Areas of Commonality and Difference Between Findings and Literature

Categories identified within Chapter 5 relating to external barriers are illustrated in Table 10. As stated in Section 6.4 the following will compare the findings from Chapter 5 in relation to the findings of the literature reviewed in Chapter 2 of this research. Similarities and differences will show areas of possible extensions or possible refinement to theory.

Table 10: Internal barriers from findings

Internal Barriers
(1) Upfront investment costs
(2) Shift in focus to other factors
(3) High costs of sustainable resources
(4) Lack of skills and technology

In Section 5.4 of the research, the organisation groups noted that upfront investment costs required to adopt sustainability and circular economy was an internal barrier. High costs

required to update technology and conduct R&D into sustainable solutions was seen as an internal barrier towards sustainability and circular economy across organisations. It was also noted that due to South Africa's geographical location and the size of the local market meant that it could take organisations a long time to recover investment in technology and R&D. These findings were similar to those found in the literature by Giunipero et al. (2012;), Govindan & Hasanagic (2018), Kirchherr et al. (2018), Tumpa et al. (2019), and Wang et al. (2016) who all found that investment costs towards sustainability and circular economy limited an organisation's adoption of sustainability and circular economy.

A second category found based on the experiences of the organisation groups within Chapter 5 was the shift in focus, away from sustainability to other factors, such as human health, continuous supply of materials, and ability to supply customers. The recent Covid-19 pandemic and civil unrest in South Africa has led to some organisations with the brand owners, convertors, and producers shifting focus from developing sustainability to focusing on other factors, such as securing supply of raw materials and supply customers with their packaging requirements. Giunipero et al. (2012) and Govindan & Hasanagic (2018) found similarities in their research that other factors could be seen as more important. Uncertainty was found to cause a slow in the rate of adoption of sustainability and circular economy by Giunipero et al. (2012). Organisation priorities could also be shifted from sustainability to expansions in current production and growth in market share (Govindan & Hasanagic, 2018).

Findings from Chapter 5 also found that the high cost of sustainable resources was a barrier towards sustainability and circular economy across the organisation groups. The higher costs of sustainable resources had a direct impact on the organisation's financial performance, which meant that additional costs would be passed on to the customer, which could result in the organisations losing business. This finding was most significant amongst the brand owners who were selling commodity products into the market with price sensitive consumers. Bening et al. (2021), Giunipero et al. (2012), Govindan & Hasanagic (2018), Kirchherr et al. (2018), Vermunt et al. (2019;), and Wang et al. (2016) found in their research that the sustainable materials were more expensive than virgin materials and were seen as barriers to organisations adopting sustainability and circular economy. Part_12:Brand Owner contradicted this as in their experience recycled material was cheaper than virgin material in their organisation. The researcher does note that this

was limited to a single produce example and the packaging mentioned related to rigid packaging and not flexible packaging and therefore was out of the scope of this study.

The final category identified within Chapter 5 by participants as an internal barrier was the lack of skills and technology available within their organisations in South Africa. The lack of skills and technology meant that local organisations had to borrow skills, knowledge, technology, and developments in R&D from overseas, either through their global units or the supply chain. There were similar findings in the literature that the lack of skills and technology hindered organisation's ability to become sustainable (Giunipero et al., 2012; Govindan & Hasanagic, 2018; Tumpa et al., 2019; Tura et al., 2019; Vermunt et al., 2019; Wang et al., 2016). The literature found that if organisations lack the necessary skills and technology, it will limit the ability of the organisation to implement sustainability and circular economy, not only within the organisation itself, but also the supply chain.

The researcher noted that all organisation groups had similarities that in their experience their top management, as defined in Section 5.4.1, was supportive towards sustainability and circular economy. There were also similarities across the organisation groups that management, both local and international, had implemented a number of internal policies, strategies, or targets that the organisation would be required to achieve. This is an area of difference with the literature reviewed in Section 2.7, where it was found that lack of management support was an internal barrier experienced by organisations. The researcher does noted however that literature reviewed in Section 2.6 and Section 2.8of this research does also state that top management support is an internal driver and is determined by top management initiatives as discussed by (Giunipero et al., 2012; Govindan et al., 2015; Govindan & Hasanagic, 2018; Tura et al., 2019).

6.4.2. Conclusion

In conclusion for this section the findings for Chapter 5 identified that all organisation groups understood and were aligned as to the respective internal barriers discussed in this section. Comparison with the literature reviewed in Chapter 2 found that all but one category from Section 5.4. had areas of similarities with the literature. The internal barriers found in Section 5.4 and Chapter 2 indicate that the supply chain of flexible packaging in South Africa has similar experiences as to the internal barriers of organisations towards sustainability and circular economy.

The category found in the literature of lack of management support was noted to be an area of difference in the experience of the organisation groups who only experienced positive management support. The researcher noted that the evidence of management

support as a driver can be found in literature review in Chapter 2. This category is still seen as an area of difference based on the comparison with the findings in this research. Based on the search of the literature on the circular economy it is concluded that the outcomes from this study indicate that 'the lack of management support' should not be considered as an internal barrier. This appears to be a potential new insight given that this analysis identifies this as an internal barrier in the current literature on circular economy, whereas the findings do not.

This insight will therefore be shown as a potential new theme in the amended framework in Table 18 at the end of this chapter.

6.5. External Barriers to Sustainability and Circular Economy

The second-order theme of external barriers sought to determine the external barriers that were hindering the adoption of sustainability and circular economy. This section of analysis will compare the findings of Section 5.5 and will seek to confirm areas of similarities and difference to the findings in the literature reviewed in Section 2.7 of this report. Should no differences be identified, the researcher will discuss the similarities, though should differences be identified they will be examined and discussed as per the process outlined in section 6.1.

6.5.1. Areas of Commonality and Difference Between Findings and Literature

Table 12 illustrates the first order categories identified in the findings from Chapter 5. The following section aims to evaluate how the findings from Chapter 5 related to the findings of the literature reviewed in Chapter 2 of this research. Similarities and differences will show areas of possible extensions or possible refinement to theory.

Table 12: External barriers from findings

External Barriers
(1) Lack of knowledge about sustainability
(2) Lack of availability of alternative resources
(3) Lack of ability to recycle
(4) Enforcement of legislation
~~**(5) Lack of collaboration within the supply chain**~~

The lack of knowledge about sustainability was seen as an external barrier by the organisation groups within the research. The lack of knowledge about sustainability acted

as a hindering factor as stakeholders were found to be unaware as to what products could be recycled, reused, or remanufactured, which resulted in sustainable products ending up in landfill. The literature by Govindan & Hasanagic, (2018), Kirchherr et al. (2018), Tura et al. (2019), Wang et al. (2016) all discussed the lack of knowledge about sustainability as being an barrier within the development and adoption of sustainability and circular economy. Based on the findings and the literature reviewed this category is an area of similarity with the literature.

Due to the limited availability of alternative resources that are recyclable or sustainable, organisations within the supply chain have difficulty in reducing their reliance on non-recyclable or unsustainable resources, thus hindering the adoption of circular economy. The similarities in the findings relating to the lack of available alternative resources were detailed in the literature by Giunipero et al. (2012), Govindan & Hasanagic (2018), Kirchherr et al. (2018), and Vermunt et al. (2019) thus highlighting it as an area on commonality.

The inability to recycle packaging in South Africa was a result of inadequate recycling or circular economy infrastructure according to the all the organisation groups in the findings in Chapter 5. Difficulties in identifying third parties for the recollection of used products was identified by Wang et al. (2016) as being an external barrier to the adoption of sustainable and green supply chains. (Tura et al., 2019) also found that the inability to recover recyclable materials was a barrier amongst circular economy, therefore highlighting this category is also an area of commonality with the literature.

In the findings of Chapter 5 the organisation groups questioned how the EPR legislation was going to be adopted and enforced as in their experience a number of organisations were waiting to find out how the EPR would be policed by government, thus slowly the adopting of sustainability and circular economy. Govindan & Hasanagic's (2018) systematic literature review found that weak economic incentives as a barrier towards the implementation of circular economy practices amongst organisations. Research by Tumpa et al. (2019) also found that poor incentives by government were an external barrier towards the adoption of sustainability and circular economy. This category is therefore seen as an area of similarity between the findings in Section 5.5 and the literature reviewed in Chapter 2.

The final second level category from the findings was that the lack of collaboration between organisations within the supply was not a barrier in the flexible packaging supply

chain in South Africa. Rather the collaboration between organisations in the supply chain was found to be a driver towards circular economy and sustainability. This is an area of difference to the literature of Kirchherr et al. (2018), Tumpa et al. (2019), Tura et al. (2019), and Vermunt et al. (2019) in which the lack of collaboration and partnerships within the supply chains were found to be a barrier towards sustainability and circular economy. However, the researcher noted that collaboration amongst organisations was also classified as a driver and emphasis are in the literature by Tura et al. (2019).

6.5.2. Conclusion

The findings in Chapter 5 compared to the literature reviewed in Chapter 2 relating to the second order theme of external barriers were found to be predominately areas of similarity, with the only area of difference being the lack of collaboration being seen in the literature as a barrier. The analysis from Chapter 5 shows that the organisations in the flexible packaging industry do collaborate with each other across the supply chain and this acts as a driver towards sustainability.

