



MBA Sustainability Leadership

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Towards a circular economy: Barriers and enablers for the fast-moving
consumer goods sector

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Abstract

This research aims to explain the key barriers businesses face when implementing circular business activity and investigate what factors can enable greater adoption of the circular economy within the fast-moving consumer goods (FMCG) sector. The majority of the literature on the circular economy focuses on a single topic, predominantly circular business models. However, for a successful transition toward a circular economy, a more systemic and holistic perspective must be obtained. The research makes efforts towards such a perspective, contributing a holistic understanding of a circular economy across the value chain within FMCG companies, through analysis of both the practical barriers and enabling factors for businesses seeking to promote a circular economy. It does this through the conduction of a mixed method online questionnaire targeted at professionals working with circular practises within the FMCG sector. The findings of this study indicate that a lack of governmental support through legislation, economic modelling and infrastructure development are significant barriers to the transition to circular business practise for FMCG companies. The greatest enablers to support wider adoption involve developing infrastructure to enable the reverse logistics required for circularising the linear model, which in turn could create more willing and cooperative supply chains, and reduce the cost disparity which was found to deter both businesses and consumers. It must be acknowledged that transitioning to a circular economy is inherently complex, with the many barriers and enablers this study has identified illustrating just how interrelated these are. It is these interrelating factors that together can achieve greater adoption of a circular economy. Future researchers should carefully consider how these are categorised, for there is no set framework for how organisations experience the transition from linear to circular.

Table of Contents

Abstract.....	4
1.0 Introduction.....	8
1.1 Background to the Research.....	8
1.2 The Linear Economy.....	8
1.3 Transitioning to a Circular Economy	9
1.4 Research Gap	10
1.4.1 Research Gap I: Taking a holistic view	10
1.4.2 Research gap II: Theoretical and practical ambiguity	10
1.4.3 Research gap III: Context-specific research.....	10
1.5 Research aims and objectives	11
1.5.1 Research Questions	11
1.6 Paper structure	12
1.7 Illustration of the structure	12
2.0 Literature Review	13
2.1 Circular Economy: The Concept	13
2.2 Moving Towards a Circular Economy.....	15
2.3 Circular Economy and Fast-Moving Consumer Goods.....	16
2.3.1 A Circular Economy in practise.....	16
2.4 A Circular Economy: The Barriers and the Enablers.....	17
2.4.1 Institutional.....	18
2.4.2 Market.....	19
2.4.3 Organisational.....	20
2.4.4 Behavioural.....	21
2.4.5 Technological.....	22
3.0 Methodology.....	23
3.1 Research philosophy	24
3.2 Research approach	25
3.3 Research design	25
3.3.1 Methodological choice	25
3.3.2 Research strategy.....	26

3.3.3 Time horizon	27
3.3.4 Ethics	27
3.3.5 Sampling.....	28
3.3.6 Data collection and analysis	29
4.0 Presentation of Findings	33
4.1 Respondent Profiling.....	33
4.2 The Barriers	36
4.2.1 Behavioural barriers	36
4.2.2 Technological barriers	39
4.2.3 Organisational barriers	42
4.2.4 Institutional barriers.....	43
4.2.5 Market barriers	46
4.3 The Enablers	48
4.3.1 Behavioural enablers	49
4.3.2 Technological enablers	51
4.3.3 Organisational enablers	53
4.3.4 Institutional enablers	55
4.3.5 Market enablers	57
5.0 Discussion, conclusion, and limitations.....	60
5.1 Limitations	60
5.2 Discussion and conclusion.....	61
5.2.1 Research Question 1: What are the most significant barriers that have been experienced by companies in the FMCG sector when attempting to adopt circular principles?.....	61
5.2.2 Research Question 2: What enabling factors can support the transition to a circular economy within the FMCG sector?.....	63
5.3 Final Remarks.....	64
References	66
Appendix A – LinkedIn Post.....	72
Appendix B – Survey Answers.....	73

TABLE OF FIGURES

Figure 1 Circular Flows (Source, Ellen MacArthur Foundation, 2013).....	14
Figure 2 Barrier Type (Source: Bastein et al. 2014).....	18
Figure 3 Research Onion (Saunders et al. 2012).....	23
Figure 4 Respondent job title pie chart.....	33
Figure 5 Business activity pie chart.....	34
Figure 6 Business Category pie chart.....	34
Figure 7 Motivations for circular practise.....	35
Figure 8 Circularity integration pie chart.....	36
Figure 9 Behavioural Barriers.....	38
Figure 10 Behavioural Barriers - Qualitative.....	39
Figure 11 Technological Barriers.....	40
Figure 12 Technological Barriers - Qualitative.....	41
Figure 13 Organisational Barriers.....	42
Figure 14 Organisational Barriers - Qualitative.....	43
Figure 15 Institutional Barriers.....	44
Figure 16 Institutional Barriers.....	45
Figure 17 Market Barriers.....	46
Figure 18 Market Barriers - Qualitative.....	48
Figure 19 Framework of five.....	49
Figure 20 Behavioural Factors.....	50
Figure 21 Behavioural Factors - Qualitative.....	51
Figure 22 Technological Factors.....	52
Figure 23 Technological Factors - Qualitative.....	53
Figure 24 Organisational Factors.....	54
Figure 25 Organisational Factors - Qualitative.....	55
Figure 26 Institutional Factors.....	56
Figure 27 Institutional Factors - Qualitative.....	57
Figure 28 Market Factors.....	58
Figure 29 Market Factors - Qualitative.....	59

1.0 Introduction

This chapter sets out the background of the research, the research context, and its relevance to the fast-moving consumer goods (FMCG) sector, followed by an outline of the research gaps in existing literature. This chapter will then lay out the aims, objectives, and research questions of this dissertation. The overall structure of the paper is depicted in an illustration found in section 1.5.

1.1 Background to the Research

Greenhouse gas emissions, environmental destruction and biodiversity loss are all symptoms of our growing consumption habits, with 70% of current global greenhouse gas emissions connected to material handling and use (Circle Economy, 2023). We are living in a world where our production and consumption habits, are putting increasingly growing pressure on our global resources (Salvador *et al.* 2020; Geissdoerfer *et al.* 2017; Bocken, 2016). With raw material extraction, deemed responsible for environmental damage causing over 90% of biodiversity loss (Circle Economy, 2023; Lazarevic *et al.* 2022), there is an ever growing need to transition to more sustainable systems, to relieve the burden on our natural resources while ‘protecting future prosperity’ (Geissdoerfer *et al.* 2017; Fitch-Roy *et al.* 2019).

The future outlook looks ever bleaker, as The United Nations (2019) calculate with the rising population expected to reach over 9 billion by 2050, globally this will require three times the resources we currently use (Planing 2015). Thankfully, there is now a growing recognition that the current economic model is highly unsustainable (Mont *et al.* 2017; Henry *et al.* 2020; Westbloom, 2015).

1.2 The Linear Economy

The current economic model defined as ‘the operating system of capitalism’ (Taylor, 2018), has been termed a ‘linear’ system. A one-way throughput model of extracting and disposing of huge quantities of materials, also known as a take, make, waste system (Taylor, 2018; Lacy *et al.* 2020). This system which relies on the consumption of increasingly scarce resources and materials (Lucy *et al.* 2021), has been highlighted as the cause of significant environmental

harm (Korhonen *et al.* 2018) such as, biodiversity loss, pollution, resource depletion, and deforestation (Geissdoerfer *et al.* 2017; Fortier and Viens, 2018).

In the linear system raw materials are extracted, manufactured into products, consumed, or used by a consumer, and discarded after use (Westbloom, 2015; Hartley *et al.* 2020). The fast-moving consumer goods sector fuels this linear model, characterised by its high volume, low-cost products that are designed for single use. Products are produced, consumed, and discarded, at a fast pace, adding to our demands on landfills and resource extraction (Mont *et al.* 2017).

1.3 Transitioning to a Circular Economy

The fundamental need to transition from the linear model has led to growing popularity of the circular economy concept (Brendzel-Skowera, 2021). The circular economy (CE) is widely discussed as being a much needed and urgent change in advancing towards a more sustainable future (OECD, 2021; Yang *et al.* 2018; McGinty, 2020; Azizuddin *et al.* 2021). The circular economy “offers a systemic response to the climate crisis” (ING, 2022). It is a system that looks to reduce the harmful traits of our existing linear model. Done so, by rethinking how we use and recover materials, reducing the extraction of finite resources, and decreasing the harmful effects waste disposal has on our natural world (Yang *et al.* 2018; McGinty, 2020).

Much of the literature on the circular economy considers its application on durable products, products that are designed to last a long time and are often already built to be repaired (Kuzmina *et al.* 2019). Very little research has explored CE for FMCG’s however, given the scale and disposable nature of this sector, it remains an important sector in enabling a large-scale shift to a circular economy. As, Planing (2015) explains, 99% of the material flow generated from producing consumer goods ends up as waste within 6 months, emphasising both the unsustainable nature of the sector, as well as highlighting a significant opportunity for businesses within the FMCG sector. This opportunity is reiterated by a report from Accenture (2021) calculating the circular economy to be worth \$4.5 trillion by 2030. With both planetary and economic benefits in favour of a circular economy, it is a wonder then, why the uptake of circular transition is still “lagging”, with only 9% of the global economy being circular (Hartley *et al.* 2020). It is this inertia that motivates the research.

1.4 Research Gap

This paper intends to address the three research gaps listed below, which have been identified from the review of existing research.

1.4.1 Research Gap I: Taking a holistic view

The majority of the literature on the circular economy focuses on a single topic, predominantly circular business models. Very few take a holistic view of the full value chain (Tura *et al.* 2019). It is acknowledged by the author that for successful transitions toward a circular economy, a systemic view must be adopted. For, a circular business model alone cannot support a mainstream shift from a linear to a circular economy. Likewise, Bocken *et al.* (2016) and Tura *et al.* (2019) explain future research needs to holistically consider all elements and factors that may support or hinder the implementation of CE.

This gap offers an opportunity to contribute a holistic understanding of applying circular principles across the value chain within FMCG companies, considering the challenges and enablers across the landscape in which the organisations are connected. This considers legislation, consumers, supply chains, logistics, infrastructure, and business models.

1.4.2 Research gap II: Theoretical and practical ambiguity

Despite the extensive theory on the circular economy, when it comes to practically implementing the notion, the reality is lacking. This is evidenced by Urbinati *et al.* (2017) who found that companies looking to adopt circular business models struggle in understanding how to do so. This gap provides an opportunity to explain the practical challenges facing business seeking circular principles, while simultaneously identifying the enabling conditions that can support the transition from linear to a circular economy.

1.4.3 Research gap III: Context-specific research

Lastly, there is a lack of research within the circular economy field that focuses on the FMCG sector. Pieroni *et al.* (2021) agree, explaining that context specific solutions “are fundamental to reduce uncertainties, and stimulate broader adoption”.

Given the resource-intensive nature of the FMCG sector, an understanding of how to implement circular practises is critical. Arguably, the implementation of the circular economy

in FMCG can support a large-scale transformation, and substantially reduce the negative impacts of our production and consumption methods.

1.5 Research aims and objectives

The purpose of this thesis is to address the preceding research gaps, and to explain through empirical investigation, what factors could be hindering adoption or could enable greater adoption of a circular economy. The aim of this research is therefore to *explain the key barriers business face when implementing circular business activity, and investigate what factors can enable greater adoption of the circular economy within the fast-moving consumer goods sector*. In order to achieve this aim, the research will be led by the below three objectives:

- Investigate existing literature to identify barriers and enablers for the circular economy.
- To ascertain the most significant barriers fast-moving consumer goods (FMCG) organisations have experienced in their transition to circular practice.
- To investigate what organisations, believe to be the most influential factors enabling wider adoption of the circular economy within the FMCG sector.

1.5.1 Research Questions

The below research questions have been formulated to fulfil the research aims and objectives. The main overarching question to this research is: *What are the key barriers businesses face when implementing circular business activity and what factors can enable greater adoption of the circular economy within the fast-moving consumer goods sector?* To answer this question two sub-questions have been created. These questions devised from the proceeding literature review, are as follows:

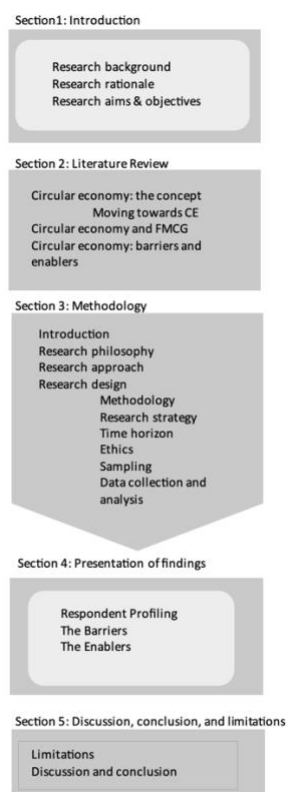
RQ1: What are the most significant barriers that have been experienced by companies within the FMCG sector when attempting to adopt circular principles?

RQ2: What enabling factors can support the transition to a circular economy within the FMCG sector?

1.6 Paper structure

This paper first reviews existing literature on the circular economy concept, summarising the thematic areas that fall within this broad concept, namely, business models, consumer behaviour, supply chain operations, policy, as well as explaining the importance of a circular economy within the fast-moving consumer goods sector (Section 1). Section 2 of this paper outlines the research methodology, research methods, as well as data collection, data analysis processes. Following this, Section 3 presents the findings from the research. Section 4 includes an analytical discussion, concluding thoughts, as well as recommendations for future studies.

1.7 Illustration of the structure



2.0 Literature Review

This chapter presents a theoretical underpinning to the research, through a review of available literature. It will first outline the circular economy (CE) as a concept, and what's needed in moving towards a CE. Following this, the fast-moving consumer goods sector will be defined, with particular attention to its relationship with the circular economy. Finally, I will review literature researching the barriers and enablers in the pivot towards a circular economy.

2.1 Circular Economy: The Concept

In recent years the circular economy has gained momentum among scholars, practitioners, and policymakers, as an alternative to society's historic linear model of "take, make, waste" (Pieroni *et al.* 2021). Unlike the linear economy in which materials are extracted from the natural environment, manufactured into products, used, and disposed of, the circular economy is a concept which aims at "creating an industrial system that is restorative by intention" (The Ellen MacArthur Foundation 2013).

In a circular economy, materials are circulated in closed-loop production system, which recovers materials at the end of their life for reuse or repurposing (Yang *et al.* 2018), avoiding the depletion of natural resources, and reducing environmental degradation and greenhouse gas emissions (Ekins *et al.* 2019; Tura *et al.* 2019; Lucy *et al.* 2021). A circular economy aims to eliminate waste by keeping products, materials, and components in use for as long as possible at their highest possible value (The Ellen MacArthur Foundation 2013).

The paradigm of a circular economy considers two key cycles of biological and technical materials, as illustrated in Figure 1 (Ellen MacArthur Foundation, 2013). Biological cycles consider materials that are natural and non-toxic which can easily be returned to the soil (e.g., food waste, organic matter), whereas technical cycles consider either man-made materials that cannot degrade, or materials that risk causing contamination within the biological flow (Ellen MacArthur Foundation, 2013). These technical materials therefore need to be flowed back into the production cycle, using methods to reuse the materials and components to avoid disposal. An important point to consider for this study, is that FMCG straddles both cycles - for example, food products (biological) packaged with (technical) materials - highlighting an additional level of complexity to overcome when applying CE principles to the sector.

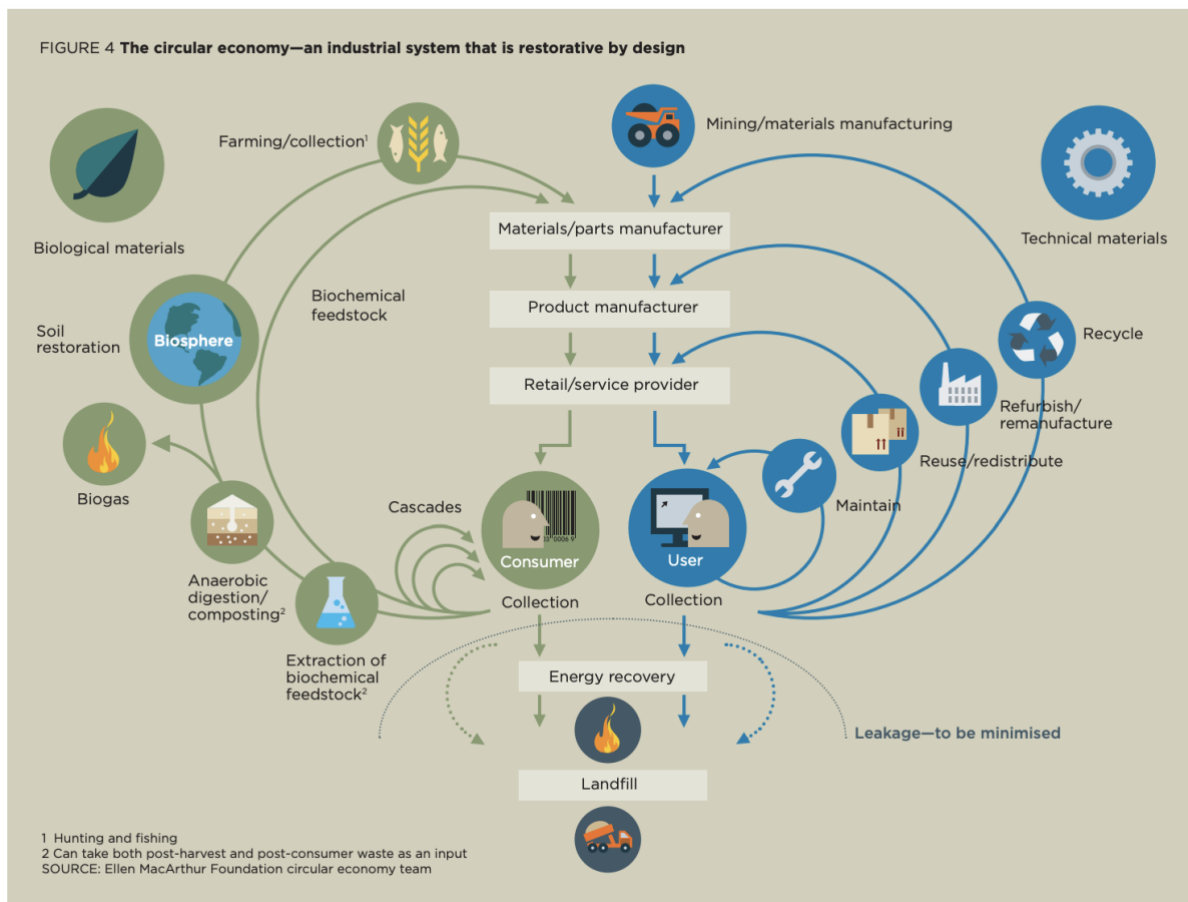


Figure 1 Circular Flows (Source, Ellen MacArthur Foundation, 2013)

The circular economy is a closed-loop system where the value of products and materials are preserved through multiple lifecycles (Ellen MacArthur Foundation, 2013). In contrast to linear models where a product is usually disposed of after single use, a circular economy seeks to capture and recover what would have previously been regarded as waste through strategies of reuse or repair (Charnely *et al.* 2015; Daño *et al.* 2020). As well as maximising the lifetime of products and materials (see Alonso-Muñoz *et al.* 2021), through techniques such as better design (see Bocken *et al.* 2016), a circular economy seeks to retain materials, flowing them back into the production, thereby avoiding waste altogether (Pieroni *et al.* 2021). Following the principles of a circular economy will fundamentally change our methods of production and consumption for sustainability (Lacy *et al.* 2021).

