INSTITUTE FOR GLOBAL PROSPERITY

Dissertation

Transition towards corporate sustainability in the UK baking industry: A microlevel case study

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IGP MSc COURSEWORK

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Abstract

This dissertation explored sustainability transitions within the baking industry through an in-depth case study of a small-to-medium enterprise (SME) specializing in speciality bread. Anchored in stakeholder theory, the research aimed to illuminate the complex interactions between stakeholder preferences and institutional frameworks in driving sustainability initiatives. Through thematic analysis, insights from semi-structured interviews with five senior executives and an external net-zero expert offered a sophisticated understanding of stakeholder dynamics, regulatory impacts, and the unique challenges the SME faces on its sustainability journey.

Key findings highlighted a critical distinction between customers and consumers. Customers (such as retailers) and consumers (end-users) exhibited different behaviours and priorities, influencing sustainability strategies in distinct ways. Customers tended to emphasize cost and supply chain efficiency, while consumers prioritized product sustainability attributes, creating a complex landscape for businesses to navigate. Regulatory frameworks were found to be both a constraint and a catalyst; while existing regulations shaped the sustainability options available, gaps in regulatory support hindered progress. The study also identified significant economic tensions, with businesses perceiving high upfront costs for sustainability measures, but recognizing potential long-term benefits such as operational savings and enhanced market positioning.

The research underscored that effective sustainability transitions require balancing immediate economic pressures with long-term strategic goals and highlights the necessity for more nuanced regulatory support. The study's limitations included its focus on a single SME and the cross-sectional nature of the research, which impacted the generalizability of the findings. Future research should encompass a wider range of companies and industries, employing longitudinal designs to track sustainability transitions over time and using statistical analysis to evaluate the economic impacts of sustainability initiatives more comprehensively.

This study advanced stakeholder theory by illustrating the need for industry-specific adaptations and effective policy frameworks to facilitate meaningful sustainability transitions. It calls for a refined approach to stakeholder engagement and regulatory oversight to support the broader adoption of sustainable practices in the baking industry and beyond.

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I am also sincerely thankful to my parents and those closest to me for their love and emotional support, which provided strength and sustenance throughout this endeavour.

1. Introduction

The intersection of food science, bakery industry experience, and a passion for sustainability has drawn me deeply into the study of the transition towards corporate sustainability within the baking industry. Having immersed myself in the intricacies of food production and processing, particularly within the realm of bakery goods, I have gained first-hand insight into the challenges inherent in this sector. Witnessing the immense impact of food industries have on various sustainability aspects, from resource consumption to waste generation, has ignited a personal drive to delve deeper into understanding why the transition towards sustainability is often fraught with obstacles. Climate change looms as a pressing global challenge, further intensifying the urgency of addressing sustainability within the food industry. The interconnectedness of these issues, coupled with my professional experience and academic background, fuels my curiosity to explore how effective leadership and robust regulatory frameworks can serve as catalysts for meaningful change in fostering sustainability within the baking industry. Through research and inquiry, I aim to uncover insights that can pave the way for more sustainable practices, ultimately contributing to a healthier planet and food system.

Research questions:

1. Who are the relevant stakeholders to be considered in a sustainability investigation in the bakery industry, and how is the influence of these stakeholders evidenced?
2. How does the regulatory framework shape sustainability options in the baking industry?
3. What does this analysis suggest that needs to happen to encourage greater sustainability in the bakery industry?

Sustainability Transition

Addressing sustainability challenges is a pressing priority in today's rapidly changing world. Sustainability should be viewed as a flexible principle that guides social actions and helps shape the society we aspire to create (Arias-Maldonado, 2013). If environmental issues like climate change stem from a civilizational crisis, Arias-Maldonado (2013) argues that the solution lies in a "pre-fixed, pre-ordinated and pre-planned sustainable society" that restores harmony with nature.

Achieving a prosperous future requires bold, transformative action that crosses national boundaries and ideological divides. Rapid population growth, economic expansion, resource depletion, and commercial activities present critical concerns for governments and society (Millar et al., 2012). Humans are the most powerful agents of change (Arias-Maldonado, 2013), and effective management of future challenges requires a thorough understanding of

societal structures to ensure sustainable resource use (Knight, 2015). Technological advancements can facilitate these changes in areas like food production and supply chains by enhancing stakeholder involvement, transparency, and democratic engagement (Knight, 2015).

Despite the significance of sustainable transitions, they are not always prioritized. As societal, institutional, and environmental contexts shift, corporations often struggle to redefine their value creation processes (Schaltegger et al., 2019). The conventional "business case for sustainability" typically focuses on economic value creation, relegating societal and environmental activities to enhancing financial performance (Carroll & Shabana, 2010). This profit-driven alignment makes it difficult for stakeholders to envision social and environmental initiatives without clear financial benefits (Schaltegger et al., 2019). While stakeholders can drive sustainability transitions (Pelenc et al., 2015), entrenched beliefs may prevent them from taking action (Gonzalez-Porras et al., 2021). However, conflicting values among stakeholders can also create opportunities for collaboration and innovation (Loorbach et al., 2010). Understanding the sustainability perspectives of internal stakeholders is crucial due to their significant influence on transitions.

Stakeholder engagement is a key driver of sustainability transitions. Millar et al. (2012) highlight a gap in research on models and policies for organizations to achieve these transitions. Grounded in stakeholder theory, engagement involves collaborative practices aimed at positively involving stakeholders in corporate activities (Greenwood, 2007). It includes processes like consultation, communication, and dialogue, which are essential for addressing sustainability challenges and creating value. This study will explore the choices, attitudes, and motivations of individual stakeholders (Köhler et al., 2019), which are critical for understanding the micro-level dynamics of sustainability transitions. Ultimately, the insights gained will inform conclusions and provide recommendations for future theoretical and practical implications.

2. Literature Review

2.1 Stakeholders

Since Freeman's introduction of the stakeholder framework in 1984, the concept of stakeholders has gained considerable attention in academic literature, media, and government publications (Friedman & Miles, 2002). There is a spectrum of definitions for "stakeholder" (Kivits et al., 2021). Freeman initially defined a stakeholder as “any group or individual who can affect or is affected by the achievement of the organization’s objectives” (Freeman, 1984). He emphasized that those involved in value creation are accountable to those who can be affected by their actions (Freeman et al., 2010). This suggests organizations function as networks of stakeholders managing their diverse interests (Friedman & Miles, 2006).

Carroll (1993) views stakeholders as "groups or individuals with whom the organization interacts or has interdependencies," highlighting their potential to benefit or harm the company (Gibson, 2000). The term encompasses a wide range of entities with legitimate interests, including stockholders, employees, customers, suppliers, local communities, and the public (Hill & Jones, 1992). Hill and Jones (1992) describe stakeholders as part of a nexus of implicit and explicit contracts constituting the firm. Freeman et al. (2007) emphasize the importance of primary and secondary stakeholders in comprehensive management, as each group significantly influences the company's long-term success and ethical considerations. Primary stakeholders, included in the inner ring (Figure 1), are the groups or individuals that are essential for the survival of the organisation and are closely tied to the company’s core operations, having significant influence over its success. Primary stakeholders have a formal, official, or contractual relationship with the company, giving them a high degree of legitimacy and influence over its decisions. They include customers, suppliers, employees, financiers and communities. In contrast, secondary stakeholders (Outer Ring) are not critical for immediate survival but hold legitimacy through their influence on public perception or regulatory environments, such as government, competitors, media, and interest groups. Managers must consider secondary stakeholders' interests, as they can significantly impact the firm (Gibson, 2000). Clarkson (1995) distinguishes primary stakeholders as those on whom the firm depends for survival and secondary stakeholders as all others in relationship with the firm. Stakeholder approaches imply that corporations have duties to others (Gibson, 2000).

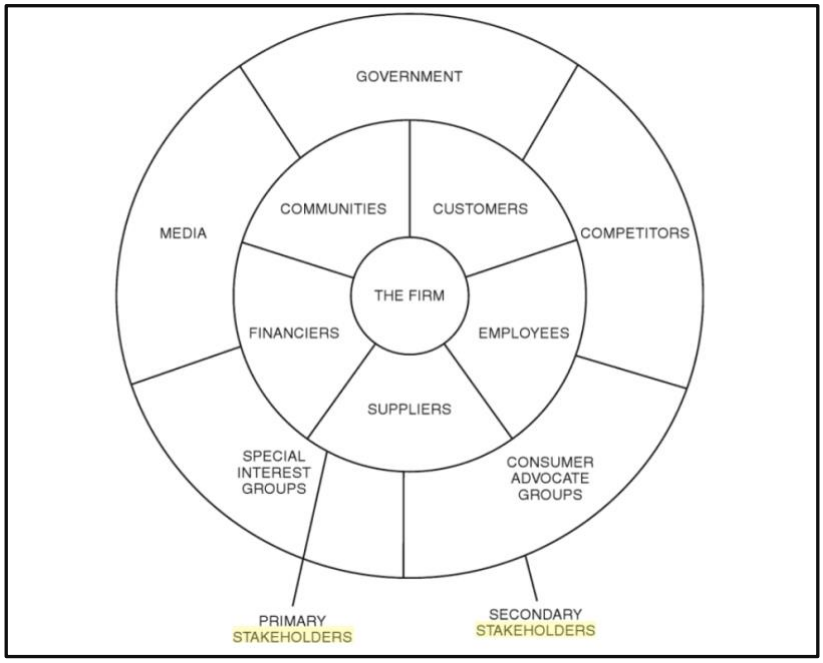

Figure 1.Creating Value for stakeholders (Freeman et al., 2007)

Agle et al. (1999) assert that stakeholder status is linked to the legitimate right to participate in decision-making, aligning with Freeman's view of stakeholders as those who influence or are influenced by organizational actions (Kivits et al., 2021). Friedman and Miles (2006) expanded this definition to include any actor capable of influencing organizational processes. The stakeholder concept, per Evan and Freeman (1993), incorporates legitimacy, suggesting that corporations should be managed for the benefit of stakeholders like customers, suppliers, owners, employees, and local communities. The stakeholder fiduciary principle indicates that management has a trustee relationship with stakeholders, acting in their best interests and protecting long-term goals. Freeman (2004) revised the definition of stakeholders to include "those groups vital to the survival and success of the corporation," introducing the stakeholder-enabling principle and the principle of director responsibility.

Donaldson and Preston (1995) classify stakeholder identification theories into three categories: descriptive, instrumental, and normative. Descriptive stakeholder theory focuses on identifying stakeholders and their relationships, encompassing all groups that impact or are impacted by organizational objectives (Freeman, 2010). Normative stakeholder identification emphasizes stakeholders that should be prioritized, based on their legitimacy in decision-making processes or their impact from corporate actions (Donaldson & Preston, 1995; Mitchell et al., 1997). Instrumental stakeholder theory posits that engaging stakeholders can lead to organizational success, focusing on profit maximization and stockholder value (Friedman and Miles, 2006).

The stakeholder model (Figure 2) by Donaldson and Preston (1995) argues that all individuals or groups with legitimate interests in a firm seek benefits from their participation. This model

depicts bi-directional relationships between the firm and stakeholders, representing all stakeholder relationships equally around the central firm box.

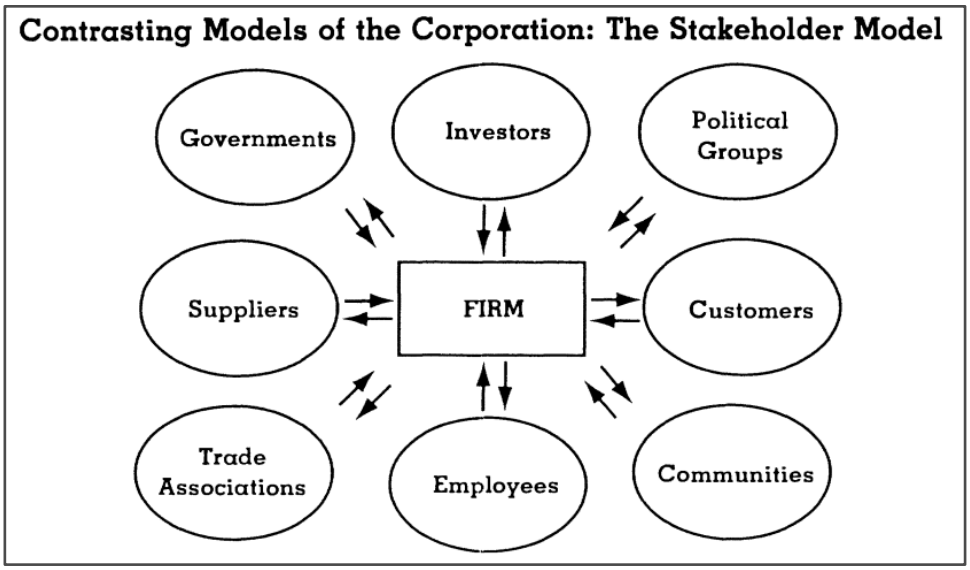

Figure 2.Contrasting Models of the Corporation. The Stakeholder Model (Donaldson & Preston, 1995)

Stakeholder identification and analysis are crucial for organizations to enable meaningful engagement, enhance decision-making, and optimize resource allocation (Kivits et al., 2021). While Freeman's broad definition of stakeholders includes individuals, groups, and natural environments, there remains controversy among academics regarding the practical application of stakeholder theory in management practices (Kivits et al., 2021).

Stakeholders Interests

Stakeholder theory argues that businesses should consider the interests of all groups affected by their operations (Gibson, 2000). Wood et al. (2021) emphasize that businesses are part of society, meaning managers have responsibilities beyond profit generation; they must also address claims and mitigate harms within their societal relationships. This theory is inclusive, recognizing that claims can be noncontractual and harms may impact those with involuntary ties to the company (Wood et al., 2021). However, Laplume et al. (2008) raise two critical questions: "Which stakeholders do managers prioritize?" and "What should managers be concerned with?"

Schaltegger et al. (2019) argue in "Business Cases for Sustainability" that the goal of a stakeholder business case for sustainability is to create value for a broad range of stakeholders by addressing sustainability issues. Since businesses depend on contributions from various stakeholders, they aim to provide benefits to a diverse group. The institutional framework, particularly regulations, plays a crucial role in shaping the economic outcomes of a company's social and environmental efforts. Regulations like environmental taxes and emissions trading, which internalize externalities, influence whether certain actions lead to a

business case for sustainability. External stakeholders, such as governments, can impact managerial decisions and influence which stakeholders' benefits are prioritized. Schaltegger et al. (2019) stress that creating a business case for sustainability depends not only on management but also on interactions between the company and its stakeholders. Value creation emerges from these interactions and includes economic, social, ecological, and other types of values. However, conflicts often arise between financial and societal stakeholders, leading management to prioritize one group over another. As stakeholders have diverse preferences, business success involves balancing financial, social, and environmental outcomes to create a "value bundle" for each group. The stakeholder business case for sustainability seeks to deliver value for all stakeholders involved, rather than focusing on a single group (Schaltegger et al., 2019).

Friedman (1962) asserts that the purpose of business is to "use its resources and engage in activities designed to increase profits as long as it stays within the rules of the game," emphasizing profit maximization as key to success. In contrast, Freeman et al. (2010) argue that creating economic value requires customer satisfaction, strong supplier relationships, motivated employees, and supportive communities. Thus, the societal obligations of food corporations must extend beyond simply generating profits for shareholders (Friedman, 1970).

Stakeholders Agency

Sustainability transitions necessitate collective agency within firms, positioning managers as a key stakeholder group with significant influence (Hill and Jones, 1992). They control decision-making and must align strategic choices with stakeholder interests, while the governance structure manages relationships among various stakeholders (Hill and Jones, 1992). Governmental agencies play a crucial role in shaping corporate environmental initiatives through incentives and penalties that affect managerial behavior (Bremmers et al., 2007). However, governmental policies can also pose challenges by imposing unrealistic demands or conflicting with business strategies (Bremmers et al., 2007). This study will gather insights from senior management to examine regulatory frameworks and their impact on sustainability transitions in the food industry.

Research by Gonzalez-Porras et al. (2021) highlights the importance of stakeholder engagement in sustainability transitions at individual, firm, and industry levels. Individuals act as catalysts for change, firms build relationships with stakeholders, and industry collaboration is essential for addressing sustainability challenges. Avelino (2009) emphasizes the role of stakeholders in shaping sustainability and driving societal transformation. For effective sustainability transitions, Köhler et al. (2019) stress the need for collaborative relationships among stakeholders. Engaging stakeholders across levels is crucial for fostering sustainable practices and facilitating broader societal change.