The literature reviewed in Chapter 2 found that collaboration, or lack of, could be both a driver and a barrier towards sustainability and circular economy. As the findings from this research found collaboration to be a driver, the category will be included in the conceptual framework as both a barrier and a driver.

6.6. Internal Practices to Sustainability and Circular Economy

The following section for the second-order theme of internal drivers will discuss the similarities and differences from the findings in section 5.2. to the literature reviewed in Section 2.6 of the report. The researcher will first discuss the areas of similarity (refinement) between the findings and the literature reviewed and advise on possible areas of difference (extension) to the literature. Upon completing the discussion on the similarities, the researcher will then determine whether the differences are true differences through the steps mentioned in Section 6.1 of this research.

6.6.1 Areas of Commonality and Difference Between Findings and Literature

Table 14 shows the first-order categories identified within the findings from Section 5.2. relating to internal drivers experienced within organisations towards sustainability and circular economy. Areas of similarities will be discussed first and will show areas of possible extensions to theory.

Table 14: Internal practices from findings.

Internal Practices
(1) Increasing eco-efficiencies
(2) Cooperation with other organisation within the supply chain
(3) Top management support and initiatives
(4) Education on the 3Rs within the organisation and supply chain
(5) Shifting from a linear economy to circular economy

Findings from Section 5.6 found that the organisation groups all had experienced an increase in production eco-efficiencies in different ways. Producer and supplier organisations emphasised increase in sustainable energy and water usage, as well as reusing trim waste back into production. Convertor organisations saw efficiencies through the reduction in the size of packaging being requested by retailers allowed them to offset the higher costs of sustainable resources through the reduction in material used, as well as packaging material getting thinner. Brand owner organisations drove eco-efficiencies in their selection of packaging for their products which was pushed back on convertors, suppliers, and producers. These findings were similar to those in the literature within authors highlighting improving production, and logical systems through environmental efficiencies (Govindan & Hasanagic, 2018; Gustavo et al., 2018; Patwa et al., 2021; Tumpa et al., 2019; Vermeulen, 2015). The category of improving eco-efficiencies is therefore classified as an area of similarity with the literature.

Cooperation between organisations was found across all organisation groups, though there were differences in how the organisations cooperated with one another. Converters and suppliers partner together to assist in improving sustainability and circular economy between their organisations, whereas producers are partnering with local business through pilot projects, to recollect consumable materials and reuse this in their production and remanufacturing waste into new products. The literature review found similarities with organisations working within one another to driver sustainability and circular economy within their respective industries (Fehrer & Wieland, 2021; Gustavo et al., 2018; Tura et al., 2019). Evidence from the literature review in Chapter 2 also had similarities within organisations implementing small pilot project which could become role models for others (Govindan & Hasanagic, 2018).

Findings from Section 5.6 discovered similarities within the organisation groups regarding the initiatives by top management to address sustainability and circular economy. The organisation groups had support both from top management within their direct organisation, as well as those that were part of global multinationals or local corporations. It was noted that the suppliers, due to them being agents as discussed in Section 5.1, were more reliant on other organisations initiatives to drive sustainability and circular economy, though some suppliers were taking initiative and looking for alternative sustainable resources without reliance on other organisations. Literature reviewed in Section 2.8 found similar findings that internal organisational practices were aimed at improving sustainability and circular economy (Giunipero et al., 2012; Govindan & Hasanagic, 2018).

Organisations across the various groups were found to have practices that were aimed at assisting in educating their employees customers on sustainability and the 3Rs of circular economy. It was noted that from the experience of international suppliers that education in the 3Rs was required across the supply chain in order for sustainability and circular economy to be successful. Organisations within the supply chain also found that their customer and consumers were naïve as to what was actually sustainable or could be recycled. It was also found that some participants were directly responsible for assisting in answering questions from customers and transferring knowledge to various stakeholders. This is an area of similarity as the literature reviews in Chapter 2 had similar findings that increasing consumer and societies awareness and education and training in the circular economy were practices that were being adopted by organisations (Govindan & Hasanagic, 2018).

The findings from Chapter 5 also had similarities across the organisations both within and across the different organisations towards experiencing improvements in sustainability and moving from linear practices to circular practices. Focus was found to range from the removal of procurement of unsustainable products during procurement to improving eco-efficiencies in production. Literature reviewed in Section 2.8 had similar findings in the research by Govindan & Hasanagic (2018), Patwa et al. (2021), Tumpa et al. (2019), and Vermeulen (2015) with organisations increasing looking for cleaner production, procurement, and new strategies towards sustainability and circular economy. Upon this comparison this category is an area of similarity between the findings in Chapter 5 and the literature reviewed in Chapter 2.

The findings in Section 5.6 also found that some organisations were working together in pre-competitive activities to assist one another should they require raw materials due to global supply chain disruptions. This was a potential area of difference as there was no mention of such practices within the Chapter 2. In order to confirm whether this was an area of difference the researcher conducted a word search within the articles reviewed using the terms “cooperation”, “cooperate”, “collaboration”, “collaborative”, and “disruptions” linked to the search for “competition”. The word search within the articles reviewed yielded no results, therefore this could be an area of difference. As stated in Section 6.1 a second word search using the same words was conducted on the *Business Source Complete (EbscoHost)* and *JSTOR* by the authors Giunipero, Govindan, Patwa, Tumpa, and Vermuelen from Section 2.8 of this researcher.

This search found mention of organisations working together in literature on sustainable supply chains from *The Journal of Cleaner Production* and *Internal Journal of Logistics Management.* The researcher noted that the areas of focus in the identified articles were a retailer in Sweden and collaboration between competitors in American organisations since the 9/11 attacks. While these articles do address sustainability there are no mentions of circular economy(Frostenson & Prenkert, 2015; Williams, Lueg, & LeMay, 2008). Additionally, it was noted that the articles found through the search are not related to flexible packaging, and therefore the findings from Chapter 5 are nuance of difference and an area for possible refinement.

The researcher will treat these findings as an area of possible refinement and would warrant further investigation in future research.

6.6.2. Conclusion

The findings in Chapter 5 compared to the literature reviewed in Chapter 2 relating to the category of internal practices towards addressing sustainability and circular economy. The comparison found there were predominately areas of similarity, with the only area of possible refinement being the pre-competitive actions of competition in assisting one another. This area was not covered in the literature reviewed, nor were similarities found in other academic articles reviewed. The research did find articles that discussed working with competition towards developing a sustainable supply chain, though the areas of study were not in flexible packaging and were based in developed countries. Therefore, this category will be included in the conceptual framework as a new insight in internal practices and will be highlighted in bold in the tables at the end of Chapter 6.

The analysis from Chapter 5 found that the organisations in the flexible packaging industry do collaborate with each other across the supply chain and this acts as a driver towards sustainability. The literature reviewed in Chapter 2 stated that collaboration, or lack of, could be both a driver and a barrier towards sustainability and circular economy. As the findings from this research found collaboration to be a driver, the category will be included in the conceptual framework as both a barrier and a driver.

6.7. External Practices to Sustainability and Circular Economy

The final sub-theme to be compared within this section are the external practices identified within the findings of Chapter 5. These findings will be compared to the literature reviewed in Chapter 2 to determine areas of similarities and differences. The researcher will first discuss the areas of similarity (refinement) between the findings and the literature reviewed and advise on possible areas of difference (extension) to the literature. Upon completing the discussion on the similarities, the researcher will then determine whether the differences are true differences through the steps mentioned in Section 6.1 of this research.

Table 16: External practices from findings.

External Practices
(1) Raising consumer awareness
(2) Establishment of legislation, regulations, and standards
(3) Improving circular economy infrastructure
(4) Incentives and taxation for compliance
(5) Practices to change behaviour

6.7.1 Areas of Commonality and Difference Between Findings and Literature

The findings from Section 5.7 found similar experience across all organisations that the establishment of legislation, policies, and regulations was an external practice which was addressing sustainability and circular economy. South Africa's EPR legislation, which is being adopted in November was the most frequent example given by the organisations within Chapter 5. The findings from the literature reviewed showed that this was an area of similarity as the literature by (Giunipero et al., 2012; Govindan & Hasanagic, 2018; Patwa et al., 2021; Schulz et al., 2019). Government regulations have been forcing organisations to comply with legislation and regulations relating to sustainable practices since the 1960s (Giunipero et al., 2012). The article by Patwa et al. (2021) found that

government legislation and regulations, similar to the EPR, would have a strong effect on the practices adopted by organisations. The establishment of legislation, policies, and regulations is therefore seen as an area of similarity between the findings of Chapter 5 and the literature in Chapter 2.

In addition to legislation, policies, and regulations another external driven was found to be the enforcement and taxation, or fines, that are used to force organisations to comply. Focus within the organisations within Chapter 5 was mainly on how the EPR legislation would be effective enforced, as the EPR legislation was mainly focused on fees, levies, or taxation to enforce organisation to comply, rather than use incentive-based techniques. The literature review found similar findings through supportive taxation (Tura et al., 2019), incentives in the form of either taxations or subsidies (Schulz et al., 2019), and economic initiatives by organisations in monitoring external taxations (Govindan & Hasanagic, 2018). As a result of the comparison conducted within this section, this category is an area of similarity.

