



# **GREEN INNOVATION AND SUSTAINABILITY STRATEGIES IN UK PACKAGING INDUSTRIES**

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Presented as part of the requirement of the Degree of MSc International Business, Canterbury,  
Christ Church University

## **SELF DECLARATION**

I have invested a lot of time and my effort to complete this dissertation and it is my own work. This work is not presented earlier for any award. I declare that this dissertation can be used for further photocopying, library loan and future research reference purpose.

[Shanza Riaz]

## Abstract

This study seeks to assess green innovation solutions that may be used by the packaging companies in the UK, hence taking a stance on environmental sustainability. The study adopts a secondary research mode to analyse the various strategic initiatives and concerns faced by the industry in integrating green innovations. The research chooses an interpretivism philosophical approach and an inductive reasoning methodology to identify the current state of analysis and future enhancements in the said sector though it has a descriptive research design. The findings are structured around five key themes: the key issues of government initiatives for sustainable packaging, major issues of the packaging industry, strategic implications, and the implications of green innovation for sustainability. The study also shows the increasing emphasis of incorporating secondary materials to act as plastic substitutes for packaging, to minimise cost while attaining the goals of sustainability. The study also focuses on governmental measures and their impact on industry strategies, possible cooperation with sustainable material producers and startups to enhance industrial change. Thus, the findings of the study point towards a way for the industry to improve tactics for understanding consumer preferences especially concerning sustainable packaging products. AI as a method can be used as one of the ways to appropriately measure consumer preferences towards environmentally friendly products and services, and enhance organisational performance. Furthermore, engaging manufacturers of sustainability materials as a way of cutting down on packaging harm is considered as one of the ideal ways of promoting growth and welfare of the country. The main methodological constraint of this research is that primary consumer data relating to sustainable packaging materials is not collected, which might give a detailed insight to the consumer attitude toward green packaging materials. However, this research offers important recommendations for organisations and authorities desiring to intensify sustainability in the UK packaging industry.

**Keywords:** Innovation, Green Packaging, Circular Value chain model, UK-packaging sector. Artificial Intelligence, Consumer behaviour.

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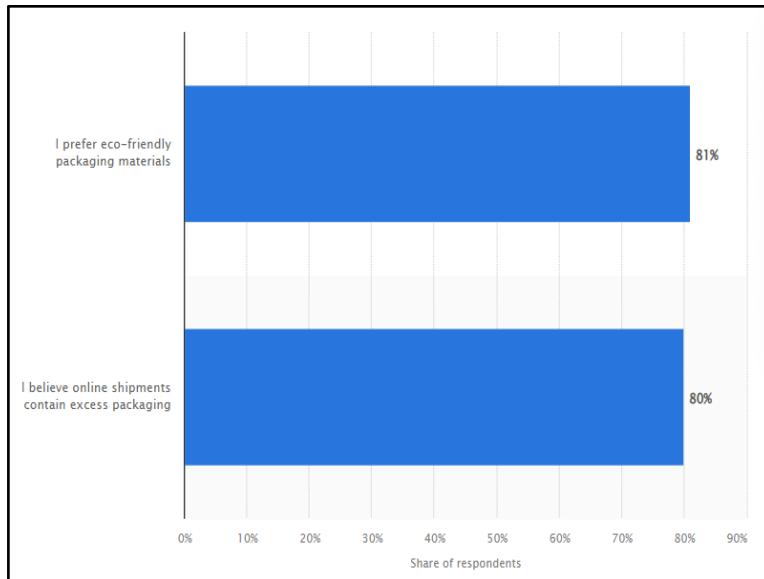
# **Chapter 1: Introduction**

## **1.1 Introduction**

This chapter will provide a detailed overview of the impact of green initiatives and sustainable packaging activities in improving the performance of the UK-based packaging sector. This chapter will provide a detailed overview of the current issues encountered by the UK-based packaging sector and the overall structure of the dissertation. This chapter will provide a detailed overview of the background of the study and the significance of the study. This chapter will provide a detailed overview of the structure of the overall dissertation. A detailed overview of the key underlying issues associated with the packaging sector of the UK in terms of green innovation management processes will be highlighted in this chapter.

## **1.2 Background**

Personal attitudes, environmental concerns, and social influences have a significant impact on influencing consumers' perspectives on consuming green products (Wandosell *et al.*, 2021). It has been identified that DS Smith, a London-based packaging brand, launched a sustainable packaging program called 'Now & Next' to develop the strategies of using 100 percent reusable packaging products for their consumers (dssmith, 2024). These strategies positively allow the company to improve their brand value and brand image within the operating marketplace and allow the company to consider the consumer's approaches to managing its competitive advantages.



*Figure 1: Perceptions of consumers over sustainable packaging in the UK in the fiscal year 2022*

(Source: Yltävä, 2024)

From the above figure 1, it has been identified that eight out of ten consumers in the UK, considered that they would prefer sustainable packaging over the traditional packaging proceeds (Yltävä, 2024). These strategies will allow packaging brands to improve their innovation management strategies and allow brands to adopt sustainable packaging processes. Thus, depending on the above analysis, it has been identified that consumers' perception of sustainable packaging is positive in the UK. Thus, this study will evaluate the Government standards of the UK regarding sustainable packaging processes and will identify the factors that directly impact adopting sustainable and green innovation management strategies for the UK-based packaging sector.

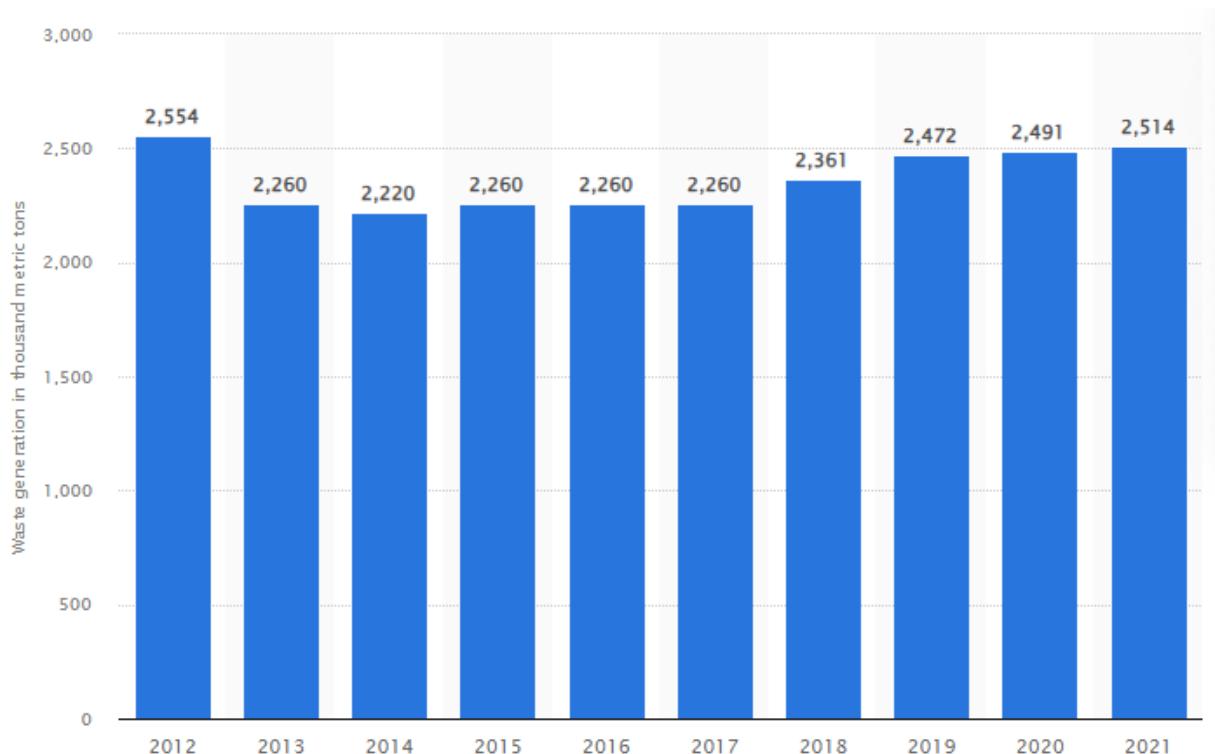
### 1.3 Significance of the research

Packaging design and packaging quality positively influence consumer experiences and help provide innovative information about products or services (Elkhattat and Medhat, 2022). Thus, depending on the perspective it can be stated that innovative packaging strategies and the quality of packaging material can allow packaging brands to improve their performances and their customer experiences. It has been identified that McDonald's, Unilever, Nestle, Coca-Cola and other global brands have considered the approaches of adopting recyclable and sustainable packaging strategies to meet their consumer demands (Boz *et al.*, 2020). This study will help to

evaluate the current approaches of packaging brands in the UK such as DS Smith, Graphic Packaging plc., and Crown Cork & Seal Co. in managing their sustainable operations and innovation management strategies in order to support the sustainable packaging strategies adopted by renowned global manufacturing brands. This strategy will positively allow the packaging brands of the UK to identify key underlying factors associated with the improvement of sustainable and innovative operational management processes.