Stakeholder Influence

Mitchell, Agle, and Wood's (1997) framework of stakeholder salience provides a comprehensive lens through which organizations can understand and prioritize stakeholder engagement. Central to this framework are three influential key factors: power, legitimacy, and urgency. Power pertains to stakeholders' capacity to exert influence over the organization, whether through control of resources, expertise, or other means. Legitimacy refers to the perceived rightful claim of stakeholders to participate in decision-making processes, often rooted in legal, moral, or contractual obligations, as well as societal norms or expectations. Urgency highlights the time-sensitivity or significance of stakeholders' concerns, necessitating immediate attention or response from the organization. By carefully assessing stakeholders based on these dimensions, organizations can effectively prioritize their engagement efforts and allocate resources to manage relationships and influence. This framework serves as a valuable tool for organizations seeking to navigate complex stakeholder landscapes and drive sustainable outcomes.

However, Magill et al. (2015) argue that a firm's internal risks generate externalities on stakeholders like employees and consumers, which shareholders do not internalize. These internal risks, related to the firm's technology and market, can typically be controlled by the firm. Externalities could be mitigated by encouraging firms to prioritize the overall welfare of all stakeholders rather than solely focusing on shareholder value, and by considering the interests of all affected parties (Magill et al., 2015). Furthermore, Magill (2015) suggests that if externalities cannot be internalized through government intervention like taxes and subsidies, another approach is to integrate the parties involved in the externality into a larger entity whose decisions reflect the combined interests of all parties. However, if decisions are based solely on profit maximization, the firm acts only in the interest of shareholders, neglecting the interests of other stakeholders like workers and customers (Magill et al., 2015). For instance, in the agricultural sector, the environment can suffer due to the overuse of natural resources as inputs or their utilization as pollution sinks. These negative impacts are external costs that are usually not reflected in market prices, often harming groups whose interests are poorly represented in political or decision-making processes (Pretty, 2007). Similarly, pesticide manufacturers do not bear the full cost of their products, as they are not required to pay for any adverse side effects. In China, the externalities from pesticide use in rice cultivation result in $1.4 billion in costs annually, including health expenses and negative effects on both on-farm and off-farm biodiversity (Norse et al., 2001).

2.2 Sustainability Challenge in the Food Industry

The food industry plays a crucial role in sustainability due to its substantial environmental impact, contributing to greenhouse gas emissions, biodiversity loss, and water pollution. In developed nations, food systems account for 15-28% of total GHG emissions, spanning from

agricultural production to waste (Garnett, 2012). Nearly half of these emissions come from agriculture, with global estimates showing that agriculture, including deforestation, contributes around 30% of emissions. Moreover, the industry faces nutrition-related challenges, as 35% of adults are overweight, including 500 million obese individuals, while 850 million people suffer from undernourishment (Swinburn et al., 2011; FAO, 2013).

To address the sustainability challenges, Garnett (2012) identifies three key dimensions. The production challenge involves improving food production efficiency to reduce environmental harm while maximizing yields. The consumption challenge requires shifting dietary habits towards more sustainable choices to lower resource use. Finally, the socio-economic challenge calls for governance reforms to create an equitable and sustainable food system. Meeting these challenges will require cross-sector collaboration, policy changes, and consumer behaviour shifts.

In the bakery industry, social sustainability aspects such as health-conscious diets and fairtrade practices are essential but this study was focused on environmental sustainability. Key areas explored include food waste management, the agricultural impact of ingredient sourcing, natural resource conservation, and carbon emissions from bakery operations. By addressing these environmental factors, the research aims to highlight strategies that can reduce the industry's ecological footprint and support a more sustainable future.

2.3 Sustainability Challenge in the Bakery Industry

The bakery industry faces numerous sustainability challenges, driving the need for better policies, metrics, assessment techniques, and new technologies. Improving food production and consumption systems is essential for sustainable development and addressing both environmental and socio-economic issues (Notarnicola et al., 2017).

2.3.1 Life Cycle Management in Bakery Products

Sustainability concerns intersect with the bakery sector as consumer demands evolve to prioritize both nutrition and sustainable practices (Shaposhnikov et al., 2023). Life Cycle Management (LCM), as suggested by Monteiro et al. (2022), offers a holistic approach to assess bakery products and processes, helping industries manage resources and risks strategically (Magill, 2015). This approach can yield positive results while reducing potential risks.

The Life Cycle Assessment (LCA) method, as highlighted by Ma et al. (2010), measures carbon emissions across all food life cycle phases, including raw material production, packaging, transportation, and waste disposal. LCA evaluates environmental impacts, while LCM integrates life cycle thinking into business practices to enhance sustainability. The International Organization for Standardization defines LCA as a method to evaluate

environmental impacts throughout a product's life cycle (Ekvall & Finnveden, 2001), contributing to the Sustainable Development Goals (SDGs) and aligning with Planetary Boundaries (Sanyé-Mengual & Sala, 2022).

Shaposhnikov et al. (2023) emphasize the importance of LCA for bakery products, focusing on resource use, carbon emissions, and sustainable sourcing. By adopting sustainable production, packaging, and waste management practices, the bakery industry can drive the transformation towards a more sustainable food system. Through such efforts, the bakery sector not only meets consumer expectations but also contributes to global sustainability goals.

2.3.2 Agricultural Practices & Natural Resources

The responsible use of natural resources is key to future governance and management in the Anthropocene (Knight, 2015). The bakery industry relies on agricultural inputs like wheat, sugar, and dairy, often sourced through intensive farming methods, such as monoculture, which harm the environment. Soussana (2014) highlights the need for sustainable agriculture that operates within limits for greenhouse gases, energy, biodiversity, and contaminants, while building resilience to climate change.

A major sustainability issue for the baking industry is the environmental impact of raw material sourcing. The World Food Security Committee notes concerns over stagnating wheat yields in many countries (Rayichuk et al., 2023). Population growth and rising food demand have led to intensive production methods and increased ploughing, causing resource depletion, soil degradation, and ecosystem pollution from pesticides, heavy metals, and greenhouse gas emissions (Rayichuk et al., 2023). This degradation also threatens biodiversity and disrupts ecosystems.

2.3.3 The Transition towards Sustainable Agriculture

Addressing sustainable agricultural production of raw materials is essential for the baking industry's sustainability. Cappelli and Cini (2021) highlight various innovations that improve sustainability, productivity, and quality in bakery supply chains. Effective strategies for the wheat cultivation stage are crucial, such as replacing chemical fertilizers with manure (Li et al., 2020) or natural fertilizers derived from by-products (Ferrari et al., 2019; Rengasamy et al., 2016). Gao et al. (2020) proposed replacing chemical fungicides with a natural fungicide made from wheat straw pyrolysis. However, these strategies may not be feasible for large-scale production. To address this, Recchia et al. (2019) recommend determining the minimum amount of fertilizer needed for sufficient yields and quality. Tian et al. (2021) advocate for designing crops with greater stress tolerance to reduce pesticide use, which is particularly beneficial for marginal lands (Tilman et al., 2002). Moving toward organic farming (Cappelli

and Cini, 2021) or developing pathogen-resistant crops can also reduce environmental pollution and crop loss (Nelson et al., 2018).

An emerging strategy for sustainability in the bakery industry is incorporating alternative protein sources in breadmaking. Since wheat cultivation has the highest environmental impact in bread production (Notarnicola et al., 2017), using plant proteins like soya, potato, or legumes, along with animal proteins such as egg albumen and even insect-based proteins, can significantly reduce environmental pressure (Cappelli and Cini, 2021).

Tian et al. (2021) stress the importance of crops with high nutrient and water-use efficiency to reduce inputs and environmental impacts. For example, new high-yield rice varieties that can produce up to three times more grains than standard paddy fields help address stagnating yield growth (Liu et al., 2020), aligning with the Future Crops design project.

MacRae et al. (1989) present a framework for sustainable farming systems based on three strategies: efficiency, substitution, and redesign (ESR). The substitution level involves minimal changes, such as replacing toxic chemicals with less harmful alternatives (Altieri and Rosset, 1996), using biopesticides, or planting nitrogen-fixing legumes to reduce reliance on nitrogen fertilizers (Lichtfouse et al., 2009). The agroecological strategy applies ecological principles like biodiversity conservation, intercropping, crop rotation, and green manuring to enhance nutrient cycling and disease control. The global strategy tackles agricultural issues holistically by considering the entire food system, from farming to marketing networks.

Shaposhnikov et al. (2023) propose strategies for bakeries to improve sustainability, including transitioning to sustainable raw materials, improving supplier transparency, and supporting local farmers. Meynard et al. (2006) identify four pathways for innovative agricultural systems: investing in new farming systems, improving local farming systems, equipping stakeholders with tools to enhance their practices, and addressing the economic and social conditions necessary for adopting alternative systems.

2.3.4 Food Waste in Bakeries

Bread waste constitutes a major portion of global food waste, with large amounts wasted annually. Brancoli (2021) estimates that 80,410 tons of bread are wasted in Sweden alone each year, equivalent to 8.1 kg per capita. The UN Intergovernmental Panel on Climate Change (IPCC) stresses that reducing food waste is critical for maintaining a global food supply that can meet population growth while staying within planetary boundaries (IVA, 2020).

Globally, food loss and waste levels vary throughout the food supply chain, with production stages accounting for most losses (IVA, 2020). Reducing food waste in the bakery industry is essential for improving sustainability (Balasooriya, 2022). This presents both challenges and

opportunities for innovation. Vargas-Hernández et al. (2022) propose intelligent packaging for bakery products that can monitor characteristics across the supply chain, reducing waste. Additional strategies include optimizing production, donating surplus bread, and educating consumers about proper storage, all of which can help tackle the global food waste crisis.

2.3.5 Tackling Waste

Reducing food waste is a considerable challenge for operators across the food system, from agriculture to household consumption. Goryńska-Goldmann et al. (2020) conducted a study that examined the causes of food losses and identified key recovery points (RPs) along with strategies to mitigate and prevent these losses within Poland's baking and confectionery industry (BCI). Their analysis focused on several production stages: raw material magazine (RMM), production section (PS), final product magazine (FPM), and final product transport (FPT). The production section exhibited the highest levels of loss, with 1.56% in 2017 and 1.85% in 2018. Specific strategies suggested by Goryńska-Goldmann et al.'s study (2020) for reducing food waste in baking and confectionery plants are presented in Appendix 3.

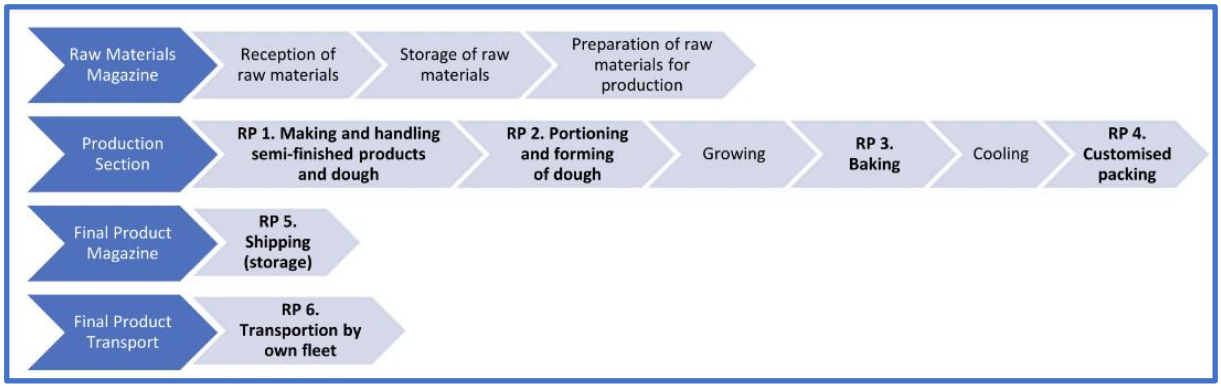

Figure 3.Bread baking operations with potential RP's highlighted (in bold) (Goryńska-Goldmann et al., 2020)

To manage food losses, the BCI employs a variety of strategies in addition to preventive measures across production stages. Goryńska-Goldmann et al. (2020) highlighted common waste management practices used in the industry, including repurposing bread waste for fodder, biogas, biofuel, and composting, with landfill disposal as a less preferred method. Among the surveyed enterprises, repurposing food losses as animal feed was the most favoured option, while industrial uses and composting were secondary strategies, primarily applied in the raw material magazine (RMM) and production section (PS). Energy reclamation through burning bread is another method, although it is less popular (Vandermeersch et al., 2014; Kot et al., 2015). However, modern methods like fermentation of wasted bread to produce bioethanol and biohydrogen are emerging as innovative alternatives (Adessi et al., 2018; Dymchenko et al., 2023; Salihoglu et al., 2018).

To address food waste and create a positive social impact, alternative distribution methods such as food banks and social supermarkets are gaining traction. Digital technology and the

sharing economy have enabled web platforms and food-sharing apps developed by both established organizations and new online ventures (Michelini et al., 2018). Wasted bread can also be repurposed within the food and beverage industry, such as through the recycling of waste bread to produce new fresh bread (Immonen et al., 2020). Notable innovations include Tesco UK's initiative to transform unsold baguettes into new products like olive crostini and bread pudding (Deonath, 2019). The Waste and Resources Action Programme (WRAP) also advises bakeries to explore shelf-life extension methods to minimize baked goods waste (WRAP, 2020). Craft breweries are also utilizing bakery leftovers to replace malt in beer production (Dymchenko et al., 2023). A leading UK brewery, Toast Ale, has saved millions of slices of bread by collecting waste bread from shops and cafes to brew beer (Toast, 2024).

Additionally, Goryńska-Goldmann et al. (2020) emphasize the importance of raising awareness, enhancing employee skills, and developing specific guidelines for bakeries to minimize food losses. Improved information sharing throughout the supply chain and educational initiatives can further reduce waste. Efficient organization of production activities, along with strategic distribution of goods, can lower the risk of overproduction and promote better management of raw materials (Mena et al., 2011).

2.3.6 Greenhouse Gas Emissions (GHG)

The food system is a significant contributor to anthropogenic greenhouse gas (GHG) emissions, accounting for more than one-third of total emissions (Liu et al., 2023). It is responsible for up to 34% of total GHG emissions, originating from agriculture and land use, including activities such as storage, transportation, packaging, processing, retail, and consumption (FAO, 2019). While technological advancements in the energy and transport sectors hold promise for reducing fossil fuel use across various food system stages, two-thirds of these emissions come from agriculture, forestry, and other land use (AFOLU) (Smyth et al., 2015). AFOLU presents significant opportunities for carbon sequestration and emissions reduction, particularly through carbon sinks like forests (Vermeulen et al., 2012).

Human-induced GHG emissions, the primary driver of climate change, lead to rising global temperatures and shifting weather patterns (VijayaVenkataRaman et al., 2012). The food system contributes 21-31% of these emissions, spanning agricultural production, processing, transportation, and food waste (Crippa et al., 2021; IPCC, 2018). Liu et al. (2023) underscore that the food manufacturing industry is a key contributor, necessitating collaboration between agricultural producers and the industry to drive sustainability.

Achieving carbon neutrality without relying on carbon offsets is a major challenge for the food industry, emphasizing the importance of effective energy management to reduce emissions (Liu et al., 2023). The literature suggests two main strategies for achieving this goal: exploring innovative clean energy sources and enhancing energy efficiency in food processing and transportation (Shabir et al., 2023; Szczepaniak and Szajner, 2022). Energy decarbonization

involves shifting to renewable energy sources and phasing out inefficient fossil fuels (Glasgow Climate Pact, 2021). Many international food companies have already made significant progress in adopting renewable electricity or deploying on-site renewable energy solutions (Acampora et al., 2023). The baking industry, for instance, could reduce power consumption by up to 30% through process optimization techniques, including improved thermal management and waste heat recovery (Muster-Slawitsch et al., 2014; Pask et al., 2014). Carbon capture and utilization (CCU) is also a crucial technology for mitigating emissions by repurposing CO2 to create valuable products (Mikulčić et al., 2019).

Improved logistics and transportation energy efficiency are critical to reducing emissions from bakery products, especially when comparing local sales to exports (Liu et al., 2023). Short food supply chains, prioritizing localized production, can reduce the distance between production and consumption, improving energy efficiency in distribution (Mundler and Rumpus, 2012).