The findings of Section 5.7.2 found that all organisations found the current recycling and circular economy infrastructure as inadequate. Some of the organisation had even partnered with local business to develop small pilot projects in their local communities to make a positive impact. The organisations also were aware that the EPR legislation was aimed at using the funds gathered from fees and levies to assist non-government organisations to further develop the circular infrastructure in South Africa. These findings from Chapter 5 were similar to the practices discussed by Govindan & Hasanagic (2018) in their literature review in which the found that developing pilot projects was one of the practices that governments could implement to drive sustainable and circular economy practices. Literature in Chapter 2 also practices focusing on the need to investigate the current infrastructure as well as developed infrastructure in order to develop circular economy (Schulz et al., 2019; Tumpa et al., 2019). Based on the comparison, this category is seen as an area of similarity.

In Chapter 5, organisations across the various groups had similar experiences in the need to change how society and consumers behaved in disposing of waste. Organisations also noted that it would be difficult to develop sustainability and circular economy without getting consumer by in. Media was also found to have an influence consumers through focusing on packaging waste. Govindan & Hasanagic (2018), Gustavo et al. (2018), and Patwa et al. (2021)had similar findings in the importance in shifting society's attitude and behaviours towards circular economy practices, convincing consumers and suppliers into

the benefits of circular economy, and general increases in practices aimed at increasing consumer awareness. As a result, this category is seen as an area of similarity.

6.7.2. Conclusion

In conclusion for this section, the findings for Chapter 5 identified that all organisation groups understood and were aligned as to the respective internal drivers discussed in this section. Comparison with the literature reviewed in Chapter 2 found that all categories from Section 5.7. had areas of similarities with the literature. The external practices found in Section 5.7 and Chapter 2 indicate that the supply chain of flexible packaging in South Africa has similar experiences as to the external drivers of organisations towards sustainability and circular economy. The researcher noted that no areas of difference and new debates were found in the research in regard to this sub-theme.

6.8 Chapter Conclusion

In conclusion, the comparison in the findings from Chapter 5 and the literature review from Chapter 2, found that majority of the findings in Chapter 5 were areas of similarities with the literature reviewed. The comparison in findings and the literature review noted three areas of differences.

The first area of difference was found in the sub-theme of external drivers, where the availability of alternative resources was found to be a driver amongst participants, whereas the lack of availability of alternative resources was a barrier in the literature. This category will be included as a driver in the conceptual framework as shown below in Table 18.

A second area of differences was found in management support where in Chapter 5 this was seen as a driver in Chapter 5, whilst the lack of management support was seen as an internal barrier in the literature review. Management support will be included as an internal driver in the conceptual framework as well as an internal barrier within the conceptual framework to include the findings from both Chapter 5 and Chapter 2.

The final area of difference identified was the collaboration between competition within the supply chain, through precompetitive actions. The findings from Chapter 5 were different from the literature reviewed in Chapter 2 as there was no areas of similarities. Due to lack of similarities found, this finding will be included in the conceptual framework for this research.

Following the conclusion of this section the conceptual framework developed in the literature review in Section 2.10 has been updated and presented in Table 18, with the areas of difference being italicised.

Comparison in Chapter 6 found that management support was an internal driver, whilst the lack of management support was seen as an internal barrier within the literature.

Table 18: Amended Conceptual Framework

Internal Drivers	**External Drivers**
Compliance with laws/standards/regulations	Consumer awareness
Company brand	Resource constraints
Internal company strategies	Job creation
Production efficiencies or cost savings	Actions of the competition
Being ethical and responsible	Media focus on sustainability
Management support*	**Availability of sustainable resources****
Internal Barriers	**External Barriers**
High investment costs	Lack of legislation, regulations, and standards
Differences in Short and Long-Term Goals	Lack of Available Sustainable or Recycled Resources
Lack of Management Support	Lack of Consumer Awareness
Lack of Skills and Technology	Lack of Recycling Infrastructure
High Costs of Sustainable Resources	**Lack of Collaboration within the Supply Chain***
Internal Practices	**External Practices**
Increasing Eco-Efficiencies in Production	The establishment of legislation, policies, and regulations
Cooperating with other organisations within the supply chain*	Incentives and taxation to enforce compliance
Support and initiatives from top management	Improving awareness and attractiveness of 3r products and circular economy
Education on the 3Rs within the supply chain and organisation	Changing cultural and societal behaviours
Shifting from a linear model to a circular model	Improving infrastructure to better deal with a circular economy
Collaboration with competition*	

CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS

7.1. Introduction

In this chapter, the conceptual framework for the drivers, barriers, and practices for sustainability and circular economy is presented and shows the various components of the framework. The framework was developed in Chapter 2 and was informed by the findings of Chapter 5 and the comparison between the findings of Chapter 2 and Chapter 5 conducted in Chapter 6. The framework will be explained in Section 7.3 of this chapter to assist in the understanding of the framework itself. The chapter then presents the key findings of this research that were identified during the research process, represented by the potential extensions and refinements to the original framework adapted from the literature reviewed conducted in Chapter 2. The chapter then details the suggestions for managers, and notes the limitations experienced during the course of this researcher. The second to last section of this chapter highlights the recommendations for future research into the drivers, barriers, and practices of sustainability and circular economy. The chapter concludes within an overview of the research and its findings.

7.2. The Development of the Conceptual Framework

An initial adaptive framework was developed in Chapter 2 following the literature review. The initial framework adopted the most frequently covered internal and external drivers, barriers, and practices in literature focused on sustainability and circular economy, as shown in Table 1 in Section 2.10. The framework was reworked following the completion of the comparison in Chapter 6 between the findings of Chapter 5 and the literature reviewed in Chapter 2. The comparison in Chapter 6 identified areas of similarities with the literature as well as identified three areas of refinements and extensions which were pulled through into through to Chapter 7. The final conceptual framework is show in the below Figure 3.

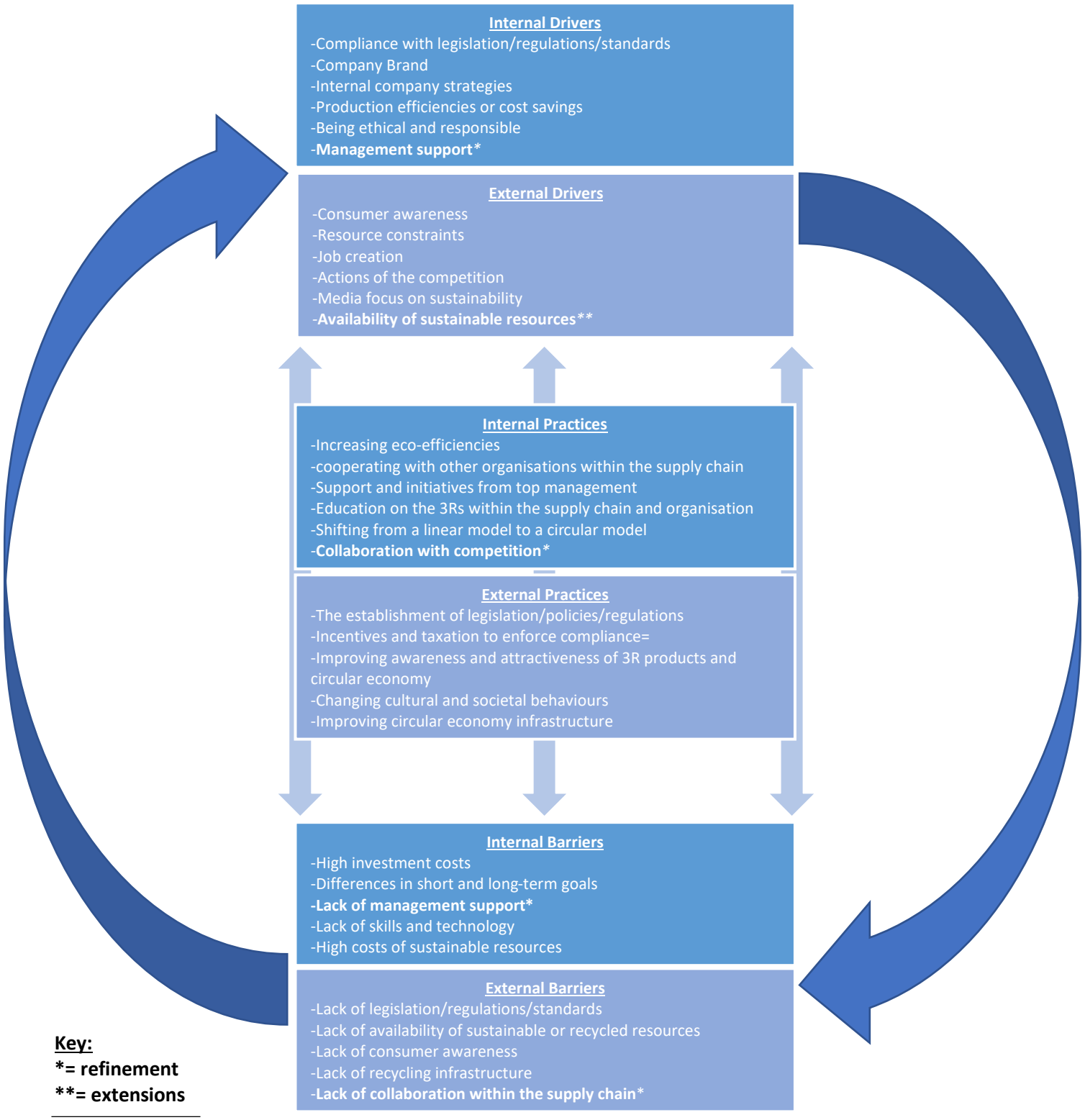

Figure 3: Proposed Conceptual Framework developed by the author

Source: Author's Own.