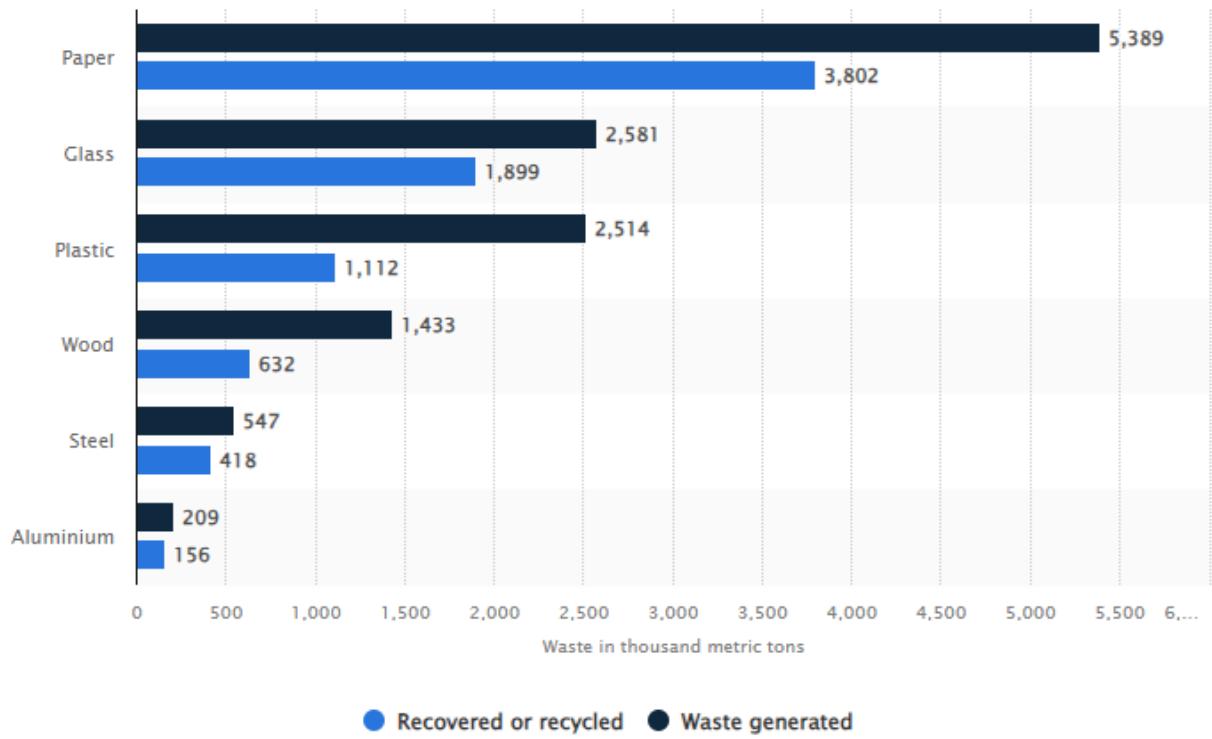
#### 1.4 Rationale

##### *Analysing the current issue*



*Figure 2: Plastic waste generation in the UK*

(Source: Alves, 2024b)



*Figure 3: Packaging waste generation in the UK*

(Source: Alves, 2024a)

From the above figure 1, this can be seen that there is an increase in the rate of plastic production in the UK. Increased plastic waste generation poses a significant issue for environmental well-being. In addition to that, the second graph states that among 2514 metric tons of plastic waste only 1112 metric tons of waste are being recycled. Hence, the rest cause a significant negative impact on the environment raising questions about sustainability.

### ***Analysing the underlying factors associated with the issue***

The unsustainable packaging practices of different business organisations have raised this issue regarding business performance towards sustainability. Increased use of plastic as the packaging material caused increased plastic waste production that causes significant environmental harm. In recent eras, people in society become more concerned about the environmental problem which has made them shift towards green purchasing habits.

### ***Contextual analysis of the issue***

There is an increased consideration of environmental pressure on the economic system that posits a requirement for reconsideration regarding the economic paradigm (Coelho et al, 2020). This posits an increased urge to reduce the overall impact on the environment through increasing the natural resources in daily activities.

### ***Evaluating the research purpose***

The current research will focus on evaluating the importance of green packaging and sustainable strategies in the packaging industries. As this can be seen there is an increase in waste production in the UK which raises the issue related to the sustainability aspect towards the environment. Hence, by shedding light on these effective aspects the current research will be relevant for understanding the sustainability aspects in the packaging industry.

## **1.5 Problem statement**

Single-use packaging products have a significant impact on developing sustainable and eco-friendly packaging processes (Coelho et al.,, 2020). However, single-use packaging products have a significant impact on managing the rising level of waste from the overall economic model of a business. Thus, depending on the above perspectives, it can be stated that packaging brands in the UK encounter the issues of adopting sustainable operational management processes due to a lack of proper resources, lack of effective leadership approaches and lack of infrastructure. Thus, this study will evaluate the factors that influence the UK-based packaging sector to adopt sustainable and green packaging strategies.

## **1.6 Research Aim**

This research aims to evaluate green innovation strategies implemented by the UK packaging sector and their impact on adopting sustainable initiatives.

## **1.7 Research Objectives**

- To evaluate the current state of green innovation in the UK packaging industry.
- To explore the role of government policies and regulations in promoting green innovations in the UK packaging industry.
- To examine the customer behaviour and perception towards sustainable packaging.

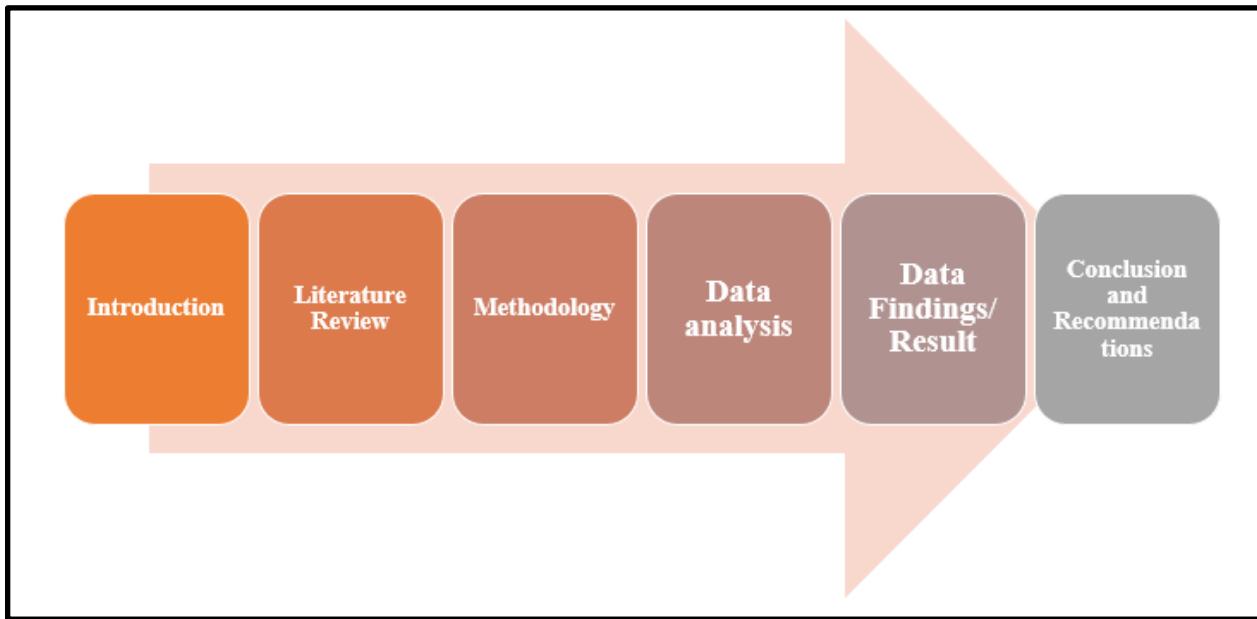
The core objective of this study is to evaluate the current state of green innovation strategies adopted by UK packaging brands. This study will evaluate the impact of government policies and regulations in promoting green packaging practices for UK-based packaging brands. In addition to this, this study will evaluate how current consumer behaviour and perceptions of the UK towards sustainable packaging processes.

## **1.8 Research question**

1. What are the current green innovation practices in the UK packaging industry?
2. How do government policies and regulations impact green innovation in the UK packaging industry?
3. What factors influence the adaptation of sustainable and green packaging for the UK packaging sector?

This study will evaluate the current state of green innovation strategies adopted by UK-based packaging brands. In order to evaluate current green innovation strategies of the packaging sector, secondary qualitative data collection strategies have been considered. The secondary data sets will be collected from the packaging sector of the UK. DS Smith, Crown Cork & Seal Co and Graphic Packaging plc. have been considered to gather secondary data sets.

## 1.9 Structure of the dissertation



*Figure 4: Structure of the dissertation*

(Source: Author's own)

This dissertation has been segmented into six different chapters. Chapter 1 and Chapter 2 will provide a detailed introduction and overview of the current sources. Chapter 3 will represent the key methodological approaches that have been incorporated. Chapter 4 and 5 will provide a detailed overview of data analysis and data findings. Chapter 6 will provide a detailed conclusion of the study and outline further recommendations.

## 1.10 Summary

This chapter provides a detailed overview of the rise in waste generation by the packaging sector is the key underlying factor for adopting sustainable packaging strategies by UK-based packaging brands. In order to identify the current approaches to sustainable initiatives by the packaging brands, this study will evaluate the operational management strategies adopted by DS Smith, Graphic Packaging plc., and Crown Cork & Seal Co.

## **Chapter 2: Literature Review**

### **2.1 Introduction**

This section will ensure a significant contribution of Literature towards the subject of the research. In this section, a Literature matrix will be provided along with a conceptual framework. The section will focus towards the concept of green packaging along with ensuring the current impact on the consumer market of the UK. The literature also contributes sustainable packaging innovations within the current UK market along with an analysis of the governmental policies for the promotion of green packaging within the market of the United Kingdom. The section also focuses on the identification of factors which are influencing the change of sustainable packaging methods, further evaluating consumer behaviour towards the sustainable trends in the market. Furthermore, recognition of significant challenges will be ensured along with the development of strategic recommendations. The chapter concludes with a gap in the literature.

### **2.2 Literature matrix**

The literature matrix provides a detailed overview of how sustainable packaging can help organisations to develop a sustainable value chain model. It has been identified that MCDM techniques can be beneficial for packaging brands to evaluate the impact on innovation strategies adopted to develop sustainable and eco-friendly packaging processes. Consumer perception is one of the key factors that forces brands to adopt sustainable packaging strategies. Socio-political initiatives and environment-friendly operational strategies have a significant impact on the innovation management for sustainable packaging strategies.

Sustainable packaging has research focus with many articles discussing trends, issues and approaches on the same. According to Smith and Clark (2023), the trend towards more compostable materials and designs based on circular economy, which is set by regulations. Mahmoud *et al.* (2022) argue that the avowals of green packaging, environmental consciousness, and WTP plays an important role to determine the buying behaviour of consumer; therefore, other theoretical frameworks should be used in the future research.

Hsu *et al.* (2021) investigate how the green innovation through financial development and environmental regulation decreases emissions and increases resource utilization efficiency.

According to Nguyen *et al.* (2020) consumers care for material environmentally friendliness such as biodegradability and recyclability of packing materials rather than having the impression of the manufacturing process.