As well as its environmental benefits, moving towards a circular economy can benefit companies economically. Benefits include a decrease in resource dependence (Bechtel *et al.* 2013), mitigating volatile pricing and supply risks (Lewandowski, 2016), as well as providing

a better competitive advantage (Nußholz, 2018). A CE also offers significant job creation possibilities, creating employment opportunities across sectors through the development of remanufacturing, reverse logistics, and through increased innovation and technological advancements (Gong *et al.* 2020). Financially, CE is seen to provide additional revenue streams through new value creation (Tura *et al.* 2019), as well as providing savings in material and energy costs (Lewandowski, 2016; Mallick *et al.* 2023), with a report by Accenture (2021) finding that companies seeking to adopt CE principles “are poised to make an additional \$4.5 trillion in profits”.

2.2 Moving Towards a Circular Economy

“A circular economy offers a powerful way forward” (Lacy *et al.* 2021).

The transition from a linear to circular model requires a complete systems redesign, with business models widely discussed as being a key part of the redesign, and many researchers exploring circular business models (Bocken *et al.* 2016; Henry *et al.* 2020; Lacy *et al.* 2020; Hofmann, 2019; Nußholz, 2017), which focus on tackling consumption, such as product service-systems, or production, such as product-use extension or resource recovery (Lacy *et al.* 2020). Product service-systems (PSS) emphasise the ‘servicisation’ of products, offering customers the option of sharing or renting rather than owning (Wentworth and Burgon, 2016; Tura *et al.* 2019; Planing, 2015; Velis and Vrancken, 2015). In a product-service system, a company offers access to products, but retains ownership of the products (Lewandowski, 2016). This is an important concept for the fast-moving consumer goods sector, as it fulfils the same consumption demands found in a linear economy, while avoiding the disposal of materials once the consumer has finished with the product (Kuzmina *et al.* 2019).

The move towards a circular economy, and the rise of circular business models, requires a shift to ‘closed loop’ or circular supply chains (CSC) (Mallick *et al.* 2023). Developing circular supply chains is critical in facilitating resource recovery and value creation for business models (Esposito and Soufni 2018; Yang *et al.* 2018; Lewandowski, 2016). CSC’s offer a way of connecting ‘the point of consumption’ back to the ‘point of origin’ for the purpose of recovering or recapturing value and avoiding disposal (Bocken *et al.* 2016; Govindan *et al.* 2015; Alonso-Muñoz *et al.* 2021). The process of recovering products and materials from consumers, and

returning them to retailers or manufacturers, is reliant on reverse logistics, or “take-back” schemes (Mallick *et al.* 2023). Effective take-back schemes are an important enabler to bridge the gap between disposal and reuse, and they are becoming an important consideration for fast-moving consumer goods companies. It is the relationship between the circular economy and consumer goods sector that the next section will explore.

2.3 Circular Economy and Fast-Moving Consumer Goods

Fast moving consumer goods (FMCG) are mass products, frequently purchased, for everyday use including food, beverages, fashion and textiles, personal care products and household supplies (Bocken *et al.* 2016). In contrast to the circular economy which encourages the slowing down of production and resource use, the FMCG sector is characterised by the speed at which it can manufacture low-cost products at high volumes, and the short lifespans of products, which are typically designed for limited or single use (Kuzmina *et al.* 2019). This means that the sector is extremely resource-intensive, mainly using virgin materials and ‘hard to recycle’ materials (Bocken *et al.* 2022). With 99% of the material flow generated from producing consumer goods ending up as waste within 6 months after use (Planing, 2015), it is clearly incoherent with a circular economy. It is these characteristics that make it difficult to frame CE principles against the industry (Kuzmina *et al.* 2019). However, with the FMCG sector remaining a significant part of consumer spending (EMF, 2013), dominated mostly by multi-national organisations and with the total material value of the fast-moving consumer goods being valued at \$3.2trillion (Ellen MacArthur, 2013). It is a critical sector in both the transition to a circular economy and in accelerating wider adoption of circular principles.

2.3.1 A Circular Economy in practise

Several studies discuss the importance of addressing CE through packaging-use within the FMCG sector (Stewart and Niero, 2017), either through innovative materials use or through reusable and refillable packaging options (Bocken *et al.* 2022). This is also exemplified with policy reforms such as the Extended Producer Responsibility (EPR) and Deposit Return Scheme (DRS). EPR is due to be rolled out in the UK in 2024 and aims to incentivise producers to minimise waste and manage resources more efficiently by rewarding or penalising them (GOV.UK, 2022). With this new policy producers will be held responsible for the collection, sorting, recycling of their product packaging (Circular, 2023). It is hoped that by passing the financial burden of managing waste onto producers, brands will be encouraged to consider their

waste and packaging use, and move towards more circular solutions (Circular, 2023). In a similar way, the Deposit Return Scheme (DRS) also focuses on the recycling of products, but focuses only on single-use drinks containers. The DRS requires a cash deposit, which it is hoped will incentivise consumers to return their drinks cartons for recycling, to minimise waste and encourage the recycling of materials (GOV.UK, 2022). However, a plastic recycling charity RECOUP found that consumers are less likely to engage with the DRS if it is not convenient, with 56% of consumers declaring that they wouldn't travel, or wouldn't travel more than one mile to return containers, with 20% of those stating they would not travel at all (Circular, 2018). This research highlights the importance of considering convenience for consumers when applying circular practises within the FMCG sector.

Given that most consumer goods are packaged, with 40% of Europe's plastic demand coming from the consumer goods market (Bocken *et al.* 2022) it's understandable that packaging related activities are becoming the dominant focus of circular related activities in industry (Stewart and Niero, 2017). However, there is risk that concentrating only on the outputs, or the 'front facing' element of the business, could result in an oversimplification of circular practise, devaluing its importance and its core principles. Therefore, a systems-thinking approach must be adopted (Ellen MacArthur Foundation, 2015).

It is clear that effectively integrating circular activities within the FMCG sector is complex and hard to assess (Kuzmina *et al.* 2019; Bocken *et al.* 2022). It could be for this reason, as explained by Stewart and Niero (2017), that there is limited research reviewing the 'integration and implementation' of CE in the FMCG sector.

2.4 A Circular Economy: The Barriers and the Enablers

Due to the lack of literature specifically exploring the circular economy in the FMCG sector, this section relies on literature that looks to understand the barriers and enablers in the transition to CE from a general, cross-industry perspective. Many academics have explored the barriers to a circular economy, some from the perspective of product type (Dieckman *et al.* 2020), some a particular location or country (Biwei *et al.* 2013), some at organisation size (Rizos *et al.* 2015; Rizos *et al.* 2016), with others investigating the micro and macro factors (Tognato de Oliveira, *et al.* 2020). While some scholars declare it an economic (Rizos *et al.* 2016), or regulatory issue (Daño *et al.* 2020), others believe it is down to a leader's risk-aversion (Tan *et al.* 2022). For

the purposes of this research, I will adopt as a frame of reference, the framework set out by Bastein *et al.* (2014), which forwards five key categories of investigation in their research looking at barriers for businesses in resource efficiency measures - regarding the adoption of secondary materials, service-life extensions and product-service systems, which are all elements that were earlier identified to be of central importance for the FMCG sector moving towards a circular economy. The five categories, as detailed in Figure 2, are institutional, market, organisational, behavioural, and technological.

Barrier Type	Definition	Examples
Institutional	Barriers caused by political institutions	Regulations and laws
Market	Market conditions, economic climate, value network conditions	Monopolies, lack of information, subsidies, supplier leverage, etc.
Organizational	firms as social systems influenced by goals, routines, organizational structures, etc.	company strategy or focus, lack of funds, lack of CSO, etc.
Behavioural	Individuals' values and attitudes within companies	lack of attention, lack of perceived control, lack of information, etc.
Technological	Insufficient or too costly technology	lacking equipment or other tools, undeveloped technology from the market, unable to support technology, etc.

Figure 2 Barrier Type (Source: Bastein *et al.* 2014)

I will now interrogate each of Bastien's (2014) categories in detail, to ascertain the relevance of each for organisations in the FMCG sector moving towards a circular economy. This will set my research in context, and guide the framing of my questions to participants (to be discussed in more detail in the methodology).

2.4.1 Institutional

Institutional barriers are typically external to an organisation, and include regulations, legislation and political agendas that may be inhibiting the transition towards a circular economy (Bastein *et al.* 2014).

Policy is widely discussed among academics as fundamental in the transition to a circular economy: It is recognised that policy interventions are required "to create the conditions for the wider adoption of circular business models" (OECD, 2019). In fact, a report by the OECD (2021) finds that without policies in favour of resource recovery, materials use is projected to double by the year 2060 compared to 2017 levels.

Given the scale of the FMCG sector and the dominant role of multi-national organisations within the sector, policy and regulation could be a great enabler and driving force behind innovative and circular solutions (Westblom, 2015) - particularly, if pre-existing linear operations and values are still “baked in” within these large organisations, with little motivation internally to change their ways (Hartley *et al.* 2020). Recent policy tools such as the extended producer responsibility (EPR) and deposit return schemes (DRS) are such examples of policy intervention effectively leading action (Circular City Funding Guide, 2022; OECD, 2021).

On the other hand, governments and existing regulations can be found to be prohibiting the transition to a circular economy, with Daño *et al.* (2020) arguing that the biggest obstacle to this transition is the lack of awareness by governments. Some authors believe it to be existing policy frameworks that are hindering the CE transition. Mont *et al.* (2017) holds the view that existing policy frameworks resulting in high taxes on labour and low taxes on natural resources are in favour of the linear model. Similarly, Briguglio *et al.* (2021) find existing policy and taxes dis-incentivise companies willing to adopt circular principles. Likewise, Lazarevic *et al.* (2022) blame tax systems which allow prices on virgin materials to be more competitive than their repaired or recycled counterparts to be a significant barrier in seeking wider uptake of circular practise.

2.4.2 Market

This category includes factors that have an influence on the market mechanics, including market entry barriers, subsidies, market failures, costs of new technologies and the influence of consumer behaviours (Bastein *et al.* 2014). These are external influences impacting upon a business, and can include demand from market, consumers’ willingness to pay, as well as market size and market pricing (Bastein *et al.* 2014).

As noted earlier, with the structure of the sector dominated by many multinational organisations, new “greener” entrants are restricted, with these large organisations holding greater power and influence over market changes, innovations, and developments. If these organisations are not motivated to change their linear models, this could be detrimental to the success of circular economy adoption throughout the sector, as well as the success of any new circular entrants (Bastein *et al.* 2014).

Financial barriers have been extensively cited as a serious barrier (Bastein *et al.* 2014; Oghazi and Mostaghel, 2018; Rizos *et al.* 2015), with complicated evaluative measures and upfront costs that are much higher than a linear business model (Oghazi and Mostaghel, 2018). Additionally, the return on investment, and retention of assets is a financial consideration identified to be of concern for willing businesses (Oghazi and Mostaghel, 2018). In a similar way, the low cost of virgin materials versus the higher costs for circular products (Daño *et al.* 2020) is identified as a challenge, which is of relevance for the low-cost nature of fast-moving consumers goods, (Hazen *et al.* 2017) and the reliance of consumers opting for the greener choice, even if it does come at a premium price (Hazen *et al.* 2017). A report by the Ellen MacArthur Foundation (2013) found that it was cheaper to source virgin wood and fibre than it was to reuse fibres, which provides a solid indication that the high pricing for reused and recovered materials could be a significant barrier for both consumers and businesses. It can therefore be said that fiscal regimes, and governing frameworks remain a barrier to CE adoption all the while the externalities of costs go unaccounted for (Ellen MacArthur Foundation, 2013). Where pricing of linear products remains cheaper than recycled or recovered products, organisations are found to be concerned that there will not be enough market demand to warrant a change in strategic positioning (Oghazi and Mostaghel, 2018), with market demand being identified as a barrier for driving new circular initiatives (Daño *et al.* 2020).

2.4.3 Organisational

Organisational barriers predominantly stem from the structure and operation of organisations, as well as the knowledge and know-how within and between companies. A review of literature has identified several prominent organisational influences that could hinder or enable greater adoption of the circular economy within the FMCG sector. Ritzen *et al.* (2017) found that a key barrier for organisations involves the practical task and responsibility division of circular practises, explaining that two case study companies claimed that integrating CE into the company is complex, with uncertainty around which department is best placed to manage CE operations. This supports literature finding that insufficient or lack of information are a significant barrier (Bastein *et al.* 2014),

Earlier in the chapter I identified the importance of circular supply chains in the transition to a circular economy. However, as observed by Kazancoglu *et al.* (2018) and Ellsworth-Krebs *et*

al. (2019) circular supply chains cannot occur from an individual companies' activities alone. Rather, they depend on the coordination and cooperation of all actors within the supply chain (Urbinati *et al.* 2017; Yang *et al.* 2018). Many academics and practitioners discuss the importance of collaboration for the effective, large-scale implementation, of a circular system (Ellen MacArthur Foundation, 2013; Tan *et al.* 2022), with Ritzen *et al.* (2017) explaining that to integrate circularity within supply chains, closer relationships between supplier, producers, and customers are essential. This is a critical element for the FMCG sector, and could highlight significant barriers in widescale adoption for a circular economy, because supply chains remain a fundamental part of the flow of goods within the industry, and rely on many stakeholders within the supply chain cooperating.

2.4.4 Behavioural

Behavioural barriers arise from the attitudes and values upheld by individuals, influenced by both internal and external factors. Consumer behaviour, and wider 'public participation', is cited as being an important factor in enabling a transition to circularity (Planing, 2015; Gong *et al.* 2020). In fact, Planing (2015) goes as far to say that the role of the consumer is the most important role in the shift towards a circular economy, for three key reasons: Firstly, as identified by both Planing (2015) and Daño *et al.* (2020) consumers must express their acceptance and willingness to purchase repurposed, reused, or recycled products ahead of brand-new products, through their purchasing behaviour (Pieroni *et al.* 2021). The 'intention-action' gap has been identified as a significant socio-cultural barrier, with a review by Tan *et al.* (2022) finding that while environmental awareness and values exist, consumers are often not seen putting their 'money where their mouth is'.

Secondly, consumers must transition their current ownership values. Ownership has been a large part of many societies, which many academics highlight as being a key hurdle to overcome for circular business models. For example, Planing (2015) and Pieroni *et al.* (2021) found that with a change in business models towards 'product as a service' (product-service systems) and sharing platforms, a change in consumer mindset from ownership to sharing is required. The third reason considers the important role of consumers as actors within closed-loop supply chains (Mallick *et al.* 2023). Consumers need to be interested in, and engaged with the process of returning products back to a retailer or manufacturer within a closed consumption model (Gong *et al.* 2020). Ultimately, if consumers lack awareness or motivation

to return end of life products, this remains a challenge, as they are the starting point of enabling reverse logistics (Mallick *et al.* 2023). In addition to public acceptance, the interest and willingness of managers and employees must also be considered. Leading circular initiatives lies mainly in personal values, beliefs, and attitudes of decision markers (Bastein *et al.* 2014). Tan *et al.* (2022) found that ‘risk-averse leaders’ are a key barrier in the pivot to CE. This reluctance to change is an obstacle not only internally within a company (Bastein *et al.* 2014), but also to cooperation throughout the value chain, “as risk-averse leaders are not ideal collaborators” (Tan *et al.* 2022).

2.4.5 Technological

Many academics found technology to be an important enabler for the implementation of CE. Charnely *et al.* (2015) outline the importance of technology for a circular future, outlining that data can be used to enhance service offerings, as well as maximise the effective recovery of resources. Similarly, Sarja *et al.* (2021) maintain technology can aid the implementation of CE throughout the value chain considering product design and production, through to end of life and recovery. Technology will optimise resource recovery through sorting, storing, handling, as well as tracking (Ellen MacArthur Foundation, 2013). In addition, technical influences exist through the development of take-back mechanisms (Torstensson, 2016), processing technology (Dieckmann *et al.* 2020), the technical know-how in operating CE (Oghazi and Mostaghel, 2018), as well as the characteristics and quality of material types (Dieckmann *et al.* 2020) and expertise in product design for reuse (Oghazi and Mostaghel, 2018).

Having the infrastructure to enable reverse logistics remains a critical factor in circular business approaches. Several studies have identified infrastructure as a key barrier to CE (Gong *et al.* 2020; Ding *et al.* 2023; Briguglio *et al.* 2021). In fact, Gong *et al.* (2020) argues the lack of infrastructure is having a significant impact on the pace of change, with research finding that the collection and sorting of infrastructure is paramount. Likewise, Briguglio *et al.* (2021) found that shortcomings in circular development were due to the lack of adequate supporting infrastructure. It's clear that technology has huge enabling powers. But, due to its cost, limited availability, and inaccessibility these technological influences remain a fundamental barrier.

3.0 Methodology

This aim of the research is to identify the key challenges inhibiting the transition from a linear to a circular economy within the FMCG sector, as well as to identify factors that could enable the transition. This section outlines the approach to carrying out this research.

This chapter is structured following the layers of the research ‘onion’ (see figure 3) presented by Saunders *et al.* (2012), explaining that to reach the core of the ‘onion’, in which lies the data collection and analysis, you must first peel away the outer layers. This chapter will follow the layers of the onion beginning with the outer layer of research philosophy, then research approach, until we can then explain the research design which includes methodological choice, research strategy, the time horizon, before concluding with the techniques and procedures for data collection and analysis.

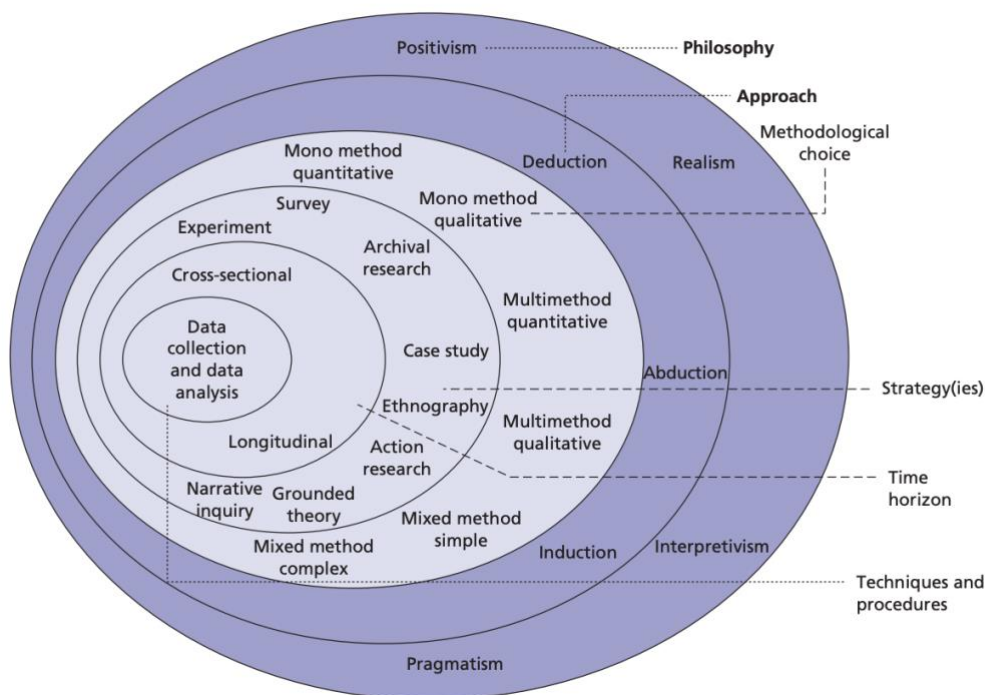


Figure 3 Research Onion (Saunders *et al.* 2012)

3.1 Research philosophy

To understand the data collection method, or *how* the researched knowledge will be gained we must first understand *what* there is to know about this research topic. Generally, there are three key research paradigms; positivist, post-positivist and interpretivist known to be on a continuum from positivist to interpretivist, broadly seeking either to ‘explain’ or ‘understand’ the social sciences (Grix, 2004. p.28).