7.3. Explanation of the Conceptual Framework

The Conceptual Framework features the three constructs of drivers, barriers, and practices that organisations experience in becoming sustainable and move towards a circular economy. Each of the constructs have internal and external factors, with the identified potential refinements and extensions clearly shown for each construct. As per the key in Figure 3, the potential refinements are in bold and are demarcated with a single asterisks and possible extensions are in bold and are demarcated with double asterisks. The large outer circular arrows rotate downwards from the drivers to the barriers, and then back up symbolising a circular economy in which all materials are reintroduced back into the system. The double-sided straight internal arrows are another dimension of the circular economy in which some materials may not follow the same path within the circular economy, but still remain in the system although their form may have been altered. The construct of practices was placed on the double-sided arrows as practices are how organisations are able to address the identified drivers and barriers of sustainability and circular economy and can flow in both directions, either turning barriers into drivers, or visa versa.

7.4. Key Findings and Theoretical Contributions

The following section discusses the key potential refinements and extensions to theory, which were found during Chapter 6 in the comparison between the findings of Chapter 5 and the literature reviewed in Chapter 2. This section explains the motivation as to the reasoning for potential refinements and extension that were included in the Conceptual Framework in Figure 3. The sections will be based on the six sub-themes of internal and external drivers, barriers, and practices of organisations towards becoming more sustainable and advancements to a circular economy within the industry.

7.4.1. Internal Drivers

Internal drivers are the factors identified within an organisation that pushes organisations to become more sustainable and move towards a circular economy. The organisation groups had similar experiences relating to the five categories identified within the research, shown in Section 6.2.2. The research conclusions from Chapter 6 noted that the five categories identified in the research process had similar results between the research and literature review, and that there were no potential refinements or enhancements to the theory. As the research was conducted in a different setting to the literature reviewed the similarities found in the research conclusions in Chapter 6 therefore contribute to the existing literature.

7.4.2. External Drivers

External drivers are the factors outside the organisation that drive the organisation to become more sustainable and adopt a circular economy. The research conclusion in Section 6.3.2 contributed to the existing literature through the similarities found in a different setting than those covered in the literature review on the external drivers of legislation, regulations, and standards, consumer awareness, actions of the competition, and job creation.

The conclusions in Chapter 6 found that the **availability of sustainable resources**** was an area of enhancement of the extant literature. This research found that there was an increase in the availability of alternative sustainable resources and that the increased availability was a factor that was driving organisations to become more sustainable in their procurement of flexible packaging materials. The current literature found that the lack of availability of sustainable resources was an external barrier to organisations becoming sustainable and a circular economy. This is a potential contribution to the extant literature on sustainability and circular economy.

7.4.3. Internal Barriers

Internal barriers are the factors within an organisation that are hindering the organisation in becoming more sustainable and a circular economy. Section 6.4.2 concluded that the research was similar to the existing literature and therefore the research claims a contribution to the existing literature on upfront investment costs, shift in focus of other factors, high costs of sustainable resources, and lack of skills and technology.

The research conclusion of Section 6.4. found that **lack of management support*** was an area of refinement in the extant literature. The research found that one of the internal drivers was support of top management, whereas the literature stated that lack of management support was an internal barrier that hindered organisation's ability to become more sustainable and the development of a circular economy. Due to the category being an area of difference, the **lack of management support**, and **support of management**, were included in the conceptual framework as an internal barrier and internal driver respectively. This is seen as a potential contribution to the current literature on sustainability and circular economy.

7.4.4. External Barriers

External barriers are the external factors that limit an organisation's ability to become more sustainable and adopt a circular economy. The similarities in the research conclusion in

Section 6.5.2 of the research are seen as contributions to existing research in relation to the external barriers of lack of knowledge and sustainability, lack of availability of alternative resources, lack of ability to recycle, and enforcement of legislation.

In Section 6.5 of the research, the research conclusion for external barriers found that the **lack of collaboration between organisations** was an area of difference, as the findings in Section 5.6 of the research report that collaboration with organisations within the supply chain was seen as a driver, whilst the literature saw the concept as a barrier. The findings of Chapter 5 also note that organisations within the flexible packaging supply chain were working with their competitors in insuring supply of material due to the global supply chain disruptions. This practice of **collaborating with competitors*** is a potential area of refinement in extant literature as similar findings have been conducted in different industries within developed economies.

7.4.5. Internal Practices

Internal practices are those adopted by organisations to address the drivers and barriers towards sustainability and circular economy. Organisation groups were similar in their experiences to internal practices in increasing eco-efficiencies, top management support and initiatives, education on the 3Rs within the organisation and supply chain, and shifting from linear economy to circular economy. As the research was conducted in a setting not previously discussed in the reviewed literature, the researcher claims the similarities as a contribution to the existing literature.

The research conclusion of this research observed that organisations with the flexible packaging supply chain in South Africa would work together in regard to raw material supply availability due to the global supply chain disruptions. The research conclusion in Section 6.6. noted that c**ollaborating with competitors*** was a nuanced area of difference within the current literature and was focused on different industries in developing economies and therefore a potential an area of refinement in the current literature.

7.4.6. External Practices

External practices are the practices that are implemented outside of the organisation and supply chain, for example governments, that are aimed at driving organisations towards sustainability and circular economy. The research conclusion in Section 6.7 concluded that there were no new areas of insight or areas of difference between the research findings and the literature, and therefore there were no potential refinements of

enhancements to the theory. The researcher claims that the areas of similarities as a contribution to existing literature due to the difference in setting of the research.

7.5. Implications for Management

For organisations to be effective in driving sustainability and circular economy, whilst addressing the barriers, managers and business leaders must contemplate which practices within their organisation would assist in enhancing the drivers towards and address the barriers hindering becoming more sustainable and a circular economy. Recommendations for the internal and external drivers, barriers, and practices are detailed below:

7.5.1. Internal Drivers

- Secure support from top management and develop initiatives that will drive sustainability within the organisation.
- Increase the adoption of sustainability and circular economy to enhance the company's brand and make use of social media to raise awareness of the organisation's actions and offerings.
- Develop an organisational culture that believes in being sustainable as it is ethical and responsible and create systems that reward sustainable and circular economy initiatives.
- Investigate ways of reducing waste in production through the procurement of materials and packaging that are suited for the business operations
- Develop sustainable initiatives that are aimed at reducing energy and water usage within the organisation or develop sustainable solutions such as solar energy and harvesting of water.

7.5.2. External Drivers

- Monitor the actions of the organisation and industry's consumers to determine their sentiments and requirements
- Work with organisations within the supply chain to secure a supply of sustainable resources to ensure the organisation is geared for alternative solutions as these are developed.
- Monitor both traditional and social media to follow the trends that are happening to assist in understanding the current and potential future requirements of consumers.
- Partner with local organisations to develop pilot projects aimed at developing circular economy which are scalable for the future.

7.5.3. Internal Barriers

- Secure adequate support and financing to allow for investment in technology and skills development to support sustainable initiatives.
- Ensure that there is alignment between short-term and long-term goals of the organisation in relation to sustainability and circular economy.
- Partner with organisation within the supply chain to understand and develop alternative solutions.

7.5.4. External Barriers

- Partner with organisations within the supply chain to develop legislation, regulations, and standards for the industry to drive sustainability and circular economy.
- Partner with organisations within the supply chain to develop projects around the 3Rs of the circular economy that could assist in future developments in circular economy infrastructures.
- Use marketing, social media, and other communication channels to advertise sustainability and circular economy to raise awareness amongst consumers.

7.5.5. Internal Practices

- Implement practices and policies that will drive the shift from a linear model to a circular model by adopting the 3Rs in production processes, and sourcing of sustainable materials.
- Adopt initiatives that are aimed at reducing waste in production either through reusing waste in production or correct sizing for printing and packing.
- Implement training programs to help raise knowledge of sustainability and circular economy amongst organisation employees.
- Work together with similar organisations within the supply chain at an industry level to reduce the amount of packaging waste generated by the industry through collaborative initiatives that improve the sourcing and availability of sustainable materials.

7.5.6. External Practices

- Monitor the legislation, regulation, and standards of the market and industry both in South Africa as well as the developed economies to understand the respective incentives or taxations for circular economy policies, such as the EPR.

- Join non-government organisations in order to change the behaviour of the consumers and society towards being more sustainable and consensus of circular economy practices.
- Partner with organisations within the industry to develop sustainable packaging that is more attractive to consumers.