As in Boz *et al.* (2020), the study addresses a number of issues related to the communication of sustainable packaging benefits to clients. Wandosell *et al.*, (2021) reflect on social and legal incentives to use green packaging by organizations, together with customer perception of the recyclability of the pack and its origin. Hence, there is a call for support based on the cost factor from Carter and Evans (2021) and Brown and Taylor (2020) show how circular economy practice May bring economic gains since firms adopt green initiatives but show that cost affects SMEs. Green and Wilson (2023) illustrate sustainable good examples such as plant-based plastic and smart packaging because of consumer push while Johnson and Lee (2022) point out knowledge and partnership deficiencies.

Suggestions for future research include the development of more commercially viable and environmentally sustainable technologies (Green & Wilson, 2023), the cross-country appraisal of management systems (Smith & Clark, 2023), and the promotion of effective technologies for monitoring consumer behaviors (Carter & Evans, 2021).

[Refer to the Appendix]

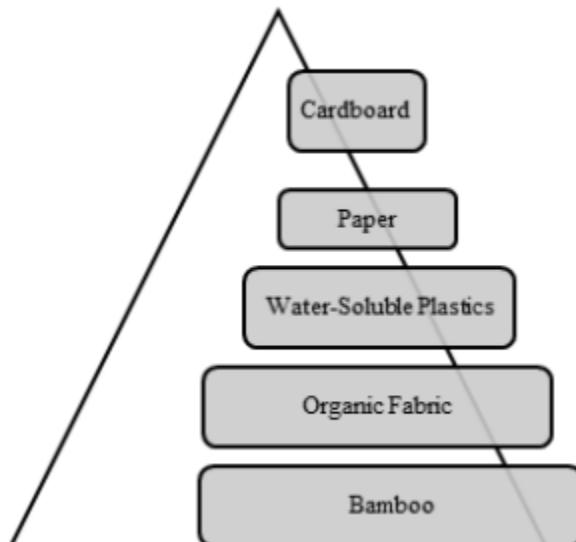
### **2.3 Review of literature**

#### ***2.3.1 Critically evaluating the current state of sustainable packaging innovations and their impact on the UK packaging industry***

Sustainable packaging has been considered a vital force while shifting the packaging industry towards adopting recyclable materials (Asim *et al.*, 2022). Sustainable packaging refers to the process of reducing the environmental footprint of the packaging materials as well as of the processes (Abatan *et al.*, 2024). The innovation regarding sustainable packaging includes the process of adopting recyclable packaging materials, formulating and adopting biodegradable packaging solutions, along implementing lightweight designs and utilisation of renewable resources while meeting sustainability norms. The continuous investment within the fields of

research and development can be marked as beneficial while addressing environmental challenges followed by ensuring the path towards a greener future. The ***social systems theory*** focuses on portraying the process through which a certain organisation collectively engages with their stakeholders including civil society organisations, consumers and suppliers (Wickert, 2021). In this era of continuously changing business environment stakeholders put pressure on the business organisations to engage in sustainable practices and green innovation (Silva and Pålsson, 2022). International business organisations and packaging companies should focus on implementing sustainable packaging designs or strategies to meet sustainability norms and innovations. For instance, being an international packaging company, DS Smith has set their long-term commitment to the circular economy while redefining packaging for a changing world (Dssmith, 2024). Sustainable or green innovation may have a role in extending the packaging process to thoughtful and efficient design while reducing the negative impact of the business process on the environment. In this regard, green packaging innovations may foster health, safety and environmental practices.

### ***2.3.2 Critically exploring the term green packaging from the perspectives of consumers within the UK packaging industry***



*Figure 5: Types of sustainable and green packaging*

(Source: Alam, 2023)

In this ever-evolving business environment, consumers are becoming more conscious of the negative or harmful impact of packaging waste on the environment (Mahmoud *et al.*, 2022). The growing concerns about green packaging are reflected in business activities. In this regard, the consumers are willing to ensure that the organisations are practising sustainable practices through their services. Furthermore, packaging has been considered a crucial part of the marketing mix as it can be a greater medium to provide vital brand messages to consumers. The *theory of planned behaviour* often explains a wide range of human behaviour (Mahmoud *et al.*, 2022). This indicates that the intention of the consumers towards purchasing products that fulfil the norms of sustainable packaging should be considered. However, the lack of internalisation of sustainability can result in the unsustainable behaviours of the consumers (Alam, 2023). The organisation should focus on assessing the purchasing behaviours of the consumers followed by considering their requirements for sustainable and green packaging. The impact of green packaging has been considered as vital for the business success. An example can be taken from Crown Cork & Seal Co., which has implemented various green initiatives under its "Twentyby30" program of sustainability. The company works to take a leadership position in these areas and can be said to be the best employer, partner and corporate citizen that can be possible (Crown cork.com, 2024a).

### ***2.3.3 Evaluating the government policies and regulations for promoting green innovation in the UK***

The green innovation and the financial development decreases help in the decrease in the emissions which is apparent as environmental regulations help to stimulate the technical development increasing the superiority of the human resources (Hsu *et al.*, 2021). The various government policies and regulatory framework in the UK include the Environmental Protection Act of 1990, which addresses ways to control pollution and another law that can be said to promote the Green Revolution is the Climate Change Act, 2008 which targets the carbon reduction process. This analysis could be explained better with the help of Porter's hypothesis which was proposed by Michael Porter in the 1990s and suggested that adequately designed environmental regulations can help in boosting innovation which leads to economic benefits and helps in saving the environment. This theory challenges the conventional point of view that says that approaching environmentally sustainable strategies costs businesses a fortune. According to Porter, adopting flexible regulations can help organizations by encouraging them to innovate, improve their products, and gain

economic profits and it is the only way in which one can understand how the actions of the government and organizations can help in improving public and private ways of sustainability (Yang *et al.*, 2021). The Crown Cork & Seal Co., also implemented these laws in their organization as their Twentyby30 initiative states that reducing the impact of climate change by efficiently using natural resources and creating social change by enhancing product performance is strongly done by a commitment to governance and ethics (crown cork.com, 2024a). Therefore, continued efforts to refine and strengthen environmental policies are essential to achieve sustainable development goals which help in maintaining the leadership in green innovation in the United Kingdom.

### ***2.3.4 Analysing the impact of Government Policies on an organisation's sustainability approach***

One of the major policies which are being targeted by the Government of the UK in controlling the concerns towards climate change and implementation of Sustainability is the incorporation of the Net Zero emission towards every organization of the UK by the year 2050 further leading to a transitional shift of sustainable economy with the support of UN Sustainable Development Goals (UNSDGs) (Pye *et al.*, 2021). This can be further aligned with the Sustainable approaches of Graphic Packaging Plc, which is focused on recyclable packaging of products and an increase in partners with paper packaging collaborating with brands like Keelclip and PaperSeal (Graphic Packaging, 2024).

Another Significant policy that is being implemented by the United Kingdom in response to the climatic changes and adaptation to sustainability can be aligned with the Sustainable Support strategy (SSS) with the Integrated Operating concept which will further reflect six significant strategies like operational energy in global transition, self-sustainment in operations and sustainable deliveries from organizations (GOV.UK, 2024). The adaptation towards sustainability can be ensured as the only solution toward the growing concerns, further leading to the emergence of green technologies in the market of the UK which can be further aligned with a Supporting statement of (Pye *et al.*, 2021)

Another article proposes that the adoption of sustainability is not the only approach that is required for the fulfilment of sustainable development Goals (SDGs) for the organizations (Lozano and Barreiro-Gen, 2023). On the contrary to the statements of (GOV.UK, 2024), it ensures that the incorporation of Corporate Social Responsibility and communication towards the adoption of

addressing needs individually is as important as the approach of sustainability for aligning the goals and policies presented by Sustainable Development Goals (SDGs).

### ***2.3.5 Identification of the factors influencing adaptation of sustainable and green packaging in the UK packaging sector***

Sustainable packaging is environmentally safe, healthy, and beneficial for individuals and communities throughout their entire cycle of life. It meets the criteria of cost and performance where it is sourced from, manufactured, and recycled using renewable energy thereby maximizing the use of recycled source materials using clean production technologies which are made from materials that are sustainable for the environment (Nguyen *et al.*, 2020). The transition from traditional to sustainable and green packaging is an important component of the initiatives towards adaptation of environmental sustainability. Environmental legislation such as the Plastic Packaging Tax, 2022 lays down a tax on packaging that contains almost 30% of recycled plastic are tax levied (Clarity, 2024). This tax holds regulations that would hold plastic manufacturers responsible for plastic pollution which is relevant in the upcoming years (Wong, 2023). The market demand is also a crucial point where the increased demand for sustainable products influences businesses to maintain competitiveness in the market. Therefore, adaptation of green packaging requires coordination among the suppliers, manufacturers, and retailers to develop and strategise sustainability in the company. Thus, discussions regarding the United States' creation of a plastic tax or some regulation to hold manufacturers accountable for their plastic pollution are still extremely relevant and will only become more relevant as 2024 draws nearer. Another major factor can be considered as an indirect effect on the environment in consumer package interaction which is leading to the contribution of Landfill in the United Kingdom (Boz *et al.*, 2020). This statement further ensures that the plastic packaging provides a convenience towards 'Easy to Empty' but ensures an environmental impact towards leveraging the concerns of Environmental and climatic changes. An example of this can be cited by Crown Cork & Seal Co. uses almost 84% of steel packaging and almost 76% of aluminium cans which are recycled in the country itself (Crown cork, 2024b).

### ***2.3.6 Evaluating the consumer behaviour towards sustainable and green packaging***

Understanding the current consumer drivers when in relation to environmentally conscious purchase decisions acts as an aid to stakeholders in Sustainability that also helps in developing strategies that encourage sustainable behaviours of the consumer and make the business more seen in the eye of the consumers (Boz *et al.*, 2020). Consumer behavior therefore plays a very important role in the adoption and success of the concept of sustainable and green packaging. Therefore, evaluating the behaviours of the consumers towards sustainable and green packaging can be seen when the consumers start becoming more conscious of sustainable packaging and start to prioritize environmentally sustainable products in their daily lives and start choosing products with green packaging (Ulum and Mun'im, 2021). Therefore, observing the way in which customers are adapting to the use of green packaging in their daily lives can be analyzed using this model. Therefore, observing this customer behavior can help in bridging the gap between the intentions of the consumers and their behavior which would help in gathering data to create a more sustainable organisation. The example DS Smith has reported that 64% of consumers willingly pay more to get their shipments in sustainable packaging and more than 78% of people prefer purchasing products that are labelled as environmentally friendly. This shows how these initiatives work for the development of the company and how consumers become a part of it (DS Smith, 2024a).