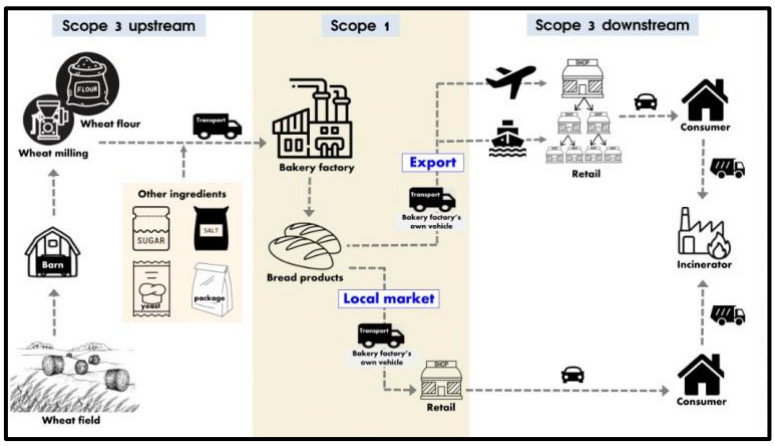

Figure 4.Variations in emissions sources during transportation for bread products sold locally and for export (Liu et al., 2023)

Mitigating Scope 3 emissions, which stem from agricultural production and land use, poses a significant challenge for the food industry (Figure 5). To address this, companies can set stringent performance criteria in agricultural production contracts, requiring field surveillance and GHG emissions measurement (Paustian, 2016). Agricultural producers can implement practices like soil carbon sequestration, modifying livestock diets, and methane vaccinations. Since soils contain about 75% of the carbon reservoir in terrestrial ecosystems (Elbasiouny et al., 2014; Hsu et al., 2021), sequestering carbon into soils is a crucial emissions reduction strategy. This can be enhanced by sustainable practices such as no-till farming, maintaining grass cover, or using compost from vineyard residues, which further aid soil carbon sequestration (Chiriaco et al., 2019).

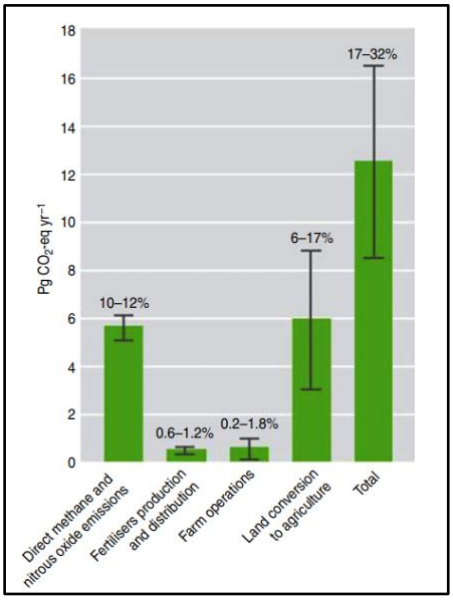

Figure 5.Global contribution of agriculture to greenhouse gas emissions (Bellarby et.al, 2008)

2.4 Regulatory Framework for Sustainability in the Food Industry

The Global Food Policy Report (2022) outlines six key policy priorities to transform food systems toward sustainability. The first is to boost investments in research and development (R&D) across the value chain, including solar power and digital technologies, with a recommendation to double public funding for agricultural R&D. The second focuses on improving resource governance by promoting clean energy, restoring soil quality, securing land rights, and ensuring equitable water access (IFPRI, 2022).

The third priority highlights promoting healthier diets and sustainable production through national food-based dietary guidelines and R&D for nutrient-rich foods. Policy changes such as labelling, certification, and food standards are also encouraged to reshape food environments. Strengthening value chains, the fourth priority, involves reducing food loss, aligning trade rules with climate-smart policies, and investing in low-emission solutions for storage and transportation.

The fifth priority stresses the importance of inclusion and social protection programs to help marginalized groups adopt climate-positive innovations. Finally, the report emphasizes climate-smart finance, urging government support for agricultural R&D and green innovations to accelerate sustainable technologies. While these reforms are politically challenging, they are essential for achieving sustainable food systems that promote economic prosperity, reduce poverty, improve food security, and protect the environment.

The following sections will analyse various regulatory frameworks related to waste management, agriculture, natural resources, and climate change, crucial for transitioning to sustainable practices in the food industry.

2.4.1 Regulatory Framework for Sustainable Agriculture

Various sustainability assessment tools and frameworks have been created to support agricultural policymaking aimed at sustainability. In 2006, the European Environmental Agency (EEA) launched the IRENA initiative (Indicator Reporting on the Integration of Environmental Concerns into Agriculture Policy), focusing on agri-environmental indicators to assess the environmental impacts of EU agricultural policies (European Environment Agency, 2006). For over 50 years, the Common Agricultural Policy (CAP) has been central to EU agriculture and rural policy. Initially introduced in 1960, CAP aimed to ensure food security, improve productivity, and achieve fairness for both consumers and producers. Over time, it has incorporated food safety and environmental standards (Balaceanu, 2013), providing financial support to farmers and aligning national programs into a unified framework (Streimikis & Baležentis, 2020).

In the UK, the first agri-environmental program, the Environmentally Sensitive Areas (ESA) scheme, was launched in 1987 to promote environmentally friendly farming practices (Dobbs & Pretty, 2004; Gov.uk, 2024a). This was followed by the Countryside Stewardship Scheme (CSS) and later, the Environmental Stewardship Scheme (ESS) in 2005. The EU also launched the Strategic Dialogue on the Future of EU Agriculture in 2024 to develop a shared vision for farming, engaging key stakeholders from the agri-food chain (European Commission, 2024b).

EU climate policy targets for 2030 include reducing greenhouse gas emissions by 40% compared to 1990, increasing renewable energy usage, and improving energy efficiency by 32.5% (European Commission, 2014). The European Green Deal (2019) seeks to promote sustainability in agriculture through a circular economy. Starting December 2024, the EU Deforestation Regulation (EUDR) will require deforestation-free products and compliance with local laws in production countries, supported by due diligence statements (Gov.ie, 2024). The Forest Stewardship Council (FSC) reinforces these goals through its certification programs, ensuring sustainable forest management and traceable products (FSC, 2024).

Sustainability assessments are essential for enhancing agricultural systems. The MESMIS Program, a 15-year initiative, addresses sustainability in small-scale farmer resource management through a participatory and interdisciplinary approach (Astier et al., 2012). The FAO's Framework for Evaluating Sustainable Land Management (FESLM, 1993) assesses sustainability by integrating environmental, economic, and social factors. Alaoui et al. (2022) review six assessment frameworks—SAFA, RISE, MASC, LADA, SMART, and Public Goods (PG)—providing guidance on selecting the right tool based on sector, scale, and evaluation goals.

2.4.2 Regulatory Framework for Food Waste Mitigation

Key EU waste management frameworks include the Waste Framework Directive (WFD) and the Landfill Directive, as discussed by Eriksson et al. (2020). The WFD defines waste management concepts, such as waste, recycling, and recovery (European Union, 2024d), outlining when waste becomes a secondary material and distinguishing between waste and by-products. It also introduces the "waste hierarchy," a system for prioritizing waste disposal methods (European Union, 2024d).

The Landfill Directive sets operational requirements for landfills to protect human health and the environment by minimizing harmful effects on water, soil, air, and public health (European Union, 2024e). The Circular Economy Package (CEP) (EC, 2015) promotes the EU's shift to a sustainable, resource-efficient economy by creating a legislative framework for waste reduction and long-term waste management strategies (Gov. uk, 2024b). Eriksson et al. (2020) further explore the primary strategies implemented within the framework of the CEP (refer to Table 2).

Scale Assessment	Sector of Application	Completeness Assessment	Framework	Strengths (+) and Weaknesses (−)
Global			SAFA	• Qualitative and quantitative data (+) • Complex framework, requires expert in sustainability (−)
			LADA	• Qualitative and quantitative data (+) • Limited to people with multi-sectoral expertise (−)
Farm			RISE	• Quantitative and qualitative data (+) • High number of input data, requires specialist (−)
			PG	• Only qualitative data used (−) • Scores of the indicators coming directly from farmers answers (+)
			MASC	• Highly adaptable for qualitative and quantitative data (+) • Requires researcher/professional (−)
			SMART	• Uses semi-quantitative data (+) • Very time-demanding and limited to scientists (−)

Table 1.Decision tree according to the framework scale assessment (global/local), sector of application (cropping system, livestock system, forestry system, urban system, and food sector) and completeness of sustainability assessment (Alaoui et al., 2022)

In 2016, the FUSIONS project introduced a methodology for measuring and monitoring food waste across all stages of the supply chain, including households, food services, retail, wholesale, processing, and primary production (Tostivint et al., 2016). The REFRESH project further aimed to develop new approaches, create technological innovations for food waste valorisation, and design ICT tools to enhance existing solutions, ultimately supporting national

and EU policy frameworks. However, these recommendations have not yet been integrated into EU food waste policy (Eriksson et al., 2020).

WRAP, a global climate action NGO, works across the food supply chain with brands, governments, and individuals to tackle food loss, waste, and greenhouse gas emissions, while promoting water conservation (WRAP, 2024). They are also focused on eliminating plastic pollution through initiatives like the UK Plastic Pact.

Canali et al. (2014) note that food waste stems from a complex set of diverse causes, affecting every level of the supply chain, including local authorities, consumers, retail, and processing. This complexity means food waste is addressed by multiple policy areas, with various laws and government initiatives involved.

Initiative	Objective	References
EU sustainable development strategy	Aims to improve the management and avoid the overexploitation of natural resources through efficient use of natural resources	DG-Environment (2012)
Thematic strategy on waste prevention and recycling	Sets out the general policy framework: modernising legislation, introducing an approach based on product life cycles, preventing waste generation and promoting recycling	EC (2005) Bourguignon (2016)
Seventh environmental action plan (7EAP)	Aims to protect the EU's natural capital, to turn the EU into a resource-efficient and competitive economy and to safeguard EU citizens from environment-related pressures and risks to health and well-being	Decision 1386/2013/EU Bourguignon (2016)
Sustainable industrial policy (SIP) and sustainable consumption and production (SCP) action plans	Supports the economic competitiveness of EU industry through improved energy and resource efficiency, as well as improved capacity to develop appropriate technological solutions	EC (2008) DG-Environment (2012)
Roadmap to a resource-efficient Europe	Sets targets for waste management to be achieved by 2050: re-use and recycling should reach the maximum feasible level and be economically attractive, energy recovery should be limited to non-recyclable waste and landfilling should be virtually eliminated	EC (2011) DG-Environment (2012)

Table 2.European strategies which fall under the scope of the circular economy package (Eriksson et al., 2020)

2.4.3 Regulatory Framework Against Climate Change

Food production, distribution, and consumption must adapt to climate change to sustain rural livelihoods and ensure access to healthy diets, particularly as rising populations and incomes drive increased food demand (IFPRI, 2022). Innovative solutions like solar energy, digital technologies, and climate-smart practices—including no-till farming, agroforestry, and landscape management—are gaining momentum to improve resilience, adaptation, and productivity. However, creating enabling environments, including policy initiatives and governance approaches that foster climate-positive changes and engage all food system actors, is essential (IFPRI, 2022).

The United Nations Framework Convention on Climate Change (UNFCCC) plays a crucial role in addressing climate change, with carbon finance being central to implementing Nationally Determined Contributions (NDCs). The Paris Agreement allows the use of market mechanisms

to support this implementation (UNDP, 2022). COP 26, held in Glasgow in 2021, resulted in the Glasgow Climate Agreement, which highlighted the importance of reducing carbon emissions in the food industry, a major contributor to global greenhouse gas (GHG) emissions. This was a key topic at both the UN Food Systems Summit and UNFCCC COP 26, with policy reform, investment, and an enabling environment identified as critical drivers of innovation (IFPRI, 2022).

The first global carbon market was established under the 1997 Kyoto Protocol at COP 3, where carbon credits and offsets were traded. Carbon markets are divided into compliance markets, which are tied to regulatory cap-and-trade systems, and voluntary markets (CFI, 2024; UNDP, 2022). Cap-and-trade systems regulate businesses by granting emissions permits, requiring companies exceeding their limits to purchase additional permits (CFI, 2024). The Paris Agreement at COP 21 enhanced this market, with further refinements made during COP 26 (Liu et al., 2023). GHG verification is vital for emissions trading, involving the assessment of emissions and identification of emission hotspots (Liu et al., 2023).

In October 2023, the European Union introduced the Carbon Border Adjustment Mechanism (CBAM), which imposes carbon tariffs on imports exceeding EU carbon standards. By 2026, EU importers will purchase CBAM certificates based on the weekly average price of EU ETS allowances (European Union, 2024f). International standards for measuring and reporting GHG emissions include the Greenhouse Gas Protocol (GHG Protocol), ISO 14064, ISO 14067, PAS 2050, and PAS 2060 (Liu et al., 2023).

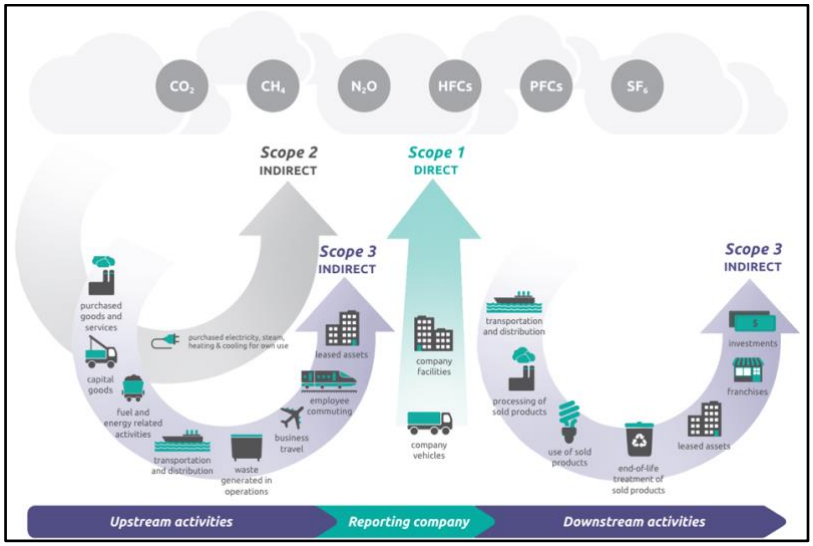

Figure 6.Overview of GHG Protocol scopes and emissions across the value chain (GHG Protocol, 2024)

The GHG Protocol provides a framework for identifying Scope 1 (direct emissions), Scope 2 (indirect emissions from purchased energy), and Scope 3 (indirect emissions along the value chain) (Liu et al., 2023). ISO 14064 builds on the GHG Protocol by categorizing emissions into six groups, while ISO 14067 focuses on product carbon footprint quantification. PAS 2050, the

first product-level carbon footprint protocol, assesses GHG emissions throughout a product's life cycle. PAS 2060, introduced by the Carbon Trust, offers certification for carbon neutrality (BSI, 2024; Carbon Trust, 2024). In 2023, the Carbon Trust introduced new verification methods that emphasize emissions reduction, promoting transparency in environmental claims (Carbon Trust, 2023). Despite the existence of international standards like the GHG Protocol, the food industry's understanding and application of these guidelines remain limited (Hansen et al., 2022). Additionally, concerns such as double-counting emission reductions, human rights abuses, and greenwashing persist, making transparency in carbon market transactions vital for success (UNDP, 2022).

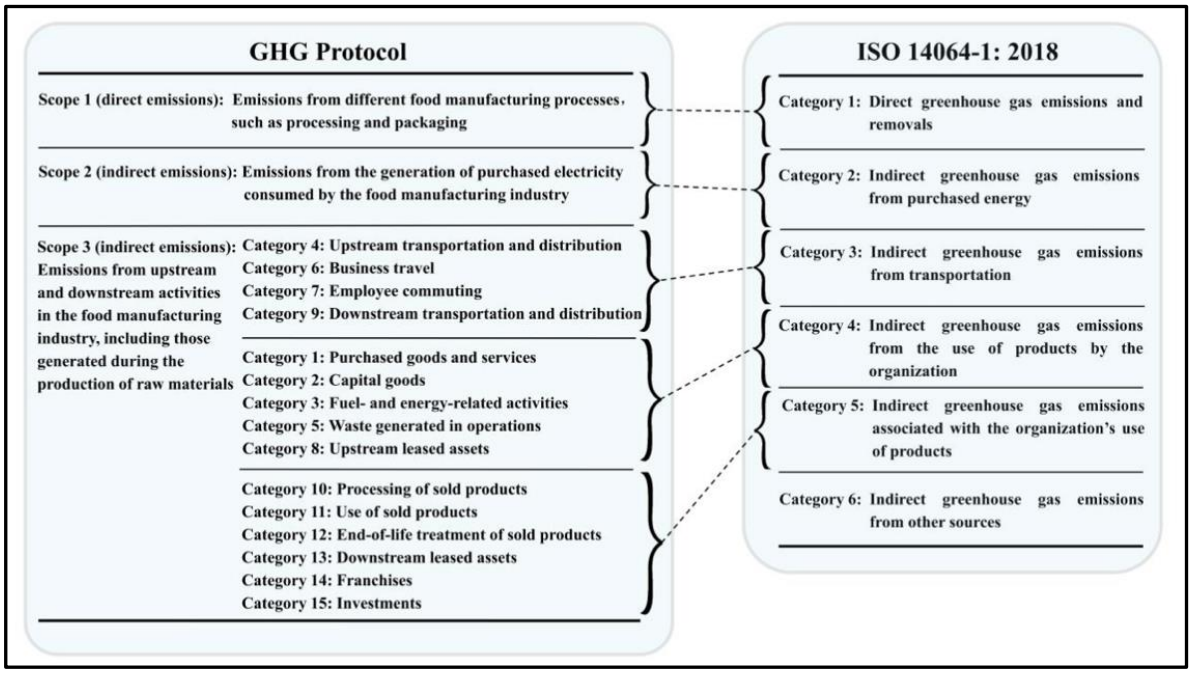

Figure 7. A comparison of GHG verification guidelines between GHG Protocol and ISO 14064 (Liu et al., 2023)

3. Methodology

This study employed a qualitative micro-level case study approach to gain in-depth insights into the corporate sustainability transition within a small-to-medium enterprise (SME) in the baking industry. The qualitative case study was chosen for its ability to provide a comprehensive understanding of complex phenomena within specific real-world contexts, which quantitative methods like surveys may not capture as effectively. Surveys, typically suited for larger populations, rely on pre-defined hypotheses and structured response formats that could have limited the depth and nuance of the insights collected. Given the explanatory nature of this research, the goal was to capture stakeholders' own experiences, challenges and priorities regarding sustainability, rather than imposing an external framework upon them. As Stake (1995) notes, case studies offer a detailed, contextual analysis, which is particularly valuable when studying contemporary events within their real-world context.