7.6. Limitations of the Research

The research design limitations were included in Chapter 4 in Section 4.15 of the research document. The research took all possible precautions to apply academic rigor throughout the research process in order to ensure that the results and findings within this research would be credible, dependable, and transferable to other researchers. The research does note however that there were research limitations which are documented below:

- The boundary of the research was the flexible packaging supply chain within South Africa.
- The research was solely focused on the flexible packaging supply chain and did not focus on other types of packaging.
- The scope of the research was based on a single point in time and therefore did not allow for in-depth research into the practices and initiatives within organisations.
- The research was focused on a firm level and therefore did not cover any industry level initiatives.

7.7. Suggestions for Future Research

The researcher noted throughout the research process as well as the literature reviewed in Chapter 2 that there is a need for further studies into the drivers, barriers, and practices for sustainability and circular economy. The researcher has identified the below topics are areas for potential future research:

- Exploring the flexible packaging industries in different emerging economies.
- Further research could focus on the drivers, barriers, and practices within the rigid packaging, such as cans, glass, and cardboard, supply chain within emerging economies.
- Research could focus on a more in-depth study that explores the role of management in adopting sustainability and circular economy within organisations within the industry.

- Further research could be focused on the collaborations between organisations within the flexible packaging supply chain at an industry level instead of a firm level.

7.7. Conclusion

Chapters 1 and 2 revealed that there is an increasing focus on sustainability and a circular economy with the governments and organisations implementing various forms of legislation, regulations, and standards, whilst there has been an increase in literature focusing on the topics in recent years. The research looked at the various internal and external drivers, barriers, and practices within the supply chain of the flexible packaging industry through the experiences of the participants from organisations in the industry. The researcher sought to find areas of similarities, refinements, and possible extensions to the current literature and theory from an emerging economy perspective. The Conceptual Framework was developed to contribute, refine, and extend the original framework from Chapter 2.

The research found contributions to the literature and theory in Chapter 6 as similarities were found between the findings of Chapter 5 and the literature in Chapter 2. Possible extensions to the literature were identified in the availability of alternative resources being a driver as well as a barrier, and the support of management as a driver and not a barrier. Collaboration amongst competitions was found to be a new insight into the flexible packaging industry, though it was previously identified in literature in other industries, and therefore is a possible refinement to the extant literature. In concluding, the research found that the supply chain of flexible packaging provided potential contributions and new insights into the current theory and literature on sustainability and circular economy, and illustrated the potential shift in barriers becoming drivers.

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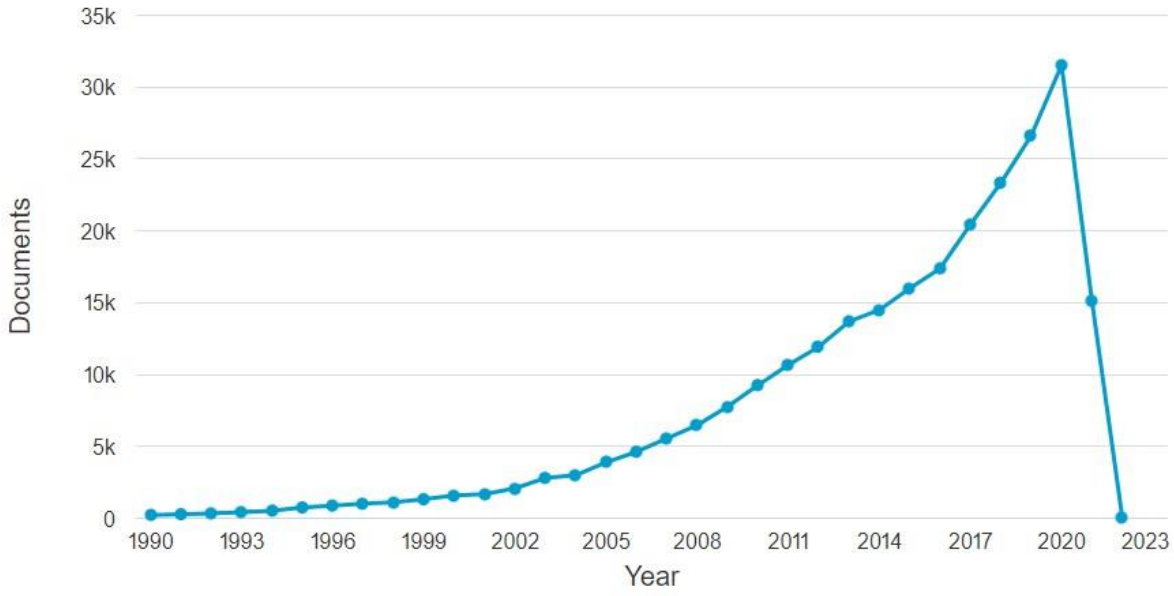
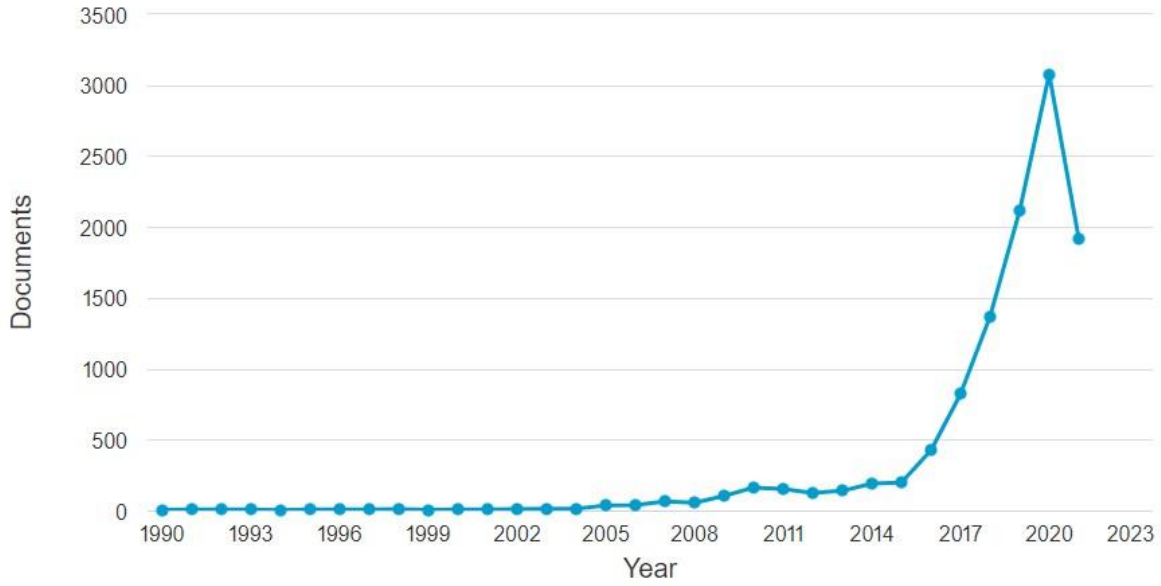
APPENDICES

Appendix 1: Scopus publications on Sustainability over the past 30 years



Source: Elsevier B. V, 2021

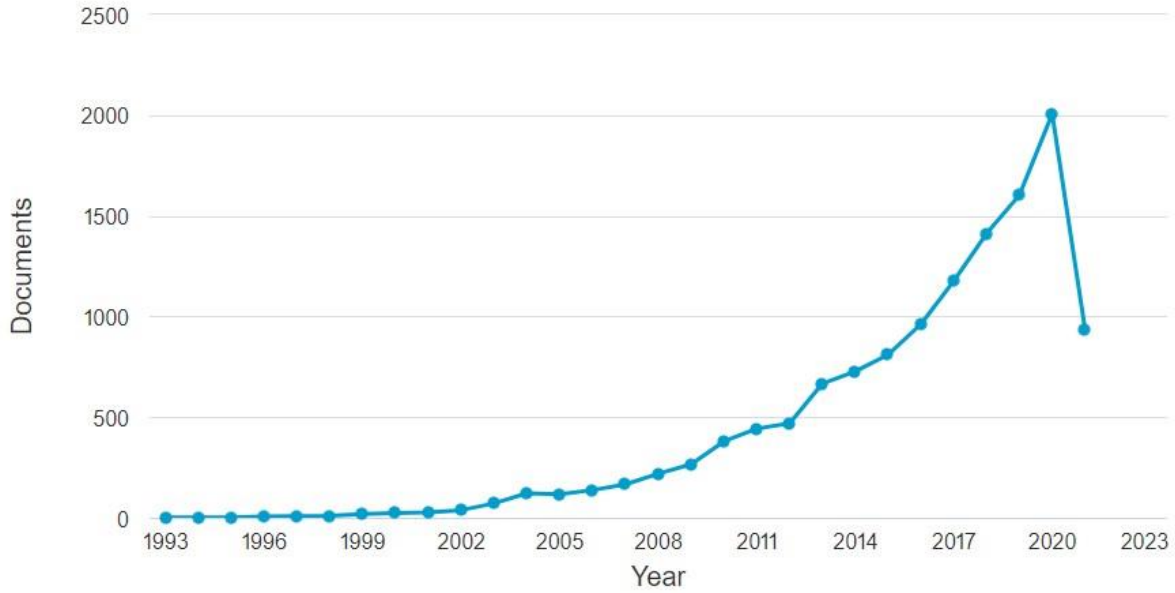
Appendix 2: Scopus publications on Circular Economy over the past 30 years.