### ***2.3.7 Identification of challenges for implementing sustainable and green packaging strategy***

Green packaging which is also known as ‘eco-green packaging’, ‘sustainable packaging’ or ‘recyclable packaging’ involves using ecological material for the purpose of packaging which is of great importance would help in reducing the impact of waste and pollution (Wandosellet *et al.*, 2021). For the identification of challenges for implementing sustainable and green packaging strategies. The shift towards sustainability and green packaging has gained prominence as both consumers and businesses have increasingly started concentrating on the concept of environmental protection. The challenges that are faced during the implementation process of sustainability and green packaging strategy include Consumer perception and behaviour: here, it is found that some of the consumers are highly aware of the demand for eco-friendly packaging while there are many others who lack the understanding or its importance which is a challenge. The economic and

financial barrier includes the cost implications and economies of scale that show how small and medium-scale enterprises are unable to adopt sustainable packaging due to budget constraints. Issues related to supply chain and logistics include how suppliers should ensure a steady supply of sustainable materials to ensure green packaging strategies. Therefore, green activities can help reduce energy loss and environmental degradation, and profitability also needs to be ensured by adopting green activities and green technologies in the manufacturing plans (Rahman *et al.*, 2020). However, in 2022, 8 out of 10 consumers in the United Kingdom reported that they prefer environmentally friendly packaging materials and 80% of the shoppers agree to the use of green packages for shopping (Statista, 2024). Like, Crown Cork & Seal Co. uses 80% of aluminium containers to store their product and almost 100% of the metal scrap that is created in the production process is recycled back into production (Crowncork.com, 2024)

### ***2.3.8 Analysing strategic initiatives that will be effective for fostering the green and sustainable packaging in the industry***

One of the major challenges that can be found in the adoption of the sustainable packaging strategy is the lack of education about consumer perception or misinterpretations of the changes incorporated by organizations for sustainable packaging methods. Therefore, recommendations related to educational and awareness programs for the consumers are being ensured which not only focus on the benefits of Sustainable packaging but also ensure the context of ‘eco-friendliness’ within sustainability considering the social and economic aspects of sustainable packaging (Siraj *et al.*, 2022). From this viewpoint, it can be derived that consumer perceptions may not have a transparent understanding of the concept of sustainable development concerning the principles of social justice towards consumer demands on price, convenience, and performance of packaging.

The consumer perceptions towards the approach of sustainable packaging can be aligned with a significant theory of Planned behaviour in which the likelihood of an individual ensuring engagement in a healthy behaviour can be correlated with the intention towards engagement in the behaviour (Ogiemwonyi, 2022). Therefore, supporting the statement by (Siraj *et al.*, 2022) the resultant behaviour towards sustainable development and packaging can be caused by the evolving intentions and attitudes of consumers in the UK market. This can be further aligned with the Packaging solutions of DS Smith which is committed to sustainable resolutions of packaging

within three significant sectors of Industrial Solutions, E-commerce, and consumer goods further influencing their target consumer market (DS Smith, 2024b).

Another challenge that can be identified for the implementation of Sustainable packaging within the organization can be considered as the cost management issues. Therefore, the development of recommendations can be ensured in which adaptation to appropriate pricing strategies can be implemented by the organizations for enhancement of consumer intention and behaviour towards sustainable packaging or green packaging of products (Duarte *et al.*, 2024). On the contrary to the statement provided by (Ogiemwonyi, 2022), a suitable pricing strategy will ensure emphasis on the consumer perception which will influence their mindset comprehending the product's price rather than paying in sustainable packaging. This will further also align consumer preferences towards environmental development goals and sustainable strategizing of organizations.

## **2.4 Literature gap**

Although the literature Review provides a vast literature on the subject of the Research, significant limitations can be ensured in which the study is only subjected to the market of the United Kingdom rather than ensuring a focus on the Global aspect and consumer behaviour in sustainable packaging. Therefore, expansion of the scope of the research can be ensured including the provinces which will effectively improve the generalizability of the outcomes. Therefore, the conduction of future research can be necessary. The existing literature do not provide a detail perspectives related to the impact of the changes related to sustainability on the value chain activities of the companies that reflects upon the gap within the literature that are used in this research.

## **2.5 Summary**

The chapter on Literature Review ensures a significant contribution of Literature related to Green Innovation and sustainable strategies in the UK paging Industries. The chapter focuses on the concept of green packaging along with an evaluation of the impact of sustainable marketing within the UK consumer market. Further, literature related to governmental policies for sustainable development and consumer behaviour is being analyzed. Furthermore, the chapter recognizes significant challenges with the implementation of sustainable packaging along with strategic

recommendations for the identified problems. Lastly, the chapter on Literature Review is concluded with a potential gap in Literature.

## Chapter 3: Methodology

### 3.1 Introduction

This chapter will introduce the adopted methodology for conducting the current research. This will provide a detailed picture of the methodological adoption to conduct the current research on the designated research topic. This chapter will provide a detailed overview of the key data collection and data analysis techniques for conducting the data interpretation processes. This chapter will provide a detailed overview of techniques that will be used to manage the secondary data collection processes. The limitations of the methodology strategies will be analysed in this chapter.

### 3.2 Research onion

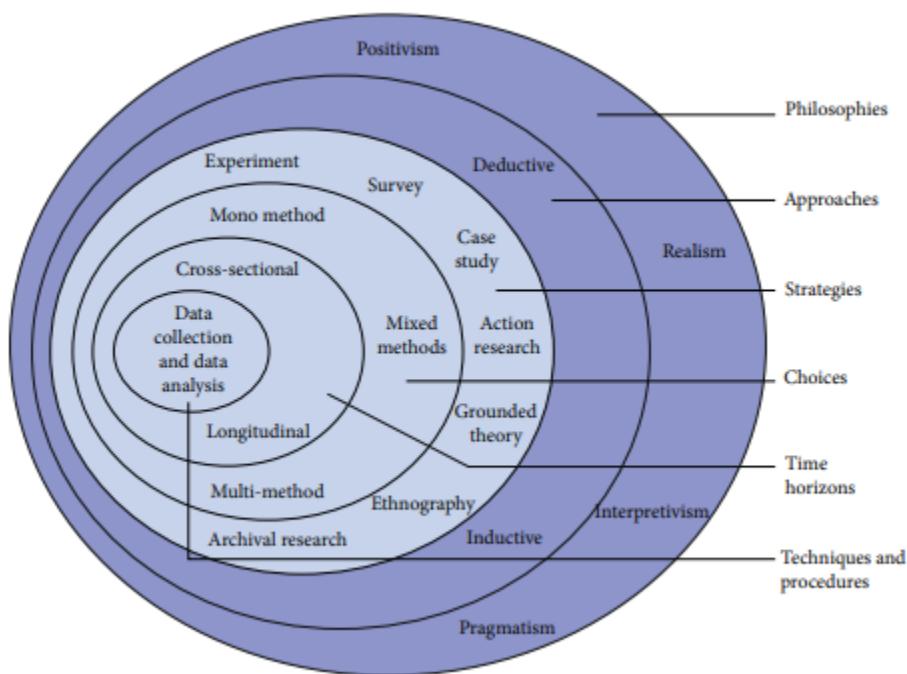


Figure 6: Research onion

(Source: Alturki, 2021)

Research onion is an effective framework that helps to design detailed research on a topic. This research onion helps the researchers to make effective decisions for developing a research methodology. There are six layers that include research philosophy, approach, strategy, methodological choices, different techniques and time horizon for conducting the research. This

model or framework will be used for understanding the methodological map for conducting the current research.

### **3.3 Research Philosophy**

In interpretation research philosophy, the priority is given to the personalities' attitudes concerning the behaviours' nature and their reasons, insisting on cultural aspects. It also disapproves positivism because it affirms the detailed data and general laws of a society. Interpretivism is highly applicable to the context of this research work as it provides closer examination of buying behaviours of consumers towards sustainable packaging in the UK packaging sector. Thus, using interpretivist approach, the research can explain all contextual factors which affect green purchasing behaviours and can provide deeper insights into consumer's perceptions of sustainable packaging. (Alharahsheh and Pius, 2020).

### **3.4 Research design**

Research design can be defined as a process that will help to formulate an overall strategy and methodological approach for conducting the current research. For conducting the current research descriptive research design will be adopted. The descriptive research design can be defined as a method that will be used to articulate characteristics and data related to variables under the population study (Tilwetwa, 2020). This descriptive research design will be effective for systematically collecting data and designing the research to conduct the current research by considering all related factors, situations and phenomena associated with sustainable practices in the packaging industry.

### **3.5 Research approach**

It is crucial to note that the appropriate method for implementing the interpretivism philosophy is inductive, not deductive. Inductive approach is a method of discovering general principles of a field based upon details of that field hence the emphasis in this style is making generalisations from particulars. This is well applicable in analysis of such contingent, contextually defined phenomena as sustainable packaging and green innovation in the United Kingdom (Okoli, 2023). Unlike the deductive approach that tests a hypothesis, the study encourages the research to infer the findings from the data, as a way of capturing different views and practices in the industry. In

this way, the research is capable of identifying distinct examples and patterns and, therefore, deepening its understanding as to how consumers behave in certain contexts, trends observed in certain organisations, or sustainability initiatives within the packaging industry.

### **3.6 Data collection method**

A secondary data collection method has been applied to identify the current trends regarding green packaging and sustainable initiatives within the UK-based packaging sector. In order to gather secondary data sets, different publishers have been considered such as ScienceDirect, Elsevier, Emerald, PubMed and others. The secondary data sets are collected from the Google Scholar search engine aggregator, newspaper articles, blog posts, industry-specific data, Government data, company-specific data sets and others. As this study focuses on evaluating the sustainable initiatives and green packaging strategies adopted by the UK-based packaging sector, the secondary data collection processes will positively help to identify the strategies and underlying factors associated with the sustainable operational processes. Additionally, it will help to measure the impact of sustainable initiatives on consumer behaviour and organisational performance. Secondary data collection methods are time-saving and require few resources to manage the proper data collection processes (Alam, 2021). Thus, secondary data collection processes have been considered to reduce resource management-related issues.