Positivism is the traditional research paradigm, it emphasises empirical theory in the production of knowledge, it is more interested in scientific methods seeking facts rather than values (Grix, 2004; Porta and Keating, 2008). In positivist research, the researcher is separate from the research and therefore observes it without affecting the observed object (Porta and Keating, 2008). Whereas interpretivism believe in subjectivity with greater emphasis on meaning and value than on fact (Porta and Keating, 2008). Interpretivist researchers believe they are part of the world in which they study with constant interaction between theory and data (May, 2011). Post-positivism on the other hand, takes a more relaxed approach of positivism, where reality is still considered objective but “only imperfectly knowable” (Porta and Keating, 2008), allowing for subjective understanding (Dawadi *et al.* 2021). Post-positivists recognise that, rather than a linear process of cause and effect (as is the nature of a positivist approach), outcomes are a result of a complex web of interacting factors (Giddings and Grant, 2006).

In the context of my research, I will be providing participants with a questionnaire to answer. The mere creation of this list is an example of my own interpretivism. Participants will have the capacity to answer the questionnaire at their own free will and judgement, but this judgement will again be defined by their own experiences of the world, and their interpretation of me as a researcher, and the questionnaire. Thus, while the data will be seeking to ascertain objective facts about the challenges and enablers of circular practice, the data will have come about in a set of “imperfectly knowable” (Porta and Keating, 2008), subjective circumstances, that are a complex web of interacting factors (Giddings and Grant, 2006).

There is a need to derive empirical data on this issue in order to activate the research in the comprehensive way. Thus, there is also an element of critical realism, which recognises that “agents are themselves active in interpreting their own structural context, and that the

meanings that they attach to any given situation are likely to differ” (Kerr, 2003 cited in Grix, 2004 p.85)

The philosophical basis of this study is therefore post positivism - critical realism. Given the need for empirical research to better understand the prohibiting factors of the transition to circularity, the research lends itself towards critical realism philosophies. Critical realism “affirms that a real world exists independently of human knowledge and experience and that this reality is knowable, although only partially and imperfectly” (Brunson *et al.* 2023). Importantly, critical realism recognises that knowledge may be revised or reinterpreted as knowledge develops (Porta and Keating, 2008). It is hoped that as this research, and future research, contributes practical insights into the pivot to circularity, the knowledge does indeed develop and evolve beyond the concluding findings found in this research, and in turn creates informed and efficient eco-systems to support a more sustainable production and consumption methods.

3.2 Research approach

There are two main approaches to research, deductive or inductive reasoning. Deductive research is defined by Grix (2004) as a strategy “in which theory informs research at the outset”, and thus dictates what hypotheses the researcher looks for. Whereas inductive research creates theories and conclusions from direct observation of the empirical research (Grix, 2004).

This research adopts a deductive research approach, for the research design and the questions asked have been developed from the proceeding literature review (Saunders *et al.* 2012). As explained by King *et al.* (1994: 29 cited in Grix, 2004) “no empirical investigation can be successful without theory to guide it’s choice of questions”.

3.3 Research design

3.3.1 Methodological choice

There are two main domains of academic research: quantitative and qualitative. The simplest way to distinguish between the two methods is between numeric (quantitative) and non-numeric (qualitative). Quantitative research is defined by Saunders *et al.* (2012) as a method which collects or analyses data which ‘generates or uses numerical data’. Common quantitative collection techniques are questionnaires, with the use of graphs and statistics for analysis.

Whereas qualitative refers to data collection and analysis techniques that generates or uses non-numerical data (Saunders *et al.* 2012), such as interviews. While it is important to distinguish these two methodology approaches, academics highlight that this is too simplistic and narrow (Saunders *et al.* 2012). For, many research designs, particularly within the field of business management, the two methods are often combined. The main reasons for adopting mixed methods, as outlined by Saunders *et al.* (2012), they allow for findings to be “elaborated, enhanced, clarified, confirmed, or linked”.

This study will adopt a mixed methods approach, combining both quantitative and qualitative methods to “provide a more comprehensive and richer response to the research question” (Saunders *et al.* 2012). This mixed methods approach will be carried out through a single data collection process by way of a survey. The survey will use both open and closed questions gathering quantitative and qualitative insights. A series of closed-ended ranking questions will ask respondents what they perceive to be the ‘most significant’ or ‘insignificant’ barriers and enablers for CE adoption within the FMCG sector. Complimentary open-ended questions asking respondents to elaborate on their quantitative responses, by providing any additional insights or observations will broaden and strengthen the results of this study, allowing for a much more comprehensive analysis (Parylo, 2012).

The post-positivist epistemological nature of this research lends itself toward this mixed method approach, enabling the researcher to quantify what respondents believe to be the most significant challenges and enabling factors in the transition to a circular economy, while also providing an opportunity to capture subjective observations and experiences to enhance the findings.

3.3.2 Research strategy

The research strategy is defined by Saunders *et al.* (2012) as the plan which allows a researcher to go about answering their research question, “it is the link between the philosophy and the methodological choice”.

A survey will be adopted for the research strategy in this study. A survey strategy is most commonly associated with a deductive research approach, as it allows for sizeable collection of data while allowing for efficient analysis (Saunders *et al.* 2012). The survey lends itself well

to exploratory research, it is also easy to understand and to interact with and can provide the researcher with greater control. Considering both the sampling requirements and limited timescales, the survey was deemed the most appropriate method for this study, whilst allowing the collection of comprehensive, reliable, and rich insights in answering the research questions set out in the Introduction.

Although the survey strategy allows for a large collection of data, its main limitation is that the collected data is unlikely to be as wide-ranging as other approaches (Saunders *et al.* 2012). The survey is intended to be focused and precise to delve into key barriers and influential factors that can explain the practical challenges organisations within the FMCG sector have experienced, so, while the responses are limited to the questions that have been asked the author believes the insights provided would be greater than those that may be collected through alternative approaches. This will be explored further in the *data collection* section.

3.3.3 Time horizon

It can be said that this dissertation is cross-sectional in its time horizon, for this study is a ‘snapshot’ of a phenomena being carried out ‘at a particular time’ (Saunders *et al.* 2012). In contrast, longitudinal studies require an extended research process with the capacity to study ‘change and development’ (Saunders *et al.* 2012). This study is engaged with collecting data at a moment in time, and therefore does not require a longitudinal approach to the timescale.

Due to time constraints a web-based survey was deemed the most appropriate, as it allows respondents to complete it within their own timescales, without prior organisation, and can consider geographically dispersed sample size (Saunders *et al.* 2012). Looking beyond the time horizon it can be said that the planning of the research considered the most appropriate method for the research aims and objectives, but also considered timescales, and scope of the research including access to respondents, resources, and geographic dispersion.

3.3.4 Ethics

To avoid harm, it’s important to evaluate any risk associated with the research. The research conduct has been guided by the University of Wales Trinity Saint David’s code of ethics. Beyond this code of ethics, I have carefully considered and applied the code of ethics to the context of my research. The social nature of the research ensured the rights of all respondents

were recognised. To avoid harm, I took the upmost care to ensure the research was not conducted in an intrusive way, which could cause anxiety or stress. Privacy was a key consideration; respondents were not asked for any personal or professional information was asked or obtained throughout the survey ensuring the confidentiality and anonymity of the respondents. Participation of the research was voluntary, which was outlined in the survey's covering information page. In addition, respondents were made aware that they may withdraw from the research at any time to avoid any feelings of stress or pressure when participating in the research.

3.3.5 Sampling

As noted already, the research aims to ascertain through empirical investigation the barriers and enabling factors for the wider adoption of CE in the FMCG sector, to ensure the collected data reflects 'real-life' experience the sample of respondents must fit two criteria; they must have experience working in the fast-moving consumer goods sector, and they must be experienced in circular business approaches. Therefore, 'probability sampling' was adopted, to allow the findings of the study to be representative of the population of practitioners working with circular practises within the FMCG sector.

Saunders *et al.* (2012) explain a higher response rate from probability sampling avoids the risk of non-bias and ensures the sample population is representative. Although the study requires 'probability sampling', there may also be an element of volunteer sampling through self-selection and snowball sampling. Self-selection is expected to have occurred because I have publicised the need for cases, publicly on the social media platform LinkedIn, individuals that 'come across' the survey, may choose to participate (Saunders *et al.* 2012). In snowball sampling an individual is contacted, who then shares the invitation with other similar individuals, this is commonly used on social media platforms, as it can be a useful method to access 'hard to reach' populations (Dusek *et al.* 2015). Snowball sampling occurred because I asked my network of professionals to share the survey with their own network, as well as their own contacts and peers that fit the criteria, and who may be interested in contributing to the study.

3.3.6 Data collection and analysis

A web-based questionnaire was the choice of method for the data collection. Questionnaires are the most common data collection technique used for a survey strategy (Saunders *et al.* 2012), for it allows all respondents to answer to the same set of questions, and is an efficient way of collecting responses prior to analysis (Saunders *et al.* 2012).

As briefly mentioned earlier, the survey was distributed over the internet using social media platform, LinkedIn. LinkedIn is a professional social network, connecting businesses and professionals (Santora, 2023). It is for this reason that it was deemed the most appropriate and efficient medium to access the population sample. The survey was advertised from my personal profile on LinkedIn, allowing anyone within my network to view it. I then also advertised the research, and the survey in established professional groups, for example ‘Circular Economy community – Ellen MacArthur Foundation’ and ‘Circular & Regenerative Economy’. The posts were viewed on screens 2,942 times, however, received just 20 responses. The survey was public for one month between 27th April 2023 – 27th May 2023. The post can be viewed in Appendix A.

Questionnaires are most effective with standardised questioning which can be interpreted the same way by respondents, therefore, they lend themselves well to descriptive research approaches (Saunders *et al.* 2012). Given that the circular economy is not well established in concept and definition, having structured questions allowing for structured responses felt the most appropriate to enable categorisation and generalisation of opinions and insights that would arise from the data. The questionnaire was therefore deemed the most appropriate method for this research because it is structured and simple to use, and should therefore generate reliable and valid results (Ekinci, 2015). There was concern that while other methods may have created more wide-ranging results, the findings would have been too broad and generic.

Ekinci (2015) explains the practicalities of accessing the sample and the respondent characteristics often influence the type of questionnaire, the design of the questions (open or closed) and the ‘administration method’. This has been a fundamental consideration within this study, as the questionnaire is self-completed and can only be accessed using the internet, therefore certain elements must be considered (Ekinci 2015). For example, there was concern

that gathering purely qualitative insights through online mediums would be lacking in detail, and usefulness. It was therefore concluded that the mixed method approach would be most suitable. Quantitative, closed-ended questions allow the research to explore topics in depth whilst remaining focused on specific identified issues. With the addition of supplementary open-ended questions providing participants with an option to elaborate, or contribute new insights and opinions that may have been overlooked in the closed questions. Therefore, providing this study with richer, comprehensive, reliable, and valid findings. As is the nature of the post-positivist critical realism research.

As noted earlier, a variety of questions were used in the questionnaire, both open-ended and close-ended. The closed questions included list and rating questions. The list questions were used to determine specifics about the respondent's context (for example, organisation size, type, or position). List questions ensure that all respondents were selecting from the same set of answers, therefore eliminating any bias (for example, asking respondents the size of organisation as a multiple-choice question ensures there is no deviance or variations of responses, which may have occurred if this was an open question). The rating questions asked respondents to rate a series of statements, on a continuum with a specific criterion allowing participants to rank the perceived significance of the listed barriers, and the perceived influence of the listed enablers (Ekinci, 2015). The series of statements which respondents must rate from 'very significant' to 'insignificant' for section two: the barriers. And 'very influential' to 'not at all influential' for section three: the enablers. It is common with rating questions to provide a neutral option, to allow a respondent to 'sit on the fence' (Ekinci, 2015). I chose to add the phrase 'not sure', as it is less threatening to the respondent than 'don't know', which may otherwise deter respondents from selecting the neutral option.

The explored literature has underpinned the research design. The theoretical exploration as discussed in the literature review, helped identify the "dynamics integral to the research objectives" (Ekinci, 2015), which in the case of this research was identifying relevant factors and key variables most appropriate for the research question and following a theoretical framework in which to structure the question. The question structure follows Bastein *et al.* (2014)'s framework, of five key categories influencing the slow adoption of a circular economy those are: market, institutional, organisational, behavioural, and technological. This framework helps collect reliable, comprehensive, and focused findings regarding specific factors that have

been identified as significant issues from the literature. While, it is believed this approach will provide richer insights, it can also be seen as a limitation, as the results of the data are limited to the questions that have been asked. It is for this reason that the author has added a supplementary open-ended question for each category. However, respondents may still be guided by the quantitative questions and there is risk that important variables not yet discovered in literature have been omitted from the research findings. It would therefore be recommended that future research considers additional qualitative research to explore broader considerations.

The questionnaire is split into three sections. The first section works as a profiling section capturing the respondents job title, organisation type and size, and their motivations for circularity. It's important to capture this information for online surveys, as it is often difficult to identify, understand and describe your population through online surveys (Andrade, 2020). Andrade (2020) explains that if you cannot identify and understand your population, then there is no way of knowing "to whom the results of the survey can be generalised". The second section asks respondents to rate the perceived significance of barriers within each of the five categories, identified above, in the case of their company. The third section follows the same format but asks respondents to rate factors within the five categories, that would be most influential in the wider adoption of CE, in the case of the FMCG sector.

Internet-mediated access relies upon the use of computing technologies and access to the internet (web, email, social media profiles). The survey will be biased towards those that have access to such software's. However, as the sample targeted are professionals, it is assumed that the majority of the sample do have the opportunity to access the internet. The findings will also be limited to professionals that do have access to the social media platform LinkedIn.

The data analysis will adopt both quantitative and qualitative methods. The quantitative methods will use statistical analysis to identify relationships among variables, with the use of graphs and diagrams to explore and present the findings. The positivist element of the study aims to measure variables, in this case the significance of pre-determined factors. Whereas the qualitative data analysis will be carried out manually, seeking to explore new factors and identify patterns, lending itself to the critical-realist perspective of this philosophical approach. The respondent profiling (i.e., job role, company size, motivations) will be used to analyse and interpret the data from new perspectives, looking for unplanned relationships in the data which

may offer new analysis, for example, how the significance of factors changes depending on organisation size, type, or job role. Bastein *et al.* (2014) identified the importance of distinguishing small and large organisations, since they will experience barriers differently. The next chapter will now present the findings of the research, and thus interpret the relationships between such variables.

4.0 Presentation of Findings

This chapter presents the findings of the empirical research carried out seeking to answer the research questions set out in the introduction.

4.1 Respondent Profiling

The first section of the survey captured some profiling information of the participants roles, company activity, size, and motivations for circular practise. Prior to this section, participants were presented with an information page providing background to the research, the objectives of the research and instruction of how to complete the survey. The respondent profiling was useful to capture information which provides cross-analysis of the findings.

Most respondents were in leadership or decision-making positions, with 45% (n=9) being CEO's, Founders, or Directors. This is an important consideration as there may have been some bias when answering questions that relate to an organisation's operation, motivation, or values.

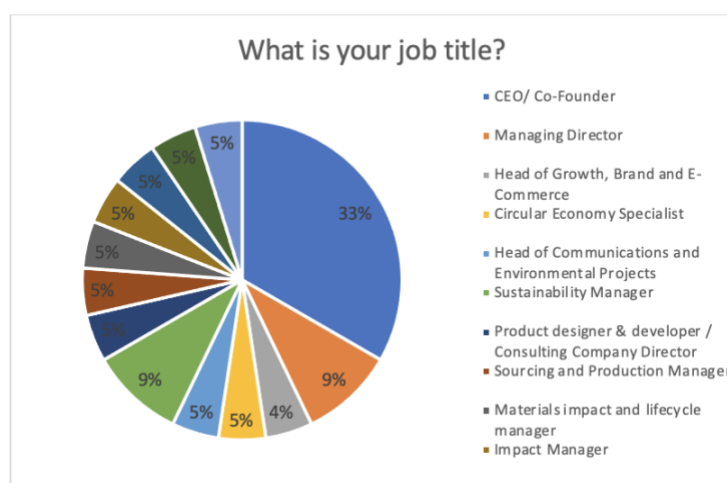


Figure 4 Respondent job title pie chart

Participants were then asked their main business activity, 60% (n=12) of participants worked in retail, while 20% (n=4) came from manufacturing and 10% (n=2) from design. This is an important variable to consider during the analysis as participants experiences may be dependent on their activity and thus their position of power within supply chains.

Q2. What is your main business activity?

20 responses

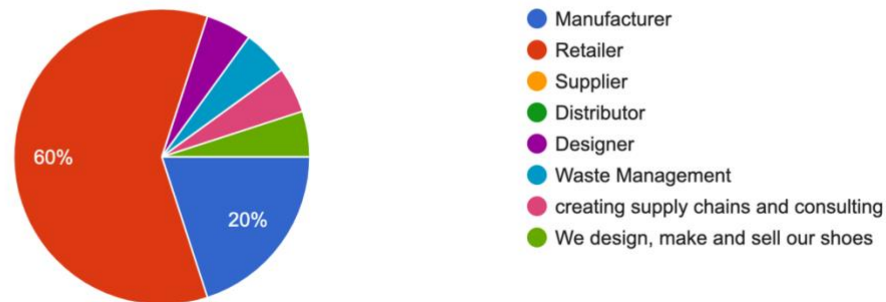


Figure 5 Business activity pie chart

Additionally, it is important to note that most participants 45% (n=9) came from fashion and textiles, with representatives also from the food and beverage sector (25%, n=5), and household and personal care products (20%, n=4). Understanding the products that are handled provides an additional lens of analysis to the findings, which may be useful for future research, policymakers and decision makers when looking at the barriers and enablers for a circular economy.

Q3. What category is your business involved in?

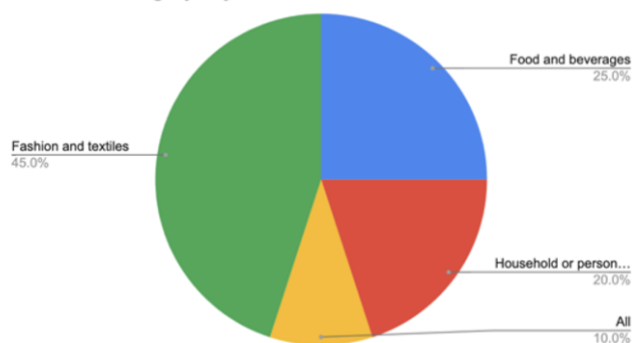


Figure 6 Business Category pie chart

When asked to list their motivations for practising circular principles, the most highly answered response (70%, n=14) was due to participants wanting to reduce the negative environmental impacts of current operations. When reviewing responses inputted into the ‘other’ option of this question one respondent stated they were motivated by a “*deep personal understanding that I cannot design and create new products without heavy consideration for the environment*”. This falls under the provided response of ‘wanting to reduce the negative environmental

impacts of current operations, this therefore brings the total answer to 75% (n=15). Whilst it's reassuring to see this leading motivation, it is unsurprising as the subject is emerging and therefore will draw the attention of those that feel passionate about the subject matter. This indicates that the participants of the survey, may have been drawn to participate because they had a special interest in the topic, as highlighted by Andrade (2020) this is a prominent concern of online surveys, and will be discussed further in the limitations section.