3.1 Limitations of the Case Study Methodology

One of the primary limitations of the case study method is its restricted generalizability due to the focus on a single entity (Flyvbjerg, 2004). In this research, the single case focus on one SME inherently limits the ability to apply findings to other organizations or sectors, a common critique of case study methodologies. As Yin (2009) highlights, while case studies allow for rich and in-depth exploration of settings, they may not provide the breadth of data necessary for wide-scale generalization. Additionally, the small sample size of five elite interviewees further limits the scope which is a consequence of choosing to investigate the SME experience and not large companies. Elite interviewees are difficult to access and often limited in number, particularly in SMEs. These individuals hold specialized knowledge or decision-making power, meaning that the pool of potential participants is necessarily small, which in turn constrains the breadth of perspectives collected (Aberbach & Rockman, 2002). However, the small number of interviewees in this micro-level case study intended for a deliberately grassroots practical investigation of the topic of a single company.

Moreover, case study methods often face criticism for their potential lack of rigour, especially when compared to quantitative methods. Critics argue that case studies may be prone to researcher bias in data collection or analysis due to the subjective interpretation of the qualitative data (Baxter & Jack, 2008). However, this limitation was mitigated in the present study by cross-referencing internal interview insights with those from an external expert on sustainability. This triangulation of data sources enhanced the study's credibility and validity by incorporating multiple perspectives on the issue.

3.2 Data Collection

This study employed a mixed-methods approach, integrating both primary and secondary data to provide a holistic view of the sustainability transition within the baking industry. Primary data were gathered through semi-structured elite interviews with key stakeholders from a single bakery company, aiming to capture in-depth perspectives on the shift towards corporate sustainability. These interviews were designed to probe critical areas such as stakeholder engagement, the regulatory landscape, and the challenges of adopting sustainable practices. The insights obtained through these interviews offered valuable, real-world perspectives that were instrumental in answering the research questions. Furthermore, the thematic findings from these interviews were synthesized with secondary data gathered in the literature review to position the results within the broader context of sustainability transitions in the baking industry.

A semi-structured interview format was selected to allow for flexibility, enabling deeper exploration into specific topics while ensuring all relevant themes were addressed. This qualitative method facilitated the collection of nuanced, rich data that could not be captured through rigid, closed-ended formats. Interview guides were developed with open-ended questions tailored to both internal stakeholders and the external expert (Appendices 1 and 2), ensuring the interviews remained aligned with the overarching research questions. The questions were designed to be comprehensive yet adaptable, allowing participants to elaborate on their experiences with sustainability. All interviews were recorded with the participants' explicit consent to ensure the accuracy of the collected data.

3.3 Sampling

This study employed a purposive sampling strategy, targeting key stakeholders from a single SME within the baking industry. The sample comprised senior executives and department heads to ensure a rich and multifaceted understanding of sustainability transitions. Five senior executives from a leading private limited company specializing in the production of speciality breads were interviewed. According to the company’s 2023 financial report, it generated an annual turnover of £284.7 million, a significant increase from £213.6 million in the previous period, and employed approximately 2,000 staff members.

Participants were carefully selected based on their involvement in strategic decision-making and their direct roles in advancing the company’s sustainability initiatives. The selected stakeholders represented a cross-section of departments, each contributing to a holistic understanding of the organization’s sustainability efforts. The interviewees included the Head of New Product Development and Marketing (Participant A), the Joint CEO (Participant B), the Head of Customer Service and Logistics (Participant C), the Technical Director (Participant D), and the Head of Procurement (Participant E).

Additionally, an external expert specializing in net-zero carbon strategies was interviewed to validate and contextualize the internal perspectives, providing a broader industry lens on sustainability. This dual approach enabled a comprehensive exploration of the company's sustainability strategies, challenges, and alignment with industry-wide sustainability objectives.

3.4 Data Analysis

The data analysis involved transcribing the interview recordings using computer software and systematically applying thematic analysis to the transcribed data. Thematic analysis, as a widely recognized qualitative method for identifying, analysing, and reporting patterns (themes) within a dataset (Riger & Sigurvinsdottir, 2016), was applied rigorously in this study. This approach allowed for a systematic examination of the interview data, aimed to directly address the research questions. These questions revolved around stakeholder engagement and its influence on the implementation of sustainability initiatives, the role of regulatory frameworks in shaping sustainability, and the challenges encountered by the baking industry in its transition toward sustainability, to encourage greater sustainability in the future.

Interview recordings were transcribed using Otter.ai, an automated transcription tool recognized for its high degree of accuracy and efficiency in converting audio into text. To ensure the precision and completeness of the data, each transcription was thoroughly reviewed and verified, capturing all pertinent details accurately.

The analytical process unfolded in multiple stages. Initially, the transcriptions were meticulously read to develop a comprehensive understanding of the content and to preliminarily identify potential patterns and concepts. Notes were taken to highlight emerging ideas and possible coding categories, setting the foundation for subsequent analysis.

In the second phase of the analysis, initial coding was conducted to organize the data into meaningful units by creating broad codes encompassing multiple related segments. These codes were designed to address my three research questions: stakeholder engagement, perceptions and influence, insights into the regulatory framework, and challenges and suggestions towards sustainability. Following Braun and Clarke's (2013) guidelines on open coding, significant statements and ideas relevant to these research questions were systematically highlighted and categorized into these broad codes, while other emerging themes occurred.

For example, the category addressing challenges towards sustainability was initially identified and further refined into specific subcategories such as shelf-life versus sustainability, supply

and logistics, cost considerations, carbon emissions, plastic waste, and packaging. The category on stakeholder engagement and perceptions included codes like the perceived cost of sustainability, cost as a driver, importance of customer engagement, commitment to sustainable pricing, customer and consumer influence, internal stakeholder agency, external pressure from retailers, reputation and competitive advantage, and ethical considerations. Finally, the regulatory framework category was broken down into codes such as the role of guidance and legislation, palm oil transition, types of legislation needed, action driven by legislation, and regulation as a level playing field. This structured approach allowed for a comprehensive analysis of how these codes relate to the research questions and contributed to understanding the overall findings.

After this, axial coding was employed to explore and establish relationships between the initial codes and categories, allowing for the emergence of core themes and sub-themes. The axial coding process facilitated a deeper understanding of the data advancing the analysis from simple categorization to developing of a coherent thematic framework.

Finally, the emergent themes were critically compared with existing literature, ensuring the findings were contextualized and aligned within the broader discourse on corporate sustainability transitions. This comparative analysis not only validated the study's findings but also positioned them within the ongoing scholarly dialogue on sustainability practices and regulatory challenges in the corporate sector.

4. Results

The field research revealed several emergent themes that have been underrepresented in the literature. Notably, the overall prioritisation of customers, competitors, and government, as well as the distinction between customer groups (retailers) and consumer groups (end-consumers), emerged clearly from the interviews. Participants also highlighted the economic challenges of sustainability, particularly the difficulty in balancing sustainability-related costs with market competitiveness. Dealing with this challenge appears to relate to ensuring business viability and driving economic value creation, rather than solely emphasizing profit maximization, as is often framed and critiqued in the literature. In addition, despite the widespread discussion of sustainability regulations in academic discourse, participants demonstrated limited awareness of current directives, frequently calling for further regulatory advancement or more effective deliverability of the regulatory framework within the industry. The following sections will elaborate on these insights, offering a detailed analysis of the study's findings concerning existing literature, highlighting both convergences and discrepancies.

4.1 Stakeholders in the Bakery Industry

The success of sustainability transitions in the bakery industry hinges on the coordinated efforts and influences of various stakeholders. In this fieldwork, the referenced stakeholders based on the Freeman's stakeholder diagram (Figure 8) included customers, consumers, internal stakeholders (company management and employees), suppliers, competitors, and government. This section presents the groups of stakeholders identified in the research, and findings obtained for each of these groups, addressing the first research question of this study, which refers to key stakeholders' identification.

Customers-Retailers

This research established that retailers played a crucial role in shaping the sustainability landscape of the case study bakery industry. As key customers of the company, retailers exerted significant influence over product specifications and pricing. Their demand for sustainable products that are also cost-effective was emphasized by all five research participants. However, this dual customers' expectation raised financial concerns which were mentioned throughout the interviews (See Table 3). As Participant A pointed out: *"The industry has said with one hand that we need to be looking for more sustainable production of raw materials, but they are asking for cost reduction and cheap pricing at the same time. These two do not go hand in hand."* Participant D concurred, noting: *"When it comes down to it (cost), a few extra pence and they won't do it (sustainability)."* Despite their advocacy for sustainability, retailers often resist absorbing the additional costs associated with sustainable practices, presenting a significant barrier to the adoption of sustainability.

Additionally, the pivotal role of retailers in addressing sustainability challenges within the bakery industry were evident throughout the research, with all five participants referring to them (See table 3). Participant D highlighted the external pressures the bakery industry received from its customers: *"The benefits at the moment are that our customers are very much pushing towards this."* Participant A echoed this sentiment: *"We are under pressure by at least 4 of our major customers to have a plan in place over the next 12 months."* Participant E also noted: *"I suppose, and we are driven by our customers quite often to move our sourcing in a particular direction."*

Consumers

Consumers were identified as key drivers of sustainability due to their demand for it, though their commitment was not always unwavering. Three out of five participants highlighted the significance of consumers (Table 3). Participant C noted: *"The market and the consumers are looking for more sustainable suppliers because that's the way the opinion is shifting."* Participant C agreed and expressed financial concerns related to consumers' demands for sustainability alternatives: *"Our customers sell to consumers, and the consumers want to know how sustainable the businesses they're buying from are… As people become more concerned and aware of that, these customers will push back on us, but they require to be committed to any additional cost."* In contrast, Participant D questioned consumers' commitment to sustainability: *"But the consumers, they still buy unsustainable products, I mean, I still buy products with palm oil, and I'm sure you do as well. We're not completely against using palm oil. If you want my honest opinion, nobody invests until somebody says this is the limit you must go to,"* and added: *"My slightly cynical view is that nobody is prepared to make any sacrifices,"* referring to the willingness to pay higher prices.

The willingness of consumers to pay for sustainable products emerged as a pivotal factor in the bakery industry's sustainability efforts. There was a clear dichotomy among consumers: those who are willing to pay a premium for sustainability and those who prioritize cost savings. Participant B summarized this tension: *"There will be people who will be prepared to pay for it. They can afford it and they have the mindset that this is the right thing to do. But others might like the idea, but when it comes to taking money out of your pocket? It's a different thing."* Additionally, Participant D observed: *"Nobody is prepared to make any sacrifices or have any financial implications."* This mixed consumer behaviour was identified as a significant factor influencing market dynamics and the feasibility of implementing sustainable practices.

Table 3. Participant references to Consumers, Customers, and Financial Concerns with Interview Comments (Author, 2024)

Participant ID	Consumers	Customers/Retailers	Financial Concerns	Participants' Comments

A	No mention	X	X	*"For instance, we have customers that are basically saying your waste in store is too high."* *"The industry has said with one hand that we need to be looking for more sustainable production of raw materials, but they are asking for cost reduction and cheap pricing the same time.* ***These two do not go hand in hand. So, I think there is a lack of clear direction from our customers."*** ***"We are under pressure by at least 4 of our major customers to have a plan in place over the course of the next 12 months****."* ***"However, route optimization doesn't always work for our customers. We are manufacturer, manufacturing to a time.*** *So, for any delay you'll have a load of customers who will push back on us saying, you've missed our order, and our delivery time."*
B	X	X	X	***"If we don't have happy customers, then we don't have a business."*** "***Being responsible, caring for the environment and having a sustainable business model is important for our customers. Because if we didn't care, people would stop buying from us."*** *"The long-life recyclable film, that has come from several customers. The retailers would love to have a long life, recyclable, or even biodegradable film if that was available…****it's so difficult and nobody wants to pay for it. Even the end consumer. I don't think we're there yet. There will be people who will be prepared to pay for it. They can afford it and they have the mindset that this is the right thing to do. But others might like the idea, but when it comes to taking money out of your pocket? It's a different thing."*** ***"When you talk about these things, everybody's on board with it internally, but to drive us to make actual changes to the way we operate, the way we buy the way we produce, it's more the pressure from outside, partly the government, partly our customers."*** ***"If you want this, this is the new cost, but then they say, we can't afford it, or our customers won't."*** *"If we had a sustainable solution, such as sustainable packaging, and this was to comply with the legislation the customers would have to buy it and pass the cost to the end consumer."*
C	X	X	X	*"Okay, first,* ***the market and the consumers are looking for more sustainable suppliers****, because that's the way the opinion is shifting.* *"I haven't come under pressure directly, but* ***I hear about customers asking about our sustainability credentials. It's a commercial issue.*** *It's reputation, and so, our customers sell to consumers, and the consumers, apparently, want to know how sustainable the businesses are that they're buying from. So, you know, the customer going to Tesco, if there's competition between Tesco and Sainsbury, that could be part of the competition, couldn't it? As people become more concerned and aware of that, these customers will push back on us.* ***When it comes to the pound in their pocket, most people must think about that."*** ***"Our customers have got to think about it as well. Because some of them are the ones that are driving this sustainability issue. But they don't help.*** *Some are better than others."* ***"I honestly think if there is more cooperation between suppliers and customers because all of the supply chain is so broken up."***
D	X	X	X	*"****The benefits at the moment are that our customers are very much pushing towards for this.*** *So, the direct benefit is that we comply with our customers' requirements. And our consumers are also asking for this on our own brand. So, the benefit really is that we'll comply with our customer and consumer requirements."* *"But the consumers, they still buy unsustainable products, I mean, I still buy products with palm oil, and I'm sure you do as well. We're not completely against using palm oil.* ***If you want my honest opinion, nobody invests, until somebody says this is the limit you must go to****."* *"But then everyone would have to follow it and then consumers would have to pay for it. I guess all the market and the financial. If everybody said in order to do this, in order to comply with the legislation, then the prices are going to have to go up. But we will still need, as a consumer, we will still need to buy food.* ***My slightly cynical view is that nobody is prepared to make any sacrifices."***

				*"**Well, given that our customers are insisting that we do move to be more sustainable, then in the future it will become more important. Because without having that sustainability and the recyclability of the film, we won't get business.** So, it will be essential in the future. As it stands at the moment, it doesn't have any particular financial implications."* *"And I don't really think the consumer is willing to pay more for sustainability."* "***So, as it stands at the moment, the customers are expecting for us to move to recyclable film without there being any on-cost, which is difficult** and disappointing really, because you would think that, from all of the websites for the various big customers, their sustainability is their number one priority. **But when it comes down to it, a few extra pence and they won't do it.**"*
E	No mention	X	X	***"So, sustainability needs to be almost part of the buying process from our customers, which we don't always see. They may say that it's important, but at the end of the day it comes down to your sort of commercial position."*** ***"There are a lot of targets, I suppose, and we are driven by our customers quite often to move our sourcing in in a particular direction**."* ***"It does come at a cost. A product that has been sustainably sourced or sustainably produced does attract a premium in a cost. So, it's a balance of making sure that cost is recoverable, that the customer's willing to pay for it and that you remain competitive in the market."*** ***"I think it's (the benefit) in terms of your perception as a supplier to the industry**, I think more and more there is focus coming from our retail customers."* *"Maybe for the reasons I just mentioned in terms of meeting our customers' expectations and exceeding our customers' expectations, sustainability is very important. I'd say we're probably sort of seven or eight out of 10."* ***"Sometimes I feel that our customers are premature to the legislation and the demand."*** ***"Our customers also have their own sustainability agendas that they are pushing towards us."*** ***"**I think we were being pushed by one of our customers in specifically and we couldn't provide that product sustainably. **So, they wanted the SG material, but it wasn't available in the market, so we couldn't deliver that at that point."***

Notably, all five participants highlighted financial concerns linked to either customer or consumer acceptance of the increased costs associated with sustainability. Summative Table 3 delineates the topics addressed by each participant during their interviews and provides their comments concerning consumers, customers, and financial considerations.