### **3.7 Data analysis method**

In order to conduct the research, work a thematic data analysis technique has been considered effective for qualitatively analysing the secondary data. Thematic data analysis is used for analysing qualitative data that have been organised to analyse a complex dataset (Dawadi, 2020). In this analysis, all the themes are strongly related to the data. It can be marked as a constant-competitive process to ensure a good product or outcomes of the entire research process. This indicates that the decision to select thematic analysis can be considered effective in running the entire research process. This has been beneficial for identifying the impact of green innovation and packaging strategies within the UK packaging industry.

### **3.8 Ethical consideration**

The ethics used in this study relate mainly to the use of secondary data whereby the validity, authenticity and replicability has to be ensured. Sensitivity regarding biases is especially given when trying to corroborate findings from Ethical Journals, Industry reports, case study data and newspaper articles. As this is an explanatory secondary qualitative study, there are no ethical issues concerning human subjects, and in this case the risk minimised (Pace, 2021). However, the study showcases how data must be protected and how various findings should be dealt and stored in order to preserve the credibility and sensitivity of the data sources.

### **3.9 Limitation**

This study's limitation is that it depends on secondary data, which might not adequately reflect the most recent developments or insights into the green innovation tactics used by the packaging sector. The accuracy and thoroughness of the study may be impacted by biases or inadequate information found in secondary data sources like reports and case studies. Furthermore, it is more difficult to investigate first-hand experiences and perceptions when primary data—like direct consumer or industry interviews—is lacking. Additionally, the study is limited by the availability of pertinent data, which may restrict the findings' breadth and industry-wide application.

### **3.10 Summary**

This chapter interprets that secondary data collection processes along with an inductive research approach have been considered to proceed with the study. Additionally, interpretivism research philosophy has been considered to interpret the subjective knowledge associated with the research.

## **Chapter 4: Data analysis**

### **4.1 Introduction**

The present chapter will show about the impact of innovative green approaches and sustainability strategies in the UK packaging industry. In this research, it is found that this green innovation packaging program helps companies and big industries to improve their brand values and help the companies grow faster in the existing marketplace. This chapter discusses how the big industries will grow to work on eco-friendly products, how companies will make their brand popular, and how people will know about products which are eco-friendly in nature. This chapter shows all the findings and outcomes of the report.

### **4.2 Findings**

#### **Research question 1**

##### ***4.2.1 Theme 1: Sustainable packaging has helped the packaging industry to shift towards more ethical practices through adopting recyclable materials***

Sustainable packaging has a significant role in transforming the packaging industry in the way of reusing waste materials (Asim, 2022). Sustainable packaging is a very good step taken by industries to protect the environment. In sustainable packaging, they are using recyclable materials. Sustainable packaging recyclable packaging materials, adopting biodegradable environment-friendly packaging solutions. In this research, we also found that companies are continuously researching how to develop this green sustainable packaging to protect our environment. Nowadays every business organization is trying to adopt green innovation and sustainable packaging strategy to grab the highest market space and grow faster in the existing market, in this way they can expand their business and attract more customers. DS Smith is an international packaging company that set their long-term goal to promote sustainable packaging to change the world in a good way and to save the environment clean and pollution free (Dssmith, 2024). In order to support the environment and to protect the environment big industries choose to promote green innovation and sustainable packaging but to do this noble work many big industries face many challenges and economic losses.

#### ***4.2.2 Theme 2: Consumers are preferring green packaging products in the UK packaging industry***

In this research, we also found that the market has become so competitive for the business industry but the customers become so choosy because nowadays they are very much conscious of the positive and negative effects of packaging and they prefer sustainable packaging (Mahmoud,2022). The research also shows that the continued increasing concern about green sustainable packaging also affects the business industry. Customers also want companies should use green sustainable packaging on their products, especially food products. Packaging became the most important topic in the marketing sector and promoted the brand value of the companies and the growth of the company. The big industries now taking the initiative to promote green sustainable packaging after knowing the good side of this strategy because it is very good for the environment and customers also prefer green sustainable packaging (Ullah,2022). Crown Cork & Seal Co., also implemented various green initiatives under its “Twentyby30” program of sustainability (Crown cork, 2024a). The findings of the research present multiple evidence that states the current factors supporting the fact that consumers are preferring the sustainable and green packaging strategies indicating its importance to adapt to support the facts to answer the first research question.

#### ***4.2.3 Theme 3: Preference for green packaging in the UK industry***

Instead of plastic, the citizens of the UK are using packaging materials that can be recycled such as glass, paperboard, cardboard, and many more. Even a certain quality of plastic can be used which can be reused or reprocessed after one time of use. As biodegradable packaging material can be decomposed easily by itself, it reduces the environmental impact. It has been identified that sustainable or green packaging can be marked as effective in driving the purchasing behaviour of consumers. This may help to drive the sales of the organisation followed by ensuring sustainable development. In the UK, eco-conscious consumers constantly seek brands that prioritize environment-friendly packaging (Ghodawat, 2024). Consumers are now more conscious of the fact that packaging can hurt nature (Mahmoud *et al.*, 2022). In order to ensure this fact, the customers are making sure that the organisation is using sustainable packaging products. As packaging conveys an impression of the brand, the organizations of the UK are considering this as a crucial part of their marketing strategies. If the theory of planned behaviour is followed, it will

demonstrate the different layers of human behaviours and that explains the consumers are trying to satisfy the societal norms while purchasing products from a brand (Mahmoud *et al.*, 2022). Many companies in the UK have developed their packaging towards sustainability, for instance, DS Smith has redesigned their packaging system to balance with the changing world. This international packaging company has committed to the circular economy to influence others. Another company Crown Cork and Seal Co has arranged a program named Twenty by 30 to promote sustainability that includes reducing the impact of climate change (Crown cork, 2024). This supports the circulatory, using natural sources efficiently, and many more.

## **Research question 2**

### ***4.2.4 Theme 4: The government policies and regulations for promoting green innovation and impacting the UK Packaging industry***

The evidence that has been discovered from the literature study shows that green innovation helps to control environmental pollution and also helps the technical sector to find new technologies and grow. It also leads to the human resources (Hsu, 2021). The UK government introduced many government policies in the Environment Protection Act of 1990, in this act there are many ways written on how to control pollution and how to spread the green revolution. The Climate Change Act 2008 focuses on promoting a green revolution and also targets the carbon reduction process. The analysis is explained in Porter's hypothesis which was written by Michael Porter in the year 1990, in this analysis Mr. Porter explains how to save the environment. This theory challenges the traditional point of view and says that environmentally sustainable strategies provide the business a huge boost. In this theory, Porter said that this policy will help the business organizations to grow, improve their products as well and make a profit business and in this way, it is easy to understand the government policies and how the policies will help in improving the public and private ways of sustainability (Yang, 2021). In this research, it is proven that continued efforts will make the government policies stronger and also achieve the goals of promoting green innovation in the United Kingdom. This finding helps to address the second research question asking about the relevant government policies regarding green packaging.

#### ***4.2.5 Theme 5: UK government's interference in promoting green packaging***

The UK government has made some moves to ban plastic across the UK as there were public and political demands to look into that matter (Salvidge, 2021). Many government policies and rules in the land of the UK include the Environmental Protection Act of 1990 (legislation.gov.uk, 2024a). That shows the ways to control pollution and that simultaneously works with the Climate Change Act of 2008 (legislation.gov.uk, 2024b). This act instructs us to reduce carbon footprints. According to the hypothesis of Michael Porter, using sustainable materials for packaging can cost the organization a lot of money. If an organization can adopt a flexible regulation, it will encourage the company to come up with innovative and good quality products and as well as they can gain profits. This is the only way to make people understand the importance of undertaking the act by the UK government and why a company should redevelop its packaging system to promote sustainability (Yang *et al.*, 2021). The company, Graphic Packaging International has also made a promise to work towards sustainability. To inherit that they made a three-act strategy, that includes better every day, better for people, better future (Graphic Packaging International, 2024). In the company of the UK, Crown Cork, and Seal Co also made their move towards sustainability based on 5 pillars. Those pillars are Climate Action, Resource Efficiency, Optimum Circulatory, working together, and never compromise (CrownCork, 2024). Therefore, the government keeps continuing to regulate acts and policies to put efforts to strengthen the fact that adhering to these policies is essential to achieve the goal will keeping the balance of green innovation across the UK.

#### **Research question 3**

#### ***4.2.6 Theme 6: Some of the challenges for implementing sustainable and green packaging strategy***

Green sustainable packaging is also called "eco-green packaging", "sustainable packaging" or "recyclable packaging". Green packaging is made using ecological materials. The evidence from the previous literature shows findings that indicate, the ecological materials that are used for packaging play a crucial role to save the environment and keep the environment clean (Wandosell, 2021). The way towards green packaging has supported the way to save the environment from pollution. Green packaging prevents energy loss and also prevents the damage of the environment from pollution. In this research, it is also found that there are some issues related to the supply chain and packaging strategy which need to be clear. In 2022 it was found that out of 10 customers,

8 customers in the UK chose eco-friendly packaging materials (Dey, 2021). Another challenge that is found in this research is the implementation of sustainable and green sustainable packaging. The business organization is facing some cost management issues. The green packaging strategy needs more discovery and testing related to this so the business management is in trouble related to money management.

#### ***4.2.7 Theme 7: Progress of strategic advice for implementing sustainable and green packaging strategy***

In this research it is found that the most challenging part of promoting the sustainable and green packaging strategy is poor knowledge about the eco-friendly product, it affects the business as well as the protection of the environment. From the previous literature, it has been identified that green packaging can be effective in ensuring sustainable practices. Sustainable labels including eco-friendly products, green labels or organic labels can be marked as effective while motivating consumers to ensure sustainable utilisation (Siraj *et al.*, 2022). Awareness Programs help to increase the knowledge related to packaging. Now people know all the information related to packaging (Norton,2023). DSSmith, Graphic Packaging plc., and Crown Cork & Seal Co. are some well-known packaging brands in the UK that also organize awareness programs for people. In this research, it is found that if organizations should look after customer preferences towards the development of the environment the business organizations will run smoothly. If the industry focuses on protecting the environment through their products, they will largely expand their business.