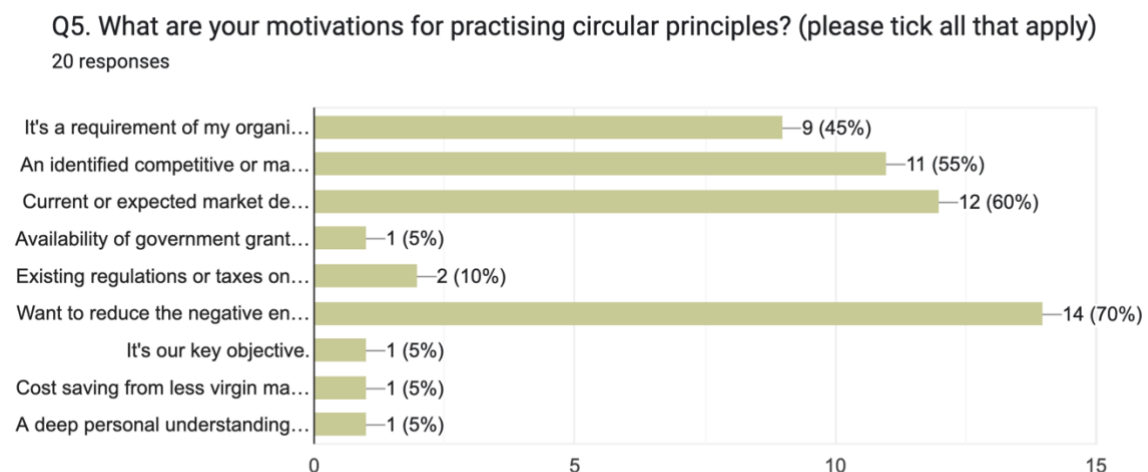


Figure 7 Motivations for circular practise

Participants were asked if circularity was integrated throughout the company or within a limited function of the company, 75% (n=15) of respondents stated that the circularity was integrated throughout the company. This is to be expected where participants are coming from small organisations because, it's unlikely that functional departments are well established yet. Interestingly, of the 5 (25%) participants that come from a large or multi-national organisation, 80% (n=4) stated that circularity was a limited function of the company. This indicates that circularity is not yet integrated into organisations. Future research may want to explore the evolution of integrating circularity into organisations.

Q6. Would you describe circularity as being integrated throughout the company or within a limited function in the company?

20 responses

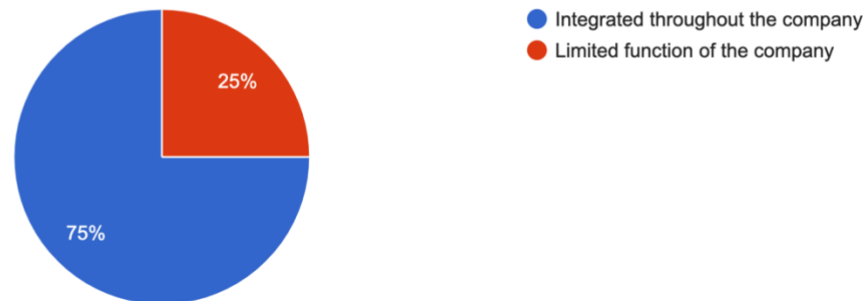


Figure 8 Circularity integration pie chart

4.2 The Barriers

The second section of the survey considered the survey title “*Towards a Circular Economy: Barriers and enablers for the FMCG sector*” and asked participants a set of five questions based on the barriers they have experienced in the case of their organisation. The five questions asked participants to rate the relative seriousness of barriers in the acceleration to a circular economy experienced, in the case of their company. The five questions covered the below five categories which, as explained in the methodology, follow Bastein *et al.* (2014) framework of key barriers. The following chapters will follow this same framework.

Behavioural: Here we consider attitudinal behaviours, social values, awareness, interests and willingness

Technological: Here we consider both the technical know-how, expertise, technological advancements, take-back schemes, quality of material

Organisational: Here we consider influences and impacts of organisational structures, and operational models

Institutional: Here we consider barriers caused by political institutions, for example regulations and laws

Market: Here we consider market mechanics, economic climate, subsidies, supplier relations

4.2.1 Behavioural barriers

The first question participants faced in this section asked them to score the significance of behavioural barriers they may have experienced when implementing circular practises. The findings indicate a mixed view of the significance of behavioural barriers with no clear trends.

Among the statements those that covered consumer behaviour and purchasing habits, participants scored to be 'very' or 'somewhat' significant barriers to accelerating the adoption of a circular economy. For example, *concern that consumers will not change their purchasing habits* was a very significant concern for 8 out of 20 participants (40%), and *consumers not willing to pay a premium price* for recovered product was scored as very significant by 7 out of 20 respondents. This finding indicates the severity of consumer behaviour in scaling wider adoption of a circular economy. CEOs were less concerned with consumers' willingness to pay a premium for recovered products, but more concerned with consumers not willing to change their purchasing habits. Whereas participants working for retailers felt that consumers not willing to pay the premium pricing was a concern, with 6 of the 7 answers for 'very significant' coming from retailers. Analysing these results based on sectoral activity it was the household and personal-care sectors that were the least concerned with consumers not willing to change their purchasing habits. This indicates that there may be less loyalty in consumer decision making for household and personal care products, and care must be taken for food and beverages and fashion and textiles in managing the pivot towards circularity.

Interestingly resistance to circular economy from within an organisation was thought to be insignificant as a barrier by 15 out of 20 (75%) participants. This could be bias given that most of the respondents were leaders or decision makers in the organisations. Notably, 6 out of the 12 participants scoring this to be insignificant were CEO's. Equally, as 75% of participants stated circularity was found to be integrated throughout organisations, it is also understandable that there would be little resistance. Although, applying an additional analysis lens, it is interesting to note that of the respondents that stated circularity was limited to a function of an organisation, 80% (n=4) still selected resistance to circular economy within the company to be insignificant. You would expect limited operations to be aligned with resistance in the company, yet this finding disproves that.

Stakeholder awareness of the circular economy was also not seen as a significant concern for survey respondents with 35% (n=7) scoring this as insignificant, and only 10% (n=2) scoring this as a very significant barrier. Again, this could be because the majority of respondents were from micro or small organisations and may only be experienced in dealing with stakeholders that share their ambition.

Q1a. Behavioural Barriers Here we consider attitudinal behaviours, considering values, awareness, interest, willingness Below is a list of barriers that could represent an obstacle in accelerating the uptake of t...ificant, significant, insignificant barrier in the case of your company.

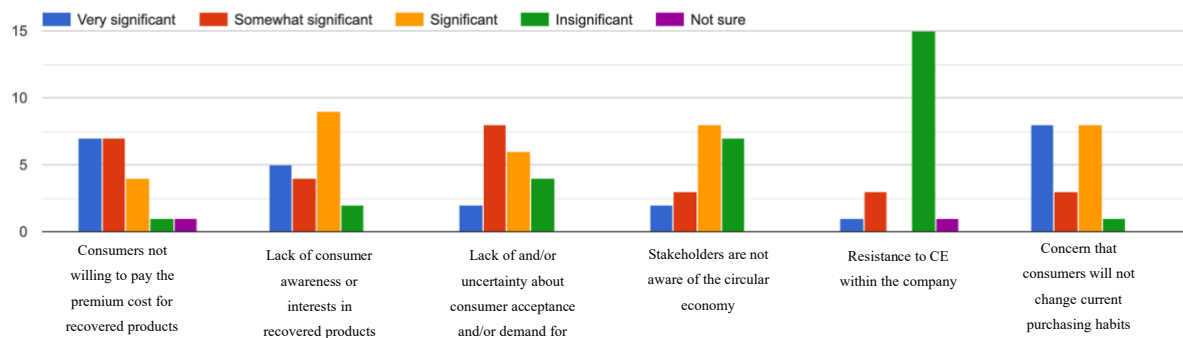


Figure 9 Behavioural Barriers

The second part of this question asked participants to detail their own thoughts or observations and expand on the behavioural or social barriers that they have experienced. This question received lots of qualitative responses; these have been categorised into three themes cost, behaviour and convenience (found in Figure 10). This level of interaction is interesting because it shows there are lots of strong views on the subject matter, which surely highlights a level of significance itself. Further research might like to focus on the behavioural shifts required for circular economy, and how this impacts the FMCG sector.

Cost	“For us, the buyers we sell to are the gate keepers with some resistance to paying more for a more sustainable product. We find the end user would like the option to use us, but the buyer is not convinced of this.” “Without a doubt the biggest barrier is the cost. During a cost-of-living crisis how can we ask consumers to make the ‘ethical’ choice when they simply cannot afford to. “ “At this current moment in time considerations towards circularity unfortunately seem to fall below price for most consumers.”
Behaviour	“Main issue for us is awareness that our solutions exists and then consumer inertia to actually change their purchasing habits the” “I think habits are hard to break and there is a perceived cost attached to sustainable choices.” “Any sort of behavioural change is hard, and we all know that consumers are ultimately "creatures of habit". Certainly, the two biggest barriers to mass adoption of reuse are behaviour (sending packaging back) and cost (paying a premium vs conventional single use alternatives). “
Ease & convenience	“We need to make circularity the easiest option possible. The more complicated the process becomes the less likely people are to participate. It needs to be fun, easy, and more rewarding than other business models” “The biggest challenge for us is to make buying second-hand take less effort, time, and patience, because most people don’t have that. But that’s what we’re addressing.” “Everyone says they want to be "sustainable" but unless it's dead easy, zero ball-ache to do, then that sentiment dies...” “It’s a cool thing to say, but it not ingrained enough into consumer behaviour yet to be the default / norm...”. “I think most people believe they are eco conscious but are only willing to go so far. If it's in any way inconvenient or more expensive it significantly reduces consumers' ability and desire to adopt more CE products.”

Figure 10 Behavioural Barriers – Qualitative

4.2.2 Technological barriers

Technological barriers received varied responses with no clear trend. In fact, ‘insignificant’ was the most scored quantitative answer for this question, accumulating 48 (30%) of the 160 quantitative responses. One reason for this scoring could be that organisations have identified and overcome initial technological barriers.

Among the technological barriers ‘*Complexity of material characteristics*’, ‘*no adequate technology for take-back*’ and ‘*products not being designed for circularity*’ constitute a large

proportion of responses, with all three equally receiving 6 out of 20 responses from 30% of participants. Looking at respondent profiling, the complexity of material characteristics was a significant concern for participants from the fashion and textiles sector, but less so for the household and personal care sector. This highlights sectoral challenges and gaps in innovation, and further emphasises the importance of considering industry specifics when looking to accelerate circular economy adoption.

It's interesting to note that '*no adequate technology for take-back schemes*' scored highly for its insignificance as a barrier (n=8, 40%), of the participants that scored this as 'very significant' were organisations that work with recycled or recovered materials, which indicates that challenges in sourcing recycled or recovered materials, or 'secondary' materials is a barrier. Additionally, it's interesting to note that while *adequate technology for take-back schemes* was most commonly scored as insignificant as a barrier, the *development of infrastructure for product and material recovery* was rated the most influential as enabling factors. Reviewing these findings in more depth, the participants that scored 'insignificant' all operate a reuse and refill operation, it is therefore unsurprising that this barrier is seen to be insignificant.

Q2a. Technological Barriers Here we consider both the technical know-how expertise, technological advancements, take-back schemes and quality of material. Below is a list of barriers that could represent an obstacle in accelerating the uptake of the circular economy with...ificant, somewhat significant, significant, insignificant barrier in the case of your company.

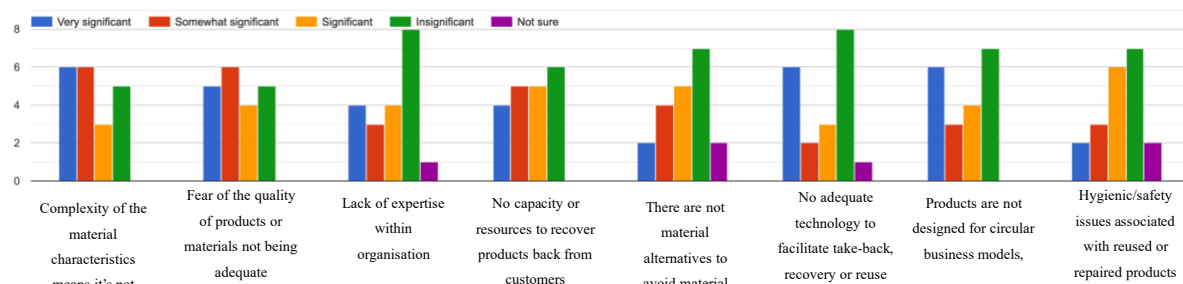


Figure 11 Technological Barriers

Lack of expertise also scored highly as being insignificant as a barrier (n=8, 40%). This is aligned with the findings from behavioural barriers which find that both '*stakeholders not being aware of the CE*' and '*resistance to CE within an organisation*' scored highly as 'insignificant' barriers. This is interesting as it goes some way to disprove Oghazi and Mostaghel (2018) findings that know-how in operating CE is an influential technical barrier in CE implementation.

The second part of this question asked participants to detail their own thoughts or observations and expand on the technological barriers that they have experienced. The level of qualitative responses for this question was high (found in Figure 12), and highlighted infrastructure, premium pricing, and quality management as the main barriers.

Infrastructure	“The barrier to closing our products circle is the returning of containers to us at the distillery, and processing those containers into reusable ones. Wholesalers are not able to collect from their customers and we are usually one step removed from an end user.” “The biggest barrier by a mile is the lack of infrastructure. We would want to move to returnable bottles. Many European countries have these schemes on mass with high success rate, so we know it is very possible, but we do not have the infrastructure and set up both collectively and individually to implement.”
	“The main barriers are willingness to make change and costs. Obviously, this amounts to risk for a business. We're small enough to have been able to take the risks that larger businesses might not want to take to align our actions with our values... in the knowledge that we're doing the right thing! The investments we had to make in glass bottles and bottle washing to be able to get the X project underway were significant, but I believe we've been a contributory factor to the growth of their closed loop offering, having been the first product to be supplied in this way (after Milk!) I can't think of another brand who would be willing to take that risk!” “Very short story (as I could drone on about this forever) To develop CE into your brand, you need tons of money, tons of time and tons of experts at your disposal. “Materials are very expensive. I haven't been able to find a partner yet (to refurb or recycle my shoes) Everything seems to be theory based and when you want to put it into practice, it'll cost thousands.” “As a start-up, with no funding, this is incredibly hard. And probably the very reason why making products in China 80% cheaper and easier is why so many brand default to this when they start”
Cost	
Quality control	“It's people's perceptions of what condition the items will come to them in. And there needs to be technology to address the sizing issues (with new retailers too, but especially for buying used because of the lack of returns options). It's the number one concern for people buying used, that the item will turn up and not fit, then they're stuck with it! So, if a technology could assess the <u>buyers</u> size, accurately, and the size of the second-hand item for sale, a huge barrier would be broken! “

Figure 12 Technological Barriers - Qualitative

4.2.3 Organisational barriers

Interestingly, the quantitative findings for this category show organisational barriers to be the least significant, with the highest scored answer being ‘insignificant’ capturing 31% of the responses. The responses were varied, with no clear trends. Among the organisational barriers ‘*difficulty in undertaking reverse logistics*’ and ‘*the complexity of supply chains*’ constituted a large proportion of barriers hindering the implementation of CE with both receiving 7 responses (35%) for being ‘very significant’ as organisational barriers.

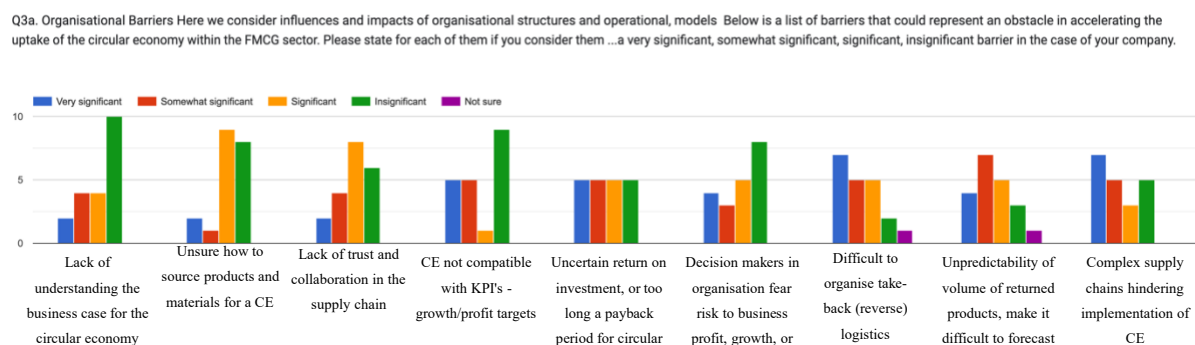


Figure 13 Organisational Barriers

Understanding the business case for CE was marked most highly as insignificant as a barrier, by 10 out of 20 respondents. This could be because all respondents were practising circularity to some degree already, thus the business case was already understood. Cross-analysis shows that indeed 6 out of the 10 responses for this question were from CEO's, Co-Founders and Managing Directors. In a similar way ‘*CE not being compatible with KPI's*’ was also seen as insignificant, and again the profiling of the respondents shows that participants in leadership positions totalled 6 of the 9 responses for the insignificance of this as a barrier. Additionally, there's a clear divergence between the perceived insignificance of the compatibility of CE with company KPI's and CE being integrated throughout a company. This suggests that a variation in participant responses is likely due to both their positions and organisation sizes. Future research would benefit from a large and broader population size, this is addressed further in section 5).

It's interesting to note that retailers felt ‘*lack of trust and collaboration in the supply chain*’ was insignificant more so than other organisations. This might be due to the power that retailers

have within a supply chain. Looking at organisation sizes there was no clear trend showing whether this factor was more strongly felt between micro or multi-national organisations.

What is striking with the findings within this category is the variety of responses, and the level of perceived insignificance for many of the listed barriers. This suggests that organisational barriers will vary between organisations, with many participants focused on the ‘more significant’ macro barriers.

The second part of this question asked participants to detail their own thoughts and expand on the market barriers that they have experienced. There were many qualitative responses to this question, the main barriers identified reiterate the significance of costs and infrastructure, and further highlight the significance of barriers being at the macro level and less so at the micro level.

High costs

“Larger upfront costs and high R&D costs often make circularity more difficult to get Leadership teams to sign off on.”

“Again, money is the key factor, if you have targets to hit then you’re not necessarily going to make the ‘greenest’ choice”

“Because the margins are so low with commission earned from items sold through our site, because the second-hand value of items is so low, it makes it less attractive to investors. If the government supported us in what we need to grow, we would have a significant impact on the circular economy.”

“Costs to the business, especially if it is a less explored route, is big and there are extremely limited funding options.”

Figure 14 Organisational Barriers - Qualitative

4.2.4 Institutional barriers

Participants felt that many of the listed institutional barriers were ‘very significant’ in achieving greater adoption of the circular economy, capturing 60% (n=72) of responses. The most significant barrier noted was ‘*not enough legislative measures to support CE*’ with 60% (n=20) of responses. This is closely followed by ‘*lack of governmental incentives*’ and ‘*lack of preferential tax policies*’ both capturing 55% (n=11) of answers. However, ‘*lack of preferential*

tax policies’ was the only answer within this question that did not receive any responses for insignificant, which strengthens its perceived significance. It’s interesting to note that the participant from a multi-national corporation saw this as least significant compared to organisations of smaller sizes. This finding suggests that views of taxation and policies as barriers may be more prominent for smaller organisations.