Internal Stakeholders

Internal stakeholders, including shareholders and employees, played a crucial role in driving sustainability initiatives within the case study company. Their commitment was vital for implementing sustainable practices. For example, Participant E explained: *"So, the customer wanted the SG material, but it wasn't available in the market, so we couldn't deliver that at that point. So, a way of addressing that was then to work together with our suppliers to develop those products to make sure that they are sustainable … So, I think the answer is to not give up. If it's not there readily available, work with your supplier base to develop and achieve what you're trying to achieve on the sustainability agenda."* This exemplifies

stakeholder engagement as defined in stakeholder theory, which emphasizes involving stakeholders positively and collaboratively to create value (Greenwood, 2007).

However, the research indicated that internal stakeholders' decisions were significantly influenced by cost considerations and external pressures. Sustainability was often viewed in the context of profit maximization rather than broader value creation, making it challenging to pursue social and environmental initiatives without clear financial benefits (Schaltegger et al., 2019). Participant C noted: *"Any sustainability issue that this company has faced, that I've been involved in personally, apart from trying to reduce our costs as much as possible, well, no. It's been cost-driven."* Participant D added: *"Basically, we find it difficult to implement anything that's going to cost, because the cost is so important to us to compete in the marketplace."* The findings suggested that while there was an internal acknowledgment of the need for a sustainability plan, actual changes were often driven by external demands from customers and regulatory bodies. Participant A stated: *"The 75% of the board are clear on the fact that we need sustainability plan and strategy in place … We are under pressure by at least 4 of our major customers to have a plan in place over the next 12 months."* Participant B echoed this sentiment: *"When you talk about these things, everybody's on board with it internally, but to drive us to make actual changes to the way we operate, the way we buy, the way we produce, it's more the pressure from outside, partly the government, partly our customers."*

Regarding internal involvement in sustainability initiatives, two participants cited specific examples like Net Zero Reporting, waste reduction, and recyclable packaging. Participant E mentioned an inherent approach to working sustainably, while two others indicated limited or no direct involvement. Participant A noted: *"Sustainability hasn't been a key part to date,"* while Participant B remarked: *"I'm not directly involved but I'm involved in making sure it happens, obviously."* Participant C admitted: *"The only involvement I've got is with the current Net Zero Reporting Initiative. That's the first time that this issue has come up."* Finally, Participant D mentioned his role in sourcing sustainable film and reducing food waste, while Participant E stated: *"I think inherently within a procurement function, we are always looking to source our products most sustainably."*

Suppliers and Logistics Services

Suppliers were evidenced to play a crucial role in the sustainability of bakery products through the provision of raw materials and packaging. Suppliers were referenced by three out of five participants. Collaborative efforts with suppliers were necessary to develop sustainable solutions. Efficient supply chain practices, such as the use of recyclable packaging and sustainably sourced ingredients were reported by Participant E: "*So, a way of addressing that was then to work together with our suppliers to develop those products to make sure that they are sustainable. By the end of this year, having worked together hand in hand with two of our*

suppliers, we've been able to develop those products to have that full SG supply chain. Similarly, on the films where we've had a challenge in developing recyclable films, we've been working together with our suppliers to try and meet the criteria that we need to meet to have fully recyclable films." However, the challenges faced by suppliers to respond to the demand were indicated when the Head of Procurement stated: *"But it is not always as straightforward as that in terms of the availability. Our encapsulated acids as you'll know we've struggled over the last couple of years to meet our targets because the suppliers themselves are not able to offer that product."* Finally, Participant A pointed out the importance of working with suppliers to transition to ingredients produced locally: *"We need to investigate how to bring those from either UK- based suppliers or using agencies that buy in bulk and then bring in from them. So at least we're reducing the amount of transportation that is going from those countries into the UK."*

In addition, the research proved that logistics providers contributed to sustainability through the optimization of supply chain efficiency. Efficient transportation practices, such as maximizing load capacities and reducing emissions, were essential components of a sustainable supply chain within the case study bakery industry. The Head of Logistics and Customer Service noted the importance of logistics in sustainability efforts: *"In terms of the transport side, we try and do what we can to make the transport as efficient as possible. We fight a lot to make sure all the space in the lorries is full up as much as possible."* He also said that effective logistics management can reduce both costs and environmental impacts. Finally, he supported the view that future innovation and cooperation with other stakeholders are essential to driving logistics optimization*: "I honestly think if there is more cooperation between suppliers and customers because all of the supply chains are so broken up if there was a way of sharing facilities more, a simple example is a lorry that comes here to collect 5 pallets and there is another company on this estate, and there is another lorry going there to collect another 5 pallets, but they are going to the same city. If there was somewhere a big computer, platform or AI that enables you to use resources more efficiently."*

Government

Governmental agencies proved to be particularly crucial for driving corporate environmental efforts through both incentives and penalties that influence managerial behaviour, with all five participants agreeing on that. Participant E supported that governmental policies may also present challenges by imposing unattainable requirements or conflicting with business strategies, similar to literature suggestions (Bremmers et al., 2007), but explained that this is the way of driving forward the sustainable transition: "*The main concern is that sometimes the policies and the regulations are coming into effect before the supply chains are prepared for it… Maybe that's the strategy, that you put the policies in place even before the infrastructure is necessarily there to support it, but then that must quickly catch up. So, it is driving it forward, it's giving it momentum more so than if it wasn't in place."* The research

highlighted that the effectiveness of sustainability initiatives is contingent on the presence of robust regulatory support but identified the need for stronger regulatory awareness and government engagement within the bakery industry. Participant A mentioned: "*We need a regulator to come in and provide guidance on what we need to achieve."* Two participants pointed out that the regulatory framework creates a level playing field for all manufacturers. Participants' comments are presented in Table 4.

Table 4. Participants' comments on Regulatory Framework's Necessity and Regulations Referenced (Author, 2024)

Participant ID	Government & Regulators as a Driving Force behind Sustainability	Regulatory Framework as a Level Playing Field	Regulatory Framework Influencing Sustainability in the Bakery Industry	Regulatory Framework suggested to Facilitate the sustainable transition	Researcher's Insights on Future Policymaking and Summary of Regulations Mentioned
A	❖ "*It'd be very difficult for us to set a standard on food in general,* ***we need a regulator to come in and provide guidance on what we need to achieve."***	N/A	❖ "*It's the* ***net carbon footprint*** *in by a certain timeframe."* ❖ *"The palm oil's transition to segregate one, and now the carbon footprint regulation."*	❖ *"I think the main challenge is going to be on the ultra-processed element. So, those ingredients that we use for extended shelf life, softness reduction of mould and dealing with microorganisms within the recipe, those going to be the challenge going forward. Are we allowed to use them, and then, where do we get them from?"*	Future regulations targeting at ultra-processed foods and products high in fat, sugar, and salt (HFSS) suggested to have the potential to reduce the use of certain raw materials, thereby contributing to more sustainable practices. **Regulations referenced:** Net Zero Regulations
B	❖ "***It's fine to have a voluntary program but what really drives action is when legislation happens.*** *I am not a fan of the government interfering in people's businesses by any means, but there are times that is necessary."*	❖ ***"We need government intervention in this area, and here is why.*** *If we were presented with a situation where having a sustainable solution meant a higher price, our retailers might reject it, but if it was legislation they would have no choice, and if we had a sustainable solution, such as sustainable packaging, and*	❖ *"The* ***sustainable palm oil****, the* ***EUDR****, the* ***GHG emissions*** *that the government is looking at and* ***taxing****, which is good."* ❖ *"Recently retailers have come together with the* ***WRAP*** *to standardize the measurement and reporting of* ***GHG emissions*** *in the food and beverage supply chain. There is a retailer* ***Net Zero Collaboration action program*** *which is a partnership between 8 major retailers in the UK, Aldi, Lidl, M&S, Waitrose, Sainsbury, Tesco, Morrisons and Coop."*		**Regulations referenced:** European Union Deforestation Regulation (EUDR), Carbon Emissions Taxing & Reporting **Quasi regulatory mechanisms referenced:** Waste and Resources Program (WRAP), Net Zero Collaboration Action Program, Roundtable on Sustainable Palm Oil (RSPO)

		this was to comply with the legislation the customers would have to buy it and pass the cost to the end consumer. Our competitors couldn't then produce a cheaper option, so our customers would then have to buy from us. ***It puts a level playing field, so everybody is working to the same standards, and that's why it is important.****"*	❖ *"Sustainable palm oil, the annual reporting of GHG emissions, now this EUDR, Regulation on Deforestation Free Products, this is something new that is coming, and we will comply 100% with this."*		
C	❖ *"I don't know what form that would take.* ***But I don't think anything will happen without intervention and regulation by the government."***	*N/A*	❖ *"That we must report yearly what we meet in terms of* ***carbon emissions.****"* ❖ *"Only this external consultant that we have gotten to* ***guide us on net zero but*** *think we're at such an early stage."*	❖ *"It would come down to an* ***emission level*** *per unit or per tonne that we have to meet...until there's some encouragement or like a tax break or tax penalty from the government"*	Setting specific emission levels and regulating food waste presented as critical aspects on fostering sustainability in the bakery industry. Implementing tax penalties or offering tax breaks was recommended as a mean to incentivize sustainable practices. Such measures reported to accelerate the adoption of sustainable practices by making them financially attractive. **Regulations referenced:** Carbon Emissions Reporting, Taxes imposed over usage of unsustainable packaging materials
D	❖ *"It must be the driving force.* ***Otherwise, no part of the food industry is going to become less competitive compared to their competitors***	❖ ***"Regulation is good because it makes it a level playing field for everybody…****all the people bidding for business with the supermarkets, are on the same level…****So, I think***	❖ "I think we must report yearly what we meet in terms of carbon emissions." ❖ *"There are* ***taxes*** *that promote you to be more sustainable. And there's* ***legislation regarding, certainly on the film, as what's recyclable ..."***	❖ "…***but there's more guidance than actual regulatory regarding film recyclability and palm oil."***	Further regulations on film recyclability rather than just guidance needed. Film recyclability and sustainable palm oil usage mentioned to be guided but not regulated.

	***because they just lose business**."*	***regulation is the only way forward that is going to control things and make everybody to be more sustainable**."*	❖ *"The film is controlled, and what's recyclable is controlled by **OPRL**, which is not a regulation, it's more guidance. On the palm oil, we do use sustainable palm oil, but it's controlled by **RSPO**, but it's a guidance."*		**Regulations referenced:** Carbon Emissions Reporting, Taxes for unsustainable packaging materials **Quasi regulatory mechanisms referenced:** RSPO, On Pack Recycling Label (OPRL) on film recyclability
E	❖ ***"I think they are pushing and challenging the whole supply chains to become more sustainable. The main concern is that sometimes the policies and the regulations are coming into effect before the supply chains are really prepared for it… Maybe that's the strategy, that you put the policies in place even before the infrastructure is necessarily there to support it, but then that must quickly catch up. So, it's driving it forward, it's giving it momentum more so than if it wasn't in place."***	*N/A*	❖ *"I mentioned earlier the **EUDR,** which is coming into effect on the 30th of December this year and which will impact the oil supply. Because of the new legislation that's coming in, all the regulations that are coming in for palm, will have a knock-on effect to the wider supply chains for all the other oils because they're all interlinked. So, we'll expect to see a much wider impact in other oils such as rapid seed."* ❖ *"Also, there is regulation coming for on pack labelling, where you need to display the products' recyclability on pack and that's in place, I think by 2026**. We can put that icon on the label anytime. But the fact that we can't source materials that are fully sustainable could have a negative impact on our products**."*	*"**Waste** is probably a good one because I don't believe there's any sort of regulation around how much waste a producer can produce."* *"I mean, another consideration, particularly as we're going into our sort of CO2 foot printing, is where we're sourcing materials from."*	Waste legislation recommended as an example to compel the industry to adopt practices that minimize environmental impact. **Regulations referenced:** EUDR, Pack labelling, and Waste Regulations

Food Associations, NGOs & Competitors

Little mention was given to food associations and NGOs solely by Participant A stating: "*So, I think there is a lack of clear direction from our customers and government, NGOs or food associations to the manufacturers."* This revealed that NGOs are perceived as facilitators in shaping corporate policies and practices, especially in sustainability and environmental responsibility. As stakeholder theory suggests NGOs are seen as external stakeholders who influence corporate behaviour through their advocacy for social and environmental causes (Sisaye, 2021).

Finally, the competitor's role was mentioned by four participants and was strongly interconnected to the company's competitive positioning in the market when it comes to price compared to competitors. Participant E words suggested that sustainability can be twofold: it can be a competitive edge but also a barrier to maintaining competitive prices against competitors: *"I think, sustainability is a competitive edge against other people that may not be complying or doing the same… Cost does play a part, in terms of making sure that you can remain competitive against your competitors, if you're doing all the right things and paying the premiums for all your materials, for instance, or your logistics companies or whatever and somebody else isn't…as an industry, it's quite difficult sometimes to be as sustainable as you might like to, whether it's because of the materials that you're using, where they need to come from in terms of geography, but also competitiveness within the industry as well... So, it's a balance of making sure that cost is recoverable, that the customer's willing to pay for it and that you remain competitive in the market. It's a very sort of cutthroat, high competition." Participant C highlighted that competition exists for the retailers as well: "So, you know, the customer going to Tesco, if there's competition between Tesco and Sainsbury, that could be part of the competition, couldn't it?"* In addition, Participant D remarked on competitive balance when he explained the role of legislation: *"Otherwise, no part of the food industry is going to become less competitive compared to their competitors because they just lose business."* Participant B raised the same point: *"Our competitors couldn't then produce a cheaper option, so our customers would then have to buy from us. It puts a level playing field, so everybody is working to the same standards, and that's why it is important."*

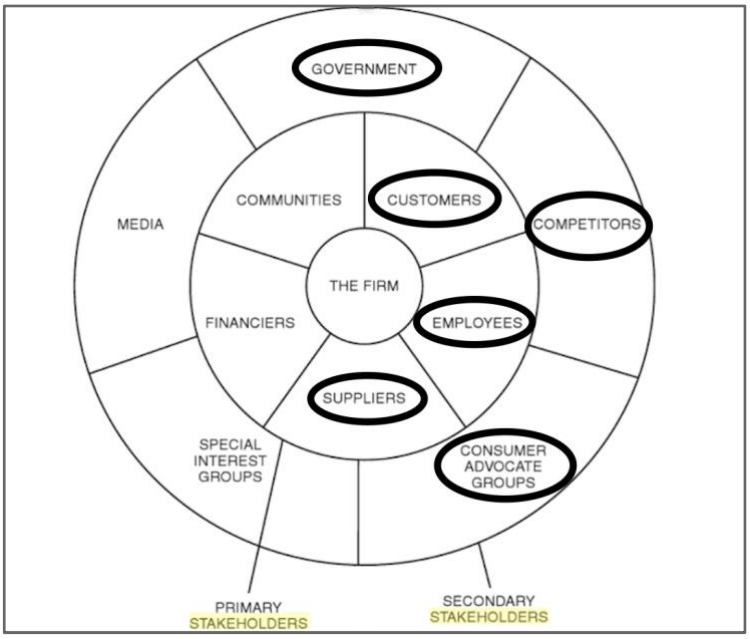

Figure 8. Adapted Freeman's Stakeholder Diagram Highlighting. Research-Referenced Stakeholders circled (Freeman et al., 2007)

The study diverged from Freeman et al.'s (2007) stakeholder salience by emphasizing the government, the firm's customers, internal stakeholders, suppliers, competitors, and

consumer advocate groups, particularly in the context of sustainability transitions (Figure 8). In contrast, significant groups identified by Freeman—such as communities, financiers, media, and special interest groups—were not mentioned, highlighting a difference in stakeholder prioritization.

4.2 Influence of Stakeholders on Sustainability

The study highlighted that stakeholder influence on sustainability in the bakery sector is both intricate and multidimensional. It requires a strategic balance between sustainability costs, competitive advantage, market expectations, and regulatory demands. This section delves into the economic factors shaping stakeholders' sustainability decisions, while also examining the legitimacy, power, and urgency dynamics identified in the case study.