#### ***4.2.8 Theme 8: Moving towards sustainable and green packaging***

People should be concerned about the harmfulness of plastic that can affect every individual on this planet along with Mother Earth. Though citizens of the UK have shown a great interest in adopting sustainable packaging, there is a long way to go to reach the thoughts of everyone. One of the best ways to start promoting sustainability is through educating people. One of the reasons for people to stay with the traditional way of packaging is because of a lack of education. People should learn about the advantages of eco-friendly packaging and be aware of the harm that a plastic or plastic-made product can do to the earth. Educational programs and awareness campaigns can bring light to people's mind who are not educated enough to ban plastic from their lives (Siraj *et*

*al.*, 2022). This perception of customers can have similarities with the theory of Planned Behaviour (Ogiemwonyi, 2022). The deportment of the customer is directly interlinked with the intentions of the behaviour. In the market of the UK, DS Smith has committed to a resolution to use sustainable products in their packaging system to impress their consumers who are concerned about saving the earth (DS Smith, 2024). The organization should opt for a better cost margin to gain profit as well as promote sustainability. Therefore, identifying the gap between the traditional way of packaging and the sustainable way of packaging. So, by resolving all the issues that are coming as barriers between the steps that are taken and the goal for a greener earth. It is proven that consumers are more likely to pay shipment charges when the packaging is marked as environmentally friendly (DS Smith, 2024). It is proven that gradually people are getting effective in the journey towards sustainability.

### **4.3 Summary**

In order to summarize the chapter, it can be said the UK has arrived at a great position in the world to promote sustainable packaging instead of plastic. The chapter has talked about the findings, the government policies and regulations, challenges, and recommendations to overcome those. Further, these findings are elaborated with appropriate discussions.

## **Chapter 5- Data Findings/ Result**

### **5.1 Introduction**

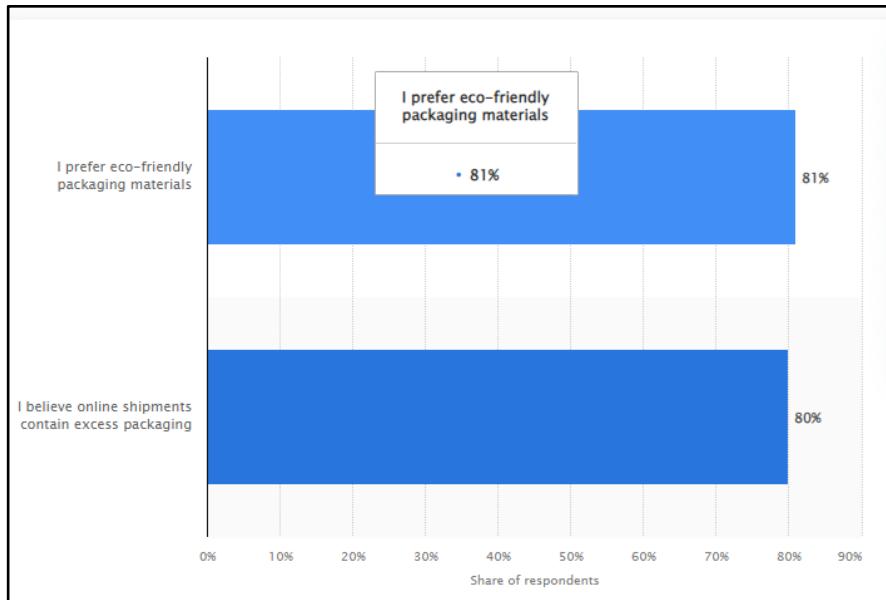
This chapter of this dissertation will analyse the comparison of the result of the literature review on the basis of the outcome of the findings. By this discussion, the research objective and question will be addressed thoroughly. In the end, a brief summary will be given to conclude this chapter effectively.

The outcome of the finding is a main drive on the rising awareness of the fact that the UK plays a crucial role in meeting the criteria of the usage of sustainable materials by the support of the Government policies, and infrastructure along with the knowledge of the need of sustainability for future betterment of the globe.

### **5.2 Discussion**

#### ***5.2.1 The importance of the use of ethical recycling materials for packing supports the innovative approach adopted by the UK packing industry***

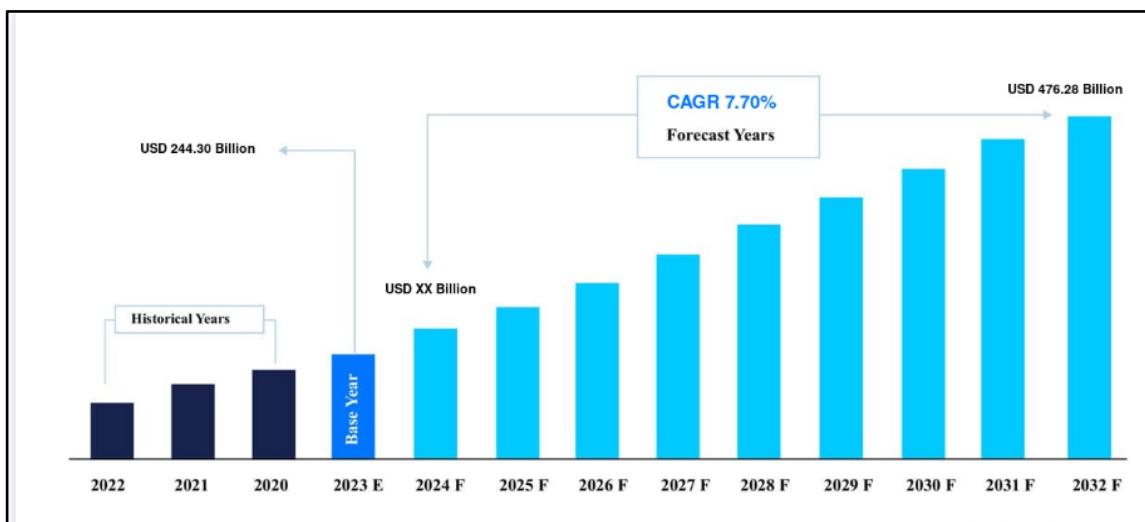
After reviewing the literature review heading of 2.3.1 and 2.3.2, it can be found that sustainable packaging designs or strategies have a better way to meet the criteria of the use of recycling packaging and ethical consumer behaviours. A sustainable Support strategy (SSS) in terms of the packing process highly indicates the use of ethical recycling materials such as Polyethylene Terephthalate and aluminium. In this era of the green revolution, consumers are likely to use sustainable products due to the betterment of the environment (Mahmoud, *et al.*, 2022). As per the other perspective, it can be found that the theory of planned behaviour is related to today's consumer decision-making for using only suitable product ranges. Because, as per the concepts of the theory of planned behaviour is indicating the understanding and predictive way of taking decisions to managing the purchasing process.



*Figure 7: UK consumer preference for the Sustainable packing materials*

(Source: Yltävä, 2024)

As per the above-mentioned figure, it found that the UK population has supported the use of eco-friendly packing. Hence the tendency of the taking decision of the packing in related all ethically is related with the theory of planned behavior concepts. Therefore, to meet the demand of the consumer individual industry as well as the company will need to move the traditional packing to sustainable packaging materials.



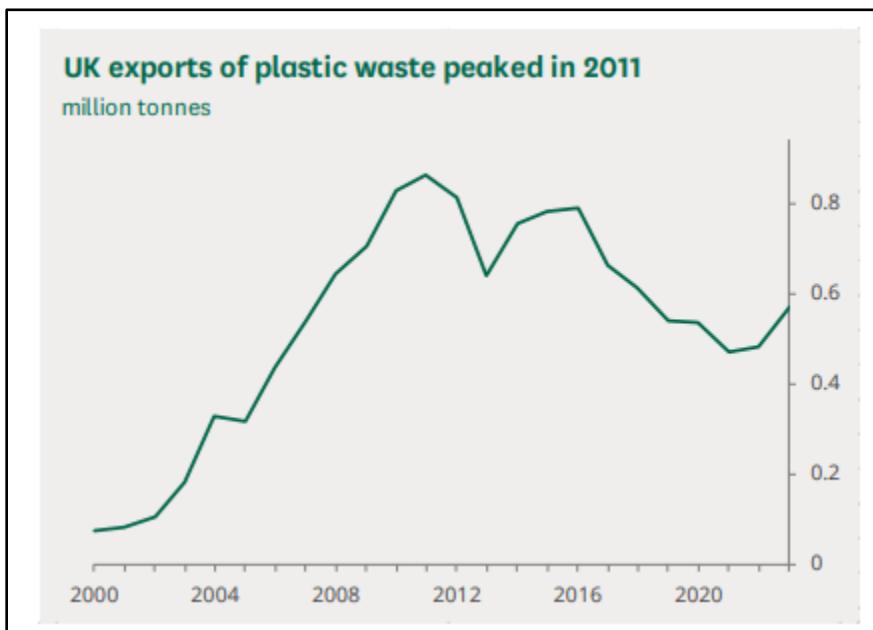
*Figure 8: Rising number of the market size of sustainable packaging materials*

(Source: Straits Research, 2024)

Hence it can be mentioned the rising number of the sustainable packaging market is directly connected with the cruising sustainable materials user rate. As per the research conducted by various researchers, it can be stated that recycling habits of cardboard, paper, and cloth are well connected to reducing the use of plastic as a packing material (Nuojua, *et al.*, 2024). Hence this discussion well addresses the ***first objective and first research question*** of this dissertation paper.

### ***5.2.3 The role of the UK government policies to manage the sustainable steps of green packaging along with promoting awareness among consumers***

On the basis of the outcome from the literature review headings 2.3.4, 2.3.4 and 2.3.5 mentioned that the government of the UK has taken various agendas such as net zero concerts, sustainability promoting the population, and investing in innovative approaches towards the recycling and alternative of the plastic packing.