Source: Elsevier B. V, 2021

Appendix 3: Scopus publications on Sustainable Supply Chains over the past 30

years



Source: Elsevier B. V, 2021

Appendix 4: Table 1 - Consistency Matrix.

Title	Author(s) and Year	Journal	Cites	Cities/	Journal Rating	Research Area	Data Collection	Analysis
The circular economy: An interdisciplinary exploration of	Murray, Skene, & Haynes (2017)	Journal of Business Ethics	638	160	3* ABS Scopus – 30/394 (92%) – Business	N/A	Interview Questionnaire	Thematic analysis of primary data
Sustainability performance analysis of small and medium	Malesios, De, Moursellas, Dey, &	Socio-Economic Planning Sciences	0	0	2* ABS Scopus – 87/637 (86%) – Economics	Driving factors for sustainability management	Interview Questionnaire	Thematic analysis of primary data
A meta-analysis of environmental sustainable supply chain	Golicic & Smith (2013)	Journal of Supply Chain Managemen	319	40	3* ABS Scopus – 1/144 (99%) – Economics,	Suggestion for research into environmental supply chain	Interview Questionnaire	Thematic analysis of primary data
A systematic review on drivers, barriers, and practices	Govindan & Hasanagic (2018)	Journal of Cleaner Production	173	58	2* ABS Scopus: 11/427 (97%) – Strategy &	Investigation into the drivers, barriers, and	Interview Questionnaire	Thematic analysis of primary data
Circular economy: The concept and its limitations	Korhonen, Honkasalo, & Seppälä (2018)	Ecological Economics	684	228	3* ABS Scopus – 44/637 (93%) – Economics	Investigation into the six challenges and limitations in	Interview Questionnaire	Thematic analysis of primary data
Why research in sustainable supply chain management	Pagell & Schevchenko (2014)	Journal of Supply Chain Managemen	373	53	3* ABS Scopus – 1/144 (99%) – Economics,	Research into emerging economies could provide	Interview Questionnaire	Thematic analysis of primary data
Sustainable supply chain management:	Dubey, Gunasekaran,	Journal of Cleaner Production	190	48	2* ABS Scopus: 11/427 (97%)	Drivers for sustainable supply chains	Interview Questionnaire	Thematic analysis of primary
Sustainability and innovation in the Brazilian supply chain of green plastic	De Vargas Mores, Spanhol Finocchio, Barichello, & Pedrozo	Journal of Cleaner Production	31	10	2* ABS Scopus: 11/427 (97%) – Strategy & Management	Research into other agents in the supply chain to gain a comprehensive	Interview Questionnaire	Thematic analysis of primary data gathered from

Appendix 5: Interview Questions

	Questions		**Interview Questions**
	Baseline Questions	1	Please could you tell me about your role in the organisation?
		2	How is your organisation and its supply chain moving towards sustainability?
		3	How is your organisation and its supply chain moving towards a circular economy?
		4	How is the supply chain of your organisation being sustainable?
RQ1	What are the drivers towards sustainability, sustainable supply chain, and circular economy	1	In your experience, what are the external drivers/factors that are moving you towards sustainability within your organisation?
		2	In your experience, what are the internal drivers/factors that are moving you towards sustainability within your organisation and supply chain?
RQ2	What are the barriers towards the adoption of sustainability, a sustainable supply chain, and circular economy	1	In your experience, what are the external barriers/challenges that are hindering sustainability within your organisation and its supply chain?
		2	In your experience, what are the internal barriers/challenges that are hindering sustainability within your organisation and its supply chain?
RQ3	What practices are necessary for improvement of, or are currently hindering, the adoption of sustainability, a sustainable supply chain and circular economy?	1	How do your organisational practices help you to address the drivers and challenges (mentioned previously)?
		2	Please tell me about the practices within your organisation that address sustainability.
		7	In your experience, what are the practices within your supply chain that are related to sustainability and/or the circular economy?
	Closing Question		How do you see this developing into the future?

Appendix 8: Code Book from Atlas.ti

	Brand Owners	Convertors	Producers	Suppliers
○ **ability to adapt quicker**	3	1	1	1
○ **ability to adapt quicker due to current legislation**	2	2	6	7
○ **ability to recycle a product**	7	6	3	6
○ **ability to source alternatives effeciently**	4	2	3	5
○ **act as a follower in the drive to sustainability**	2	1	0	10
○ **Acting as a driver for change**	8	12	5	6
○ **additives to paper in production**	0	0	2	2
○ **adjust mindset for uncertainties**	0	0	1	0
○ **adoption of circular economy is slow**	4	0	5	5
○ **Africa has bigger issues that sustainability**	0	0	2	0
○ **aligning internal operations**	0	2	1	0
○ **always looking for what is out there**	1	0	1	0
○ **appeal of packaging is important**	3	0	0	2
○ **asking the questions about lack of sustainability**	1	0	0	0
○ **asking the questions about sustainability**	1	0	0	0
○ **auditing to check performance**	2	1	2	0
○ **availability of alternative resources**	7	3	6	12
○ **availability of recyclable content for production**	0	0	0	6
○ **availability of resources may become limited** Gr=13	5	3	2	3
○ **barrier properties of packaging**	2	6	2	13

○ **be the lead in the change in sustainability**	1	0	0	1
○ **becoming more carbon neutral**	7	4	3	1
○ **being active in driving sustainable practices**	2	2	7	1
○ **being more sustainable is seen as a competitive advantage**	3	3	1	1
○ **being sustainable could lead to being uncompetitive**	6	0	0	2
○ **being unsustainable will become uncompetitive**	3	0	1	1
○ **Big data being used to measure performance**	0	1	3	0
○ **biodegradable from food stuff means less food for people**	1	0	0	0
○ **biodegradable packaging**	3	0	3	0
○ **biodegradable packaging might not be inherently biodegradable**	2	0	2	0
○ **borrowing technology from abroad**	2	1	2	0
○ **brand owners are responsible for driving for alternative solutions**	7	1	6	9
○ **brand owners are responsible for the packaging used**	9	0	7	7
○ **burning waste for energy**	2	0	0	0
○ **carbon footprint across the supply chain**	8	1	8	5
○ **catch 22 in the system**	0	0	2	0
○ **certifications hold you accountable**	2	1	0	0
○ **change consumer's behaviour towards waste**	3	1	3	3
○ **change in packaging behaviour when packing**	1	0	0	1
○ **changes in packaging impacts the consumer**	2	0	0	1
○ **changes in technology**	0	0	4	0
○ **changes to the current supply chain**	4	1	5	5
○ **climate change**	2	0	0	0

○ **closed-loop systems**	0	0	1	0
○ **Collaboration between organisations**	6	9	5	6
○ **collaboration with consumers**	2	1	1	1
○ **collaboration with other organisations in circular practices**	6	2	9	7
○ **companies offering the silver bullet**	1	0	0	0
○ **companies requesting more sustainable products and solutions**	2	0	1	2
○ **company brand**	6	1	2	3
○ **company driven policies and decisions**	9	3	4	2
○ **competitive advantage**	2	1	0	3
○ **compliance with certificates**	5	0	0	0
○ **compostable packaging currently being supplied**	0	0	2	2
○ **compostable solutions will break up if not thrown away correctly**	0	0	2	2
○ **compostable solutions within the market**	0	0	0	1
○ **conflicting views on what the focus of sustainability should be**	0	0	1	0
○ **consumer buy-in**	5	1	0	1
○ **consumer pressure on costs**	3	3	0	5
○ **consumerrs are unhappy with waste**	3	1	0	1
○ **consumers are driving sustainability**	8	5	4	5
○ **consumers are influenced by how something looks**	3	0	0	3
○ **consumers are influenced through marketing**	2	0	0	3
○ **consumers are requesting recyclable material**	5	2	2	0
○ **consumers are requesting recycled material**	0	1	1	4

○ **consumers can be fooled into thinking something is sustainable**	0	3	0	1
○ **consumers not throwing waste away correctly.**	4	0	3	3
○ **consumers want more sustainability**	4	0	3	2
○ **consumers want reduced plastic in packaging**	4	0	2	4
○ **contamination of packaging**	1	7	4	3
○ **converting plastic into lower value products**	0	0	2	1
○ **converting plastic into new products through remanufacturing**	0	0	7	1
○ **cost is a barrier towards sustainability**	3	4	6	13
○ **cost of packaging**	2	7	1	7
○ **cost of R&D is expensive**	0	1	5	4
○ **cost reduction through sustainable practices**	0	0	2	2
○ **cost savings through reusing**	1	0	2	0
○ **costs of recycling**	2	2	1	3
○ **costs to compling with laws, regulations, and standards**	5	4	9	3
○ **costs to more sustainable products**	8	5	7	14
○ **costs will simplily be passed onto the consumer**	5	1	1	5
○ **countries having to deal with their own waste**	1	0	0	1
○ **Covid's impact on sustainability**	0	2	3	2
○ **create the need and it can be recyclable**	0	2	0	0
○ **create the need and it can be recycled**	0	2	1	2
○ **creation of platforms and forums to address sustainability**	2	0	1	2
○ **CSR**	0	6	0	0