4.2.1 Economic Aspect

A key issue emerging from the research is the interplay between economic considerations and sustainability within the bakery industry, and how costs influence stakeholders' sustainability decisions. The conventional "business case for sustainability" approach appeared to be present in this fieldwork, with a focus on economic value creation, where societal and environmental activities are primarily pursued to enhance financial performance (Carroll & Shabana, 2010). Two participants underscored the challenges of implementing sustainability due to its adverse economic impacts. Participant C questioned the feasibility of sustainability efforts, stating: *"I mean, how could we be more sustainable where it increases our cost?"* Participant C further emphasized the strong influence of economic factors on decision-making within the company, noting: *"If it's an issue for the economy and the country, then it's an issue for us."* They also admitted that the initiatives they have been involved in are primarily driven by cost considerations: *"Apart from trying to reduce our costs as much as possible, well, no. It's been cost-driven."* This fieldwork revealed that sustainability was closely aligned with profit maximization rather than broader value creation, making it difficult for stakeholders to conceptualize and implement social and environmental initiatives without clear financial incentives (Schaltegger et al., 2019). Participant D encapsulated this sentiment, stating: *"Basically, we find it difficult to implement anything that's going to cost because the cost is so important to us to compete in the marketplace."*

Sustainability Costs

All participants concurred, with several elaborating on how cost influences the initiation and implementation of the company's sustainability initiatives. Participant C remarked: *"Cost plays a role because transitioning is costing us,"* while Participant D provided a concrete example of cost's impact on sustainability efforts: *"Various big customers such as Tesco and Sainsbury's, you would think that their sustainability is their number one priority, but when it comes down to it, a few extra pence and they won't do it… It's like I said, nobody's prepared*

to make any sacrifices for sustainability. They talk a lot about it, but if the price is higher…."
All participants recognized that implementing sustainable practices in the bakery industry often leads to higher costs, creating a conflict with the price reductions that customers and consumers demand. However, only Participants B and C acknowledged a positive correlation between adopting sustainability measures and reducing the company's operational costs. To illustrate these points, the participants' comments are presented in Table 5.

Table 5. Participants' insights about Sustainability Cost

Participant ID	Negative Relation between Sustainability & Cost	Positive Relation between Sustainability & Cost	Researcher's Comments
A	*"The more sustainable you need to be, there seems to be an on cost by doing that. Obviously, that creates issues with your customers who on one hand they want you to be more sustainable, but they also want a cheaper price. They want a cheap price, but products with a longer shelf life, they want "cleaner" recipes, but they want us to be more sustainable, all these go against to each other."*	N/A	Balancing sustainable production and cheap pricing is a challenge for manufacturers.
B	*"One, the film is more expensive, and two we'd have to slow the lines down to make sure that we get the film properly sealed."*	*"In some instances, there's a compromise and in others, there are benefits. For example, if we reduced the size of a pack, and saved on the plastic that we're packing, or deliver in full truckloads, that's a cost saving, and environmentally friendly. Becoming more efficient over the years, has worked in our favour increasing out output and bringing down the CO2 emitted per product produced."*	There is a clear relationship between the use of recyclable film and higher prices. Reducing plastic usage and delivering in full truckloads have not only generated cost savings but also increased output and significantly reduced the company's CO2 emissions.
C	*"Cost plays a role because transitioning is costing us. But we haven't really got to that stage yet, have we? So, it's hard to answer that because we're not actually transitioning in my area too. It's always going to play a role. Until the benefits outweigh the cost."*	*"The other benefit comes through cost, because, you know, carbon and energy costs money … And that also means the cost is lower because we save money by filling the pallets and filling the lorries, and we save emissions. Lower emissions and then a better cost."*	Sustainable transition is costing to the company. Efficient transportation and use of sustainable energy resources can reduce the operational cost.
D	*"For example, we have this tortilla that we could move to recyclable film now. But a lot of the customers won't move to it because it's an on-cost. So, as it stands at the moment, the customers are expecting for us to move to recyclable film without there being any on-cost, which is difficult."*	N/A	Recyclable films come with an on-cost that customers do not accept.
E	"*It does have an impact, you know, to be more sustainable does have a cost attributed to it… A product that has been sustainably sourced or sustainably produced does attract a premium in a cost."*	N/A	Sustainable products attract a premium in the cost.

Challenging balance

The research highlighted that the expectation from retailers and consumers for low-cost sustainable products, while maintaining market competitiveness, poses a significant challenge for the industry. Retailers' and consumers' reluctance to absorb the costs of sustainability significantly impacts market dynamics and decision-making. This tension is evident in the contradictory demands for cost reduction and sustainability, with consumers unwilling to pay a premium for sustainable goods. Participant D noted: *"Nobody objects to sustainability until it comes to cost."* Participant B added: *"If you want this, this is the new cost, but then they say, we can't afford it, or our customers won't."* Participant A emphasized the complexity: *"That creates issues with your customers who on one hand want you to be more sustainable, but they also want a cheaper price."* Participant E stressed the need for balance: *"From a sustainability perspective, it'll be on top of customers' agenda, but from maybe a commercial perspective, it's not always on the top. So, it's trying to sort of find the middle ground that we're doing enough, but we're not creating more cost, they're not willing to pay for and therefore making you uncompetitive…It's sort of balancing what is that cost and what potential value can that add on our positioning as a business and showing that we are proactively trying to do the best thing for sustainability."* This insight aligns with Friedman's viewpoint (1962), which states that the purpose of business is to *"use its resources and engage in activities designed to increase profits as long as it stays within the rules of the game,"* asserting that maximizing profits is key to business success. Participant B also noted customer reluctance to pay extra for sustainability: *"It's so difficult and nobody wants to pay for it. Even the end consumer…but others might like the idea, but when it comes to taking money out of your pocket? It's a different thing."* While theory suggests that conflicting views among stakeholders can foster collaboration and environmental innovation (Loorbach et al., 2010), this case study showed that a lack of collaboration among industry players and customers complicates the balance between competitiveness and sustainability.

Internal stakeholders expressed difficulty in navigating the balance between implementing sustainability and remaining economically viable. Participant C articulated this challenge: *"We find it difficult to implement anything that's going to cost because the cost is so important to us to compete in the marketplace."* The potential competitive advantage from sustainability also influenced decision-making. As Participant E noted: *"But again, it's sort of balancing what is that cost, and what potential value can that add on our positioning as a business and showing that we are proactively trying to do the best thing for sustainability…It's a need to do (sustainability) for us to maintain our position in the market as a market leader, a large bakery company in the UK supplying all the UK retailers... which will then put us in a positive position… it gives you a competitive edge against other people that may not be complying or doing the same."*

4.4.2 Legitimacy, Power, and Urgency Aspects in the Research (Mitchel, Agle, and Wood Framework)

As Mitchell et al. (1997) argue the definitive stakeholder status is determined by the simultaneous presence of three factors, legitimacy, power and urgency.

Legitimacy and Moral Angle

The legitimacy perspective, which requires company management to align with societal or institutional values, was shown to propel stakeholders in the case study bakery industry toward sustainable transitions. Primary stakeholders, such as customers and consumers, demonstrated a direct relationship with the company and wielded substantial influence over its sustainability decisions. Participants B, C, and D, referred to meeting customer and consumer demands for sustainable business practices, which ties into the legitimacy concept. They seemed to stress the need for responsible, environmentally conscious behaviour to avoid negative repercussions from stakeholders. Participant B emphasized the importance of meeting socially accepted and expected behaviours, noting: *"But if we don't do it, it will be negative because people will point the finger at us… being responsible, caring for the environment, and having a sustainable business model are important for our customers. Because if we didn't care, people would stop buying from us."* Similarly, Participant C underscored customers' expectations for sustainability by stating: *"If we don't have happy customers, then we don't have a business. The larger the company, the more it is expected of it."* Participant D also reinforced this by adding: *"It's essential that we move to it because of our customer and consumer requirements."*

The moral power of sustainable transition was evident in the transition regarding plastic waste, notably driven by ethical motivations. Participant C reflected on the environmental impact, commenting: *"I imagine it's from some sort of waste sorting depot, and they're taken to developing world or third world countries and dumped and burnt. And the reporter happened to pick up a food wrapper that was a Tesco garlic and coriander naan. As someone personally who cares about the environment, that is something that concerns me."* Participant B also acknowledged the moral responsibility by stating: *"It's a duty to become sustainable when you think what humans have done to the planet, it's just shocking. We are heading to a cliff edge."*

The moral obligation to respond to customer and consumer behaviour and to exceed their expectations was shown to drive the sustainable transition in this case study, while also being closely tied to economic benefits for the business. The concept of the "value bundle", as mentioned in the literature, which integrates economic, social, and environmental aspects, seemed to be present in four interviews. Participants supported the idea that surpassing customer expectations in terms of sustainability is both a crucial and anticipated behaviour for the company's financial success and market positioning. Inner-ring stakeholders were

found to have immediate and tangible stakes in the company's success through product satisfaction (Freeman et al., 2007). Participant E remarked: *"I think we must be seen to be doing whatever we can to drive that agenda forward to meet not only their targets but to exceed their expectations."* Participant B reiterated: *"Being responsible, caring for the environment, and having a sustainable business model is important for our customers. Because if we didn't care, people would stop buying from us." Participant C concurred, stating: "The market and the consumers are looking for more sustainable suppliers… So, if we don't become more sustainable and show our credentials, then potentially we'll lose on business… Our customers sell to consumers, and the consumers, apparently, want to know how sustainable the businesses are that they're buying from."* Finally, Participant A stressed: *"So, if we don't become more sustainable and show our credentials, then potentially we'll lose on business."*

Urgency

The urgency factor emerged prominently in the research, with all five participants emphasizing the heightened demand for sustainability attention from their customers and consumers. This urgency significantly elevated the priority assigned to these stakeholders. Table 6 captures the participants' insights on the external pressures, especially those exerted by customers, and as noted by Participant B, the government.

Table 6. Participants' Comments on Sustainability Urgency

Participant ID	***Urgency related comments***
A	*"We are under pressure by at least 4 of our major customers to have a plan in place over the course of the next 12 months."*
B	"It's more the pressure from outside, partly the government, partly our customers."
C	*"I hear about customers asking about our sustainability credentials. It's a commercial issue."*
D	*"Our customers are very much pushing towards for this...given that our customers are insisting that we do move to be more sustainable, then in the future it will become more important."*
E	*"I think more and more there is focus coming from our retail customers… our customers also have their own sustainability agendas that they are pushing towards us."*

Power

The power attribute of stakeholder salience, defined by the ability to control resources, appeared to be fluid in this case study. Internal stakeholders possessed considerable power and a willingness to transition toward sustainable practices, such as in the case of sustainable palm oil. However, without a commitment from customers and consumers to pay for or demand sustainable options, and without intervention or mandates from government regulators, the power of internal stakeholders seemed to be limited. This dynamic is clearly articulated by Participant B: *"When you talk about these things, everybody's on board with it internally, but to drive us to make actual changes to the way we operate, the way we buy, the*

way we produce, it's more the pressure from outside, partly the government, partly our customers."

All participants acknowledged that external power and pressure are pivotal in driving change, as evidenced in Table 6. Participant E reinforced the influence and power of customers, stating: *"There are a lot of targets, I suppose, and we are driven by our customers quite often to move our sourcing in a particular direction."* Participant E further noted that customers' demands for sustainable change can elevate the importance of sustainability: "*Well, given that our customers are insisting that we do move to be more sustainable, then in the future it will become more important."*

Likewise, the influence of governmental power was universally acknowledged by participants, who concurred that policies and regulations can be a pivotal force in advancing sustainability efforts. Participants' remarks on governmental power, presented in Table 7, underscore the critical role of cross-stakeholder engagement and collaboration, which includes consultation, communication, dialogue, and exchange (Greenwood, 2007).

Table 7. Participants' Comments Regarding Governmental Power Towards Sustainability Transition

Participant ID	***Governmental Power (through policymaking) related comments***
A	*"We need a regulator to come in and provide guidance on what we need to achieve."*
B	*"It's fine to have a voluntary program but what really drives action is when legislation happens."*
C	*"I don't think anything will happen without intervention and regulation by the government."*
D	*"I think regulation is the only way forward that is going to control things and make everybody to be more sustainable."*
E	*"I think without the legislations and the policies it would be a slower journey in my view. I think without it is hard, even when is the right time or if it's not. Maybe that's the strategy, that you put the policies in place even before the infrastructure is necessarily there to support it, but then that must quickly catch up. So, it's driving it forward, it's giving it momentum more so than if it wasn't in place."*

4.3 Regulatory Framework

This section presents the findings related to the research question: "How does the regulatory framework influence sustainability options in the baking industry?" Two main aspects are discussed: the role of legislation in guiding the sustainability transition—serving as a catalyst for action, ensuring a level playing field, and influencing the speed of implementation—and the regulatory and quasi-regulatory frameworks referenced by participants during the interviews.

4.3.1 Role of Legislation

Guidance for Transition

The research highlighted that the regulatory framework provided clear directives, playing a crucial role in driving sustainable transitions within the bakery industry case study (see Table 4). A key example of this shift is the industry's move toward using segregated palm oil, where the presence of explicit guidance led to swift and decisive action. This highlights the importance of having well-defined guidelines. As Participant A remarked: *"Moving to segregated palm oil, we had guidance, and we acted on that."*

However, while the literature outlines various regulatory frameworks, the research revealed that stronger guidance, communication, and awareness are needed to implement sustainability effectively in practice. Participant A echoed this, stating: *"It'd be very difficult for us to set a standard on food in general, we need a regulator to come in and provide guidance on what we need to achieve."* When asked about sustainability regulations within the industry, Participant C only referenced their net-zero journey, as the sole area where they have received guidance, and acknowledge being in the early stages, suggesting that more comprehensive regulatory frameworks are necessary to guide the way forward: *"Only the external consultant that we have gotten to guide us on net zero but think we're at such an early stage."*

Driver for Action

Legislation emerged as the primary catalyst for sustainable actions, surpassing the impact of voluntary programs. In addition to the insights provided in Table 7, which emphasize the critical role of the regulatory framework in sustainable transitions, Participant D remarked, *"The government is introducing big taxes and costs to companies to encourage them to move to be more sustainable."* The findings demonstrated that these regulations could impact pricing and profitability, thus prompting substantial and far-reaching changes within the industry. However, they do not dictate specific actions companies must take to become sustainable. The research underscored the importance of regulations not only in shaping economic outcomes but also in offering guidance and conferring legitimacy.

Creating a Level Playing Field

The legislation was noted by two participants for its potential to create a level playing field for all manufacturers, ensuring that the implementation of sustainable practices does not lead to competitive disadvantages. Participant B underscored this benefit, stating, "It puts a level playing field, so everybody is working to the same standards." Participant D agreed, emphasizing that regulation is crucial for ensuring uniform adherence to sustainable practices across the industry, without compromising competitive fairness: *"Regulation is good because it makes it a level playing field for everybody…all the people bidding for business with the*

supermarkets, are on the same level…So, I think regulation is the only way forward that is going to control things and make everybody to be more sustainable."

Rapid Policy Implementation

The research uncovered concerns about policies occasionally being introduced before the supply chain is fully prepared. However, Participant E proposed that the premature implementation of policies might be a deliberate strategy to generate momentum for sustainability. They observed: *"Maybe that's the strategy, that you put the policies in place even before the infrastructure is necessarily there to support it, but then that must quickly catch up. So, it's driving it forward, it's giving it momentum more so than if it wasn't in place."* However, a crucial aspect that remained addressed is how to enhance sustainability through legislation when the fieldwork revealed a lack of guidance and communication.

4.3.2 Regulatory and Quasi-Regulatory Framework

Regulatory guidelines and legislation were found to be crucial in driving sustainability transitions in the present fieldwork. Clear and enforced regulations supported to be a determining factor for the case study company to implement sustainable practices. Participant E emphasized the importance of the regulatory framework in accelerating sustainability efforts: *"I think without the legislations and the policies it would be a slower journey."*

The regulatory frameworks provided crucial incentives and guidance for the company to implement sustainable practices. This included compliance with RSPO palm oil standards, participation in the net-zero initiative, waste reduction efforts, and the adoption of recyclable packaging materials. Government-imposed taxes were identified as motivating factors for driving these changes. Additionally, two upcoming regulations—the EUDR and packaging labelling requirements for recyclability—were highlighted as future influences on the company's sustainability decisions.

Future regulations targeting ultra-processed foods and products high in fat, sugar, and salt (HFSS) were suggested to further reduce the use of certain raw materials, promoting more sustainable practices. These regulations may offer specific guidelines on acceptable ingredients and sustainable sourcing methods. Participant A emphasized that regulations around ingredient usability and sourcing could provide clearer direction for sustainability and raw materials. They noted, *"So, those ingredients that we use for extended shelf life, softness reduction of mould and dealing with microorganisms within the recipe, those going to be the challenge going forward. Are we allowed to use them, and then, where do we get them from?"* Such regulations could significantly shape the industry's sustainability strategies by establishing clear boundaries and expectations. Detailed comments from participants regarding the regulatory framework are included in Table 4.