*Figure 9: Rising number of export plastic waste by the UK government*

(Source: House of Common Library, 2024)

For the control plastic packing pollution waste management process, the UK government took the initiative to use alternative materials, and recycling processes and increase consumer awareness towards the use of sustainable packaging. However, from the findings, it can be mentioned that the government moved towards the eco-friendly approach for choosing alternatives to plastic. In this situation, the Government of the UK has taken strong action to reduce plastic pollution

(especially ocean) by 2040 (Govt. UK 2024). Hence various brands such as H&M, Tesco, Sainsbury, Coca-Cola, and Nestle, are well committees towards a better way to end this increasing rate of plastic pollution. Hence the implementation of the Environment Protection Act of 1990, the UK government has a strike guideline for better boosting awareness among consumers towards the sustainable approach adopted for reducing pollution within the UK. However, the elements of the Environment Protection Act of 1990 are indicating the core concepts of the Waste Management, Hazardous waste and pollution and genetically modified organisms. Therefore, it can be mentioned that the waste management and environment betterment will be well managed by the individual company to meet their ethical working pattern. The UK has invested almost £60 million in the year gap 2019-2025 for the betterment of Smart sustainable plastic packaging (UK Research and Innovation, 2024). This analysis is well connected to addressing the second research, the government initiative and policies for the better way taking initiative to meet the criteria of the sustainable packaging initiative taken by the UK packing industry for obeying the government regulation. However, this analysis is well connected with the ***second objective and second research questions*** of this research paper.

#### ***5.2.4 The positive need of the customer decision-making for using sustainable packaging helps to enhance the sustainability approach within the UK packaging industry***

The basis of 2.3.5 and 2.3.6 highlights the concerns of the UK consumer preference towards the use of sustainable packing materials. However, the finding indicates that the concept of packing sustainability is nowadays misleading to the customer for doing greenwashing of the packing materials. Hence big companies like Coca-Cola, Nestle, McDonalds and other brands have taken an agent towards the use of sustainable packaging (Boz, *et al.*, 2020). In this regard, Coca-Cola and Nestle company will face legal allegations for misleading their customer towards the materials of packing (Leggett & Edser, 2023). Therefore, consumers want sustainable materials for packing due to the rising issue of plastic pollution hence the big industry is misleading information that attracts the customer base the wrong information about sustainability. This can have a direct impact on the consumer's decision-making ability, this kind of news when coming in front of the individual consumer will impact the sales rate of that particular company to manage their business in this globally competitive business era. Move towards sustainable materials is a major impact for changing the business working pattern of the individual company to manage their customer

attraction and also improve their profitable business growth. This particular influential factor of decision-making played a major role in taking initiative by the initial packing company to meet the sustainable innovative approach in their materials of packing. For instance, famous brands of packing in the UK such as DS Smith, Signode, UPM, BillerudKorsnas, Smurfit Kappa, Stora Enso and Mond are enhancing their sustainable packing approach to meet the criteria of the suitability in their industry along with support the government policy and agenda for attract the customer towards profitable business growth. However, this strategic advice for implementing is a major barrier of the sustainable packing industry and has challenges for further influence towards the moving sustainability concept of the UK packing industry. Hence this research will be connected to the ***third objective and third research question*** of this paper. In this scenario, an ethical working approach, and healthy strategy adaptation have influenced the consumer purchasing and management behaviours towards the company which is reflected in their profitable business graph.

#### ***5.2.5 Possible strategies for better implementing sustainable green packing for taking initiative towards a sustainable approach for the global betterment***

After evaluating existing literature concepts and the findings it can be mentioned that the suitable packing industry majorly faced barriers towards the lack of consumer perception, financial investment and the other risk of successful delivery. However, the possible strategy that can be implemented by this packing industry is to use the ***disposal and recycling of packing*** materials, reduce the extra packing materials for smaller products, and introduce ***Plant-based packaging*** such as Masrume, BioPlastic and Bagasse. On the other hand, the concept of ***Edible packaging*** which can be made from vegetable, fruit and Bakery items can be an approach to the move towards sustainability and reduce the plastic packing issue. This is the possibility that innovative strategies can be adopted by the individual UK packing company to meet their customer engagement rate through their ethical business pattern. Hence this possible strategy can be helpful for the sustainable packaging industry to enhance their business in this globally competitive business era where the main agenda is to not harm the world. This approach will help this industry to gain trust of their consumers and improve the suitable business success. Hence this analysis is well related with partially addressing the third question and objective, on the basis of this some of the recommendations which directly relate to the decision-making of the ethical packing usage of the customer range.

### **5.3 Summary**

After analysing this results chapter, it can be mentioned that the government plays a vital role towards the better policy and approach reformation for spreading knowledge toward the implementing sustainability towards the consumer for making a better world. Hence there are possible strategies such as disposal and recycling of packing, Plant-based packaging and Edible packaging can be an alternative approach for the packing industry to make ethical and sustainable business approaches to improve their profitable business success.

## **Chapter 6: Conclusion and Recommendations**

### **6.1 Overall Summary**

This research points to the significance of green innovation in the UK packaging business mainly in relation to activities to reduce OCI. Based on the secondary data collected from major stakeholders in the packaging industry including DS Smith, Graphic Packaging plc., and Crown Cork & Seal Co., the research offers a valuable proposition toward the evaluation of sustainable packaging. It is clear, thus, that there is something of an impasse, and that a combined governmental and industry push will be required to enable positive change to take hold. However, because this work was based solely on secondary research, the data collected may not reflect the most recent trends or the perception of consumers. Also noteworthy is the lack of primary data in a large portion of the sources, which means a lack of primary information about the experiences of companies and consumers. Nevertheless, lacking quantitative analysis, this research provides both conceptual and empirical insights into how the concept of green innovation can be effectively implemented into the packaging industry for the purpose of enriching the future policies and business strategies.

In this way the result chapter highlights the analysis related to the objective and research question of this paper which is explained below:

#### ***Linking with objectives 1 and research question 1***

Theme 1, 2 and 3 indicate the concepts of green innovation such as recycling packaging materials, increasing awareness among consumers for choosing sustainability and addressing objective 1 and answering the first research question of this study.

#### ***Linking with objectives 2 and research question 2***

Theme 4, 5 that have indicated different government policies maintaining a sustainable approach toward packaging along with the theme 6 that indicates the challenges of implementing this initiative. Hence the UK Government's environmental act plastic reducing agents is well maintained by the individual companies. However, the misleading information about this sustainable packing approach faced by the various companies for conducting this business

contributes to plastic pollution enhancement. Therefore, this analysis is well related to address the second research objective and question of this study.

### ***Linking with objectives 3 and research question 3***

Theme 6-8 is highlighting the possible strategy and challenges for this sustainable packaging approach implementation to meet the criteria of the customer attraction. On this note, cost, knowledge and the understanding of consumer preference are some of the major challenges which are directly related to consumer behaviour towards their decision-making to adopt these sustainable packaging concepts.

## **6.2 Research Implication**

The findings of the research have important applied implications in both industrial and policy contexts. Studies for industry stakeholders are therefore suggestive of the fact that green innovation portfolios such as the use of sustainable material or better packaging designs are possible ways of improving environmental performance and satisfying consumer trends of environmentally friendly products. With regard to policymakers, these findings suggest that there are issues of weak rules and policies in the packaging sector and the deficits of rewards for sustainable packaging. It also closely emphasises the role of synergy of cooperation of different industry players and especially consumers in creating and enhancing sustainable changes. Further research could examine the usefulness of these strategies employing primary data collection which will help develop even a greater understanding of consumers as well as industries' attitudes to these strategies.

## **6.3 Recommendation**

### ***6.3.1 AI monitoring platform for understanding consumer prescription and reducing misleading greenwashing cases***

As per the research conducted by Forbes has mentioned that AI has an influential power for manipulating consumers (Fuqua School of Business, 2024). With this kind of power if this industry utilises spending awareness it will be beneficiary for promoting sustainable packing. Hence the use of AI platform data analytic skills will be effective for understanding consumer preferences

towards the use of what kind of sustainable packing materials such as paper cardboard or edible packing. This clear picture has a long-run impact on this industry for investing in the right materials for improving their sustainable packaging process to get better opportunities for ethical business conduction. However, through AI the government can monitor the proper implementation and ethical working pattern adopted by the individual company to meet the criteria of the suitable packing.

### ***6.3.2 Collaboration with the SMEs who manufacture sustainable packaging materials such as Edible packaging and Plant base packing raw materials***

Sustainable packaging startups like “Bpacks” have taken the initiative to manufacture sustainable packaging materials (Watson, 2024). Hence if the packaging industry collaborates with this kind of company, it will not only resolve the issue of packaging pollution but also improve the business success and maintain the overall growth of the country.

### ***6.3.3 Incorporating the consumer preface data to enhance the quality of this research along with quality***

This research, there is mainly using secondary data hence if the consumer perspective is incorporated into this study, it will be effective for improving the quality of this research by utilising primary data. This way this paper will shade the total concepts of the qualitative along with the quantitative one for its overall success purpose.

## **6.4 Critical Evaluation and Personal Insights on Data and Literature Integration**

The use of secondary data in combination with literature contributes to attaining a large picture concerning green innovation in the UK packaging industry. But as in any critical analysis, I see the downside of secondary data as it does not give the richness or detail that primary data would have given especially on the consumer and new industry challenges. The literature surveyed lays more focus on sustainability but less ado is made to the challenges of green innovation deployment in the packaging sector on a large scale.

As far as I am concerned, theoretical models of sustainable development are still far from being implemented into practice. The industry can be observed as increasingly incorporating

sustainability, but systematic green strategies are hampered by financial capacity and the lack of infrastructure. In addition, most of the literature is still general in nature and/or covers broad sectors and thus more research at the sectoral level is required. I think that future research should fill this gap, by using primary data, and by critically discussing the match/lack thereof between literature and the realities of the industry.