‘*High entry costs for CE implementation*’ and ‘*absence of defined targets for resource efficiency in policy*’ both received 45% (n=9) for their significance, however, one participant did mark ‘not sure’ for the absence of defined targets for resource efficiency, which slightly lessens its significance. Applying a cross-variable lens there were no clear trends between sectoral activity, business size, or participant job title for this question.

It’s interesting to note that ‘*existing legislation being prohibitive*’ was not deemed to be as significant as the other options in this question capturing only 15% (n=3) of ‘very significant’ responses, with a much more varied mix of responses. Applying a cross-variable lens micro-organisations were the majority behind this ‘insignificant’ scoring with 20% (n=4) marking this as insignificant. This suggests that participants do not associate existing legislation favouring linear practises to be a barrier for greater adoption of CE.

Q4a. Institutional Barriers Here we consider barriers caused by political institutions, for example regulations and laws Below is a list of barriers that could represent an obstacle in accelerating the uptake of the circular economy within the...what significant, significant, insignificant barrier in the case of your company.

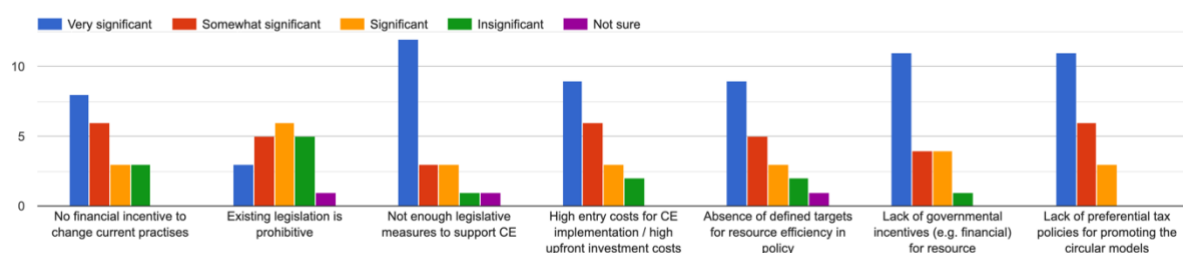


Figure 15 Institutional Barriers

The second part of this section asked participants to expand on the institutional barriers they have experienced. This question received a high level of interaction with 14 of the 20 participants adding additional comments. When analysing the qualitative responses in more detail, a clear pattern emerges highlighting the connection between policy as a driver, and

stakeholder engagement. This data suggests that the lack of governmental support through legislation, grants, subsidies, and taxation are significant barriers to the transition to circular business practise for FMCG companies.

Policy	“Policy changes would influence the behaviour of the wholesalers in our market, this would help move the dial.”
	“Plastic tax was a good start but must go much further to force wide scale behavioural change we need the biggest brands in our category to change their products to encourage consumer understanding and acceptance of refill”
	“All of the above! The UK Gov in particular is absolutely hopeless when it comes to policy, legislation and incentivisation in this area. “
	“Brands are starting to notice incoming EU regulations (and CA in USA) and starting to get nervous.”
	“The circular economy absolutely has to be driven by legislative change until businesses have no option other to adopt a circular approach.”
	“Governments must make relevant and deeply researched policy very quickly in order to force the hand of some companies in a faster time period than they could get through customer demand or private ownership benevolence. It is essential to creating CE innovation and scaling it quickly (which in itself will aid the potential of some CE potential models, which rely on scale to function)”
	“Until there are penalties or mandatory commitments to make companies partake in such activities, I believe it will be largely deprioritised.”
	“The EU is far more advanced in this sector compared to the UK which is currently lacking action. From following what is happening on the continent it is extremely clear that legislations and governmental incentives are the biggest single driver for this industry to grow and solutions to be adopted and scaled.”
Grants	“Our sector has only ever responded when it has become legislation, and i don't see this changing in such a competitive sector”
	“The demand right now is driven by consumers. The government could do so much more!”
	“To be fair, we won a grant to develop our prototype - without that, I wouldn't be here. The rest, I'm not too close too - sorry!”
	“The government should be putting as much as it can I to circular economy initiatives, or at least start taxing things more that are produced new and transported all over the world. Not enough consideration or care for the future is demonstrated by the gov.”
Anon	“Lots of grants to support this in product development. Tax incentives and support with overhauling waste management streams would be most effective.”
	“We've had no grants, investment, or government support to help implement our own circular model - it's been entirely self-funded and organic growth! We launched the Milk & More project in 2020 in the midst of the pandemic and it was a very nervous time!”

Figure 16 Institutional Barriers

4.2.5 Market barriers

The findings indicate that market barriers are seen to be the next most significant factors contributing to the slow adoption of a circular economy, after institutional. The findings for the most significant market barriers considered the challenges competing with the existing linear economy, particularly the premium pricing of circular goods. The *dominant linear market* affecting the *cost disparity between linear and circular production systems* scored the highest, each with 11 responses for ‘very significant’ (55%). Looking at respondent profiling it was CEO’s and retailers that felt the cost disparity between linear and circular products to be a significant barrier accelerating the circular economy within the FMCG sector. This is unsurprising given the sensitivity of pricing for retailers, and a CEO’s natural consideration of competitive positioning versus the market. The linear dominant market effecting competitiveness of circular products was seen to be of greatest significance as a barrier among companies within both the fashion and household and personal care sectors.

The *cost disparity between circular and linear products* captures all responses within the ‘significant’ scale with no one choosing ‘insignificant’ or ‘not sure’, which further emphasises its importance as a barrier. *Insufficient access and availability of subsidies* was a significant barrier for micro-organisations and participants working in the role of CEO or Co-Founder. There was no clear trend among company size, activity, participant job title of sectoral activity regarding the *difficulty in funding* as a barrier, which is aligned with the varying results and suggests that funding as a barrier is very dependent on the context of an individual organisation.

Q5a. Market Barriers Here we consider market mechanics, economic climate, subsidies, supplier relations. Below is a list of barriers that could represent an obstacle in accelerating the uptake of the circular e...ificant, significant, insignificant barrier in the case of your company.

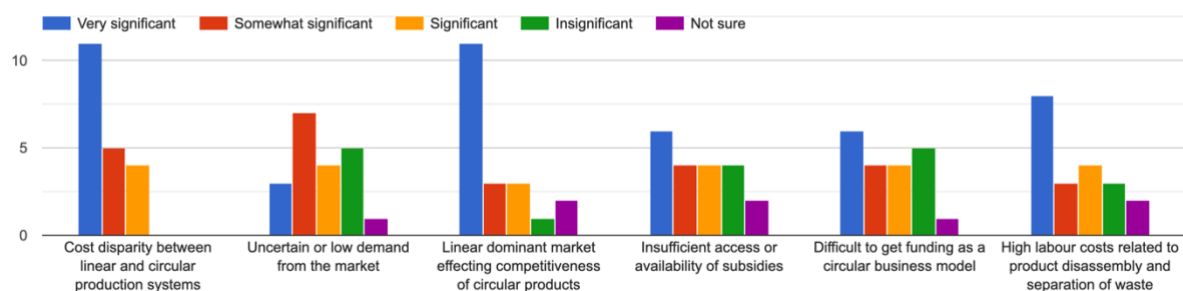


Figure 17 Market Barriers

It's interesting that uncertain or low demand from the market was the least concerning market barrier, this is aligned with responses for motivations of practising circular activities, with an identified competitive or market advantage being the second most popular response. This suggests that there is adequate demand from the market, and with the right institutional and market interventions market demand would not be of concern.

The second part of this section asked participants to detail their own observations and expand on the market barriers that they have experienced. This question received very few qualitative responses, which we can assume is because the quantitative options covered the breadth of opinions and experiences of participants for this category. The responses that were received emphasised the concern with price premiums that come with circular products, 40% (n=8) of participants highlighted the premium pricing of circular products to be a significant barrier (found in Figure 18). It's understandable that this point is emphasised given the low-cost nature of the FMCG sector, and therefore the consumers being sensitive to higher than usual pricing.

Disparity of costs	“The obvious one is the big disparity of costs and unit economics between linear and circular models.”
	“Circularity is often more expensive and when compared with linear/virgin materials making it a more difficult sell.”
	“Our company is based on a circular model so doesn’t see the same barriers as other industries would face.”
Market demand	“There are definitely some key barriers due to the market, the main one being the price premium for product created with these additional CE ‘features. Scale will help reduce the barriers, and more and more investors are seeing this.”
	“We're unaware of the total demand for closed loop products and circular models in society but we are certainly seeing steady growth and overall awareness & demand over time. There is no doubt that doing what we do, compared to any other linear supply model of a similar product type is way more complicated, difficult, risky, and costly! However, we wouldn't have it any other way - because we 100% believe in what we are doing and the way we are trying to do it!”
Funding	“Funds and support distinctly lacking”
	“Circularity by in large is seen as an add on, rather than a part of core business. In addition, there is little evidence of the return on investment on large scale circular models.”
Collaboration	“We are unfortunately very far away from being able to challenge the current linear model unless everyone actually starts working together rather than doing it in silos and the right investments are channelled into viable solutions while supporting business adaptation, but this will have to go hand in hand with divesting from inherently linear businesses and sectors”
Anon	“Whilst the CE FMCG market is a fraction of the size of the linear one, i believe there is enough consumer demand to support bigger players than exist currently. Well executed products & brands are making waves in other sectors e.g., deodorant”
	“All those points are issues that affect the CE model”

Figure 18 Market Barriers - Qualitative

4.3 The Enablers

The second section of the survey asked participants a set of five questions based on the enabling factors they believe could accelerate the circular economy, in the case of the fast-moving consumer goods sector.

Behavioural: Here we consider attitudinal behaviours, social values, awareness, interests and willingness

Technological: Here we consider both the technical know-how, expertise, technological advancements, take-back schemes, quality of material

Organisational: Here we consider influences and impacts of organisational structures, and operational models

Institutional: Here we consider barriers caused by political institutions, for example regulations and laws

Market: Here we consider market mechanics, economic climate, subsidies, supplier relations

Figure 19 Framework of five

4.3.1 Behavioural enablers

Many (52.5%) of the behavioural factors were answered as ‘very influential’ in achieving greater adoption of the circular economy. Among them education, raising awareness, collaboration and knowledge sharing were all scored the highest for the perceived influence in the transition to CE.

More education of the negative impacts of the linear economy was rated as the most influential behavioural factor to achieve greater adoption of the circular economy (65%, n=13). This is aligned with the earlier finding that competing with a linear dominant market is a significant barrier. Knowledge sharing scored highly for its overall influence receiving 19 (95%) of the 20 responses, with 10 scores for being ‘very influential’. It’s interesting to note this was seen to be less important by the micro (<10) organisations, particularly those found in the food and beverage sector. This indicates that organisational size and sector activity can influence perspectives on influential conditions, which should be considered by policymakers.

Activities raising awareness of CE received 18 out of the 20 responses for its overall influence, with 11 (55%) scores for being ‘very influential’. Considering this scored highly as an enabling factor, it is surprising that consumer awareness was not rated as a more significant barrier, with 45% (n=9) of respondents scoring this with the middling rating of ‘significant’. Looking at the analytical variables it’s interesting to note that the fashion and textile organisations felt this to be less influential than the food and household sectors. This highlights that food and household sectors feel that awareness raising activities would be influential in greater adoption of a circular economy.

Q6a. Behavioural Factors Here we consider attitudinal behaviours, considering values, awareness, interest, willingness. Below is a list of factors that could influence greater adoption of the circular economy ...influential in the transition to a circular economy for the FMCG sector.

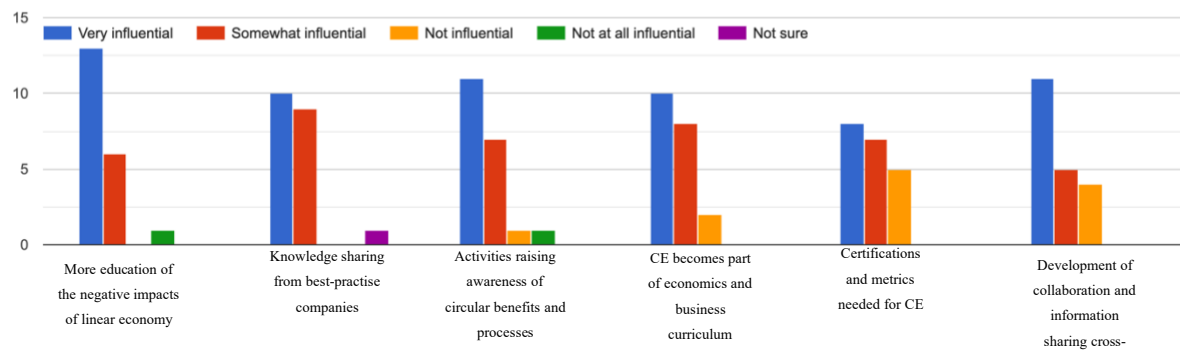


Figure 20 Behavioural Factors

The second part of this section asked participants to detail their own observations (found in Figure 21). Education was the key theme that arose, with additional comments on the need for a shift in culture, one participant felt there was enough information and reemphasised the existing linear market as a barrier for adoption.

Education	“Clearly explaining the benefits of a circular economy and disadvantages of a linear economy should be embedded within school curriculums.” “Start with the kids. When my daughter berates me for throwing something away, rather than trying to fix it, it’s quite sobering” “Love these points as a point to what the future could and should look like. There is a lack of visualisation of the future for the average person. No one knows, apart from those that do, how terrifying the future looks, in a way that’s real stable to them. I know they don’t do that because if it came from the gov, there would be mass hysteria, but there needs to be more done, to make the choices for the people (<u>e.g.</u> a bigger tax on things produced new that could be bought second-hand/recycled) “
Cultural change as a driver	“A cultural change will have the biggest positive impact, as it is only when everyone sees and accepts the information and adopts it as fact, that things will really change rapidly. This is in my view the biggest potential area, but needs to be backed up by legitimate product. “
Linear system baked in	“There are plenty of places where information sharing existing already, it's just we are all still working on a system stacked against us. Even government bodies like WRAP just tell us it’s really difficult and nothing much can be done. There is just so much inertia in the mainstream and no matter how much collaboration and education, it's just a drop in the ocean”

Figure 21 Behavioural Factors - Qualitative

4.3.2 Technological enablers

The technological factors scored highly in their perceived influence over the adoption of circular principles with 62.5 % (n=50) of answers selecting ‘very influential’, only two of the statements received responses for ‘not influential’ with no responses for ‘not at all influential’ which indicates the majority of participants felt technological factors were influential to the adoption of CE.

The *development of infrastructure for product and material recovery* was rated the most influential with all respondents marking this as either ‘very influential’ (80%, n=16) or ‘somewhat influential’ (20%, n=4). It was companies in the household and personal-care sector, Emily Field, 2009966

with already established closed loop operations that scored this as ‘somewhat’ rather than ‘very’ influential, which is understandable given they are closer to reversed logistics than the other organisations that participated in the survey.

In line with the need for infrastructure, the *need for technology to support take-back schemes* was scored the second highest rating with 12 respondents (60%) marking this to be ‘very influential’ and the remainder (8) selecting ‘somewhat influential’. Looking at organisation sizes it was the micro and small organisations that felt that technology for take-back schemes was less influential than the larger organisations. This indicates that while returning products is possible in a small operation, it is this factor that could enable wider adoption at scale, supporting larger organisations to implement take-back schemes. This indicates that infrastructure to engineer reverse logistics is of great importance in the transition from a linear to a circular economy for the FMCG sector.

Q7a. Technological Factors Here we consider both the technical know-how, expertise, technological advancements, take-back schemes, quality of materi...sition to a circular economy for the FMCG sector.

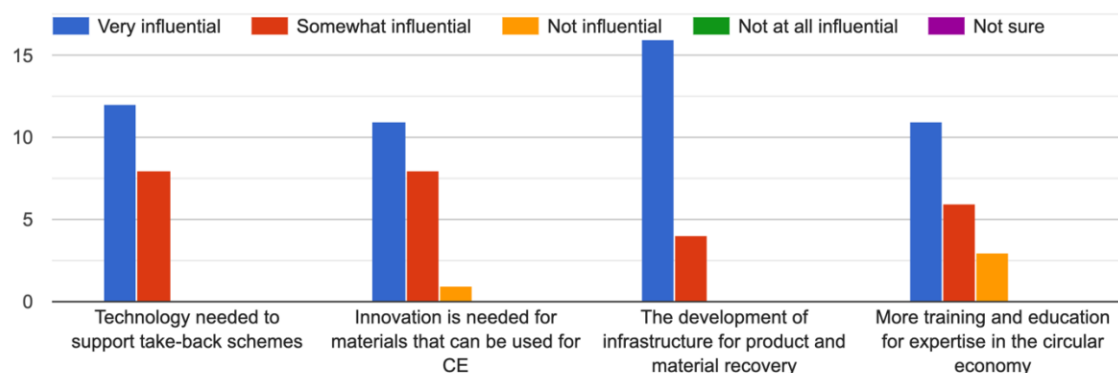


Figure 22 Technological Factors

The second part of this section asked participants to detail their own thoughts on technological factors. The qualitative responses follow a similar trend to the quantitative findings with 7 of the 8 responses discussing elements of infrastructure changes to enable greater adoption of circularity within our production and consumption patterns, these can be viewed in Figure 23.

Infrastructure	“Infrastructure is key, I do believe that without top-down influence investing in that infrastructure is unlikely to occur to gain a competitive advantage and so is less likely through pure market forces as they are.”
	“Infrastructure is needed as is the availability of readily available and cost-effective materials.”
	“Need to develop and support roll out of new product AND the ability to process them at end of life”
	“Sorting facilities and technologies need to be scaled and made to be profitable for them to be viable long term”
	“Need to develop and support roll out of new product AND the ability to process them at end of life”
	“Sorting facilities and technologies need to be scaled and made to be profitable for them to be viable long term”
	“For me, the technical challenge is how do you ensure return rates are high that the packs are actually returned for reuse in a carbon effective way.”
Skills	“We need to skill up in the UK and make it more accessible and affordable for start-ups”

Figure 23 Technological Factors - Qualitative

4.3.3 Organisational enablers

The organisational factors scored much higher in their perceived influence in achieving greater adoption of a circular economy than the barriers. This shows that organisational factors are not seen as barriers, but if achieved would be influential in enabling greater adoption of a circular economy. The organisational factors seen to be the most influential were ‘*developing infrastructure for consumers to return used products*’ with 70% (n=14) of respondents marking this to be ‘very influential’, with a total ranking of 95% (n=19) for its perceived influence. It was the household and personal care sector that were less convinced by the influence of this enabling factor, particularly those that have already achieved closed loop operations.

Better collaboration and cooperation from stakeholders also received 95% (n=19) for its total influence on enabling greater adoption of circular practise, although this was perceived to be slightly less influential than infrastructure. Looking at the cross-variables it’s interesting to note

that it was the CEO's that felt this was 'somewhat influential' rather than 'very influential'. Additionally, from the company activity it was the manufacturers that were also in agreement with the CEO's that collaboration remains 'somewhat' but not 'very influential'. There was no clear trend from cross-analysing sectoral activity, most sectors also marked this to be somewhat influential. This suggests that though collaboration and cooperation would support the transition to a circular economy, there are more significant levers to accelerate adoption of circular practises.

Q8a. Organisational Factors Here we consider influences and impacts of organisational structures, and operational models. Below is a list of factors to transition to a circular economy for the FMCG sector.