The research demonstrated that the government holds legitimacy through its ability to influence regulatory environments. This emphasizes the critical need for corporate practices to align with broader societal and environmental objectives, reinforcing the call for comprehensive regulatory frameworks. However, regulations often precede the necessary infrastructure or suffer from poor communication regarding their implementation in the industry. As a result, third-party certifications, though voluntary, act as a substitute for full regulation, offering guidance on which areas require improvement.

4.4 Encouraging Sustainability in the Baking Industry

The examination of sustainability challenges within the bakery industry highlights a complex interplay of economic, technological, and operational factors. To address these issues and advance towards a more sustainable future, a comprehensive and multifaceted strategy is essential. This chapter outlines the sustainability challenges identified during the fieldwork and offers advanced recommendations to steer the bakery industry towards improved sustainability. It specifically addresses the third research question: “What does this analysis suggest that needs to happen to encourage greater sustainability in the bakery industry?”

4.4.1 Sustainability Challenges Identified

This section outlines the key challenges encountered in the sustainability transition journey within the case study bakery industry. Table 8 provides a comprehensive overview of these challenges, highlighting the difficulties faced by industry participants in implementing sustainable practices. The table presents detailed comments from participants, shedding light on specific obstacles such as extending shelf life but being sustainable, supply consistency, and the costs associated with sustainable materials. It also addresses broader issues including carbon emissions, plastic waste, and the need for technological advancements. Each challenge is supported by participants’ insights, illustrating the complexity and multifaceted nature of achieving sustainability in this sector.

Challenges on Sustainability Transition Journey Referenced	Comments
1. Extending Shelf life	Shelf-Life extension of bakery products increased the cost and consumption of raw materials, and plastic packaging. Ingredients that prolong shelf life often come from distant sources, contributing to a higher carbon footprint. Participant A noted: *"Ingredients used in ultra-processed foods come from further afield, increasing our footprint."* Furthermore, recyclable films currently available were less effective compared to non-recyclable ones, as Participant D mentioned, *"Recyclable films are not as effective as non-recyclable ones in terms of shelf life and usability."*
2. Supply Consistency & Availability	Local sourcing of ingredients is often inconsistent due to the variability of the British weather and other availability challenges. Participant A highlighted, *"Using British flour is impractical due to weather,"* while Participant E said *"Suppliers*

	struggle to meet targets, impacting availability… So, they (customer) wanted the SG material, but it wasn't available in the market, so we couldn't deliver that at that point." This inconsistency and unavailability complicate efforts to source materials sustainably and reliably.
3. Cost of Sustainable Materials	Sustainable raw materials sourced locally are typically more expensive than cheaper imports from regions like China. Participant A observed, *"Ingredients from the Far East are cheaper, raising cost questions,"* and Participant B noted, *"Recyclable film is more expensive and slows production."* The higher cost of sustainable materials poses a significant barrier to widespread adoption.
4. Carbon Emissions	The bakery industry relies heavily on energy, particularly gas, for baking, which contributes to high carbon emissions. Participant A stated, *"Gas and energy usage are major issues,"* and Participant B emphasized, *"Carbon emissions and footprint are critical concerns…Baking requires energy, and where is energy there are carbon emissions. That's the biggest challenge.* The industry's energy-intensive nature makes reducing emissions a significant challenge."
5. Customer Costs	Customers are often reluctant to pay the higher prices associated with sustainable products. Participant B pointed out, *"Customers hesitate when costs increase,"* and Participant C added, *"Economic constraints impact customer choices."* This reluctance to pay more for sustainability hinders progress.
6. Operational Costs and Focus	High costs and lack of focus on sustainability hinder the industry's transition efforts. Participant C remarked, *"Cost and focus are major obstacles,"* and Participant E mentioned, *"Balancing cost and sustainability is challenging." Participant D agreed: "Obviously cost is one obstacle. The obstacles on why we are not fully sustainable is the cost as we said already. And the focus as well which I suppose comes from the cost."* The industry needs to find a way to prioritize sustainability without compromising financial stability.
7. Plastic Waste & Packaging solutions	Non-recyclable plastic waste remains a significant issue. Participant C commented, *"Well, one of the issues is with plastics waste, plastic that can't be recycled…Plastic waste often ends up in developing countries, where it is improperly disposed of."* Finding alternatives to reduce plastic waste is essential for sustainability. In addition, practical difficulties in using sustainable packaging like plastic trays instead of cardboard boxes persist. Participant D mentioned: *"The biggest problem I have on the film is that the recyclable films are not as good as the non-recyclable films". He also completed: "Plastic trays proved impractical, leading a return to cardboard boxes." Finally, Participant E stated: "It's a continuous battle to try and find materials that work in our process that provide us with the protection for the product that we need. Some suppliers move to loose packaging or have just paper bags, remove plastics, whereas with a bakery product, you're not able to do that."*
8. Efficiency and Waste Reduction	Large-scale production and fast line speeds made waste reduction difficult. Participant B noted, *"High-speed production generates significant food waste."* Improving efficiency without compromising production speed is crucial.
9. Charitable Donations	Donating perishable products to charities incurred high transportation costs. Participant B highlighted: *"Transporting donations to charities is costly due to the perishability of products."* Finding cost-effective ways to donate surplus products is necessary.
10. Technological and Infrastructure Challenges	The lack of advanced technology and infrastructure limited sustainable transitions. Participant C mentioned: *"Electric lorries and green energy technologies are not fully developed or available,"* and Participant E added: *"Supply chain infrastructure may not be ready to meet new directives."* Investing in technology and infrastructure is vital. He also added: *"The source of the energy that we use for baking and transport, that's all fossil fuels, the barrier is the technology, there is no electric lorries, there is green biodiesel but there is not enough, someone was telling me about it that if we wanted to buy it that wouldn't be enough, and the question is how good is biodiesel for the environment when*

	you have to chop down rainforests to make it, so I think is all about the fossil fuels that we have to use."
11. Qualified Personnel	Limited availability of trained personnel in the bakery industry leaded to inefficiencies and waste. Consistent and efficient production requires better planning, fewer breakdowns, and more trained staff.
12. Logistics Data	Insufficient data from logistics companies hampered sustainability efforts. Participant C noted: *"Logistics companies lack detailed emissions data."* Improved data collection and transparency are required.
13. Government Interests & Price Sensitivity	Government actions that lead to increased food prices reported to be politically sensitive and hinder the implementation of stringent sustainability regulations. Participant D pointed out: *"If they do something and it increases the price of food, it's not a popular move, is it?"* This highlighted the delicate balance regulators must strike between enforcing sustainability and maintaining public approval.
14. Lack of clear Direction & Guidance	A notable lack of clear direction from customers, government, and food associations to manufacturers was remarked in the research. Participant A noted: *"there is a lack of clear direction from our customers and from government or food associations to the manufacturers."* Participant A expressed: *"we need a regulator to come in and provide guidance on what we need to achieve."* Participant C also noted that the industry is still at an early stage in its sustainability journey, suggesting that more comprehensive regulatory frameworks are necessary to guide the way forward. Finally, Participant A noted a conflict between extending shelf life to reduce waste and adhering to regulations against ultra-processed and HFSS products. This highlighted the need for coherent regulatory strategies that balance different sustainability goals. Without a unified approach, efforts to achieve one sustainability target may inadvertently hinder progress in another area.
15. Shared Facilities	While sharing facilities can be beneficial for shortening supply chains, it suggested to pose reputational and confidentiality challenges. Participant C commented: *"Shared warehousing faces resistance due to business concerns."*
16. Priority Dilemmas	Balancing the use of food crops for biodiesel production with addressing hunger and starvation presents a dilemma. Participant E questioned, *"Which should take priority: sustainability or food security?"*
17. Readiness for Sustainability	The industry reported to not be fully prepared to meet new sustainability directives. Participant E expressed concerns: *"Supply chain infrastructure may not be ready to meet new directives."*

Table 8.Challenges to sustainability transition in the bakery industry discovered.

4.4.2 Research Recommendations

To effectively advance sustainability in the bakery industry, a holistic and integrated approach is essential. This involves implementing comprehensive regulatory frameworks, investing in cutting-edge sustainable technologies, and enhancing supply chain resilience. Additionally, promoting workforce development, increasing consumer awareness, and fostering industry collaboration are crucial steps. Optimizing logistics and balancing economic viability also play significant roles. The following table summarizes the research's key recommendations for advancing sustainability in the bakery industry, along with brief explanations for each point. This roadmap offers industry stakeholders clear strategies to drive meaningful and lasting change towards a more sustainable future.

Table 9. Key Recommendations for Advancing Sustainability in the Bakery Industry

Recommendation	Explanation
Develop Comprehensive Regulatory Frameworks	Establish clear, enforceable sustainability standards covering emissions, waste management, sourcing, and packaging. Include incentives and penalties to encourage compliance.
Invest in Sustainable Technology	Support advancements in green technologies like electric ovens and renewable energy. Encourage R&D and provide financial support for adopting sustainable tech.
Enhance Supply Chain Resilience	Diversify sourcing strategies and invest in sustainable agriculture to ensure consistent availability of raw materials. When local sourcing is impractical, as noted by Participant A: "*Simply turning around and saying we're going to be more sustainable by using British flour, it just won't happen because of the great British weathe,"* international suppliers should adhere to strict sustainability standards. Implement traceability for ethical sourcing.
Promote Workforce Development and Training	Provide training programs on cover sustainable production techniques, waste reduction strategies, and efficient resource management. Foster a culture of sustainability and partner with educational institutions for specialized courses.
Enhance Consumer Awareness and Engagement	Increase consumer knowledge about sustainability impacts through educational campaigns highlighting the benefits of sustainable bakery products. Ensure transparency in product labelling and offer incentives for sustainable choices.
Foster Industry Collaboration and Innovation	Encourage sharing of best practices and collaborative R&D to develop new sustainable solutions such as new sustainable ingredients, packaging materials, and production methods. Use industry forums to exchange knowledge and resources.
Optimize Logistics and Transportation	Implement route optimization and invest in efficient logistics solutions like electric vehicles. Ensure data transparency for accurate emissions reporting and improvements.
Balance Economic Viability and Sustainability	Develop strategies that highlight the long-term economic benefits of sustainability, such as cost savings from energy efficiency. Align stakeholder goals with sustainability objectives.

5. Limitations & Future Research Recommendations

Recognizing and addressing the study's limitations is crucial for advancing scholarly discourse and ensuring that research findings are rigorous. This micro-level case study centred on a single small-to-medium enterprise (SME) and based on data from five interviewees, presented inherent constraints. While the study offered in-depth insights into the dynamics of the selected SME, these findings are restricted by the limited scope, which was focused on just one organization and a relatively small sample of elite participants. These limitations underscored the necessity for further, more expansive research to achieve a broader and more representative understanding of the phenomena under investigation.

5.1 Limited Scope Due to Single SME Focus

A key limitation of this micro-level case study was its exclusive focus on a single SME, which restricted the pool of elite interviewees available for participation. While this concentrated approach facilitated a deep dive into the organization, it also limited the ability to generalize the findings to other SMEs within the industry. The decision to focus on a single entity limited the range of perspectives and practices explored, thereby constraining the overall understanding of stakeholder dynamics and sustainability transitions within the broader sector. Additionally, the fact that the SME is also the researcher's employer introduced concerns regarding bias and its potential impact on the objectivity of the findings. Nonetheless, efforts were taken to mitigate bias by encouraging participants to provide precise and candid responses and through the inclusion of conceptual insights from an external expert.

To enhance the robustness and applicability of future research, expanding the scope to include multiple SMEs would be advantageous. This broader sample would not only diversify the range of practices and challenges explored but also allow for more nuanced and generalizable conclusions. Including multiple organizations could reveal critical variations in strategies and approaches, which a single-case study might overlook. Comparative analysis across SMEs would provide richer insights into common patterns and sector-specific differences, ultimately contributing to a more comprehensive understanding of sustainability transitions in the industry.

5.2 Restricted Availability of Elite Interviewees

A significant limitation of this study lay in the limited number of elite interviewees, whose expertise and authority are invaluable for nuanced insight into complex organizational dynamics. Due to their scarcity, the scope of the gathered data may lack comprehensive depth, thus potentially excluding diverse expert perspectives crucial for a more balanced and thorough analysis.

Including interviewees from comparable roles in other SMEs would have introduced a broader array of perspectives, enriching the findings with varied approaches, strategies, and challenges. Such a comparative analysis could also shed light on common industry trends and context-specific solutions, offering a more robust and multidimensional understanding of the subject matter. Therefore, future research should aim to engage a wider pool of elite participants across multiple organizations to enhance the depth and richness of the insights.

6. Discussion

The key findings of this study present compelling insights that challenge established stakeholder frameworks and offer a refined understanding of sustainability transitions within the bakery industry. First, the departure from traditional stakeholder theory suggests that, while Freeman et al.'s (2007) model encompasses a broad spectrum of stakeholders, the fieldwork identified a marked prioritization of customers, consumers, and government bodies, diminishing the relative influence of groups such as NGOs and the media. Second, the research highlights a critical distinction between customers and consumers, demonstrating that both play central roles in steering sustainability transitions through their decision-making processes. However, a significant challenge emerged: the reluctance of both groups to bear the additional costs linked to sustainability initiatives. This resistance complicates the implementation of sustainability measures for internal stakeholders, who must balance environmental goals with the imperative to meet customer and consumer expectations and remain competitive in the market. Third, the findings draw attention to the limited agency of stakeholders. Despite a strong internal commitment to sustainability, the practical execution of sustainable practices remains slow, largely driven by external pressures, particularly government regulation and market forces. Fourth, the research confirms that financial imperatives are the dominant drivers of sustainability transitions, with economic considerations often outweighing environmental and ethical priorities. Finally, the study underscores that the life cycle approach to sustainability requires robust legislative and quasi-regulatory frameworks. Clear, accessible, and enforceable guidelines are essential to enabling meaningful progress in the industry's sustainability efforts. These pivotal findings will be examined in detail in the subsequent sections.

6.1 Divergence from Stakeholder Theory

Freeman et al. (2007) present a robust framework for stakeholder salience that spans a diverse array of stakeholder groups (Figure 1). However, the findings from this fieldwork within a single SME in the bakery industry reveal a notable divergence from this theoretical model. While the fieldwork closely adhered to the principles of the stakeholder framework, it exposed a significant departure in how secondary stakeholders are addressed. The case study highlighted a distinct prioritization of several primary and secondary stakeholders—specifically customers, employees, suppliers, competitors, and government bodies—who play a direct and pivotal role in the company’s operations. Conversely, other stakeholder groups, including local communities, media, and special interest groups, were given considerably less attention. The following sections will delve into a comprehensive analysis of this discrepancy between the fieldwork observations and the established stakeholder salience theory.

Why Customers and Consumers Matter

The pronounced emphasis on customers—particularly retailers—and consumers reflects not only their crucial role in driving and endorsing sustainability transitions but also their decisive influence on absorbing the associated costs. This prioritization can likely be attributed to the unique characteristics of the research sample, where internal stakeholders linked cost considerations closely with sustainability initiatives, thereby elevating the significance of the "buyers", represented by customers and consumers. As a result, discussions around sustainability initiatives were dominated by the themes of sales performance and competitive positioning, underscoring the overarching influence of economic factors in decision-making.

However, Van Doorn et al. (2010) stress the importance of holistic customer management, arguing that while transactional elements of customer relationships are essential for generating immediate cash flows, ignoring non-transactional behaviours can result in missed opportunities. Practitioners in this case study acknowledged the value of transactional and non-transactional behaviours—such as word-of-mouth marketing and feedback provision—as critical to the company's sustainability efforts. This recognition further emphasized the exceptional importance attributed to customers and consumers, as their actions and preferences play a pivotal role in shaping the company's strategic direction, particularly in sustainability transitions. Given that these groups are the primary source of the company's revenue, their influence is central to the company's approach to sustainability and its overall business strategy.

Significance of Regulators

Government and regulatory bodies were supported to play a pivotal role in driving sustainability initiatives within the case study baking industry, serving as key influencers for stakeholders through the establishment of guidelines and mandates. In particular, the fieldwork demonstrated that regulatory authorities are essential in fostering a level playing field, effectively balancing environmental stewardship with economic value creation. While bureaucracy is often criticized for imposing undue burdens on businesses—a claim frequently unsupported by robust evidence (Gemmell and Scott, 2013)—this study reinforces the argument that a well-defined regulatory framework, with clear and long-term objectives, is both critical and urgently needed for the effective implementation of sustainability transitions.

Such a framework offers businesses the necessary clarity, introduces manageable procedural challenges, and reassures investors and boards regarding safety and environmental impact. Additionally, it supports quality assurance, facilitates effective capital planning, and sets a well-defined trajectory for industry relationships. The net-zero expert underscored the significance of strong legislation, stating: "Legislation probably needs to be tightened up. The UK has a net-zero target, with a commitment to a 78% reduction by 2035. The UK is not going to meet that if it doesn't start to legislate businesses."