○ **cultural and societal behavioural change required**	0	3	2	7
○ **current packaging looks more appealing**	2	0	0	2
○ **dealing in commodity type products**	1	0	0	0
○ **definition of the supply chain**	0	0	0	1
○ **developed countries are adopting much faster**	0	1	3	10
○ **developed countries could learn from South Africa**	0	0	0	1
○ **developed economies have a bigger impact**	1	2	2	8
○ **developing circular economy practices**	3	2	16	6
○ **Developing country**	1	8	0	1
○ **development of a new industry**	0	1	3	1
○ **different packaging has different values**	3	0	2	0
○ **different packaging has different values in recycling**	1	0	2	1
○ **different products fit different purposes**	0	1	0	0
○ **different requirements**	1	1	0	0
○ **difficult to find solutions for sustainable packaging**	6	0	0	0
○ **disposing of waste through incineration**	3	0	0	0
○ **doing the right thing**	2	1	1	2
○ **double standards about being environmentally friendly**	0	1	1	0
○ **downstream everything changes**	0	0	1	0
○ **drive is bottom up in the supply chain**	0	0	3	6
○ **drive is more external than internal**	2	0	0	2
○ **drive to improve quicker**	0	1	1	1
○ **easier to push through sustainable alternatives by engaging with brand owners**	0	0	0	3

○ **Economic inequality in emerging economies**	0	1	0	0
○ **economies of scale**	0	2	4	1
○ **educating children to raise awareness**	0	0	2	0
○ **education on 3R**	2	2	6	3
○ **efficiencies in production**	2	0	6	9
○ **Emerging economy**	0	7	0	1
○ **emphasis is on sustainability and circular economy**	0	0	1	1
○ **enforcement of legislation is important**	2	0	5	9
○ **ensuring accountability throughout the supply chain**	6	0	8	1
○ **ensuring long-term environmental sustainability**	0	1	2	2
○ **ensuring procurement is done through ethical ways**	6	0	7	0
○ **Entire supply chain is a barrier to sustainability**	3	1	1	3
○ **environmental groups are acting as drivers**	0	0	1	3
○ **everything is potentially recyclable**	0	2	2	0
○ **evolution of flexible packaging**	3	6	1	6
○ **extended shelf life of products**	5	4	2	14
○ **fee will be used to improve the waste management infrastructure**	1	0	1	0
○ **financially impacted**	1	2	2	4
○ **flexible packgaging in the food industry**	0	2	1	4
○ **focus is on financial gains and not the environment**	5	0	3	7
○ **focus is on financial impact and not the environment**	1	1	0	0
○ **focus on survival as a business rather than sustainability of the environment**	0	0	2	2
○ **focus on sustainability rather than financials.**	1	1	2	3

○ **food industry**	0	1	0	1
○ **food scarcity is a problem**	0	2	0	3
○ **Fossil Fuels**	0	2	0	0
○ **FSC**	0	1	0	0
○ **geographical barriers to recycled materials**	0	0	1	3
○ **gini-coefficient**	0	1	0	2
○ **Global suppliers are market leaders and drive change**	3	3	0	1
○ **global supply chain has been extremely disrupted**	0	3	1	0
○ **going into landfill**	3	1	0	1
○ **government being niave about increased costs not going to the consumer**	2	1	1	1
○ **Government legislation and regulation**	6	3	10	16
○ **impact on company brand**	4	1	2	3
○ **Impact on financial revenue will determine the pace**	2	0	3	5
○ **impact on the bottom line**	0	4	0	3
○ **impacts on employment**	2	3	4	3
○ **import duties impacting pricing**	0	1	0	0
○ **importance of flexible packaging**	6	5	1	4
○ **improving recyclability**	1	0	0	2
○ **inability to do R&D**	2	0	0	0
○ **inability to impact downstream activities**	0	0	1	0
○ **inability to pass costs on to the consumer**	5	3	0	9
○ **inability to recycle multi-layered packaging**	11	2	4	4
○ **incentive to collect**	4	0	6	1
○ **increasing costs to consumer**	4	4	1	5
○ **increasing overhead costs**	2	2	0	0
○ **increasing sustainable practices in production**	1	3	7	2
○ **ineffective packaging sizes**	1	4	0	0
○ **inefficient recycling infrastructure**	6	3	6	4

○ **influence of media on behaviour**	3	2	1	1
○ **influence of media on products**	3	3	0	1
○ **influence of media on waste**	2	2	0	2
○ **informal employment**	3	1	5	0
○ **information sharing through IoT**	0	1	0	0
○ **infrastructure for collection**	4	1	7	1
○ **infrastructure that supports sustainability and circular econony**	3	0	7	1
○ **inks are a contamination of the packaging**	0	1	3	2
○ **internal responsibilities to be more environemenally consensus**	7	3	10	1
○ **internal targets for sustainability**	5	3	6	0
○ **international certificates**	2	2	0	0
○ **international standards** Gr=6	0	1	4	1
○ **international suppliers have targets**	1	3	0	1
○ **introduction of the EPR**	4	2	9	4
○ **knowledge and education about waste collection**	2	0	11	2
○ **knowledge and education about waste management**	0	0	10	4
○ **Knowledge and education into the circular economy**	3	10	11	5
○ **knowledge and understanding of flexible packaging**	11	4	7	10
○ **Lack of ability to conduct Research and Development**	0	1	0	1
○ **lack of buy-in from brand owners into sutainable alternatives**	0	1	1	5
○ **lack of capacity to address sustainability**	0	3	0	0
○ **lack of consensus on what is sustainability**	0	0	6	0

○ **lack of drive to be sustainable due to extra costs**	4	1	4	8
○ **lack of incentive to collect waste**	1	0	5	3
○ **lack of infrastructure and facilties locally**	10	3	9	3
○ **lack of infrastructure and facilties to recycle**	10	1	9	6
○ **lack of knowledge about packaging**	3	0	6	5
○ **lack of knowledge and understanding about sustainability**	10	12	12	7
○ **lack of movement from other industries**	0	1	0	0
○ **lack of oversight into resources**	2	0	0	0
○ **lack of recycling culture in society**	2	0	2	6
○ **lack of regulations and standards**	3	0	3	0
○ **lack of traction on sustainable alternatives**	1	2	1	1
○ **lack of urgency towards sustainability and circular economy**	0	0	1	0
○ **lack of willingness to take waste**	4	0	0	1
○ **lack the R&D capabilities to drive sustainability**	3	0	0	1
○ **laminating substrates together**	2	4	3	6
○ **large population are unable to pay increased costs**	0	1	1	4
○ **larger markets are the bigger drivers**	0	2	1	1
○ **Laws and regulations**	2	4	4	6
○ **lean manufacturing allows for flexibility**	1	0	0	0
○ **less packaging**	0	2	0	0
○ **lifecycle analysis of a product**	1	0	2	3
○ **lighter weights are not as financially incentivised**	0	1	1	0

○ **lighter weights in flexible packaging**	1	5	1	5
○ **Limited impact on sustainability** **Gr=2**	0	2	0	0
○ **lobbying by industries**	0	0	0	2
○ **Local production has a higher carbon footprint**	2	0	0	0
○ **looking for alternative solutions for sustainability** **Gr=13**	6	0	2	5
○ **looking for technology**	3	0	1	0
○ **loss of business due to changes**	2	1	0	1
○ **loss of business due to increased cost to consumer**	2	1	1	6
○ **lower income in South Africa**	0	2	0	2
○ **major cost is raw material in production**	0	1	2	5
○ **making something non recyclable**	0	1	0	0
○ **management intitiatives towards sustainability**	2	4	7	6
○ **marketing towards sustainability and removal of plastic**	0	1	0	2
○ **mixed substrates limiting recyclability**	0	4	0	0
○ **money to be made in recycling**	1	0	0	0
○ **monitoring the supply chain**	3	2	4	1
○ **mono-layered structure**	4	2	3	4
○ **more sustainable production practices**	1	2	10	2
○ **move away from multi-layer structures**	3	2	4	1
○ **move away from plastic to paper**	0	0	0	5
○ **move to mono-layer structures**	3	2	3	5
○ **move to mono-layer structures hindered by high investment costs**	0	0	0	3

○ **moving to lighter weight materials**	0	3	1	5
○ **moving towards a circular economy**	2	2	8	2
○ **multi-layered packaging**	8	9	4	6
○ **must look outside South Africa to development economies of scale**	0	0	1	0
○ **need for change in culture and societal behaviours**	0	1	3	6
○ **need for consistant supply**	2	0	2	0
○ **need to change how waste is managed**	1	0	4	2
○ **need to cut trials in order to supply customers**	0	2	0	0
○ **need to educate consumers on identification codes**	2	0	0	2
○ **need to educate consumers on packaging**	1	0	2	4
○ **need to have sufficient stock available**	6	5	2	0
○ **need to stay resolute to commitments**	0	0	2	0
○ **new employment opportunities**	2	1	3	1
○ **no accepting other countries waste**	1	0	0	0
○ **no formal practices implemented by management**	0	0	1	1
○ **no such thing as a one size fits all**	0	4	0	0
○ **not a large multinational organisation**	1	0	0	0
○ **not going into landfill**	3	3	0	1
○ **not possible to live without plastics**	0	0	0	1
○ **offsetting costs through redesign**	1	2	0	2
○ **organisational culture**	0	0	1	0
○ **organisational policies aimed at sustainability**	6	0	4	0
○ **organisations will pay tax rather than change due to costs**	0	0	0	2