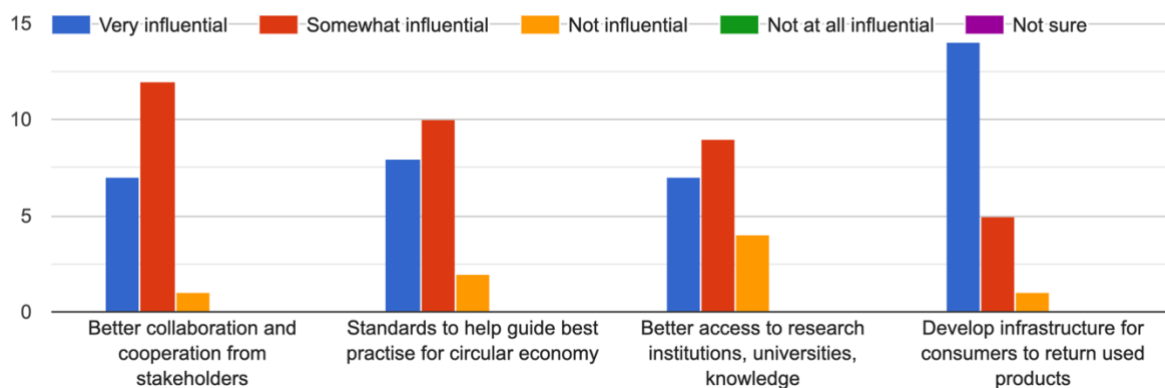


Figure 24 Organisational Factors

The second part of this question looked to understand participants own thoughts on this matter. There were very few qualitative insights for this question (found in Figure 25), among the comments, standards and infrastructure were the key themes discussed. This indicates that participants are concerned with the factors most tangible to their business.

Standards	“We've been out on a limb with the systems we've been developing over the last few years, so any standards and support would be very useful indeed. However, we've found the absence of none of the above to be a barrier to making changes in our business.” “Better standard and infrastructure are key.”
Infrastructure	“Infrastructure to allow for ease of packaging return is the most important by far”. “Yes, it is important to make it easy for customers to return products but even when they are returned (look at plastic waste and other home recycling) only very little is actually recycled or repurposed. The infrastructure and systems need to be in place, funded and working to actually be able to absorb all the products and materials customer give back or are otherwise collected”. “The last one seems the most impactful, I think the literature side of things is less impactful, personally.”
Access	“This is just it - accessibility to things that will make building a CE SME / start-up, well, possible. How many great ideas have fallen flat because of the above?”
Innovation	“It will be a massive accelerator if there are structures out in place to get new innovations ‘out of the lab’ and into the commercial space. And they can only be prevalent in educational institutions if it is part of the curriculum”

Figure 25 Organisational Factors - Qualitative

4.3.4 Institutional enablers

The findings indicate that participants felt *stricter legislative measures* would be ‘very influential’ in accelerating greater adoption of the circular economy receiving 17 of 20 responses (85%). Though one participant did mark this as ‘not sure’ which is interesting to consider, the neutral option of ‘not sure’ has not been selected often in the survey, and therefore this selection may highlight the technicalities of circular operations, and the specifics of each individual context.

Among the factors listed it's interesting that *high upfront costs* were seen as a significant institutional barrier, yet the *introduction of subsidies* did not receive such a high response in their influence for greater adoption. Rather, it appears that more emphasis has been put on the *need for stricter legislation* (85%, n=17), and *a reformation of tax policies* (80%, n=16), this clearly shows the importance of legislation as a barrier, and the need for policy to guide the transition to a circular economy. Applying an additional lens there were no clear themes arising through the respondent profiling for company size, activity, and sector for this question. This divergence of views shows that consideration must be paid to the expected outcomes of regulatory changes, and the most appropriate mix for meaningful, transparent transitions from linear to circular operations.

Q9a. Institutional Factors Here we consider barriers caused by political institutions, for example regulations and laws. Below is a list of factors that could influence greater adoption of the circular economy ...influential in the transition to a circular economy for the FMCG sector.

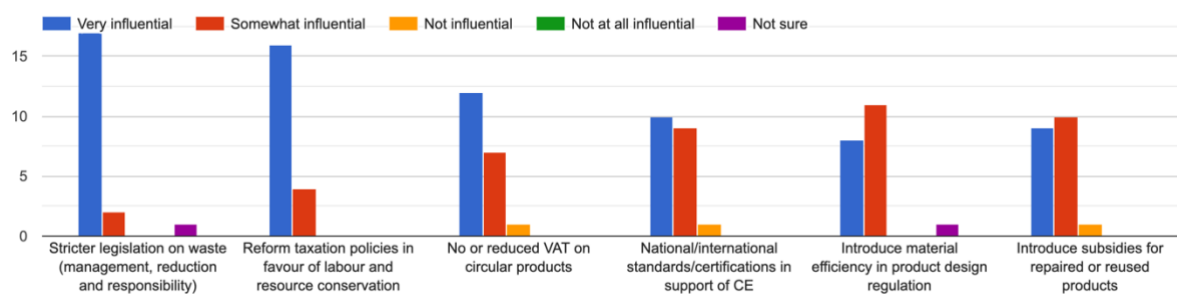


Figure 26 Institutional Factors

The second part of this question asking participants to detail their own thoughts or observations received the fewest qualitative responses, but those received were all enthusiastic in their opinions. This shows the strength of participants views in institutional factors being an influential enabler for greater adoption. The qualitative insights indicate that participants feel not only that legislative measures in favour of CE are important, but the importance of legislative measure *against* linear practise to support widescale adoption of CE. These findings are aligned with the earlier finding that the existing linear model is a significant barrier in itself.

One qualitative response highlighted the need to define what circular is and is not, this is an interesting point, and should be explored in future research. A lack of understanding circular principles could be one reason for the small number of survey participants. Future research

may benefit from defining terms, or capturing participants understanding of the topic through interviews to further validate the findings.

Anon	“All of these ideas could be powerful levers. A good mix of carrot and stick.”
Education	“Tough one - you don’t want to alienate. I think it stems from more 'education' than forcing of issues through legislation (to a degree) - you don't want people cutting corners etc to get a better tax break”
Linear model	“Any legislation against linear/extractive/polluting industries will have immediate effect, and any benefits financially and in terms of complexity of running a business, that can be unlocked because of proving the use of circular economy principals, will make a huge effect. The issue is how to define what is circular and what is not, since almost nothing can be truly circular right now with FMCG.”
Standardisation	“Key thing is standardisation and modernisation of waste management streams.”
Waste management	
Policy as a driver	“Clear EPR and right to repair regulations for every sector and if possible, product specific. Sanctions in the form of taxations or fines for over production and incineration and landfilling and reinvest this into recycling and other CE systems
Tax penalties	“Incentivise retraining of the work force for the repair and share economy and overarching CE “

Figure 27 Institutional Factors - Qualitative

4.3.5 Market enablers

Among the factors listed the need for financing is highlighted as the most influential for enabling greater adoption of a circular economy. From the quantitative results *better financial incentives* (80%, n=16) and *better access to finance* (70%, n=14) both scored ‘very influential’

in greater adoption of circular practise. It's interesting to observe that while better access to financing and financial incentives would be key enabling factors for the transition, the lack of financing itself was not deemed to be a significant barrier; this further emphasises the importance of the linear economic system as a barrier towards a circular economy, and the wider institutional factors needed.

Applying an additional lens there were no clear trends that arose from the respondent profiling. There was minor divergence in views for better access to financing, interestingly from the CEO's and also the micro-organisations, both of whom you would expect to be sensitive to the accessibility of financing. Interestingly it was the multinational corporation that viewed this factor as being 'not influential' as an enabler. Similarly, it was the multinational and large organisations that felt financial incentives to support circular practises were only 'somewhat' influential. These findings indicates that larger organisations are less concerned with financial support than smaller organisations.

Q10a. Market Factors Here we consider market mechanics, economic climate, subsidies, supplier relations Below is a list of factors that could infl...transition to a circular economy for the FMCG sector.

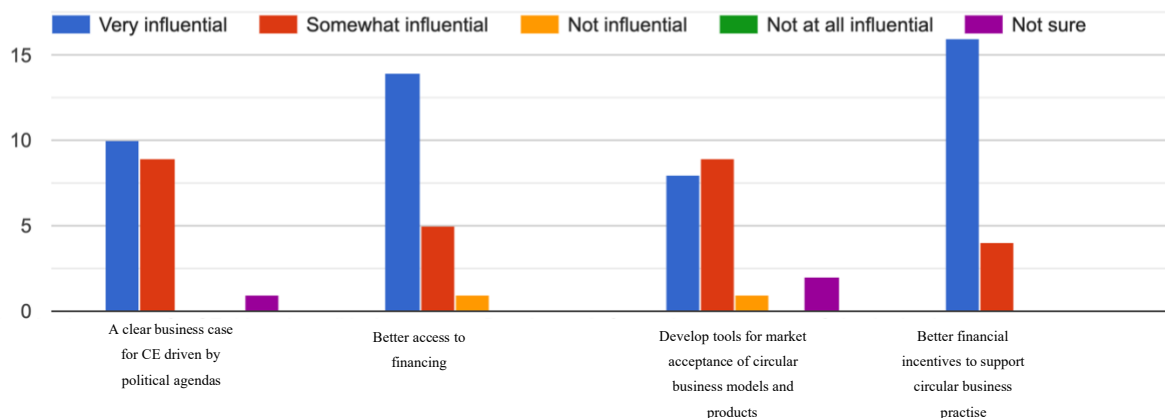


Figure 28 Market Factors

The second part of this question seeking qualitative insights finds financing support to be the most influential market factor. Additionally, one respondent suggested factors such as the rise of social media and AI to be influential, future research should explore this in more detail to understand how this could be an enabling factor for greater adoption of the circular economy.

Financial support	“Financial incentives would no doubt make a huge difference, although it's somewhat depressing that this is what it takes.” “Very important - one thing we lack is support. But practical support - not theory” “Anything for the circular economy, that is a sound business model, should t have to worry about finding, when we are the ones building the systems and tools to save the future for everyone.” “Financing such activities, on all fronts if probably the biggest initial lever for an economy wide transformation” “I think funding is there.”
Social Media	“I'd say other market factors such as the rise of social media (or AI) could be highly influential”
Anon	“I don't believe investors are put off by CE in principle. Business in the spaces is raising capital from everyone from individual to institutional investors.”

Figure 29 Market Factors - Qualitative

5.0 Discussion, conclusion, and limitations

5.1 Limitations

The survey identified a number of interesting trends. However, a number of limitations must be considered. Price and Murnan (2004) explain the most common limitations pertain to the validity and reliability of the research, as such this chapter details limitations in the study which may have impacted the validity and reliability of the research. Firstly, given the small sample size it is difficult to assume the findings to be representative of a larger population.

This therefore lessens the strength of the findings; future research should use a larger population size. The main limitation of the research is therefore its generalisability.

Secondly, the survey targeted practitioners already working with circular principles, this was to ensure insights were true of 'real life' experience, and provided quality data within a short time frame. This excludes organisations or practitioners that may have experienced significant barriers in their attempts to introduce circular practises, that meant they did not fit the criteria of a population sample already working with circular principles. This chosen population is a delimitation to the research (Dimitrios and Antigoni 2018). This boundary was set to ensure that responses were reliable and valid from practitioners that have 'lived experience', within the short time frame to carry out the research. However, given that the respondents were all working with circular operations to some degree suggests that some barriers may have already been overcome. This point was exemplified within the technological barriers, where one respondent stated, "we've worked hard to overcome most of the technical/logistic barriers to develop a reusable packaging system we are confident of delivery at significant scale" (Participant 4, 2023). It can be said therefore that a limitation of the survey was due to the 'systematic bias' that was intentionally introduced into the research through the selected sample size (Price and Murnan, 2004).

In addition, Price and Murnan (2004) explain that inadequate research design can also pose a threat to the reliability and validity of a study. As explained in the methodology one of the main sampling methods was self-selection, which meant participants had volunteered themselves to take part in the research. As Price and Murnan (2004) explain volunteers pose a problem which could be a limitation, in that, they are known to have a special interest in a topic. Likewise, Andrade (2020) argues that online surveys are completed by "those who are

sufficiently biased to be interested in the subject”. This may be true for the participants of this research, because societal and environmental topics are often led by personal interests. Moreover, as the circular economy is an emerging topic it’s likely that it draws the attention of those that are interested in the subject. This is proven by one participants response stating “I’ve just completed it, and absolutely loved it! It was like all my dreams for the future were nicely laid out in front of me” (Participant 17, 2023). Future research would benefit from the addition of an interview, to offer participants the opportunity to understand the questions being asked, and answer from their own perspectives and knowledge on the matter.

5.2 Discussion and conclusion

The overall aim of this research was to explain the key barriers business face when implementing circular business activity and investigate what factors can enable greater adoption of the circular economy within the fast-moving consumer goods sector. This aim manifested through the conduction of an online questionnaire targeted at professionals working with circular practises within the FMCG sector. This approach was chosen because it allowed the research to capture ‘lived’ experience of the barriers implementing circular practises within FMCG sector. This chapter reflects on the research findings in answer to the research questions, which in turn allow us to reflect on the overarching aim of the research.

5.2.1 Research Question 1: What are the most significant barriers that have been experienced by companies in the FMCG sector when attempting to adopt circular principles?

The findings indicate that the most significant barriers organisations within the FMCG sector have experienced in transitioning to circular practises, are predominantly institutional and market based. The research suggests that there are not enough legislative measures in support of CE, as well as a lack of governmental incentives and preferential tax policies. Institutional barriers were identified as the most significant barriers, with the main barrier noted as lack of legislative measures to support CE. This supports Daño *et al.* (2020) finding that the lack of government support remains the biggest obstacle for circular business models. This study has learned that while there are significant market challenges these are centred around the disparity in costing structures between the existing linear economic model and the new circular model. These results are similar to those reported by Hartley *et al.* (2020) and Oghazi and Mostaghel (2018) who found that high costs of circular business practises remain a fundamental barrier to greater adoption when competing with the dominant linear economy. This data indicates that

the high costs of circular business practise coupled with the low-cost nature of the FMCG sector is particularly problematic for the transition to circular production and consumption, which in turn further highlights the need for institutional interventions.

In line with financial barriers high labour costs relating to product disassembly was perceived to be a significant market barrier, this supports Mont *et al.* (2017)'s view that high taxes on labour and low taxes on natural resources are in favour of linear models. It's interesting that uncertain or low demand from the market was the least concerning market barrier, this is aligned with responses when participants were answering their motivations for practising circular activities, with an identified competitive or market advantage being the second most popular response. This finding differs from the views of Daño *et al.* (2020) in which they found that low market demand was a preventive factor for greater adoption. This finding indicates that participants feel that there is adequate demand from the market, and with the right institutional and market interventions market demand would not be of concern.

In line with Planing (2015) consumer behaviour change was found to be a barrier. Concern that consumers will not change their purchasing habits, is intrinsically linked to a consumers' willingness, or not, to pay the premium cost for circular products. This is of relevance for the low-cost characteristics associated with fast-moving consumer goods. Similar results were obtained by Pieroni *et al.* (2021) who found that consumers will remain a key barrier until they can express their acceptance of circular products through their purchasing behaviour. This indicates the importance of price-points for consumers, and further emphasises the earlier findings that governmental support through fiscal measures will greatly encourage widescale adoption of circular practises.

Interestingly, qualitative responses highlight the importance of considering convenience and ease for consumers, with participants stating *"We need to make circularity the easiest option possible. The more complicated the process becomes the less likely people are to participate"* (Participant 17) and *"If it's in any way inconvenient or more expensive it significantly reduces consumers' ability and desire to adopt more CE products"* (Participant 9). This point is not explored in literature, probably because so little academia explores the circular economy applied to consumer goods, yet convenience is understandably an important purchasing consideration for consumers, particular for everyday products.

The findings further demonstrated that barriers exist from a lack of cooperation and collaboration in supply chains, with one participant stating, “We are unfortunately very far away from being able to challenge the current linear model unless everyone actually starts working together rather than doing it in silos” (Participant 17). This finding is very similar to those observed by Kazancoglu *et al.* (2018) and Ellsworth-Krebs *et al.* (2019) who found that circular supply chains cannot occur from individual companies’ activities alone.

The results of the study suggest that policy, taxation, and legislative changes are indeed needed to counteract the pricing disparity, which further emphasises the overarching need for regulatory reforms to favour those that seek to transition to circular operations. It would appear that policy is needed to drive economic conditions which favour circular practises over linear practises. The findings further emphasise that policy intervention could be a great enabler and driving force behind innovation and infrastructure for widescale adoption of a circular economy within the FMCG sector.

Finally, the results of this study also found infrastructure to be a key barrier in enabling the returning, recycling, reengineering, recapturing or products and materials. Though, the exact nature of the infrastructure barriers differed depending on the product type, it’s clear this was a significant barrier across the sector. This is aligned with the findings from Gong *et al.* (2020) who found infrastructure as being significant in accelerating the pace of change. There were no clear trends that arose from our findings, though its clear technological barriers are significant, there is clearly a divergence of views on technological barriers amongst respondents. This is unsurprising given CE is in its infancy as a function of business operations, and therefore such barriers may not be discovered.

5.2.2 Research Question 2: What enabling factors can support the transition to a circular economy within the FMCG sector?

From the empirical research some enabling factors were identified that would support wider adoption of the circular economy within the sector. Technological factors were highlighted as the most influential in enabling a circular economy. Aligned with the findings for barriers, participants highlighted the importance of infrastructure to enable the reverse logistics necessary in circular consumption models. It’s interesting to note that technological barriers

did not score highly as prohibiting factors impacting the slow adoption of circular practises, yet technological enablers scored the highest for their influence in enabling greater adoption. These results differ from Briguglio *et al.* (2021) who found that technology was reported as a significant barrier. One explanation for this could be the smaller sample size of this study, with many participants coming from start-ups, and therefore perhaps not yet reached the scale to face such technological barriers. These results suggest that while technological factors are seen to greatly improve wider adoption of the circular economy, through materials innovation and development of infrastructure for returning and recycling activities, they are not seen to be barriers to adoption, with some companies discussing overcoming such barriers.

In addition, the findings demonstrated that fiscal support through financing activities in favour of circular practises would enable wider adoption of circular practises, which supports findings that high upfront costs remain barriers for implementation. Educational campaigns were also highlighted as an enabling factor that would be influential in driving awareness of both the benefits of opting for circular products instead of their linear counterparts, and the negative impacts of choosing for the familiar linear products.

The findings of this study suggest that the mix of enabling factors varies depending on the activities of each company. This supports Bastein *et al.* (2014)'s finding that to understand practical solutions for wider adoption of CE, sector dynamics must be explored. As the types of challenges and their severity will differ dependent on the organisation type and sector dynamics.

5.3 Final Remarks

The circular economy is a powerful step forwards for more sustainable production and consumption methods. It offers an opportunity to reduce waste through capturing materials and components that would have otherwise been disposed of, creating value from these recaptured materials through methods which circulate them back into our supply chains, which, in turn, greatly reduces the pressures on virgin materials. Therefore reducing, and in time, preventing the negative impacts from a growing global population's consumption demands.

It must be acknowledged that transitioning to a circular economy is inherently complex, with the many barriers and enablers this study has identified illustrating just how interrelated these

are with one another. Ultimately, as Bastein *et al.* (2014) found organisational considerations are a culmination of many different factors, including the implementation of technology, socio-cultural issues, financial constraints, and regulatory reform. It is these interrelating factors that together can achieve greater adoption of a circular economy. Future researchers should carefully consider how these are categorised, for, there is no set framework for how organisations experience the transition from linear to circular.