This study further supported Gemmell and Scott's (2013) assertion that industry stakeholders advocate for simplified regulations, proportionate risk and compliance measures, and consistent enforcement. However, the findings revealed that such a comprehensive regulatory framework has yet to be fully developed. Aligning strong regulatory oversight with the specific needs of the bakery industry is essential to provide the guidance and clarity required for stakeholders to effectively navigate and capitalize on sustainability transitions.

Limited attention to Secondary Stakeholders

The limited attention given to secondary stakeholders such as NGOs and media may be attributed to their traditional roles as challengers or community “watchdogs”, often engaging in activities designed to hold businesses accountable through public criticism and the exposure of unethical practices (Skouloudis et al., 2015). However, this conventional view within the broader stakeholder theory, which positions NGOs primarily as critics or regulators of businesses, has evolved over time. Although this research only identified one participant acknowledging NGOs, the reference proves that the perception has shifted, recognizing that NGOs could play a pivotal role in guiding sustainability practices rather than merely critiquing businesses. Furthermore, as Küskü (2007) suggests, the primary drivers of corporate environmentalism are regulatory and market forces rather than pressures from non-business stakeholders. This observation aligns with the findings of this study, where government and market forces were more prominently acknowledged by practitioners. These insights highlight the necessity for further exploration into the role of NGOs as key advisors and facilitators in sustainability transitions, rather than limiting their role to that of critics.

This selective prioritization of stakeholders underscores a significant deviation from Freeman’s broad-based stakeholder model, indicating that the relevance and impact of stakeholders can vary greatly depending on industry-specific contexts and strategic approaches. The findings suggest that while stakeholder theory provides a general framework, it may need to be adapted to accurately capture the complexities of sector-specific stakeholder dynamics and their prioritization.

6.2 Customer VS Consumer Distinction

One of the pivotal insights from the case study is the necessity of distinguishing between "customers" and "consumers," a differentiation that traditional stakeholder theory often overlooks. Conventionally, stakeholder theory tends to group customers and end consumers into a single category, failing to recognize the distinct roles and needs of each. As noted by Parasuraman (2000), these terms are frequently used interchangeably in both academic literature and popular media. However, this research supports Webster's (2000) argument that a clear distinction is essential. Specifically, a consumer is defined as the individual who utilizes or consumes the product, whereas a customer is the entity—whether an individual or

a business—that purchases the product. This purchase may be legal and monetary but does not necessarily involve physical acquisition. Notably, a significant subset of customers includes marketing intermediaries or channel members, such as wholesalers, retailers, and business clients, who procure products for resale or for integration into their own manufacturing processes.

The distinction between these groups is critical, as their needs and influences diverged significantly within the context of this research (See Table 3). Retailers and other customers prioritized factors like pricing, product quality, and supply chain reliability. They showed interest in sustainability, primarily to gain a competitive edge, yet they were often reluctant to absorb the additional costs associated with sustainable products. On the other hand, end consumers focused more on product attributes, health, ethical considerations, and sustainability practices. However, like customers, they were also resistant to higher prices, albeit due to a range of individual factors that this study does not explore in depth. The divergence between these groups might also arise because, although both are sensitive to price increases, consumers do not possess the legitimacy to get involved in decision making for products and pricing, and the power to influence price adjustments related to sustainability as retailers do. Their concerns are typically reflected indirectly, through reduced sales, which may prompt further strategic decisions such as product withdrawal or the adoption of alternative product strategies by the business. Recognizing this distinction allows for a more precise understanding of stakeholder influence and provides a valuable contribution to the theory, especially in the context of consumer-focused industries.

6.3 Stakeholder Agency

The study underscored a significant disparity between the recognized importance of sustainability and its practical implementation within the bakery industry (See Table 6). Despite widespread acknowledgement among practitioners of the urgency of adopting sustainable practices and the rich academic discourse regarding the need for change, the actual integration of sustainability initiatives in the corporate field remained underdeveloped. This gap between awareness and execution presents a critical challenge in advancing sustainability transitions in the sector. Drawing on sustainability transition literature, such as Avelino (2009), which highlights the crucial influence of stakeholders in driving sustainability within specific contexts, this study reveals an uneven translation of concern into concrete action.

The present case study identified the key obstacles impeding the evolution of sustainable practices within bakeries (See Table 8), as illuminated through stakeholder insights. These insights are vital for fostering bottom-up innovation and could catalyse promoting sustainability transitions in the bakery industry. Internal stakeholders appeared primarily focused on meeting customer and market demands, often only initiating sustainable changes

when driven by these external pressures. The net-zero expert highlighted this by giving an example of the net-zero journey in the industry: *"I think the food industry, are not as yet present, maybe not quite there yet, but they've been being driven by their customers…it's rolling down from your customer base and I think what's driving a lot the sustainability in the food industry is that the major retailers are now driving their suppliers to move down the net zero decarbonization route."* However, the financial uncertainties associated with such transitions create tension among stakeholders, who, while striving for sustainability, are also compelled to prioritize sales and navigate competitive market dynamics.

The findings suggest that collaboration among retailers, suppliers, and other network participants is essential for overcoming sustainability challenges and facilitating transitions. Nonetheless, to effectively bridge the gap between awareness and practice, there must be enhanced regulatory and organisational guidance and support to help stakeholders translate their expectations into practical sustainability measures.

6.4 Sustainability Transition Journey

The study's findings indicated that cost-related concerns are a significant barrier to advancing sustainability transitions within the bakery industry, hence could be said that sustainability was mainly cost-driven in this case study. The Net Zero expert agreed that economic factors heavily influence stakeholder decisions regarding the implementation of sustainable practices. The expert pointed out that while the initial costs of sustainability initiatives may seem high, over the lifetime of the project, operational savings could make the investment worthwhile. This raises a critical question for industry stakeholders; Do we sacrifice environmental, moral, and social value, which likely offers long-term economic viability, to settle for a short-term economic convenience?

In discussing the product lifecycle, the expert underscored the significant challenges involved in decarbonizing the baking industry, noting that many bakeries are still in the early stages of this transition. He provided the example of a client that committed to the Science-Based Target Initiative (SBTI), yet as a small to medium-sized enterprise, their efforts were predominantly concentrated on reducing Scope 1 and Scope 2 emissions, which are primarily associated with gas consumption. The expert highlighted the difficulties in reducing Scope 1 emissions, particularly because reliance on gas is unlikely to diminish substantially over the next decade. However, he pointed out that incremental improvements, such as the installation of boiler optimizers to reduce gas consumption, can still contribute meaningfully to emission reduction efforts. Additionally, the expert stressed the importance of supply chain engagement, urging bakeries to question whether their suppliers are measuring and actively working to reduce their carbon footprints. He highlighted that the reduction of Scope 3 emissions—those occurring outside the bakery's direct operations—presents an even greater challenge and is anticipated to take significantly more time to address effectively.

The complexity of the product lifecycle and the various aspects that food industry stakeholders must consider call for stronger legislative frameworks. As the expert remarked, “It's something that has got to be tightened up over time”, expressing disappointment at the previous government’s rollback on policies like the introduction of electric cars and the phasing out of gas boilers. He stressed the need for stronger legislative action, arguing that the cost of inaction would ultimately be much higher, particularly concerning the environmental cost.

Looking ahead to future legislation, the expert mentioned the possibility of carbon import taxes, referencing the Carbon Border Adjustment Mechanism that has already been approved in Europe, with similar initiatives likely in the UK. He concluded that the lifecycle approach to sustainability must consider various aspects, from the purchase of goods and services to operational efficiency.

7. Conclusion

This study has provided valuable insights into the intersection of sustainability and stakeholder dynamics within the bakery industry, challenging existing models and emphasizing the sector's unique stakeholder priorities. By drawing on Stakeholder Theory (Freeman et al., 2007), this research highlighted the distinct ways in which small-to-medium enterprises (SMEs) in the bakery sector prioritize customers, employees and regulatory bodies over other stakeholder groups such as NGOs and local communities.

A key contribution of this study was the differentiation between customers and consumers, a distinction often conflated in traditional stakeholder theory. As shown, customers (e.g., retailers) and consumers (end-users) exhibited differing behaviours, priorities, and influences during sustainability transitions. This distinction is critical for businesses navigating both market and regulatory pressures. The study underscored the need for a more nuanced application of stakeholder theory, particularly in consumer-driven industries like food and beverage, where sustainability initiatives are closely tied to customer demand and consumer behaviours.

Furthermore, the research highlighted that although businesses perceive the upfront costs of sustainability measures as high, they need to recognize the long-term benefits, such as operational savings and competitive advantage, which may justify these investments over time. The key challenge lies in balancing these long-term gains with immediate economic pressures, a tension that stakeholders within the industry continue to navigate.

Despite these contributions, the study has certain limitations. The micro-level focus on a single SME limits the generalizability of the findings, and the small sample size and specific industry context may constrain the extent to which insights can be applied to larger or more diverse businesses. Additionally, the cross-sectional nature of the research provides a snapshot in time, limiting the study's ability to track the evolution of sustainability practices. To extend these findings, future research should include a wider range of companies, both within and beyond the bakery industry, to determine whether similar stakeholder prioritizations exist. Longitudinal studies, revisiting the same organizations over time, would offer a more dynamic understanding of how sustainability transitions unfold. Statistical analysis could also examine the economic impacts of sustainability initiatives across different sectors, offering a broader view of the cost-benefit landscape.

Ultimately, this study demonstrates that stakeholder theory must be adapted to reflect the complex realities of industry-specific sustainability challenges. While frameworks like life cycle analysis are valuable, without effective guidance or regulation, substantial progress may be slow. This underscores the critical role of policy-making and regulatory oversight in driving businesses from sustainability awareness to practical implementation. As industries continue

to navigate the economic and environmental trade-offs of sustainability, this research lays a foundation for further exploration of stakeholder-driven strategies to achieve meaningful, long-term change.

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Appendices

APPENDIX 1: Interview Questionnaire for Internal Stakeholders

Interview Questionnaire for Stakeholders

Q1. a. Can you briefly describe your role within the bakery industry and whether you are involved in sustainability initiatives?
b. Do you think there are any benefits becoming more sustainable?
Q2. a. On a scale of 1-10; How important is sustainability within the baking industry?
b. Are there any sustainability concerns you hear in your job related to people, environment, or planet?
c. How does sustainability complement or trade off the financial success?
Q3. Could you think an example of a sustainability issue that has come up on your role or within the company?
Q4. Do you come under any pressure to adopt sustainability? Is the pressure coming from inside or outside of the company? Who or how much they care?
Q5. Do you agree that cost plays a role on your sustainability initiatives?
Q6. Have you encountered any challenges or barriers in implementing sustainability initiatives, and if so, how have you addressed them?
Q7. Are there any key regulatory standards influencing the sustainability in the baking industry?
Q8. Can the policies and legislations for food industry be the driving force behind sustainability?
Q9. Can you provide examples of how compliance with regulatory requirements has shaped your company's sustainability options or strategies?
Q10. Are there any areas of practice in the bakery industry where additional regulation would facilitate to be more sustainable?
Q11. What do you perceive as the primary challenges hindering the transformation of bakery industries into sustainable entities?
Q12. Are there any groups particularly opposing to sustainability and are they internal or external to the company?
Q13. If you have or would have a sustainability agenda, what would you prioritise to change on the way you operate?

APPENDIX 2. External stakeholder Discussion Questions

Interview Questionnaire for Net-Zero Expert

Q1. Cost savings from reducing carbon footprints: "I've received feedback that reducing carbon footprints often results in cost savings. For example, one of the internal participants mentioned that energy costs and carbon emissions are linked, so reducing energy consumption or switching to cheaper sustainable energy sources also brings financial benefits. Does this align with your experience?"
Q2: Role of cost in sustainability initiatives: "Another insight I gathered is that cost plays a significant role in driving or hindering sustainability initiatives. From your perspective, how do economic, moral, and legislative factors influence stakeholders' decisions to transition to more sustainable practices?"
Q3. Barriers to sustainability due to costs: "I've also heard that resistance to sustainability can be due to companies' inability to afford the costs or because customers are unwilling to pay for greener products. In your experience, what is the primary reason for this resistance—affordability, customer expectations, or something else?"
Q4. Role of government intervention and legislation in sustainability: "I've received feedback that government intervention and guidance are crucial in creating a level playing field for sustainability, especially

in the bakery industry. Do you think there is sufficient guidance and legislation around carbon footprint reduction in this sector? What has your experience been?"

APPENDIX 3. Manners of limiting losses in baking and confectionary processing plants from the perspective of significance of the risk of losses and product wastage **(Goryńska-Goldmann et al., 2020)**

RP (Retrieve Point)	Risks/Causes	Caracter of Losses	Methods of Prevention	Recommended Actions
RP 1. Making and handling semi-finished products and dough	Improper conditions of performing individual stages of the production process, Unqualified and untrained employees, Secondary impurities Human Factor	Ambient impurities—physical hazard. Impurities caused by pests. Contamination caused by employees due to not respect hygiene procedures. *Production losses or customer complaints.*	1. Production Vicinity Supervision 2. Employee Training and Hygiene [Good Hygiene Practices (GHP), Good Manufacturing Practices (GMP)] 3. Health Checks for employees 4. Appropriate Sanitation Procedures 5. Pest control	Correction of the production process, corrective actions aiming to reuse clean dough. Baking and application as fodder. Baking and retailing as reduced quality goods. Application as biomass.
	Lack of supervision over machinery and equipment.	Improper quality of semi-finished products ready for baking. *Production losses.*	1. Machinery and Equipment Supervision [scheduled inspections and overhauls, compliance with legal regulations and equipment supervision] 2. Employee Qualification and Training	Correction of the production process, corrective actions aiming to reuse clean dough. Baking and application as fodder. Application as biomass.
RP 2. Portioning and shaping (including shaping the dough, placing it in baking moulds, cutting, forming the dough, sprinkling)	Improper conditions of performing individual stages of the production process. Unqualified and untrained employees. Secondary impurities.	Ambient impurities—physical hazard. Impurities caused by pests. Impurities caused by employees failing to observe good hygiene practices. *Production losses and customer complaints.*	1. Production Supervision to eliminate and control risks 2. Employee Training and Hygiene [Good Hygiene Practices (GHP), Good Manufacturing Practices (GMP)] 3. Health Checks for employees 4. Appropriate Sanitation Procedures using proper agents and concentrations 5. Pest control 6. Raw material Control (daily checks, prevent cross-contamination with allergens, training for allergen control)	Correction of the production process, corrective actions aiming to reuse clean dough. Baking and application as fodder. Baking and retailing as reduced quality goods. Use for social needs.

	Improper handling of the production process.	Products failing to satisfy the specified quality criteria. Improper net weight of the weighed dough portions. *Production losses.*	1.Product weight control (check semi-finished product net weight before baking) 2. Work Instruction Compliance 3. Employee training and supervision	Corrective actions (e.g., adding more dough before baking). Sale at reduced price—lower quality, lower net weight. Use for social needs.
RP 3. Baking	Improper baking conditions. Unqualified and untrained employees.	Failure to observe the process parameters; oven defect. *Production losses.*	1. Baking control 2. Machinery supervision and maintenance documentation 3. Operator Training	Sale at reduced price—lower quality. Use for social needs.
RP 4. Customised packing (slicing, packing)	Improper conditions of slicing and packing. Secondary impurities. Lack of supervision over machinery and equipment. Employees' errors and neglect during bulk packing activities.	Improper supervision of maintenance of slicing equipment. Dull knives may deform or damage the sliced products and reduce the aesthetics of the goods. *Slicing losses.*	1. Packing Process supervision 2. Machinery supervision and maintenance documentation 3. Employee Training	Sale at reduced price—lower quality. Use for social needs. Internal sales.
		Damage and deformation of the goods (sometimes forcing the disposal of the final goods to waste). *Losses identified during storage of the final goods or in retail.*	1.Quality Packing for safe transport 2.Employee Training on handling and packing goods 3.Packing Supervision 4.Releasing safe, but reduced quality of goods for sale at reduced price	Sale at reduced price—lower quality. Use for social needs. Internal sales.
RP 5. Shipping (storage)	Overproduction because of overestimation of orders.	Too many final products with short shelf live stored in the magazine. Shelf-life expiration. *Production losses in the Final Product Magazine.*	1.Optimizing production volume. 2.Allowing for seasonality of production. 3.Observance of first in-first out rule.	Use for social needs.
RP 6. Transportation by own fleet	Damage in transport. Improper means of transportation, unfit for transporting foodstuffs, no sanitary approval. Improper sanitary and hygiene condition of the means of transportation.	Reduced quality of the transported goods. Permanent damage of the final goods making them unmarketable. *Losses in transport.*	1.Certified transportation 2. Pre-loading checks (temperature and sanitation) 3.Driver training 4.Sanitation records verification of the load compartments 5. Service provider qualification	Sale at reduced price—lower quality. Use for social needs. Internal sales.