○ **over engineering a product**	0	1	0	0
○ **packaging is seen as the issue in most industries**	0	2	0	0
○ **packaging litter**	2	0	0	0
○ **packaging needs to mirror the times**	1	0	1	0
○ **partnering with other organisations to improve circular practices**	9	0	11	1
○ **pharmaceutical industry does its own thing**	0	0	0	1
○ **Plastic (BOPP) is fully recyclable**	0	0	4	4
○ **Plastic (BOPP) is fully sustainable**	0	0	4	4
○ **plastic companies are standing up and fighting the narrative**	1	1	1	0
○ **plastic waste**	3	0	1	8
○ **Position in organisation**	1	1	0	0
○ **positive increased consumer awareness about importance of sustainabliy**	1	4	1	8
○ **practices and policies**	3	2	4	1
○ **practices to improve knowledge and understanding**	1	3	6	5
○ **practices towards improving sustainability**	2	5	6	1
○ **pressure from developed economies towards sustainability**	0	0	2	2
○ **price sensitive market**	2	0	0	0
○ **procurement of packaging that has certificates and standards**	2	0	5	1
○ **Procuring correctly is an ethical practice**	4	9	1	0
○ **production efficiency**	3	2	4	5
○ **public pressure to become more sustainable**	0	0	1	0
○ **published targets act as a sort of legislation**	2	2	5	2

○ **purchasing products that are environmentally friendly**	3	1	0	0
○ **push and pull implementation**	0	0	4	2
○ **push through sustainable alternatives through the printers**	0	0	1	1
○ **pushing boundaries**	1	1	1	0
○ **R&D is being done to make plastics more recyclable and sustainable**	2	2	3	8
○ **R&D is being done towards sustainable products**	3	2	3	5
○ **recyclabilty of a product is a challenge**	1	0	1	1
○ **recyclable packaging**	2	8	2	0
○ **recycled material being incorporated into production**	0	0	0	3
○ **redesigning packaging**	13	9	4	4
○ **reduce production costs**	1	0	4	6
○ **reduce water and energy usage**	0	0	0	2
○ **reducing energy usage**	0	0	2	4
○ **reducing inks and solvents used in printing**	0	0	1	1
○ **reducing one's carbon footprint**	8	2	7	5
○ **reducing packaging sizes to reduce waste**	1	7	1	0
○ **remanufacturing into a different product**	0	1	6	0
○ **removal on contaminations is important**	0	0	4	3
○ **removing products if they are not seen as sustainable**	4	2	0	0
○ **Research and Development into sustainability**	0	3	0	2
○ **resistance to changes**	0	1	0	1
○ **responsibility to do the right thing**	3	0	8	1
○ **responsible to be ethical in decisions**	6	6	6	1

○ **retailers will only use something if it sells**	2	1	0	1
○ **reusing materials within the manufacturing process**	0	0	6	3
○ **riots in KZN impacted business**	0	2	0	0
○ **Role of the organisation in supply chain**	6	2	8	6
○ **Roles and Responsiblities within Organisation**	2	2	2	4
○ **Sales and Procurement**	0	1	4	1
○ **sales can be impacted by the increased cost to consumer**	3	0	0	5
○ **shelf life of products**	5	3	2	14
○ **shift in focus from environment to people**	0	0	3	1
○ **shifting responsibility to others**	1	0	1	0
○ **shipping waste to different countries**	1	2	0	0
○ **single industry being a driver**	0	1	1	2
○ **single use plastic**	0	1	1	4
○ **social media is impacting organisations**	0	1	1	1
○ **some products have too much packaging**	0	4	0	0
○ **sorting of waste correctly**	2	1	4	1
○ **sorting through waste for recycling**	2	0	1	1
○ **South Africa has a very limited impact on the global scale**	0	2	0	0
○ **South Africa is further along than thought**	0	3	0	3
○ **Spotlight on plastics**	9	8	2	7
○ **standard**	0	0	1	0
○ **suppliers are offering more sustainable products**	6	1	0	0
○ **supply chain is offering alternatives**	3	1	1	9
○ **supply chain management is critical moving forward**	5	1	2	1

○ **support (negative) from manangement**	0	0	0	0
○ **support (positive) from management**	6	4	8	6
○ **Sustainability is here to stay**	0	2	0	1
○ **sustainability put on hold for covid**	0	2	3	2
○ **sustainable packaging does not look as appealing**	1	0	0	0
○ **Sustainable Procurement**	6	11	7	1
○ **Sustainable Production/Manufacturing**	1	8	7	1
○ **sustainable products carry a higher cost**	1	7	4	9
○ **sustainable sources of water and energy**	1	0	7	4
○ **the drive will increase in pace moving forward**	1	0	2	0
○ **there are areas of success**	0	0	1	0
○ **there is a perceived idea about recyclability and sustainability**	0	0	2	0
○ **there is no one solution for all**	1	0	0	0
○ **there is no silver bullet**	1	1	0	0
○ **there is still work to be done**	0	0	0	1
○ **ticking a box**	0	1	0	0
○ **Triple bottom line**	0	5	0	3
○ **turning waste in fuel**	1	0	0	0
○ **turning waste into a new product**	1	0	0	0
○ **turning waste into energy**	1	0	0	0
○ **unchangable overhead costs**	0	1	0	1
○ **understand that this is brand threatening**	1	0	0	0
○ **understanding carbon footprint**	5	0	5	8
○ **understanding that changes towards sustainability require changes elsewhere**	2	0	2	2
○ **understanding the carbon footprint of a product**	8	5	4	8

○ **understanding the impact of different types of packaging**	4	1	3	2
○ **understanding what the competition is doing**	4	1	1	3
○ **unenvironmental practices**	2	0	0	0
○ **unethical sources of raw material**	3	0	0	0
○ **unpredictability of the world at the moment**	0	0	1	0
○ **upfront investment costs**	4	0	6	7
○ **using data to understand what is happening**	0	1	3	0
○ **voice of the consumer for sustainability**	4	0	1	0
○ **waste in the oceans** Gr=7	2	0	0	5
○ **waste management act**	0	0	0	2
○ **waste management infrastructure**	7	0	12	8
○ **What is the cause of the drive?**	0	0	0	1
○ **will get worse before it gets better**	0	0	0	1
○ **willingness to collect and recycle**	3	0	3	1

Appendix 9: Informed Consent Form

Gordon Institute of Business Science
University of Pretoria

Informed Consent Letter:

I am currently a student at the University of Pretoria's Gordon Institute of Business Science, and I am completing my research in partial fulfilment of the Master of Business Administration programme.

I am conducting research on the "the drivers, barriers, and practices towards the adaption of a sustainable supply chain and circular economy. Experience from South African flexible packaging industry." Our interview is expected to last between 60 to 90 minutes and will help us understand the barriers, drivers, and practices towards the adoption a sustainable supply chain and circular economy from your experience. The interview will be conducted through a semi-structured interview format.

Your participation is voluntary, and you can withdraw at any time without penalty. All data will be reported without identifies to ensure the confidentiality of both you and your organisation.

By signing this letter, you are indicating that you have given permission for:

- The interview to be recorded;
- The recording to be transcribed by a third-party transcriber, who will be subjected to a standard non-disclosure agreement;
- Verbatim quotations from the interview to be used in the report, provided they are not identified with your name or that of your organisation;
- The data to be used as part of a report that will be publicly available once the examination process has been completed; and
- All data to be reported and stored without any identifiers.

Should you have any concerns, please contact my supervisor or myself. Our details are provided below.

Supervisor: Dr Jill Bogie
Mail: BogieJ@gibs.co.za
Researcher: Andrew Chapman
Mail: 20807687@mygibs.co.za / **Cell:** +27 (0) 82 446 0206

Signature of participant: _____ Date: _____

Signature of researcher: _____ Date: _____

Appendix 10: Ethical Clearance Approval

GIBS ETHICAL CLEARANCE APPLICATION FORM 2021/22

G. APPROVALS FOR/OF THIS APPLICATION

When the applicant is a student of GIBS, the applicant must please ensure that the supervisor and co-supervisor (where relevant) has signed the form before submission

STUDENT RESEARCHER/APPLICANT:

29. I affirm that all relevant information has been provided in this form and its attachments and that all statements made are correct.

Student Researcher's Name in capital letters:	ANDREW CHAPMAN
Date:	16 Jul 2021
Supervisor Name in capital letters:	JILL BOGIE
Date:	16 Jul 2021
Co-supervisor Name in capital letters:	
Date:	16 Jul 2021

Note: GIBS shall do everything in its power to protect the personal information supplied herein, in accordance to its company privacy policies as well the Protection of Personal Information Act, 2013. Access to all of the above provided personal information is restricted, only employees who need the information to perform a specific job are granted access to this information.

Decision:

Approved

REC comments:

Date: 19 Jul 2021