Of course, the future goal could and maybe should be to change our societal systems to move away from the materiality of consumer goods. However, with that outlook being far too implausible for today's world, we must seek to implement the practical solutions and answers that theory now presents too us. Ultimately, the FMCG sector remains a crucial part of society, with its low-cost, high-volume nature it's clear that applying circular practises will have significant impact on our sustainable future.

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Appendix A – LinkedIn Post

—
“Towards a circular economy: Barriers and enablers in the fast-moving consumer goods (FMCG) sector”

👉 I need passionate change-makers from across the FMCG sector to contribute their knowledge and experience to this important research topic.

♻️ Contribute to an MBA thesis in Sustainability Leadership, seeking to establish the key factors enabling wider adoption of a circular economy in FMCG.

👉 If you are working within food and beverages, fashion & textiles, household and personal care products, or packaging, and have experience in circular business approaches, your insights would be invaluable.

Link to survey - <https://lnkd.in/ebtvzS-t>
(survey should take no longer than 12 minutes to complete)

Please share and send this on to anyone that would be interested in contributing to this study.

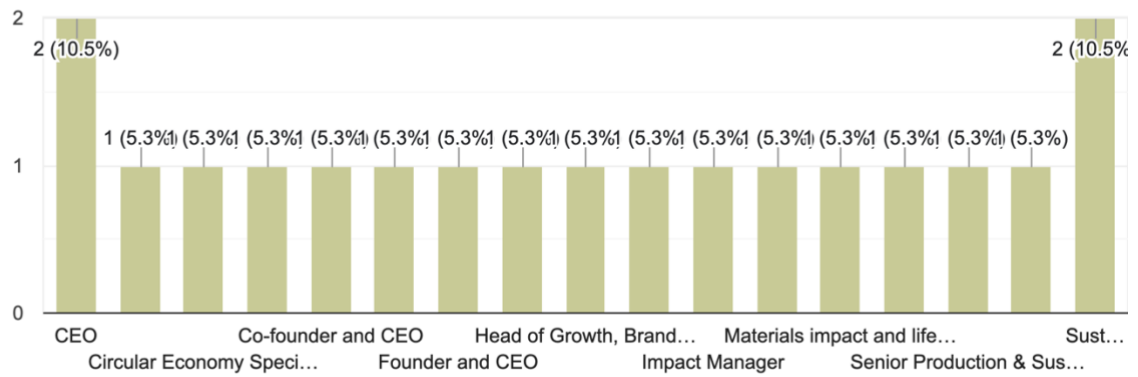
Thank you!

**#sustainability #circulareconomy #business #leadership #fmcg
#research**

Appendix B – Survey Answers

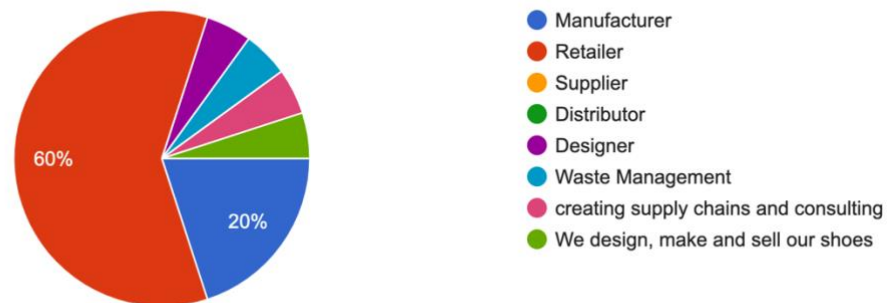
Q1: What is your full job title?

19 responses



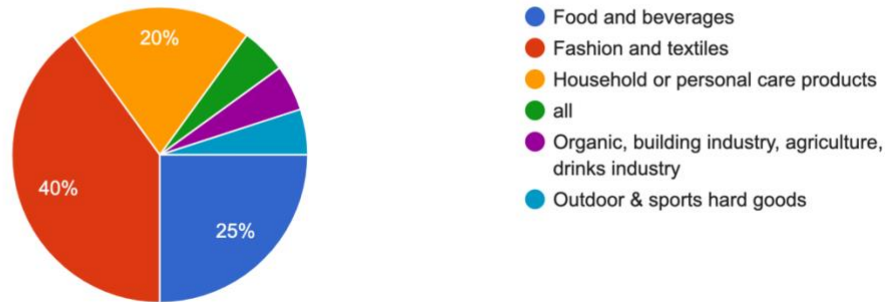
Q2: What is your main business activity?

20 responses



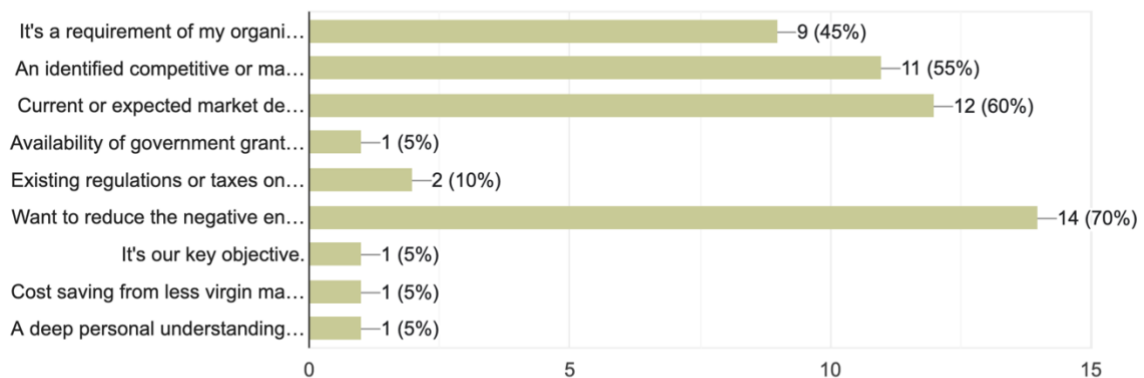
Q3. What category is your business involved in?

20 responses



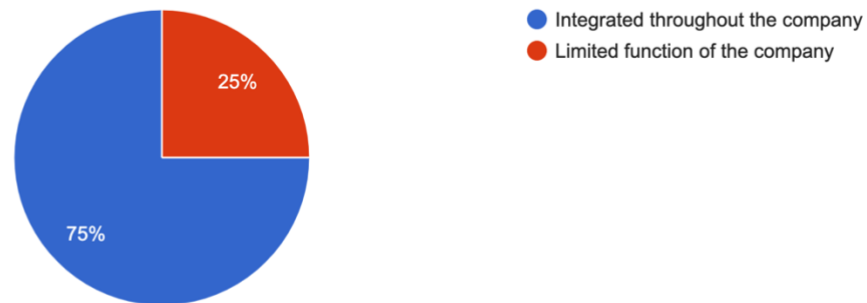
Q5. What are your motivations for practising circular principles? (please tick all that apply)

20 responses



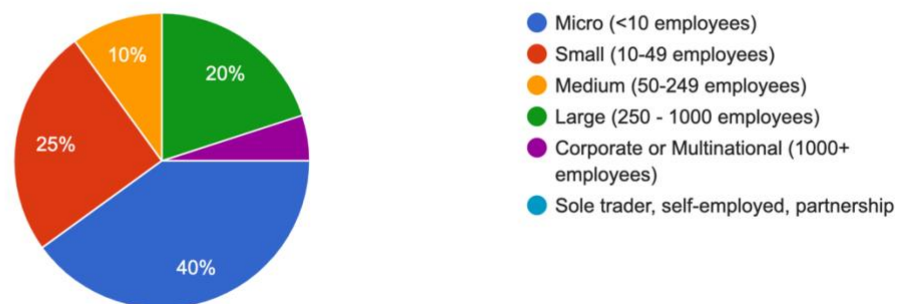
Q6. Would you describe circularity as being integrated throughout the company or within a limited function in the company?

20 responses



Q7. What is the size of your organisation?

20 responses



Q1a. Behavioural Barriers



Q1b. Please detail your own thoughts, feelings or observations to expand on the behavioural or social barriers that you have experienced.

17 responses

For us, the buyers we sell to are the gate keepers with some resistance to paying more for a more sustainable product. We find the end user would like the option to use us, but the buyer is not convinced of this.

Main issue for us is awareness that our solutions exist and then consumer inertia to actually change their purchasing habits

As Fill Refill, we exist in an echo chamber of conscious business and zero waste/refill stores who tend to fully understand (and place value in) suppliers who operate closed loop logistics. Customers choose us because we perform that function (and because they like the products we make). However, where we supply other industries - such as the professional laundry industry - with refillable/returnable closed loop products, we have seen less demand driven by businesses wanting to actively make a change. Understandably, they are often constrained by the associated costs and are less willing to choose our services unless we can match the price of linear supply. We expect to see less resistance if the cost of waste disposal increases, and plastic/packaging taxes are levied more stringently.

Any sort of behavioural change is hard, and we all know that consumers are ultimately "creatures of habit". Certainly, the two biggest barriers to mass adoption of reuse are behaviour (sending packaging back) and cost (paying a premium vs conventional single use alternatives).

We need to make circularity the easiest option possible. The more complicated the process becomes the less likely people are to participate. It needs to be fun, easy and more rewarding than other business models

I think habits are hard to break and there is a perceived cost attached to sustainable choices.

Without a doubt the biggest barrier is the cost. During a cost-of-living crisis how can we ask consumers to make the 'ethical' choice when they simply cannot afford to.

Everyone says they want to be "sustainable" but unless it's dead easy, zero ball-ache to do, then that sentiment dies. It's a cool thing to say, but it's not ingrained enough into consumer behaviour yet to be the default / norm. The product also needs to be shiny / cool / pretty and desirable. If it is not that first and foremost, you'll lose people, despite how "sustainable" the product. That's why we still promote that we are "stylish / comfortable / parent-friendly" first, with a planet-friendly ethos at the very heart of our DNA. And literally 99% of general consumers have no idea what CE is.

The biggest challenge for us is to make buying second-hand take less effort, time and patience, because most people don't have that. But that's what we're addressing.

Consumers do not have the capacity to take in the deep reasoning behind product creation decisions. All these decisions affect the total environmental impact of the product for its whole life cycle. There is a huge barrier trying to explain easily the reasons why it's important to buy one product (that is claimed to be lower impact) rather than another (which has a higher impact) and therefore it is easier for consumers to be mostly ignorant. They have lots of other things to think about! They just want something they want/need, and of course most would prefer it to be better for the environment, but without having all the knowledge about environment or environmental impact, they can only care that it does the job they want it to.

In feedback and comments, I have seen, consumers seem to be focused on being 'ethical' and 'sustainable' but do not seem to link this to the CE and the importance of it.

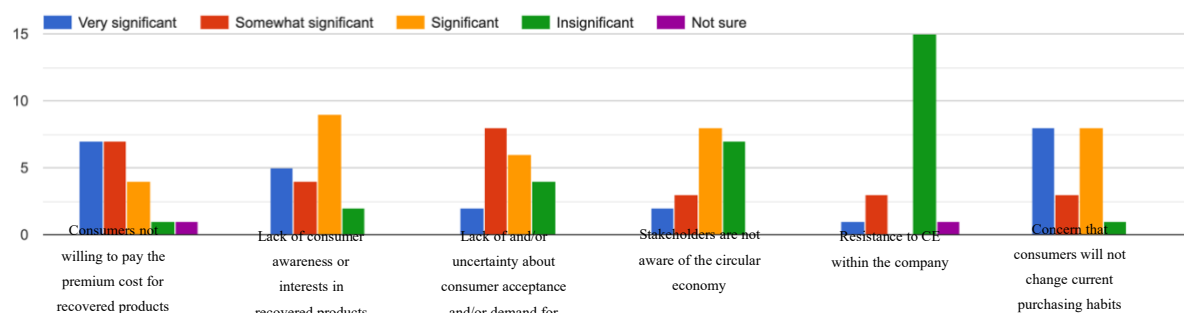
I think most people believe they are eco conscious but are only willing to go so far. If it's in any way inconvenient or more expensive it significantly reduces consumers' ability and desire to adopt more CE products.

At this current moment in time considerations towards circularity unfortunately seem to fall below price for most consumers.

In practice it is not that easy to communicate it in a short and all-encompassing manner to customers as it is a bit more complex than most would like or have the time/ attention span for. Some consumers also seem to be quite suspicious and don't trust such initiatives even when companies are genuinely trying (I don't blame them with all the greenwashing around).

this is a very long game, changing business practices embedded over so many decades. Consumer talk well of their desires, but their spending habits are not changing in the same way
Lack of understanding to what circular economy really means.
One of the key barriers is these consumers believe glass is good and plastic is bad. We must move the conversation forward.

Q1a. Behavioural Barriers Here we consider attitudinal behaviours, considering values, awareness, interest, willingness Below is a list of barriers that could represent an obstacle in accelerating the uptake of t...ificant, significant, insignificant barrier in the case of your company.



1b.

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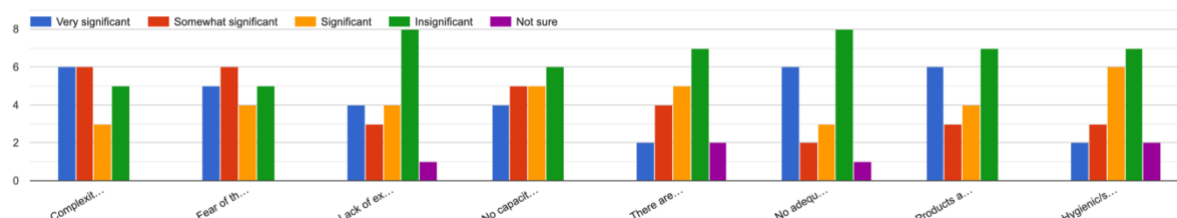
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Lack of understanding to what circular economy really means.

One of the key barriers is this consumers believe pass and glass is good and plastic is bad. We must move the conversation forward.

Q2a. Technological Barriers



2b.

We've designed our products to fit with consumers existing habits i.e., refill at home with tap water so technological barriers around material recovery are overcome

The main barriers are willingness to make change and costs. Obviously, this amounts to risk for a business. We're small enough to have been able to take the risks that larger businesses might not want to take to align our actions with our values... in the knowledge that we're doing the right thing! The investments we had to make in glass bottles and bottle washing to be able to get the Milk & More project underway were significant, but I believe we've been a contributory factor to the growth of their closed loop offering, having been the first product to be supplied in this way (after Milk!) I can't think of another brand who would be willing to take that risk!

We've worked hard to overcome most of the technical / logistic barriers to develop a reusable packaging system we are confident of delivering at significant scale.

Clients have specific expectations that aren't always possible given how recycled materials behave compared to virgin materials or the infrastructure isn't developed.

Need much more participatory supply chains - **companies acting alone are fighting against the grain**. Need standardised containers, centralised cleaning schemes, local authorities operating reuse - need cooperation and infrastructure

Technological barriers are probably of the smallest impact to our company

The biggest barrier by a mile is the lack of infrastructure. We would want to move to returnable bottles. Many European countries have these schemes on mass with high success rate, so we know it is very possible, but we do not have the infrastructure and set up both collectively and individually to implement

Very short story (as I could drone on about this forever)
To develop CE into your brand, you need tons of money, tons of time and tons of experts at your disposal.

Materials are very expensive.
I haven't been able to find a partner yet (to refurb or recycle my shoes)
Everything seems to be theory based and when you want to put it, I not practice, it'll cost thousands.

As a start-up, with no funding, this is incredibly hard. And probably the very reason why making products in China 80% cheaper and easier is why so many brand default to this when they start

It's people's perceptions of what condition the items will come to them in. And there needs to be technology to address the sizing issues (with new retailers too, but especially for buying used because of the lack of returns options). It's the number one concern for people buying used, that the item will turn up and not fit, then they're stuck with it! So, if a technology could assess the buyer's size, accurately, and the size of the second-hand item for sale, a huge barrier would be broken!

The technical barriers are huge due to the sheer lack of development time of materials and processes, compared to the linear and petrochemical industry, which has had over 100 years of solid development and support both governmentally and financially (hugely financially). The only way to truly pull down the barriers is to employ resource (government and financial backing) in the same way the linear and petrochemical industry has had, for many many years.

Working with performance products means mixed fabrics making closed loop difficult.

We have really struggled with a few products that are incredibly hard to design and source because the materials aren't ready yet. This makes product development slow, expensive and results in slower advancement.

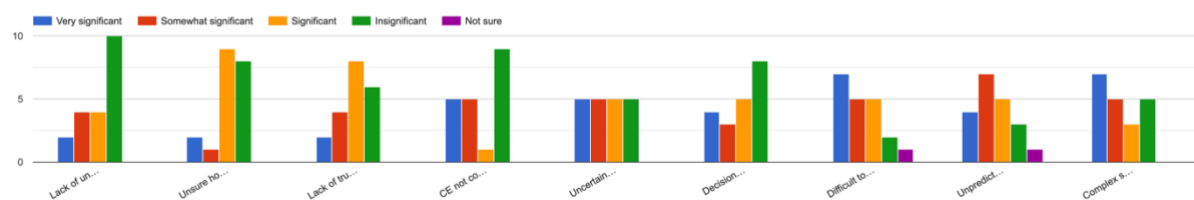
From a textile perspective the fibres we use do not lend themselves to material recovery through recycling and even those that are mono materials we struggle with industrialised solutions. The understanding of this from a consumer perspective is low. In addition, the design process largely ignores designing for circular models, my concern here is that products are designed for a 2-year horizon, so it is unlikely to see any significant changes in the near future.

I would say the biggest technical barrier is the lack of recyclers willing or able to take on smaller volumes and work with materials that are not just poly or cotton or a blend of those two. Closed loop recycling also poses another barrier and so does the financial resources required to afford recycling at a smaller scale or investing into recycling (not manageable for smaller businesses). Next to that I would say lack of funding for viable recycling solutions. Lastly, there is a massive gap in viable solutions for the output that is generated from recycling products, loads of R&D needed here still.

the technology is finally gathering pace, but costs are too high

Washing is a key challenge.

Q3a. Organisational Barriers Here we consider influences and impacts of organisational structures and operational, models. Below is a list of barriers that could represent an obstacle in accelerating the uptake of the circular economy within the FMCG sector. Please state for each of them if you consider them ...a very significant, somewhat significant, significant, insignificant barrier in the case of your company.



3b.

As stated in my previous answer Q2b

We've been wrestling with these questions for a long time. Our intention was always to create a set of products that we wanted to use and ensure they were supplied in a way we could be proud of - namely, in a closed loop! Since we created Fill Refill, we've seen several brands emerge who have been inspired by our model, who have also started to supply in this way. I like to think we've also had an influence on larger brands (that already existed) who are now trying harder to offer closed loop products too. We do not supply supermarkets or unethical online platforms. The challenge to brands who choose those routes to market will be far more difficult, and they will need to make their own decisions. We have been frustrated in our dealings with larger retailers who seem to want/expect a small brand like us (30 people!) to come to them with a solution for closed loop refills with minimum effort on their behalf. It will require a lot of collaboration for closed loop supply to work with larger retailers who rely on the current linear methods of supply.

We have total control of our supply system and have designed in circularity from the ground up. As a business we are 100% committed to reuse, core to our mission.

Larger upfront costs and high R&D costs often make circularity more difficult to get Leadership teams to sign off on.

Again, money is the key factor, if you have targets to hit then you're not necessarily going to make the 'greenest' choice

It's still a relatively new 'thing' (despite it being around for ages) and large companies will have a hell of a job pulling the handbrake and reverse engineering what they are doing. But in a strange way, hopefully, as consumer behaviour and knowledge catch up, brands like Dubs will be in a position of authority, with CE already baked in

Because the margins are so low with commission earned from items sold through our site, because the second-hand value of items is so low, it makes it less attractive to investors. If the government supported us in what we need to grow, we would have a significant impact on the circular economy.