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## Appendix

Article	Method	Findings	Future implications
Smith, J., & Clark, L. (2023). Green Innovation and Sustainability in the UK Packaging Industry: A Review of Trends and Strategies. <i>Journal of Sustainable Business</i> .	A mixed-method approach using secondary data analysis. Data were gathered from 45 peer-reviewed articles (2015–2022) and industry reports on sustainability in packaging.	Growing use of compostable and biodegradable materials; design advancements influenced by the circular economy; and change being driven by government legislation.	Future studies should concentrate on developing partnerships for greener supply chains, creating international standards for sustainable packaging, and improving recycling technology.
Mahmoud, M.A., Tsetse, E.K.K., Tulasi, E.E. and Muddey, D.K., (2022). Green packaging, environmental awareness, willingness to pay and consumers' purchase decisions.	To investigate the antecedents of consumers' green product purchase decisions, this study employed the cause-effect quantitative research design to determine the effect of green packaging, environmental	Findings show a relationship between consumers' purchase decisions and sustainability	Future studies should employ diverse theoretical explanations of consumer purchasing behaviours with regard to purchasing products in environmentally friendly packaging. Further research

<p><i>Sustainability</i>, 14(23), p.16091.</p>	<p>awareness, and willingness to pay on green product purchase decisions.</p>		<p>should also look at adding more independent variables or predictors to test the relationship between consumers and green packaging.</p>
<p>Hsu, C.C., Quang-Thanh, N., Chien, F., Li, L. and Mohsin, M., 2021. Evaluating green innovation and performance of financial development: mediating concerns of environmental regulation.</p> <p>Environmental Science and Pollution Research, 28(40), pp.57386-57397.</p>	<p>Ordinary least square (OLS) framework was utilized in mainland China to perform empirical studies by using an econometric estimation. This study claims that China has adopted research-based education system, while those for economic growth and expenditure in the regions while the innovation parts results shows that the tertiary education were</p>	<p>The financial development led to green technological development and innovation. Green innovation and financial development decrease the emissions, and it is apparent that as environmental regulations stimulate technical development, the superiority of human resources increases. The findings indicate that green financing reduces short-term lending,</p>	<p>Meanwhile, the green financial growth will reduce renewable energy overinvestment and increase renewable energy investment productivity to certain amount.</p>

	12.42% and 13.53% versus the 10.50% and 10.6% in the eastern area.	thus limiting clean energy overinvestment, while the long-term loans have little impact on renewable energy overinvestment, and the intermediary effect is unsustainable.	
Pye, S., Broad, O., Bataille, C., Brockway, P., Daly, H.E., Freeman, R., Gambhir, A., Geden, O., Rogan, F., Sanghvi, S. and Tomei, J., 2021. Modelling net-zero emissions energy systems requires a change in approach. <i>Climate Policy</i> , 21(2), pp.222-231.	The method used in is secondary research, as it relies on analyzing existing models, frameworks, and datasets to propose a new approach to energy system modelling rather than collecting primary data. The study involves synthesizing and critiquing existing methodologies to advocate for	A push towards new solution spaces – beyond traditional engineering thinking towards socio-political issues – requires a more interdisciplinary approach. This includes engaging with government and other stakeholders at multiple and early points of any future policy cycle. Modelling should also be able to test the	The net-zero agenda changes the modelling game, with a key set of challenges that need to be faced in order to provide more effective analyses for decision makers. While it is evident that some challenges are not new, there is an urgency to ensure they are met as soon as possible, given the role that modelling

	innovative modelling strategies.	socio-political feasibility of different decarbonization pathways under particular economic and political systems.	needs to play to help inform national energy and climate policy right now
Nguyen, A.T., Parker, L., Brennan, L. and Lockrey, S., 2020. A consumer definition of eco-friendly packaging. Journal of Cleaner Production, 252, p.119792.	The study involved a series of six focus group discussions conducted with a diverse range of consumers. The focus of the discussion was consumer perceptions of eco-friendly packaging, particularly whether or not consumers would adjust their purchase behaviours to be more environmentally friendly. The data analysis procedure was undertaken using inductive manual	The results indicate that consumer perceptions of eco-friendly packaging can be categorised along three key dimensions: packaging materials, manufacturing technology and market appeal. While consumers have diverse perceptions of eco-friendly packaging, their knowledge is limited and more related to packaging materials (such as biodegradability and recyclability), and	We therefore propose a consumer-initiated development of eco-friendly packaging that can be applied for sustainable packaging strategies.

	<p>coding principles associated with interpretivist research.</p>	<p>market appeal (such as attractive graphic design and good price). Consumers show little knowledge about manufacturing technologies but still desire an eco-friendly manufacturing process. Results also suggest that a consumer-defined eco-friendly package for food products should be visually appealing while satisfying consumers' environmental expectations relating to packaging materials and manufacturing process.</p>	
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<p>Boz, Z., Korhonen, V. and Koelsch Sand, C., 2020. Consumer considerations for the implementation of sustainable packaging: A review. <i>Sustainability</i>, 12(6), p.2192.</p>	<p>The research method used to determine the impact of sustainable packaging on consumer preference for sustainable packaging involves general attitude-related models, holistic perceptions (consumer perceptions and sign-based communication), and analytic methods to assess the effect of specific design cues</p>	<p>Communication of more sustainable packaging to consumers is problematic. Furthermore, if food packaging suppliers and companies are directed solely by consumers' opinion of sustainability, the most sustainable packaging alternatives will not be employed because consumers do not always select the most sustainable package</p>	<p>Food packaging companies if they employ more proven sustainable packaging and this packaging is clearly and meaningfully communicated to consumers, it will be embraced</p>
<p>Wandosell, G., Parra-Meroño, M.C., Alcayde, A. and Baños, R., 2021. Green packaging from consumer and business</p>	<p>In this paper, a particular methodology was used to retrieve and analyse an important volume of publications related to</p>	<p>Firstly, the results obtained allow us to respond to the research question that is, it can be said that researchers in the fields of business and</p>	<p>As a future work, a plan to apply this methodology to analyse other relevant sustainability issues. In line with</p>

<p>perspectives. Sustainability, 13(3), p.1356.</p>	<p>green packaging, with the aid of visual analytics and clustering techniques.</p>	<p>consumer behavior are increasing their interest in the analysis of green packaging strategies, which highlights the importance acquired by the societal challenge concerning climate change, environment protection, and resource conservation. Secondly, it was found</p> <p>that certain peer-review journals are becoming a referent for scholars and researchers interested in publishing their investigations on green packaging.</p> <p>Thirdly, from the consumer perspective, it was observed that customers are</p>	<p>other recent studies that have analysed the impact of coronavirus SARS-CoV-2 (COVID-19) in the environment. It will be interesting to investigate the effects of COVID-19 on the development of new designs and materials for green packaging.</p>
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	<p>concerned with environmental issues, and</p> <p>their purchase decisions about green-packaged products are dependent on different factors</p> <p>and variables, including their environmental concern regarding the packaging's design;</p> <p>the typology, biodegradability, and recyclability of packaging materials; and the origin of</p> <p>the products, among others</p> <p>Fourthly, from a business perspective, it was observed that companies are being forced to</p> <p>adapt green packaging initiatives due to the</p>	
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		<p>societal pressure derived from environmental concern, and customers' attitudes and willingness to pay, in addition to other factors such as laws and regulations. Fifthly, some investigations highlighted that firms are also directly involved in training their company personnel, and are indirectly involved in the labour practices of their trading partners in their supply chain.</p>	
Siraj, A., Taneja, S., Zhu, Y., Jiang, H., Luthra, S. and Kumar, A., 2022.	The hypothesis testing was undertaken using path analysis; and the bootstrap resampling	The findings of our research can be taken into consideration by marketers and	With the escalating environmental challenges, the general focus of

<p>Hey, did you see that label? It's sustainable!: Understanding the role of sustainable labelling in shaping sustainable purchase behaviour for sustainable development.</p> <p><i>Business Strategy and the Environment</i>, 31(7), pp.2820-2838.</p>	<p>method with 5,000 resamples (Hair <i>et al.</i>, 2017) was employed to assess the path significance levels. The theoretical model explained 70.3% variance in purchase intention and 62.5% in purchase behavior. In addition, 54.4% variance in attitude was explained by the current model</p>	<p>policymakers for framing strategies concerning sustainable labels to be used for the focal products. This research expects to add to the understanding of sustainable labeling strategies from the practitioners' as well as researchers' points of view.</p>	<p>global community is extensively being shifted towards promoting sustainable production and consumption practices. It is worth mentioning here that private consumption contributes significantly to rising carbon emissions, leading to environmental degradation and increased risks for social sustainability. To achieve the goals of sustainable development, there is a dire need to improve consumption practices while taking into account the adverse effects of unsustainable consumption for environmental sustainability.</p>

<p>Johnson, P., &amp; Lee, M. (2022). Eco-friendly Packaging in the UK: A Meta-analysis of Strategies and Challenges. <i>Environmental Packaging Review</i>.</p>	<p>Systematic review of 60 academic articles (2016–2021) on sustainable packaging, focusing on the effectiveness of eco-friendly strategies in reducing carbon footprints.</p>	<p>The adoption of lightweight packaging and reusable containers has reduced emissions, but gaps remain in consumer awareness and industry collaboration.</p>	<p>Future research should evaluate long-term environmental benefits of innovative packaging and explore incentives to enhance consumer participation in sustainable practices.</p>
<p>Carter, H., &amp; Evans, R. (2021). Circular Economy Practices in Packaging: The UK Perspective. <i>Journal of Industrial Ecology</i>.</p>	<p>Content analysis of industry reports and case studies (2010–2020) on circular economy initiatives in packaging sectors.</p>	<p>Highlighted effective strategies such as closed-loop recycling and packaging redesign for extended product life. Identified the role of regulatory compliance in driving change.</p>	<p>Investigating the role of digital tools in monitoring circular economy practices and expanding case studies to include small and medium-sized enterprises (SMEs) in the packaging sector.</p>
<p>Brown, A., &amp; Taylor, S. (2020).</p>	<p>Review of 25 government and</p>	<p>Significant cost savings achieved</p>	<p>Future work should assess funding</p>

The Economic Impact of Green Packaging Initiatives in the UK. <i>Sustainable Development Journal.</i>	industry reports (2010–2019) focusing on economic analyses of green packaging adoption in the UK.	through reduced material waste and energy-efficient processes. Noted challenges in initial investment and cost-sharing among stakeholders.	mechanisms to support small businesses in adopting green packaging and explore collaborative approaches to minimize cost barriers.
Green, T., & Wilson, E. (2023). Innovations in Sustainable Packaging: A UK Industry Outlook. <i>Journal of Environmental Innovation.</i>	Comparative analysis of 50 secondary sources, including academic journals (2017–2023) and government policies related to packaging innovation and environmental sustainability.	Identified rapid growth in the adoption of plant-based plastics, smart packaging technologies, and a shift toward refillable systems; emphasized the role of consumer demand in driving innovation.	Future studies should examine the scalability of emerging technologies, the integration of consumer feedback into packaging designs, and the role of public-private partnerships in scaling sustainable solutions across industries.

**Table 1: Literature review matrix**

(Source: Author's own)