These are less significant on an organisation-by-organisation basis. And they can also all easily be guided by a pioneering organisation. The changes internally can happen quickly with the right catalyst. But the barriers are still relatively significant. Just more human and therefore I see them as more malleable in a shorter amount of time.

Biggest barrier here is our waste management streams here in the UK. They are significantly holding back product development and new materials because they are so wildly different between councils and because of the lack of certain streams like composting. It means even if we were to develop more products that are compostable, the waste management streams can't reliably handle it and consumers could get confused and/or think it's a waste of time if it all ends up in landfill/ incineration.

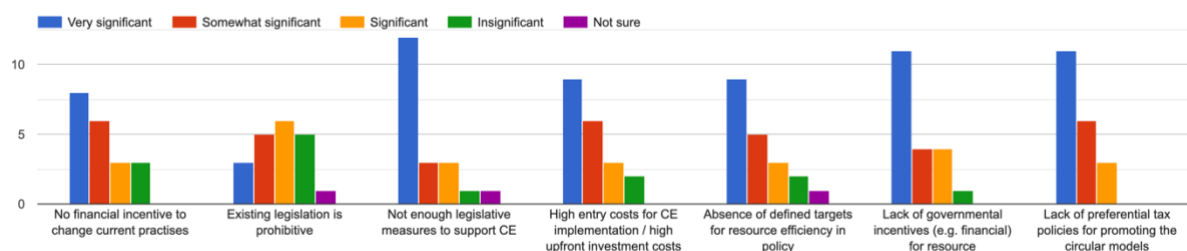
The leaders within the business struggle to see the pure good a circular model can unlock and cannot or will not dedicate resources to it without a clear return on investment. The main focus is financial security which means a deprioritisation of other business streams.

Volume and minimum quantities required by recyclers is definitely a big barrier. Costs to the business, especially if it is a less explored route, is big and there are extremely limited funding options.

Cross sector collaboration and knowledge sharing is extremely slow

Money talks If raw materials increased 100x cost over night organisations would implement more circularity into their ops. The other challenge is the capital expenditure on existing infrastructure. That can't (and shouldn't) be written off until its lifetime is over.

Q4a. Institutional Barriers Here we consider barriers caused by political institutions, for example regulations and laws Below is a list of barriers that could represent an obstacle in accelerating the uptake of the circular economy within the...ewhat significant, significant, insignificant barrier in the case of your company.



4b.

Policy changes would influence the behaviour of the wholesalers in our market, this would help move the dial.

Plastic tax was a good start but must go much further to force wide scale behavioural change we need the biggest brands in our category to change their products to encourage consumer understanding and acceptance of refill

We've had no grants, investment or government support to help implement our own circular model - it's been entirely self-funded and organic growth! We launched the Milk & More project in 2020 in the midst of the pandemic and it was a very nervous time!

All of the above! The UK Gov in particular is absolutely hopeless when it comes to policy, legislation and incentivisation in this area.

Brands are starting to notice incoming EU regulations (and CA in USA) and starting to get nervous.

The circular economy absolutely has to be driven by legislative change until businesses have no option other to adopt a circular approach.

to be fair, we won a grant to develop our prototype - without that, I wouldn't be here. The rest, I'm not too close too - sorry!

The government should be putting as much as it can I to circular economy initiatives, or at least start taxing things more that are produced new and transported all over the world. Not enough consideration or care for the future is demonstrated by the gov.

Governments must make relevant and deeply researched policy very quickly in order to force the hand of some companies in a faster time period than they could get through customer demand or private ownership benevolence. It is essential to creating CE innovation and scaling it quickly (which in itself will aid the potential of some CE potential models, which rely on scale to function)

Lots of grants to support this in product development. Tax incentives and support with overhauling waste management streams would be most effective.

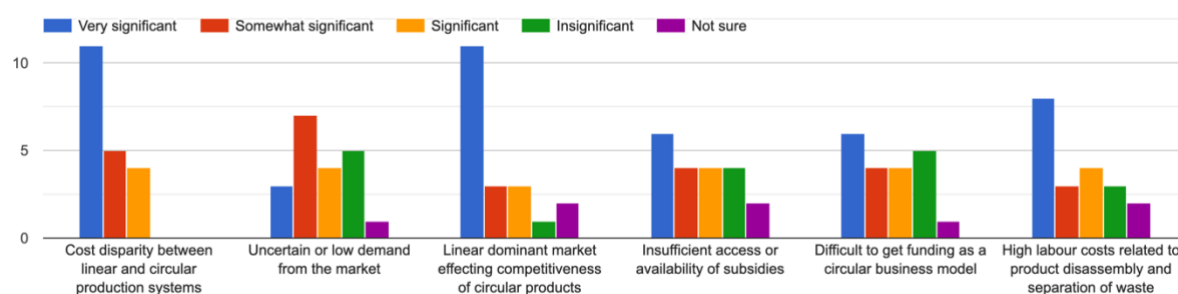
Until there are penalties or mandatory commitments to make companies partake in such activities, I believe it will be largely deprioritised.

The EU is far more advanced in this sector compared to the UK which is currently lacking action. From following what is happening on the continent it is extremely clear that legislations and governmental incentives are the biggest single driver for this industry to grow and solutions to be adopted and scaled.

our sector has only ever responded when it has become legislation, and i don't see this changing in such a competitive sector

The demand right now is driven by consumers. The government could do so much more!

Q5a. Market Barriers Here we consider market mechanics, economic climate, subsidies, supplier relations Below is a list of barriers that could represent an obstacle in accelerating the uptake of the circular e...ificant, significant, insignificant barrier in the case of your company.



5b.
All those points are issues that affect the CE model
We're unaware of the total demand for closed loop products and circular models in society but we are certainly seeing steady growth and overall awareness & demand over time. There is no doubt that doing what we do, compared to any other linear supply model of a similar product type is way more complicated, difficult, risky and costly! However, we wouldn't have it any other way - because we 100% believe in what we are doing and the way we are trying to do it!
The obvious one is the big disparity of costs and unit economics between linear and circular models.
Circularity is often more expensive and when compared with linear/virgin materials making it a more difficult sell.
Our company is based on a circular model so doesn't see the same barriers as other industries would face.
Funds and support distinctly lacking
There are definitely some key barriers due to the market, the main one being the price premium for product created with these additional CE 'features'. Scale will help reduce the barriers, and more and more investors are seeing this.
Circularity by in large is seen as an add on, rather than a part of core business. In addition, there is little evidence of the return on investment on large scale circular models.
We are unfortunately very far away from being able to challenge the current linear model unless everyone actually starts working together rather than doing it in silos and the right investments are channelled into viable solutions while supporting business adaptation, but this will have to go hand in hand with divesting from inherently linear businesses and sectors

Whilst the CE FMCG market is a fraction of the size of the linear one, i believe there is enough consumer demand to support bigger players than exist currently. Well executed products & brands are making waves in other sectors e.g., deodorant

Section 4: The factors most likely to enable greater adoption of the circular economy

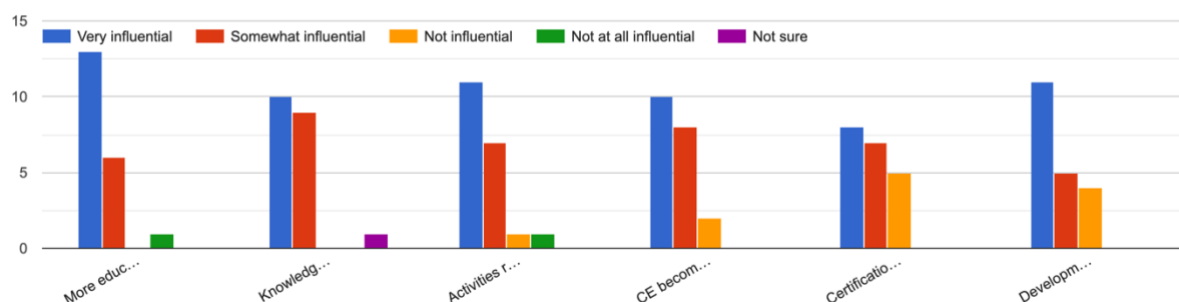
Q6a. Behavioural Factors



Here we consider attitudinal behaviours, considering values, awareness, interest, willingness.

Below is a list of factors that could influence greater adoption of the circular economy within the FMCG sector. Please state for each of them if you consider them to be very influential, somewhat influential, not influential, or not at all influential in the transition to a circular economy for the FMCG sector.

Q6a. Behavioural Factors Here we consider attitudinal behaviours, considering values, awareness, interest, willingness. Below is a list of factors that could influence greater adoption of the circular economy ...fluent in the transition to a circular economy for the FMCG sector.



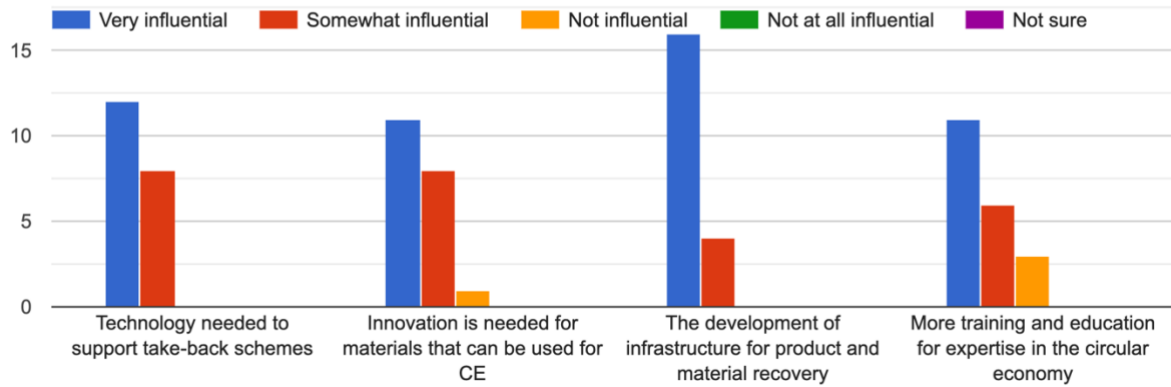
6b.

Links to policy to support CE, education, metrics and certification will help build trust and that will enable progress.

All of these will be extremely helpful!

Clearly explaining the benefits of a circular economy and disadvantages of a linear economy should be embedded within school curriculums.
start with the kids. When my daughter berates me for throwing something away, rather than trying to fix it, it's quite sobering
Love these points as a point to what the future could and should look like. There is a lack of visualisation of the future for the average person. No one knows, apart from those that do, how terrifying the future looks, in a way that's real stable to them. I know they don't do that because if it came from the gov, there would be mass hysteria, but there needs to be more done, to make the choices for the people (e.g., a bigger tax on things produced new that could be bought second-hand/recycled)
A cultural change will have the biggest positive impact, as it is only when everyone sees and accepts the information and adopts it as fact, that things will really change rapidly. This is in my view the biggest potential area, but needs to be backed up by legitimate product.
There are plenty of places where information sharing existing already, it's just we are all still working on a system stacked against us. Even government bodies like WRAP just tell us it's really difficult and nothing much can be done. There is just so much inertia in the mainstream and no matter how much collaboration and education, it's just a drop in the ocean
Investors setting the agenda on CE practices or business models by requiring them as part of their investment. Education of financial institutions, boards and senior management as well as measurable KPIs on a business level
Needs to be one voice. Too much noise right now

Q7a. Technological Factors Here we consider both the technical know-how, expertise, technological advancements, take-back schemes, quality of materi...sition to a circular economy for the FMCG sector.



7b.

Infrastructure is key, I do believe that without top-down influence investing in that infrastructure is unlikely to occur to gain a competitive advantage and so is less likely through pure market forces as they are.

I feel like the technology & materials already exist. It's more about education & awareness. Educating consumers will encourage them to make more informed choices and forces brands, suppliers & retailers to make the necessary changes.

Even more importantly, we need brands & retailers to focus on impacts, as much as they do on the bottom line!

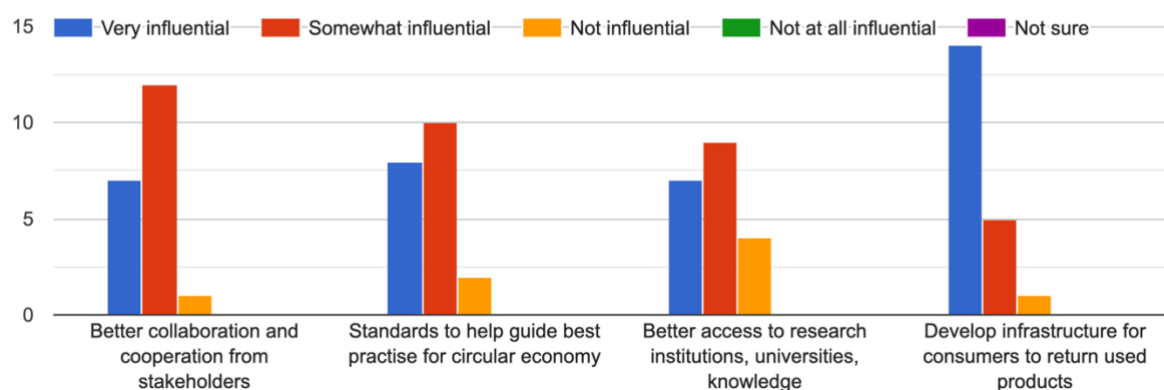
Infrastructure is needed as is the availability of readily available and cost-effective materials.

We need to skill up in the UK and make it more accessible and affordable for start-ups

My dream for the future is where it's illegal to throw anything away that could be reused, and it's the government's responsibility to manage it all. To distribute the things necessary to address housing poverty

(where people on benefits are given empty houses, and no money to buy anything to fill it), so everything has a system for reuse on a massive scale.
All of these are highly influential, sorry not to choose one over the other! But AI is so so important
Need to develop and support roll out of new product AND the ability to process them at end of life
Sorting facilities and technologies need to be scaled and made to be profitable for them to be viable long term
For me, the technical challenge is how do you ensure return rates are high that the packs are actually returned for reuse in a carbon effective way.

Q8a. Organisational Factors Here we consider influences and impacts of organisational structures, and operational models. Below is a list of factors to transition to a circular economy for the FMCG sector.

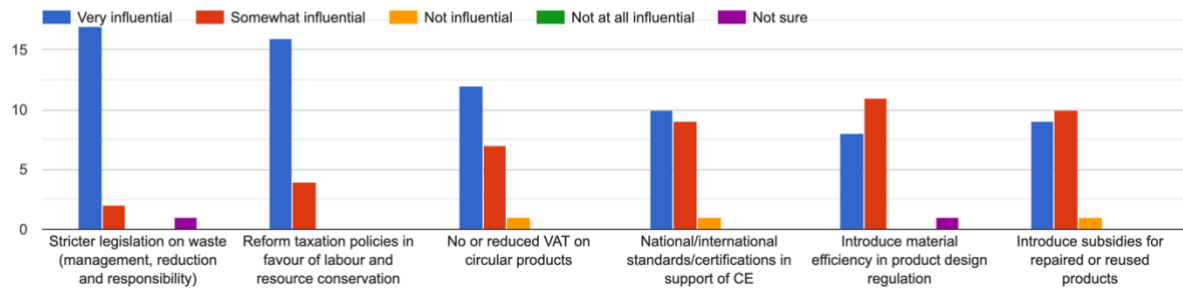


8b.

Same as answer for 7b

We've been out on a limb with the systems we've been developing over the last few years, so any standards and support would be very useful indeed. However, we've found the absence of none of the above to be a barrier to making changes in our business.
Infrastructure to allow for ease of packaging return is the most important by far.
This is just it - accessibility to things that will make building a CE SME / start-up, well, possible. How many great ideas have fallen flat because of the above?
The last one seems the most impactful, I think the literature side of things is less impactful, personally.
It will be a massive accelerator if there are structures out in place to get new innovations 'out of the lab' and into the commercial space. And they can only be prevalent in educational institutions if it is part of the curriculum
As above
Yes, it is important to make it easy for customers to return products but even when they are returned (look at plastic waste and other home recycling) only very little is actually recycled or repurposed. The infrastructure and systems need to be in place, funded and working to actually be able to absorb all the products and materials customer give back or are otherwise collected
Better standard and infrastructure are key.

Q9a. Institutional Factors Here we consider barriers caused by political institutions, for example regulations and laws Below is a list of factors that could influence greater adoption of the circular economy ...fluent in the transition to a circular economy for the FMCG sector.



9b.

Same as the last two questions

Amen to all of these!

Tough one - you don't want to alienate. I think it stems from more 'education' than forcing of issues through legislation (to a degree) - you don't want people cutting corners etc to get a better tax break

Love these!! Yes yes yes 🍌

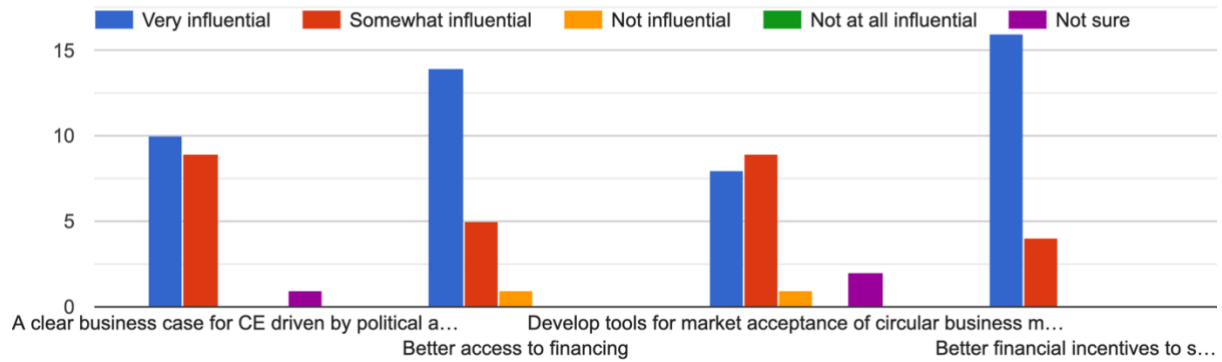
Any legislation against linear/extractive/polluting industries will have immediate effect, and any benefits financially and in terms of complexity of running a business, that can be unlocked because of proving the use of circular economy principals, will make a huge effect. The issue is how to define what is circular and what is not, since almost nothing can be truly circular right now with FMCG.

Key thing is standardisation and modernisation of waste management streams.

Clear EPR and right to repair regulations for every sector and if possible product specific. Sanctions in the form of taxations or fines for over production and incineration and landfilling and reinvest this into recycling and other CE systems
Incentivise retraining of the work force for the repair and share economy and overarching CE

All of these ideas could be powerful levers. A good mix of carrot and stick.

Q10a. Market Factors Here we consider market mechanics, economic climate, subsidies, supplier relations. Below is a list of factors that could influence the transition to a circular economy for the FMCG sector.



10b.

Same again

Financial incentives would no doubt make a huge difference, although it's somewhat depressing that this is what it takes.

Very important - one thing we lack is support. But practical support - not theory

Anything for the circular economy, that is a sound business model, should not have to worry about finding, when we are the ones building the systems and tools to save the future for everyone.

Again, this reflects much of the previous answers. I'd say other market factors such as the rise of social media (or AI) could be highly influential

I think funding is there.

Financing such activities, on all fronts is probably the biggest initial lever for an economy wide transformation

I don't believe investors are put off by CE in principle. Business in the spaces is raising capital from everyone from individual to institutional investors.